



ANNUAL MEETING

**Biophysical Society**

LOS ANGELES, CALIFORNIA • FEBRUARY 27 – MARCH 2, 2016

Program

Biophysical Society



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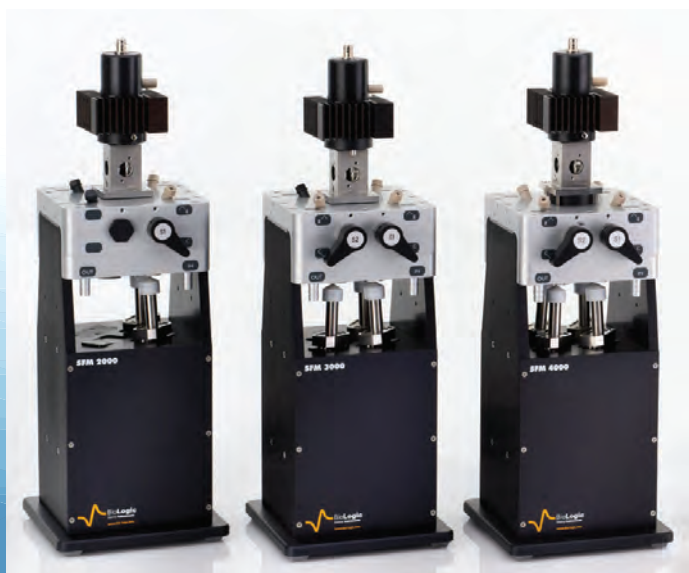
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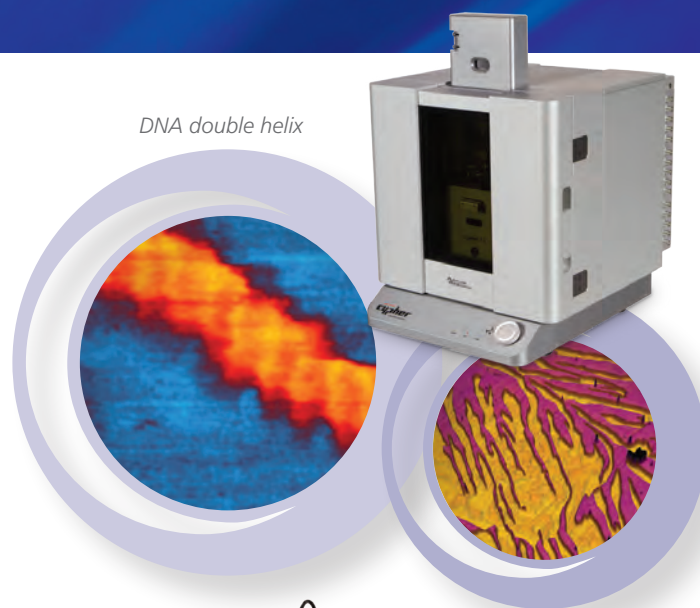
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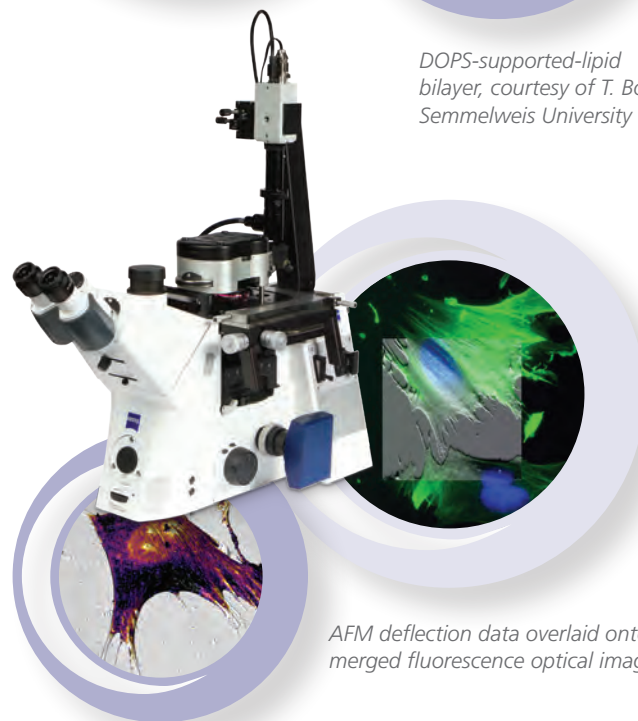
DNA double helix



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DOPS-supported-lipid bilayer, courtesy of T. Bozó, Semmelweis University



AFM deflection data overlaid onto merged fluorescence optical image

Modulus map of a fibroblast cell

**Join our Lunch and Learn**  
Room 505, Monday, 11:30-1:00  
"Soft, Sticky, and Viscous: Practical Considerations for Measuring Cell Mechanics with AFM"

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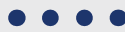
# Thematic Meetings 2016

## **Engineering Approaches to Biomolecular Motors:**

**From in vitro to in vivo**

Vancouver, Canada

June 14-17, 2016



## **Liposomes, Exosomes, and Virosomes: From Modeling Complex Membrane Processes to Medical Diagnostics and Drug Delivery**

Ascona, Switzerland


September 11-16, 2016



## **Mechanobiology of Disease**

Singapore

September 27-30, 2016



# Biophysics Week

March 7–11, 2016

Biophysics Week is a global effort aimed at encouraging connections within the biophysics community and raising awareness of the field and its impact among the general public, policy makers, students, and scientists in related fields.

## Mark your calendars!

Join your peers in celebrating this special week. There will be daily activities, news, publications, blogs, fun facts, and more! Below you will find the current list of special events, but keep an eye out for new upcoming events during this unique week dedicated to you and the field of biophysics.

- The Biophysics Bunch Google Hangout
- Article Series “The State of Biophysics”
- Briefing/Luncheon on Capitol Hill
- Cryo-EM Webinar
- Female and Minority Biophysicist Articles
- Educational and Career Materials
- Biophysics Bobbi/y Around the Globe

## Create a Bobbi/y

Biophysics Bobbi/y is a way to engage with other scientists as well as non-scientists to increase visibility for the field of Biophysics, highlight those who conduct research in the field, and point out the many locations across the globe where Biophysics research is conducted.



Create your Bobbi/y Online at [biophysics.org/BiophysicsWeek](http://biophysics.org/BiophysicsWeek).

## Be a part of #BiophysicsWeek.

Celebrate this week with others around the globe!

Visit [biophysics.org/BiophysicsWeek](http://biophysics.org/BiophysicsWeek)  
for more information.

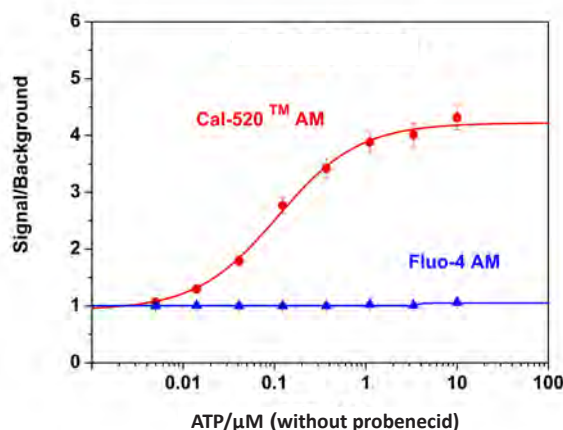
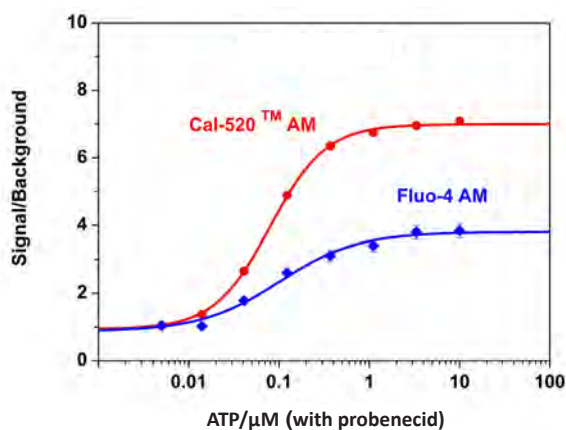
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<sup>‡</sup>Special 50% introductory discount applied (Discount Code: DC50, valid until 12/31/2016).



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Cat #	Product Name	Size	Ex (nm)	Em (nm)	K <sub>d</sub> (nM)
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20512	Cal-590™ AM	1 mg	573	588	561
20532	Cal-630™ AM	1 mg	608	626	792
20550	Fluo-4 AM	1 mg	494	516	345
21080	Fluo-8® AM	1 mg	494	517	389

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## National Lecturer

**David E. Shaw**

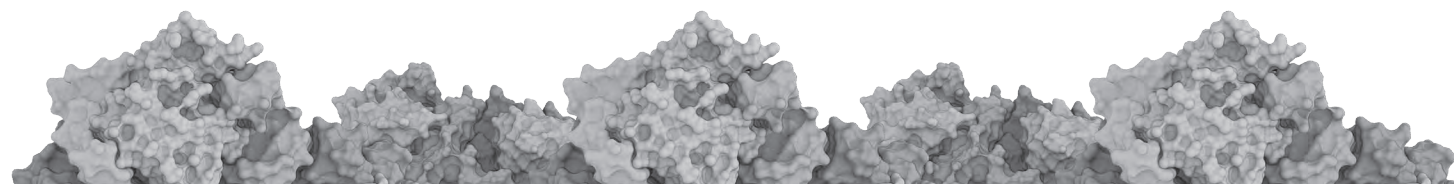
D.E. Shaw Research

Molecular Movies: Feature-Length Simulations of Protein Dynamics

Monday, February 29, 2016, 8:00 PM, Los Angeles Convention Center

## About the Molecule

The image used on the cover and throughout the meeting depicts active and inactive structures of the epidermal growth factor receptor (EGFR) within its membrane environment. EGFR plays a central role in regulating cell growth and survival, and in the development of many forms of cancer.



List of Advertisers in the 2016 Annual Meeting Program:

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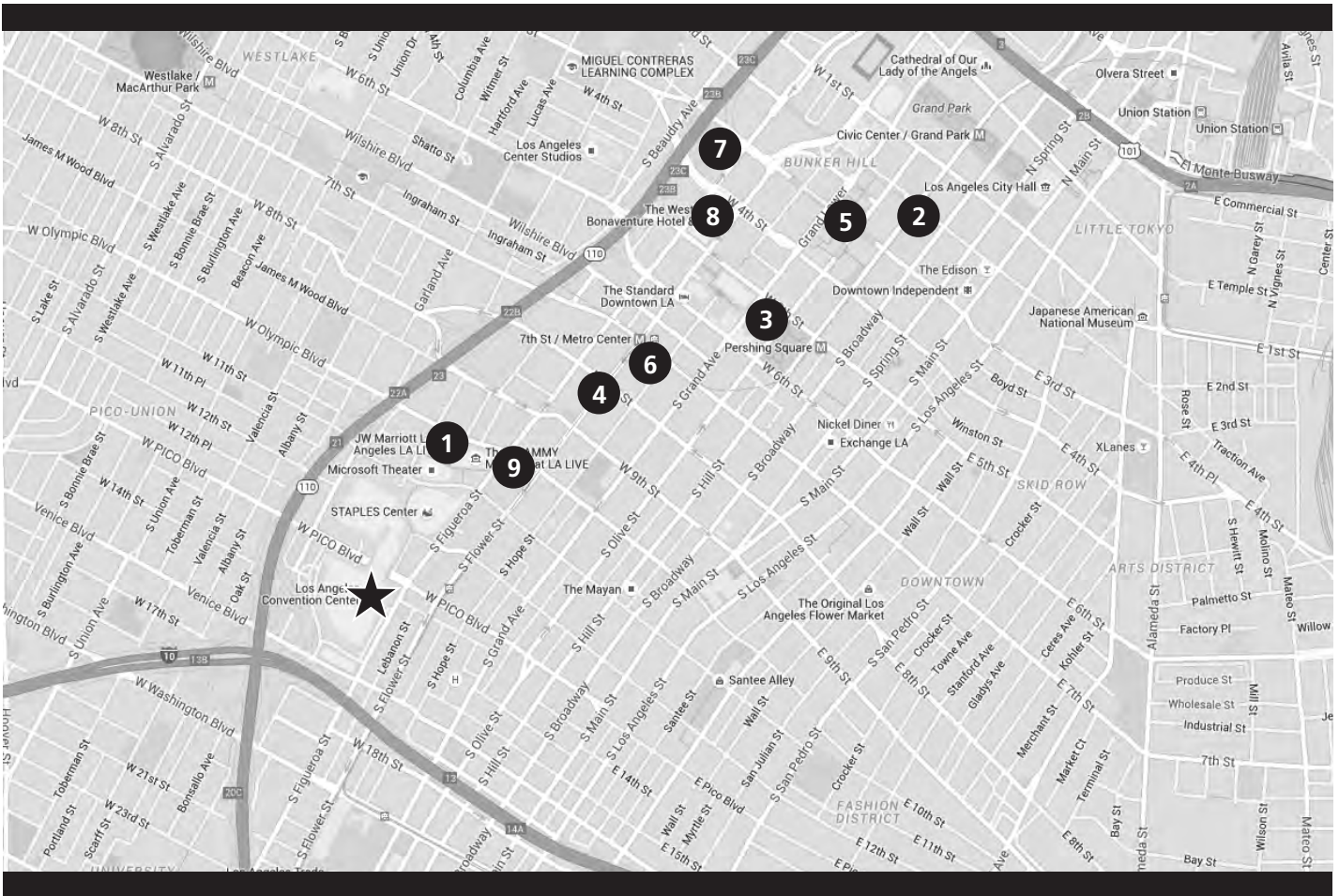
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The Journal of Physical Chemistry  
Wyatt Technology Corporation

*As of January 19, 2016*



# Hotel Map



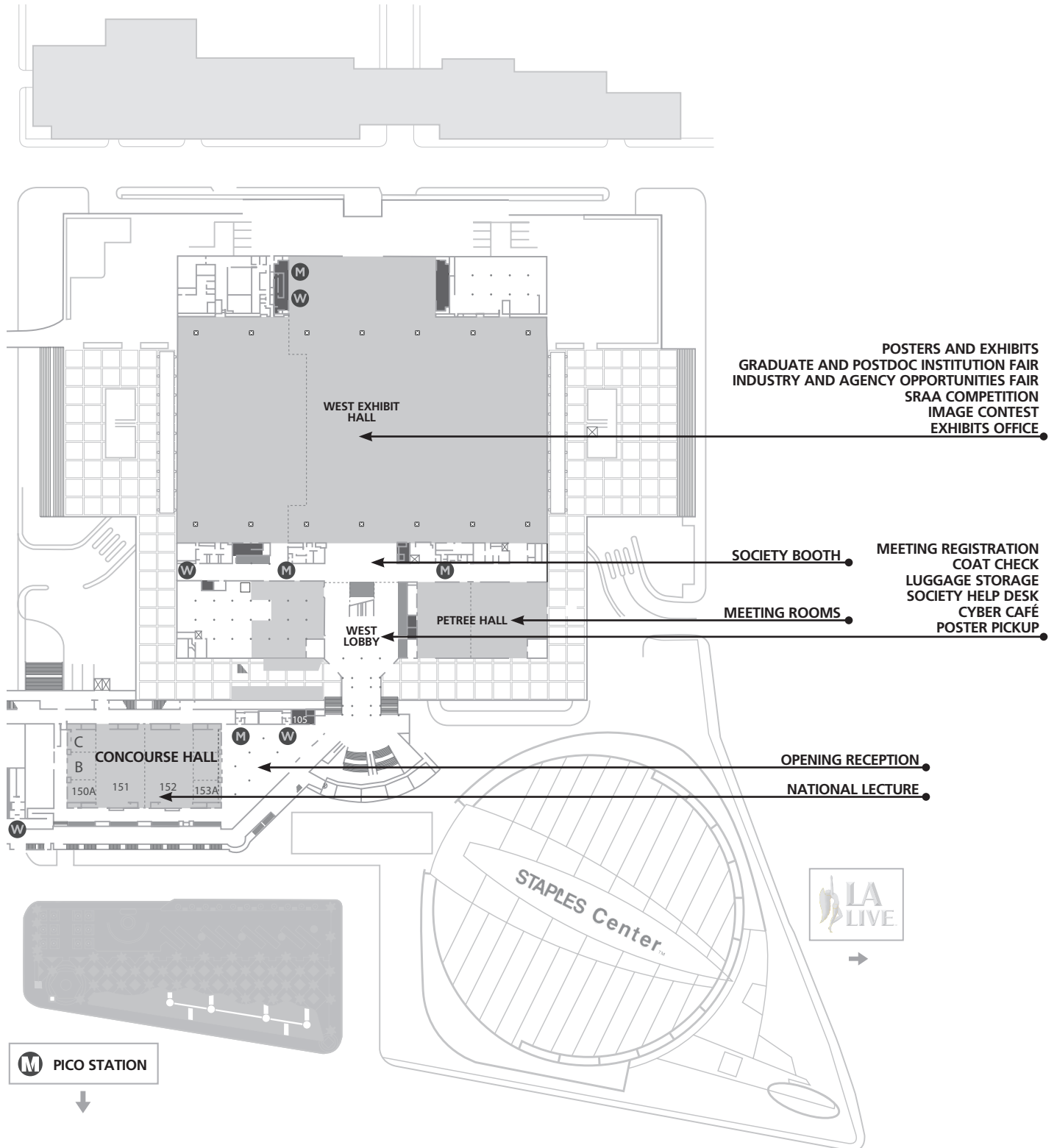
★ LOS ANGELES CONVENTION CENTER

## HEADQUARTERS HOTEL

- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 1 | JW MARRIOTT HOTEL LOS ANGELES AT LA LIVE   | 6 | SHERATON LOS ANGELES DOWNTOWN     |
| 2 | KAWADA HOTEL                               | 7 | THE LA HOTEL DOWNTOWN             |
| 3 | MILLENNIUM BILTMORE HOTEL                  | 8 | WESTIN BONAVENTURE HOTEL & SUITES |
| 4 | O HOTEL                                    | 9 | LUXE HOTEL                        |
| 5 | OMNI LOS ANGELES HOTEL AT CALIFORNIA PLAZA |   |                                   |

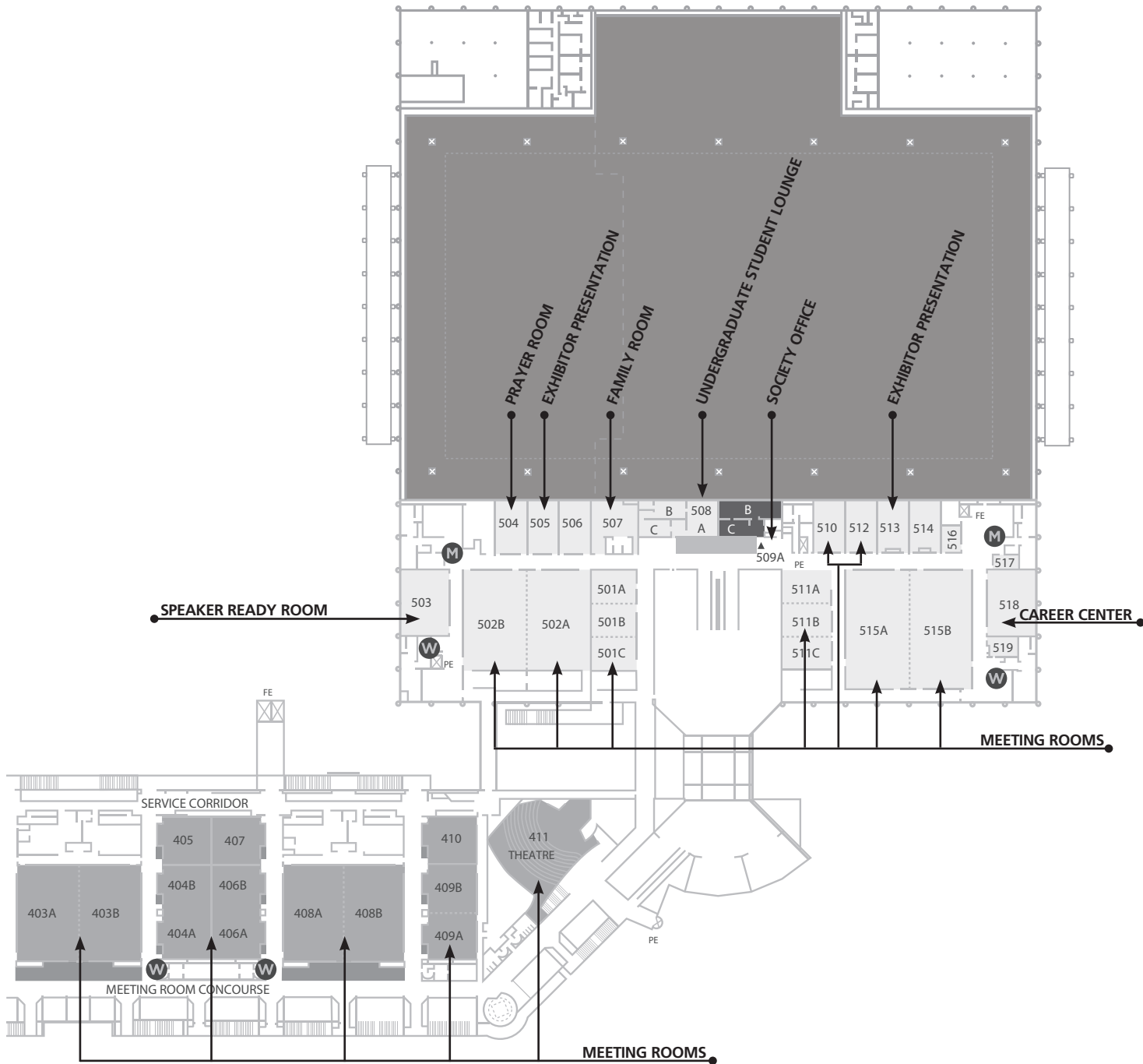
# Los Angeles Convention Center Facilities

## Level 1



# Los Angeles Convention Center Facilities

## Level 2



# Biophysical Society Code of Conduct, Anti-Harassment Policy

*Adopted by BPS Council November 2015*

The Biophysical Society (BPS) is committed to providing an environment that encourages the free expression and exchange of scientific ideas. As a global, professional Society, the BPS is committed to the philosophy of equal opportunity and respectful treatment for all regardless of national or ethnic origin, religion or religious belief, gender, gender identity or expression, race, color, age, marital status, sexual orientation, disabilities, veteran status, or any other reason not related to scientific merit. All BPS meetings and BPS-sponsored activities promote a working environment that is free of inappropriate behavior and harassment by or toward all attendees of Society meetings and Society-sponsored activities, including scientists, students, guests, exhibitors, staff, vendors, and other suppliers.

This global policy applies to all locations and situations where BPS business is conducted and to all BPS-sponsored activities and events. This policy does not replace the specific staff policies for situations in which only staff are involved.

Reported or suspected occurrences of harassment will be promptly and thoroughly investigated. Following an investigation, BPS will immediately take any necessary and appropriate action. BPS will not permit or condone any acts of retaliation against anyone who files harassment complaints or cooperates in the investigation of same.

## Definition of Harassment

The term “harassment” includes but is not limited to epithets, unwelcome slurs, jokes, or verbal, graphic or physical conduct relating to an individual’s race, color, religious creed, sex, national origin, ancestry, citizenship status, age, gender or sexual orientation that denigrate or show hostility or aversion toward an individual or group.

Sexual harassment refers to unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature. Behavior and language that are welcome/ acceptable to one person may be unwelcome/offensive to another. Consequently, individuals must use discretion to ensure that their words and actions communicate respect for others. This is especially important for those in positions of authority since individuals with lower rank or status may be reluctant to express their objections or discomfort regarding unwelcome behavior. It does not refer to occasional compliments of a socially acceptable nature. It refers to behavior that is not welcome, is personally offensive, debilitates morale, and therefore, interferes with work effectiveness. The following are examples of behavior that, when unwelcome, may constitute sexual harassment: sexual flirtations, advances, or propositions; verbal comments or physical actions of a sexual nature; sexually degrading words used to describe an individual; a display of sexually suggestive objects or pictures; sexually explicit jokes; unnecessary touching.

## Investigative Process

Anyone who feels harassed is encouraged to immediately inform the alleged harasser that the behavior is unwelcome. In many instances, the person is unaware that their conduct is offensive and when so advised can easily and willingly correct the conduct so that it does not reoccur. Anyone who feels harassed IS NOT required to address the person believed guilty of inappropriate treatment. If the informal discussion with the alleged harasser is unsuccessful in remedying the problem or if complainant does not feel comfortable with such an approach, he/she

should contact BPS’s Executive Director or the Society President, or any BPS Officer. All complaints will be promptly and thoroughly investigated. All reports of harassment or sexual harassment will be treated seriously. However, absolute confidentiality cannot be promised nor can it be assured. BPS will conduct an investigation of any complaint of harassment or sexual harassment, which may require limited disclosure of pertinent information to certain parties, including the alleged harasser. No retaliation will be taken against any employee, member, volunteer, exhibitor, or supplier because he or she reports a problem concerning possible acts of harassment. Employees, members, volunteers, exhibitors, or suppliers can raise concerns and make reports without fear of reprisal.

## Investigative Procedure

Once a complaint of harassment or sexual harassment is received, BPS will begin a prompt and thorough investigation.

An impartial investigative committee, consisting of the Past-President, current President, and President-Elect will be established.

The committee will interview the complainant and review the written complaint. If no written complaint exists, one will be requested.

The committee will speak to the alleged offender and present the complaint.

The alleged offender will be given the opportunity to address the complaint, with sufficient time to respond to the evidence and bring his/her own evidence.

If the facts are in dispute, the investigative team may need to interview anyone named as witnesses.

The investigative committee may seek BPS Counsel’s advice. Once the investigation is complete, the committee will report their findings and make recommendations to the Society Officers.

## Disciplinary Actions

Individuals engaging in behavior prohibited by this policy as well as those making allegations of harassment in bad faith will be subject to disciplinary action. Such actions range from a verbal warning to ejection from the meeting or activity in question without refund of registration fees and the reporting of their behavior to their employer. Repeat offenders may be subject to further disciplinary action, such as being banned from participating in future Society meetings or Society-sponsored activities. In the event that the individual is dissatisfied with the results of the investigation, he or she may appeal to the President of the Society. Any questions regarding this policy should be directed to the BPS Executive Officer or other Society Officer.

## BPS Management Responsibility

Every officer, director, supervisor, and manager is responsible for ensuring that BPS provides an environment free of harassment and inappropriate behavior and that complaints are handled promptly and effectively. The BPS Society Office and Officers must inform the Society membership and all vendors and suppliers about this policy, promptly investigate allegations of harassment, take appropriate disciplinary action, and take steps to assure retaliation is prohibited.

## 2016 Program Committee

**Vasanthi Jayaraman**, University of Texas, Co-Chair  
**E. Michael Ostap**, University of Pennsylvania, Co-Chair  
**Enrique De La Cruz**, Yale University  
**Karen Fleming**, Johns Hopkins University  
**David Piston**, Washington University  
**Catherine Royer**, Rensselaer Polytechnic Institute  
**Olga Boudker**, Weill Cornell Medical College  
**Samantha Harris**, University of Arizona  
**David Rueda**, Imperial College London, United Kingdom  
**Antoine van Oijen**, Gronigen University of Wollongong, Australia  
**Claudia Veigel**, Ludwig Maximilians University, Germany

### BPS Officers

**Edward Egelman**, President  
**Suzanne Scarlata**, President-Elect  
**Dorothy Beckett**, Past President  
**Paul Axelsen**, Treasurer  
**Frances Separovic**, Secretary

### BPS Council

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**Juliette Lecomte**  
**Amy Lee**  
**Antoine van Oijen**  
**Bonnie Wallace**

#### *Term Ending 2017*

**Olga Boudker**  
**Kalina Hristova**  
**Joseph D. Puglisi**  
**Michael Pusch**

#### *Term Ending 2018*

**Robert Nakamoto**  
**Erin Sheets**  
**Ruth Heidelberger**  
**Gabriela Popescu**

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**Nathan Baker**, Associate Editor  
**E. Michael Ostap**, Associate Editor  
**David Piston**, Associate Editor  
**Michael Pusch**, Associate Editor  
**Brian Salzberg**, Associate Editor  
**Tamar Schlick**, Associate Editor  
**Stanislav Shvartsman**, Associate Editor  
**Claudia Steinem**, Associate Editor

### Society Office Staff

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**Dorothy Chaconas**, Director of Meetings & Exhibits  
**Catie Curry**, Editorial Assistant  
**Samantha Davis**, Meetings Associate  
**Melissa DeSomma**, Governance & Subgroups Coordinator  
**Namita Gautam**, Sales & Exhibits Manager  
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**Daniel McNulty**, Programs & Outreach Coordinator  
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**Beth Staehle**, Director of Publications & Journal Manager  
**Ellen Weiss**, Director of Policy & Communications  
**Ray Wolfe**, Creative Designer & Systems Engineer  
**Elizabeth Vuong**, Business & Marketing Director

## General Information

All functions will be held in the *Los Angeles Convention Center*, unless otherwise noted.

### Badges

Badges are required for admission to all scientific sessions, including Saturday subgroup symposia, poster areas, exhibits, and social functions. A guest badge for non-scientific guests can be purchased for \$65 at the on-site Registration Counter located in the West Lobby. Guest registration includes admittance to the Opening Mixer on Saturday night and Reception on Monday night. It does not include admission to scientific sessions, posters, or exhibits.

### Banking and Currency Exchange

Foreign currency exchange and other bank transactions can be done during regular bank business hours at the First Republic Bank, 888 S. Figueroa Street #100, Los Angeles, CA 90017.

Monday–Thursday	9:00 AM–5:00 PM
Friday	9:00 AM–6:00 PM
Saturday & Sunday	Closed

*ATM is open 24 hours.*

ATMs are also available in the Los Angeles Convention Center in the Concourse Corridor as well as in West Hall.

### Business Center, Concourse Hall

The Los Angeles Convention Center provides a full service business center for the convenience of attendees and exhibitors. Services include photocopying, faxing, computer work stations, and printing services. Shipping is provided through UPS. The business center is located in the Concourse Hall, which joins the West Hall and South Hall. To contact the business center, call (626) 744-1333 or email [rkyle@iqcopy.com](mailto:rkyle@iqcopy.com).

Saturday – Wednesday	8:30 AM–5:00 PM
----------------------	-----------------

### Career Center, Room 518

Services are available for both those seeking a position and employers with positions to fill. Please note, the career center is the only place to post job openings. Unauthorized notices placed elsewhere in the Los Angeles Convention Center will be removed.

Saturday	12:00 NOON–7:00 PM
Sunday–Tuesday	8:00 AM–5:30 PM

### Certificates of Attendance

Certificates of Attendance may be obtained in person in the Society Meeting Office, in room 509A, or at the Society Help Desk located at registration in the West Lobby.

### Code of Conduct

The Biophysical Society Annual Meeting provides an environment that encourages free and respectful expression and exchange of scientific ideas.

Please review the code of conduct (page VI) that all meeting participants must follow.

### Coat Check/Luggage Storage, West Lobby

The cost is \$3.00 per checked item. Please do not bring luggage to meeting rooms. If you are planning to check items, please plan to arrive early to ensure that you are not late for sessions due to long lines.

Saturday	8:30 AM–7:30 PM
Sunday–Tuesday	7:30 AM–6:30 PM
Wednesday	7:30 AM–3:30 PM

### Daily Meet-up

Interested in making new acquaintances and experiencing the cuisine of Los Angeles? Meet at the Society Booth each evening, Sunday through Tuesday, at 5:30 PM where a BPS member will coordinate dinner at a local restaurant.

### Exhibits, West Hall

The Exhibit Hall features the most advanced equipment, products, services, and publications available. A list of exhibitors as of January 15, 2016 can be found beginning on page 165. Please see Addendum for those registered after January 15, 2016.

Sunday	10:00 AM–5:00 PM
Monday	10:00 AM–5:00 PM
Tuesday	10:00 AM–4:30 PM

### Exhibitor Coupons

Pick up the Exhibitor Coupons at the on-site registration counters and inside the Exhibit Hall next to the push pin stations. The coupons are valid for special offers and discounts on exhibiting company's products and services.

### Family Room, Room 507

The Family Room is equipped with diapers, electrical outlets for pumps, labels for breast milk, plastic bags for disposing of diapers, a small refrigerator, private areas for nursing, and a small area for rest and play.

Friday	2:00 PM–5:00 PM
Saturday	8:00 AM–7:00 PM
Sunday–Tuesday	7:30 AM–10:00 PM
Wednesday	8:00 AM–3:30 PM

### First Aid, Outside Petree Hall

In case of medical emergency, dial x5133 from any house phone or 213-765-4605 from a cell phone. The First Aid Room is located outside of Petree Hall. For other minor medical needs, this room will be staffed with First Aid Administrators trained in First Aid Response during the hours below.

Saturday, February 27	8:00 AM–6:30 PM
Sunday, February 28	7:30 AM–6:30 PM
Monday, February 29	7:30 AM–9:00 PM
Tuesday, March 1	7:30 AM–6:30 PM
Wednesday, March 2	7:30 AM–9:00 PM

## Hotel Telephone Numbers

JW Marriott.....	213-765-8600
Kawada Hotel .....	213-621-4455
Luxe Hotel.....	213-743-7658
Millennium Biltmore .....	213-624-1011
O Hotel.....	213-623-9904
Omni Los Angeles.....	213-617-3300
Sheraton Los Angeles.....	213-488-3500
The L.A. Hotel Downtown.....	213-617-1133
Westin Bonaventure Hotel & Suites.....	213-624-1000

## Individuals Requiring Assistance

Attendees requiring special assistance during the meeting should visit the Society Meeting Office in room 509A of the Los Angeles Convention Center, or call 213-741-1151. Society staff will do their best to accommodate requests; however, we cannot ensure that special needs will be met without prior notice.

## Internet Access

Wireless internet access is available free-of-charge throughout the Cafe areas of the Los Angeles Convention Center.

In addition, the Biophysical Society Cyber Cafe is located in the West Lobby outside of the Exhibit Hall. Attendees can access the internet for free on one of the available computers. Usage time is limited to 10 minutes per session when others are waiting.

Saturday	8:00 AM–7:30 PM
Sunday–Tuesday	7:30 AM–10:00 PM
Wednesday	8:00 AM–12:30 PM

## Mobile App and Desktop Planner

The Biophysical Society's mobile application is available for download in the "App Store," "Google Play," and as an HTML 5 application for all other devices. You can view/create schedules, view abstracts, and interact virtually with other attendees when using the app and sync it with the desktop planner.

## Parking

The Los Angeles Convention Center includes a parking facility for up to 5,600 vehicles. There are garages at the West and South Halls, as well as parking on Bond Street. The Convention Center also offers parking lot C that is off of L.A. Live Way.

## Photography

Registration for the meeting implies consent to having photographs taken and to their use by officials of the Biophysical Society, or their representatives, for editorial and promotional purposes, on the Society website, social media outlets, and publications. Recordings of any kind (audio taping, videotaping, camera or cell phones) in the session rooms, Exhibit Hall, and poster areas are strictly prohibited, unless accompanied by a member of the Society staff. Any individual seen taking photographs of any session or presentation will be escorted out by security.

## Poster Pickup

Posters ordered in advance through Tray Printing will be available for pick up at the Los Angeles Convention Center in the West Lobby near the Exhibit Hall during the following hours:

Saturday	3:00 PM–7:00 PM
Sunday–Tuesday	8:00 AM–4:00 PM
Wednesday	7:00 AM–9:00 AM

## Poster Sessions, West Exhibit Hall

Sunday–Wednesday

The Exhibit Hall will open at 8:00 AM each morning. It will remain open for poster viewing until 10:00 PM each night, except for Tuesday, when it will close at 4:30 PM for safety purposes during exhibit tear down. Posters are arranged according to topic. Your poster board number begins with "B." On the day of presentation, authors assigned odd-numbered poster boards should present from 1:45–2:45 PM (10:30–11:30 AM on Wednesday); even-numbered posters should present from 2:45–3:45 PM, (11:30 AM–12:30 PM on Wednesday). Other hours, day or evening, may be posted by the authors as desired. Additionally, authors may leave notepaper so that visitors may request an appointment. Abstracts submitted after October 1, 2015, are scheduled each day, Sunday-Wednesday, during the regular poster sessions. These board assignments will begin with "LB."

Posters are to be removed by 5:00 PM on Sunday and Monday, and 4:30 PM on Tuesday in order to accommodate Exhibits tear down, and 3:00 PM on Wednesday. Please do not leave materials or belongings under poster boards or in the poster area. The Society is not responsible for any articles left in the poster area.

## Prayer Room, Room 504

A room will be available for worship or other personal prayer.

Saturday–Tuesday	8:00 AM–10:00 PM
Wednesday	8:00 AM–3:30 PM

## Raffles

Exhibitor Raffle: Want to win a Samsung Galaxy Tablet? Earn raffle entries by visiting with exhibitors Sunday, February 27, through Tuesday, March 1, to collect tickets. The more booths you visit, the more chances to win. Drop the raffle tickets at the Society Booth, in the West Lobby, by 3:00 PM Tuesday, March 1. The winner will be announced in the Exhibit Hall at 3:00 PM Tuesday afternoon—you must be present at the drawing to win. Good luck!

Wednesday Poster Session Raffle: Attend the Wednesday poster sessions in the Exhibit Hall for a chance to win a Fitbit! Drop your ticket in the ballot box in the Exhibit Hall. Winner will be announced at 12:30 PM on Wednesday in the Exhibit Hall. You must be present in the Exhibit Hall to win.

## Registration Hours, West Lobby

Friday	3:00 PM–5:00 PM
Saturday	8:00 AM–6:30 PM
Sunday–Tuesday	7:30 AM–5:00 PM
Wednesday	8:00 AM–3:00 PM

## Social Media

The Society staff will be updating the BPS Facebook page, Twitter feed, Instagram account, and blog with Annual Meeting information throughout the meeting. Follow us on:

Twitter: @BiophysicalSoc, use hashtag #bps16  
Facebook: [www.facebook.com/biophysicalsociety](http://www.facebook.com/biophysicalsociety)  
Blog: [biophysicalsociety.wordpress.com](http://biophysicalsociety.wordpress.com)  
Instagram: [biophysicalsociety](http://biophysicalsociety)

## Society Meeting Office, Room 509A

Friday	3:00 PM–5:00 PM
Saturday	8:00 AM–6:30 PM
Sunday–Tuesday	7:30 AM–5:00 PM
Wednesday	8:00 AM–3:00 PM

## Speaker Ready Room, Room 503

We highly encourage all presenters in Symposia, Workshops, and Platform sessions to visit the Speaker Ready Room one day prior to their scheduled presentation time. This room will be set up for your use, and will contain several screens and data projectors to allow you the opportunity to review your material prior to your scheduled presentation time slot. All speakers must bring their own laptops. An audio/visual technician will be available during room hours to assist you in setting up your laptop with the data projector and to answer any questions. As a courtesy to other presenters, please limit your viewing time to five minutes during peak times. Audio-visual technicians will be available during the hours listed below to answer questions.

Saturday–Tuesday	8:00 AM–6:30 PM
Wednesday	8:00 AM–1:00 PM

Data projectors will be provided in all session rooms in the Los Angeles Convention Center. The data projectors will be compatible with both Windows and Mac laptops. Speakers must bring their own computers. The Society does not provide laptops for those with flash drives or other storage devices.

## Transportation

### Taxis

Taxis will be available from the West Lobby at the Los Angeles Convention Center.

United Taxi.....	323-934-6700
LA Yellow Cab .....	310-424-2222
Beverly Hills Cab Co.....	310-205-0252
LA Taxi.....	310-598-0665

## Undergraduate Student Lounge, Room 508ABC

Sponsored by the Education Committee, this special space is reserved for undergraduate meeting attendees looking for a place to relax or catch up on coursework they may be missing while at the Annual Meeting.

Sunday–Tuesday	8:00 AM–6:00 PM
Wednesday	8:00 AM–12:00 NOON

# Biophysical Society

## 2016 Thematic Meetings

### Engineering Approaches to Biomolecular Motors:

#### From in vitro to in vivo

Vancouver, Canada

June 14–17

### Liposomes, Exosomes, and Virosomes:

#### From Modeling Complex Membrane Processes to Medical Diagnostics and Drug Delivery

Ascona, Switzerland

September 11–16

### Mechanobiology of Disease

Singapore

September 27–30

## Mark Your Calendars!

## Future BPS Annual Meetings

### 61<sup>st</sup> Annual Meeting

February 11–15, 2017  
New Orleans, Louisiana

### 62<sup>nd</sup> Annual Meeting

February 17–21, 2018  
San Francisco, California

### 63<sup>rd</sup> Annual Meeting

March 2–6, 2019  
Baltimore, Maryland



## Committee Meetings

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

### Friday, February 26

3:00 PM–4:30 PM

***New Council Orientation***

J.W. Marriott, Plaza III

5:00 PM–9:00 PM

***Joint Council Reception, Dinner, and Meeting***

J.W. Marriott, Plaza I & II

### Saturday, February 27

8:30 AM–11:00 AM

***Joint Council Meeting (continued)***

J.W. Marriott, Plaza I & II

### Sunday, February 28

8:30 AM–10:30 AM

***CID Committee Meeting***

Room 506

10:30 AM–12:00 PM

***International Relations Committee Meeting***

Room 410

12:15 PM–2:15 PM

***Public Affairs Committee Meeting***

Room 506

3:30 PM–5:00 PM

***Early Careers Committee Meeting***

Room 506

6:00 PM–10:00 PM

***Biophysical Journal Editorial Board Dinner***

LA City Club

### Monday, February 29

8:30 AM–10:30 AM

***CPOW Committee Meeting***

Room 506

3:00 PM–5:00 PM

***Membership Committee Meeting***

Room 506

### Tuesday, March 1

8:00 AM–9:00 AM

***Biophysical Society Business Meeting***

Room 404AB

9:00 AM–10:30 AM

***Subgroup Chairs Meeting***

Room 510

3:00 PM–5:00 PM

***Education Committee Meeting***

Room 506

6:00 PM–10:00 PM

***Publications Committee Meeting***

J.W. Marriott, Olympic II

### Wednesday, March 2

8:00 AM–11:00 AM

***New Council Meeting***

Room 510

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*The Biophysical Society would like to thank Society members who serve on Council or Committee for their dedication and efforts.*

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## Professional Development & Educational Sessions

The Society's committees have planned several professional development activities to take place during the Annual Meeting. Below is a schedule of all of those activities. Detailed descriptions of the sessions can be found in the daily program. In addition, a student lounge for undergraduates will be available Sunday, February 28, to Wednesday, March 2, in Room 508ABC.

*Sessions in italics will be held in Career Center, Room 518.*

### Saturday, February 27, 2016

3:00 PM–4:00 PM     *Networking: Optimizing Your Time at BPS 2016*  
 4:00 PM–5:00 PM     Undergraduate Mixer and Poster Fest

#### One-on-One Resume and Career Counseling\*

1:00 PM–2:40 PM • 4:30 PM–5:30 PM

### Sunday, February 28, 2016

7:30 AM–8:30 AM     Postdoctoral Breakfast  
 8:00 AM–8:30 AM     *Career Q&A with Joe Tringali*  
 9:00 AM–10:00 AM     *Selling Yourself to the Life Sciences Industry*  
 10:30 AM–11:30 AM     *Leveraging Social Media for Networking and Career Advancement*  
 11:30 AM–1:00 PM     Undergraduate Student Pizza “Breakfast”  
 11:30 AM–5:00 PM     Colleges in the Community Day  
 12:00 NOON–1:00 PM     *Creating and Using an Effective CV/Résumé*  
 1:00 PM–2:30 PM     The World Outside the Lab: Many Ways to Use Your PhD Skills in Industry  
 1:00 PM–3:00 PM     Graduate & Postdoc Institution Fair  
 2:00 PM–3:30 PM     Teaching Science Like We Do Science  
 2:30 PM–3:30 PM     *Networking for Nerds*  
 2:30 PM–4:00 PM     Transparency, Reproducibility, and the Progress of Science  
 4:00 PM–5:00 PM     *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)*  
 5:00 PM–7:00 PM     PI to PI, a Wine & Cheese Mixer

#### One-on-One Resume and Career Counseling\*

8:30 AM–1:00 PM • 2:30 PM–6:00 PM

### Monday, February 29, 2016

7:30 AM–8:30 AM     Graduate Student Breakfast  
 8:00 AM–8:30 AM     *Career Q&A with Joe Tringali*  
 10:00 AM–11:00 AM     *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)*

11:30 AM–12:30 PM     *Leveraging Social Media for Networking and Career Advancement*  
 1:00 PM–3:00 PM     NSF Grant Writing Workshop  
 1:30 PM–3:00 PM     Biophysics 101: Forster Resonance Energy Transfer  
 1:30 PM–3:00 PM     Industry Panel  
 2:15 PM–3:45 PM     How to Get Your Scientific Paper Published  
 2:30 PM–3:30 PM     Speed Networking  
 2:30 PM–3:30 PM     *Selling Yourself to the Life Sciences Industry*  
 2:30 PM–4:00 PM     Hiring, Firing, and Beyond: How to be an Effective Supervisor  
 2:30 PM–4:00 PM     The Science of Hollywood  
 4:00 PM–5:00 PM     *Successfully Navigating the International Job Search*

#### One-on-One Resume and Career Counseling\*

8:30 AM–10:00 AM • 11:30 AM–12:30 PM • 2:00 PM–5:20 PM

### Tuesday, March 1, 2016

8:00 AM – 8:30 AM     *Career Q&A with Joe Tringali*  
 9:30 AM – 10:30 AM     *Career Planning and Job Searching for Science Professionals: Academic Opportunities*  
 12:00 NOON–1:30 PM     Research Programs at PUIs: Finding, Establishing, and Maintaining a Program  
 12:00 NOON–2:00 PM     Postdoc to Faculty Q&A: Transitions Forum and Luncheon\*\*  
 1:00 PM–3:00 PM     Industry and Agency Opportunities Fair  
 1:00 PM–3:00 PM     GMOs, Severe Weather, and Public Opinion  
 2:30 PM–3:30 PM     *Creating and Using an Effective CV/Résumé*  
 2:30 PM–4:00 PM     Postdoc to Faculty: Setting Up a Lab  
 3:00 PM–4:00 PM     The Committee for Inclusion and Diversity Networking Event: Resources and Opportunities

#### One-on-One Resume and Career Counseling\*

8:00 AM–9:00 AM • 11:00 AM–1:00 PM • 4:00 PM–5:00 PM

\* Slots for the one-on-one resume and career counseling sessions are available on a first-come, first-served basis and fill up quickly. You may sign up for a slot beginning at 12:00 NOON on Saturday, February 27, in the Career Center, Room 518. Please come prepared with resumes, CVs, and other appropriate materials.

\*\* This event requires pre-registration. If space is available, individuals who have not pre-registered may attend. Please stop by the event at the beginning of the session to see if space is available.

## Career Center Information

Room 518

**Alaina G. Levine** is an award-winning entrepreneur, science journalist, STEM careers consultant, professional speaker and corporate comedian. Her book, *Networking for Nerds*, was published by Wiley in 2015. As President of Quantum Success Solutions, she has been advising scientists and engineers about their careers for over 15 years. She has given over 600 workshops for clients in the US, Europe, Canada, & Mexico, and is the author of over 250 articles in publications like Science, Nature, World Economic Forum, Smithsonian, Scientific American & IEEE Spectrum. As a science careers journalist, Levine researches employment trends in STEM fields and delivers up-to-date information about career issues from interviews with hiring managers, decision-makers, and recruiters in myriad industries. Levine has also served as a Contributor to National Geographic and currently pens career columns for *Physics Today* and *APS News*.

**Joe Tringali** is a seasoned contract recruiter who has developed overall recruitment strategies for his clients and subsequently worked with internal hiring organizations to meet their staffing requirements for more than two decades. He has provided onsite service to numerous biotechnology clients, including Biogen Idec, Millennium Pharmaceuticals, Ariad Pharmaceuticals, Creative Biomolecules/Stryker, TKY/Shire and Genetics Institute/Wyeth/Pfizer. He also operates a highly ethical and successful contingency recruiting firm that serves the Boston biotechnology community. He works with several clients to help them fill difficult staffing needs in the area of Research/Development, Clinical Development and Regulatory Affairs. In addition, Tringali is an invited speaker at several annual scientific conferences and research institutes where he conducts career workshops for the attending scientific community.

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## Job Postings

### Employers

Stop by the Career Center to post your job opening today! All attendees will have access to your job posting while at the meeting and your job will be posted on our online Job Board as well. Search resumes for a perfect fit and schedule an interview while you're onsite at the meeting.

### Job Applicants

Looking for a job in biophysics? Stop by the Career Center and upload your resume for employers to view on the Job Board both onsite and online. You may also apply for posted jobs.



Discover your future...

**Biophysical Society**  
Job Board

[www.biophysics.org/jobs](http://www.biophysics.org/jobs)

## Travel Grant Awardees

### EDUCATION

#### Sunday

**Shawn M. Costello**, Johns Hopkins University  
305-Pos, B85  
A COMPUTATIONAL MODEL FOR MEMBRANE PROTEIN FLUX ACROSS THE BACTERIAL PERIPLASM.

**Benjamin Drum**, University of Washington  
653-Pos, B433  
OXIDATIVE STRESS IN MYOCARDIAL INFARCTION DISRUPTS MICROTUBULE TRAFFICKING, REDUCING TRANSIENT OUTWARD CURRENT DENSITY.

**Xiao Fu**, National Institute of Biomedical Imaging and Bioengineering, NIH  
854-Pos, B634  
BIO-AFM OF CANCER CELLS AND MULTIFUNCTIONAL THERANOSTICS.

**Margaret Hauser**, University of California, Berkeley  
778-Pos, B558  
GRAPHENE-ENABLED ELECTRON MICROSCOPY AND CORRELATED SUPER-RESOLUTION MICROSCOPY OF WET CELLS.

**Marilyn E. Holt**, Vanderbilt University  
117-Plat  
CRACKING OPEN A MOLECULAR CALCULATOR: DNA CHARGE TRANSPORT AND PRIMASE.

**Zachary I. Imam**, University of Texas, Austin  
368-Pos, B148  
STERIC PRESSURE AMONG MEMBRANE-BOUND POLYMERS OPPOSES LIPID PHASE SEPARATION.

**Zeinab Jahed**, University of California, Berkeley  
133-Plat  
MOLECULAR MECHANISMS OF MECHANOTRANSDUCTION THROUGH LINC COMPLEXES.

**Agnieszka A. Kendrick**, University of Colorado, Denver  
737-Pos, B517  
CD147 REGULATES CELL METABOLISM IN PANCREATIC CANCER VIA TARGETING OF MULTIPLE SMALL MOLECULE TRANSPORTERS TO THE CELL MEMBRANE.

**Iga Kucharska**, University of Virginia School of Medicine  
315-Pos, B95  
NMR SOLUTION STRUCTURE AND EXTRACELLULAR LOOP DYNAMICS OF THE OUTER MEMBRANE PROTEIN OPRG OF PSEUDOMONAS AERUGINOSA EXPLAIN TRANSPORT OF SMALL AMINO ACIDS.

**Xubo Lin**, University of Texas Medical School, Houston  
370-Pos, B150  
ORDER DIFFERENCES BETWEEN COEXISTING LIQUID PHASES DRIVEN BY LIPID UNSATURATION DETERMINE PHASE SEPARATION IN BIOMIMETIC MEMBRANES.

**Drew Marquardt**, University of Graz, Austria  
96-Plat  
A DEMONSTRATION OF LIPID FLIP-FLIP IN FREE-FLOATING LIPOSOMES.

**Aiden M. McKenzie**, James Madison University  
102-Plat  
ULTRAFAST LIMITS OF PHOTO-INDUCED ELECTRON TRANSFER RATES IN PPCA, A MULTI-HEME C-TYPE CYTOCHROME.

**Eshan Mitra**, Cornell University  
449-Pos, B229  
INVESTIGATING MOLECULAR MECHANISMS OF IGE-MEDIATED SIGNALING AT SUPER RESOLUTION.

**Kelly O'Conner**, The College of New Jersey  
739-Pos, B519  
MAPPING NEURONAL CONNECTIVITY USING LASER PHOTOSTIMULATION AND CALCIUM IMAGING.

**Mohan R. Pradhan**, Bioinformatics Institute, A\*STAR, Singapore  
288-Pos, B68  
DYNAMICS OF AGGREGATING MUTANTS OF THE P53 DNA BINDING DOMAIN REVEAL A NOVEL "DRUGGABLE" POCKET.

**Scott Rayermann**, University of Washington  
386-Pos, B166  
INVESTIGATING LARGE SCALE LIQUID-LIQUID PHASE SEPARATION IN A BIOLOGICAL MEMBRANE.

**Hannah H. Tuson**, University of Michigan  
832-Pos, B612  
SINGLE-MOLECULE FLUORESCENCE IMAGING REVEALS THE DYNAMICS OF STARCH CATABOLISM PROTEINS IN THE HUMAN MICROBIOME BACTERIUM BACTEROIDES THETAIOOTAOMICRON.

**Michael P. Vigers**, Montana State University  
859-Pos, B639  
CHARACTERIZING BIOFILM EXTRACELLULAR MATRICES WITH MECHANICAL MEASUREMENT TECHNIQUES.

#### Monday

**David W. Baggett**, University of Washington  
1589-Pos, B566  
RATIONAL METHODS TO PHARMACOLOGICALLY TARGET IDPS: DEVELOPING MODULATORS OF TAU AGGREGATION.

**Mohammad Bonakdar**, Virginia Tech  
1640-Pos, B617  
MONITORING LESION DEVELOPMENT DURING IRREVERSIBLE ELECTROPORATION TREATMENT USING ELECTRICAL IMPEDANCE SPECTROSCOPY.

**Divya Duggal**, University of North Texas Health Science Center  
1457-Pos, B434  
CONTRACTILE DIFFERENCES IN LEFT AND RIGHT VENTRICLES OF HEALTHY HUMAN HEARTS.

**Andrew M. Fuchs**, University of Wisconsin, Madison  
1168-Pos, B145  
NASCENT PROTEINS INTERACT WITH KEY REGIONS OF THE OUTER SURFACE OF THE RIBOSOME.

**Leland B. Gee**, University of California, Davis  
1592-Pos, B569  
A GATED SUBSTRATE CHANNEL REVEALED IN NITROGENASE THROUGH A COMBINED IR AND MOLECULAR DYNAMICS STUDY.

**Bence Hegyi**, University of California, Davis  
1347-Pos, B324  
CAMKII INHIBITOR KN-93 DIRECTLY BLOCKS IKR IN CARDIAC MYOCYTES.

**Stephanie Irwin**, University of Alberta  
1143-Pos, B120  
INFLUENCE OF FAMILIAL PARKINSON'S DISEASE MUTATIONS ON MITOCHONDRIAL LOCALIZATION AND SECONDARY STRUCTURE OF PINK1.

**Pei-I Ku**, University of Utah  
1072-Pos, B49  
REGULATION OF ALIX DURING EXOCYTIC VESICLE RELEASE AND ASSEMBLY OF ESCRT PROTEINS ON THE PLASMA MEMBRANE.

**Jayson V. Lingan**, University of Rochester Medical Center  
1518-Pos, B495  
PERMEABILITY TRANSITION PORE CLOSURE INCREASES MITOCHONDRIAL MATURATION AND MYOCYTE DIFFERENTIATION IN THE NEONATAL HEART.

**William Marsiglia**, New York University  
1097-Pos, B74  
NMR EXPERIMENTS ON WILD-TYPE AND MUTANT FIBROBLAST GROWTH FACTOR RECEPTOR KINASES REVEAL CONFORMATIONAL DYNAMICS ASSOCIATED WITH ENZYME ACTIVATION.

**Favinn A. Maynard**, University of Colorado, Denver  
1258-Pos, B235  
MECHANISM OF STRONG MEMBRANE BINDING BY SYNAPTOTAGMIN 7 C2A DOMAIN: INSIGHT FROM MUTATION AND LIPID COMPOSITION DEPENDENCE.

**Joshua Mayourian**, Icahn School of Medicine at Mount Sinai  
1340-Pos, B317  
MODELING ELECTROPHYSIOLOGICAL INTERACTIONS BETWEEN MESENCHYMAL STEM CELLS AND CARDIOMYOCYTES FOR IMPROVED CELL DELIVERY CARDIOTHERAPEUTICS.

**Keith J. Mickolajczyk**, Pennsylvania State University  
961-Plat  
KINETICS OF NUCLEOTIDE-DEPENDENT STRUCTURAL TRANSITIONS IN THE KINESIN-1 HYDROLYSIS CYCLE.

**Rami Musharrafieh**, University of Arizona  
1279-Pos, B256  
COMPUTATIONAL AND EXPERIMENTAL STUDIES OF LIPID-PROTEIN INTERACTIONS IN BIOMEMBRANE FUNCTION.

**Premila Samuel**, Rice University  
1043-Pos, B20  
AN IN VITRO INVESTIGATION OF GLOBIN FOLDING AND EXPRESSION.

**Caitlin E. Scott**, University of Kentucky  
1039-Pos, B16  
MOLECULAR DYNAMICS STUDY OF DIVALENT ION COORDINATION IN EF HAND PROTEINS.

**M. de la Encarnacion Solesio Torregrosa**, New York University College of Dentistry  
1524-Pos, B501  
CONTRIBUTION OF INORGANIC POLYPHOSPHATE TOWARDS REGULATION OF MITOCHONDRIAL FREE CALCIUM.

**Cholpon Tilegenova**, Texas Tech University Health Sciences Center  
1370-Pos, B347  
ELUCIDATION OF MOLECULAR MECHANISM UNDERLYING KCOSA'S HYSTERETIC GATING BEHAVIOR.

**Yan Yan**, Emory University  
1173-Pos, B150  
HU PROTEIN AND DNA SUPERCOILING DRAMATICALLY ENHANCE LAC-REPRESSOR-MEDIATED DNA LOOPING.

**Fabio C. Zegarra**, University of Houston  
1051-Pos, B28  
THE COMBINED EFFECT OF MACROMOLECULAR CROWDING AND CHEMICAL INTERFERENCE ON THE DYNAMICS OF APOAZURIN FOLDING.

**Qiangjun Zhou**, Stanford University  
1561-Pos, B538  
MOLECULAR MECHANISM OF THE SYNAPTOTAGMIN-SNARE COMPLEX THAT IS ESSENTIAL FOR SYNCHRONOUS SYNAPTIC NEUROTRANSMITTER RELEASE.

## Tuesday

**Sinan Can**, University of California, Berkeley  
2259-Pos, B403  
KINESIN'S FRONT HEAD IS GATED BY THE BACKWARD ORIENTATION OF ITS NECK LINKER.

**Irem Celen**, University of Delaware  
1727-Plat  
MULTI-SCALE SPATIO-TEMPORAL DYNAMICS OF HISTONE MODIFICATIONS.

**Robert E. del Carlo**, University of Nevada School of Medicine  
2161-Pos, B305  
POINT-MUTATIONS IN SKELETAL MUSCLE VOLTAGE-GATED SODIUM CHANNELS CONFER RESISTANCE TO TETRODOTOXIN: BUT AT A COST?

**Jeevan B. Gc**, Florida International University  
1862-Pos, B6  
INTERDOMAIN INTERACTIONS AND THE MECHANISM OF STRUCTURAL TRANSFORMATION IN RFAH.

**Nnanya U. Kalu**, The Catholic University of America  
2094-Pos, B238  
DOES LIPID COMPOSITION REGULATE ANTHRAX TOXIN UPTAKE?

**Minmin Luo**, Louisiana State University School of Medicine and Health Sciences Center  
2266-Pos, B410  
TRAPPING THE TRANSITION STATE OF KINESIN-5 PRODUCES A DIFFERENT MULTIMOTOR FORCE OUTCOME THAN INHIBITING PRODUCT RELEASE.

**Bhavik Nathwani**, Dana-Farber Cancer Institute  
2470-Pos, B614  
MULTIPLEXED MECHANOCHEMISTRY ASSAY - A TOOL FOR  
MULTIPLEXED SINGLE MOLECULE BOND RUPTURE FORCE STUDIES.

**Piere Rodriguez-Aliaga**, University of California, Berkeley  
1928-Pos, B72  
KEY ROLES OF TRANSLOCATING LOOPS IN THE MECHANOCHEMICAL  
COUPLING AND POWER PRODUCTION OF A AAA<sup>+</sup> PROTEASE  
MACHINE.

**Zackary N. Scholl**, Duke University  
1940-Pos, B84  
DIRECT OBSERVATION OF MULTIMER STABILIZATION IN THE  
MECHANICAL UNFOLDING PATHWAY OF A PROTEIN UNDERGOING  
OLIGOMERIZATION.

**Agila Somasundaram**, NIH  
2127-Pos, B271  
INVESTIGATING PROTEIN DYNAMICS AT SITES OF EXOCYTOSIS IN LIVE  
CELLS.

**Stefford Todolli**, Rutgers University  
2000-Pos, B144  
LINKER HISTONES AND THE DYNAMIC CHROMATIN FIBER.

**Benjamin C. Walker**, Indiana University  
2272-Pos, B416  
CHROMOKINESINS NOD AND KID USE ALTERNATIVE NUCLEOTIDE  
MECHANISMS AND ONE-DIMENSIONAL DIFFUSION TO TARGET  
MICROTUBULE PLUS ENDS.

**Osman N Yogurtcu**, Johns Hopkins University  
1710-Plat  
GOVERNING PRINCIPLES OF MULTIPROTEIN COMPLEX FORMATION  
ON THE CELL MEMBRANES: AN INVESTIGATION USING SINGLE-  
MOLECULE RESOLUTION SPATIO-TEMPORAL STOCHASTIC COMPUTER  
SIMULATIONS AND ANALYTICAL CALCULATIONS.

## Wednesday

**Martina Audagnotto**, École Polytechnique Fédérale de Lausanne  
2700-Pos, B77  
NEW INSIGHT INTO THE CATALYTIC AND INHIBITION MECHANISM OF  
THE HUMAN ACYL PROTEIN THIOESTERASE.

**Emily Bilyk**, Saint Joseph's University  
2870-Pos, B247  
DETERMINING THE CQC-MEDIATED INTERACTIONS IN THE MUCIN 1  
HOMODIMER.

**Shelby E. Chastain**, University of South Carolina  
2721-Pos, B98  
MULTI-TARGET THERAPEUTIC POTENTIAL OF GREEN TEA CATECHINS  
AND BLACK TEA THEAFLAVINS TOWARD A $\beta$ -INDUCED SIGNAL  
PATHWAYS INVOLVED IN ALZHEIMER'S DISEASE.

**Maryam Hashemi Shabestari**, VU University, Amsterdam  
2699-Pos, B76  
THE ROLE OF PHOSPHORYLATION AND ACETYLATION OF TFAM IN DNA  
BINDING REGULATION USING SINGLE-MOLECULE MANIPULATION AND  
FLUORESCENCE MICROSCOPY.

**Krishna Kanti Dey**, Pennsylvania State University  
2694-Pos, B71  
IMPULSIVE ENZYMES: A NEW FORCE IN MECHANOBIOLOGY.

**Ji Hoon Kim**, Johns Hopkins University  
2522-Plat  
MECHANOBIOLOGY IN CELL-CELL FUSION: ROLES OF MYOSIN II AND  
SPECTRIN IN MECHANOSENSING AND FORCE GENERATION DURING  
CELL-CELL FUSION.

**Agata K. Krenc**, University of Chicago  
3043-Pos, B420  
FLUORESCENCE INTERFERENCE CONTRAST MICROSCOPY (FLIC) - A  
NEW TOOL TO STUDY THE COLLECTIVE MOTOR DYNAMICS.

**Yilai Li**, University of Michigan  
3192-Pos, B569  
SUPER-RESOLUTION IMAGING OF DNA REPLICASOME DYNAMICS IN LIVE  
BACILLUS SUBTILIS.

**Yen-Liang Liu**, University of Texas, Austin  
3149-Pos, B526  
DYNAMICS OF EGFR TRAFFICKING FROM MEMBRANE INTO DEEP  
CYTOPLASM REVEALED BY A SPATIOTEMPORALLY MULTIPLEXED 3D  
TRACKING MICROSCOPE.

**Katarina Mackova**, Slovak Academy of Sciences, Slovakia  
2898-Pos, B275  
POSTNATAL DEVELOPMENT OF CALCIUM SIGNALING IN RAT  
CARDIOMYOCYTES.

**Abhishek Mandal**, University of Pittsburgh  
2853-Pos, B230  
TO UNFOLD OR NOT TO UNFOLD? STRUCTURAL INSIGHTS OF  
PEROXIDASE-ACTIVE CARDIOLIPIN-BOUND CYTOCHROME C BY SOLID-  
STATE NMR.

**Sachin R. Natesh**, University of Chicago  
2729-Pos, B106  
A $\beta$  FIBRILS ACT AS AQUEOUS PORES: A MOLECULAR DYNAMICS  
STUDY.

**Kelly Njine Mouapi**, University of Louisville  
2706-Pos, B83  
TRANSGLUTAMINASE FACTOR XIII CROSS-LINKS REACTIVE  
GLUTAMINES IN DISORDERED REGIONS OF FIBRINOGEN  $\alpha$ C.

**Jyotsana J. Parmar**, Indian Institute of Technology, Bombay  
2772-Pos, B149  
NUCLEOSOME KINETICS REGULATES THE BINDING TIMESCALES OF  
NON-HISTONE PROTEINS TO DNA SITES.

**Manmeet H. Raval**, Pennsylvania State University College of Medicine  
3038-Pos, B415  
CHARACTERIZATION OF A UNIQUE MYOSIN IIIA DEAFNESS MUTATION  
WHICH ENHANCES ACTIN-SLIDING VELOCITY BUT ABOLISHES  
FILOPODIA TIP LOCALIZATION.

**Sean L. Seyler**, Arizona State University  
2578-Plat  
QUANTIFYING MACROMOLECULAR TRANSITION PATHS WITH PATH  
SIMILARITY ANALYSIS.

**Orrin Shindell**, University of Texas, Austin  
2813-Pos, B190  
DYNAMICS AND STATICS IN PHASE SEPARATING, ADHERING LIPID MEMBRANES.

**Wilton T Snead**, University of Texas, Austin  
2835-Pos, B212  
MEMBRANE FISSION BY PROTEIN CROWDING.

**Matthew B. Stone**, University of Michigan  
2866-Pos, B243  
DIRECT OBSERVATION OF ORDERED AND DISORDERED MEMBRANE DOMAINS IN B CELL PLASMA MEMBRANES USING MULTI-COLOR SUPER-RESOLUTION FLUORESCENCE MICROSCOPY AND APPLICATION TO B CELL RECEPTOR SIGNALING.

**Gül H. Zerze**, Lehigh University  
2748-Pos, B125  
DYNAMICS OF CONTACT FORMATION IN DISORDERED POLYPEPTIDES.

## INCLUSION AND DIVERSITY

### Sunday

**Crystal R. Archer**, University of Texas Health Science Center, San Antonio  
526-Pos, B306  
BIOCHEMICAL ANALYSIS OF THE REGULATION OF KV7 CHANNELS BY PIP2 AND CALMODULIN.

**Patrick C. McCarter**, University of North Carolina, Chapel Hill  
734-Pos, B514  
TOWARD A COMPREHENSIVE MODEL OF FEEDBACK REGULATION IN A YEAST STRESS RESPONSE PATHWAY.

**Hengameh Shams**, University of California, Berkeley  
636-Pos, B416  
MOLECULAR MECHANISM OF  $\alpha$ -ACTININ BINDING TO F-ACTIN: EFFECT OF K255E MUTATION.

### Monday

**Cheavar A. Blair**, University of Kentucky  
1456-Pos, B433  
MYOCARDIUM FROM THE LEFT AND RIGHT VENTRICLES OF HUMAN HEARTS HAVE SIMILAR MECHANICAL PROPERTIES.

**Theanne N. Griffith**, Northwestern University  
1428-Pos, B405  
IDENTIFICATION OF FUNCTIONAL DETERMINANTS OF KAINATE RECEPTOR MODULATION BY AUXILIARY PROTEIN NETO2.

**Vanessa P. Nguyen**, University of Tennessee, Knoxville  
1256-Pos, B233  
A NOVEL SOLUBLE PEPTIDE WITH PH-RESPONSIVE MEMBRANE INSERTION.

### Tuesday

**Syed R. Ali**, University of Texas Medical Branch  
2169-Pos, B313  
DEFINING THE PROTEIN: PROTEIN INTERACTION INTERFACE OF FGF14:NAV1.6 COMPLEX.

**Kayla M. Bell**, Indiana University  
2267-Pos, B411  
NON-CANONICAL MICROTUBULE INTERACTION BY YEAST KINESIN-5, CIN8.

**Jenny V. Le**, Ohio State University  
2473-Pos, B617  
CHARACTERIZATION OF NUCLEOSOMES USING DNA ORIGAMI.

**Melanie P. Muller**, University of Illinois, Urbana Champaign  
2102-Pos, B246  
MOLECULAR BASIS FOR LIPID SPECIFICITY OF THE COAGULATION FACTOR X MEMBRANE-BINDING DOMAIN.

**Keon Reid**, Emory University  
2103-Pos, B247  
EXPLORING THE INSERTION MECHANISM OF SVS-1  $\beta$ -HAIRPIN PEPTIDE INTO AN ANIONIC LIPID BILAYER.

### Wednesday

**Christina M. Chisholm**, University of Massachusetts Amherst  
3010-Pos, B387  
ELUCIDATING THE PH DEPENDENT MECHANISM OF OMPG GATING.

**Christina Garza**, University of Colorado, Denver  
3093-Pos, B470  
COMBINED QM/MM DYNAMICS SIMULATIONS OF PROTON TRANSFER IN E. COLI CLC CHLORIDE/PROTON ANTIporter.

**Shahidul M. Islam**, Sultan Qaboos University  
3178-Pos, B555  
STRUCTURAL-FUNCTION STUDY OF MEMBRANE PROTEINS WITH RESTRAINED-ENSEMBLE AND DUMMY SPIN-LABEL MOLECULAR DYNAMICS SIMULATIONS.

## INTERNATIONAL RELATIONS

### Sunday

**Silvia Acosta-Gutierrez**, Cagliari University, Italy  
590-Pos, B370  
WATER-BASED SCREENING OF ANTIBIOTICS PERMEABILITY.

**Navid Bavi**, Victor Chang Cardiac Research Institute, Australia  
592-Pos, B372  
THE N-TERMINAL HELIX ACTS AS A DYNAMIC MEMBRANE COUPLER IN THE GATING CYCLE OF THE MECHANOSENSITIVE CHANNEL MSCL.

**Iván Coto Hernández**, Institute for Molecular Sciences of Orsay, France  
809-Pos, B589  
ADVANCES IN GATED CW STED MICROSCOPY: TOWARD A VERSATILE IMPLEMENTATION.

**Zeineb Es-Salah-Lamoureux**, INSERM U1087/CNRS U6291  
529-Pos, B309  
A MOLECULAR SUBSTRATE FOR LONG QT IN HIV PATIENTS: TAT PROTEIN REDUCES IKR IN HUMAN INDUCED PLURIPOTENT STEM CELLS-DERIVED CARDIOMYOCYTES.

**Barbara Geier**, University of Graz, Austria  
194-Plat  
STRUCTURAL CHARACTERIZATION ON ASYMMETRIC LIPID VESICLES AT SUBNANOMETER RESOLUTION.

**Shiraz Haron-Khun**, Sackler Medical School, Tel Aviv University, Israel  
162-Plat  
SK4 K<sup>+</sup> CHANNELS REGULATE SINOATRIAL PACEMAKER AND THEIR  
BLOCKADE AMELIORATE ARRHYTHMIAS IN CPVT2 PATIENT-DERIVED  
IPSC AND IN VIVO IN CASQ2 KNOCK-IN AND KNOCK-OUT MICE.

**Dong-Hwee Kim**, Korea University  
496-Pos, B276  
MECHANICAL REGULATION OF NUCLEAR SHAPE AND VOLUME.

**Helen L. Miller**, University of York, United Kingdom  
818-Pos, B598  
DEVELOPING A SINGLE-MOLECULE FLUORESCENCE TOOL TO QUANTIFY  
DNA DAMAGE.

**Yoshitaka Nakayama**, Victor Chang Cardiac Research Institute, Australia  
477-Pos, B257  
THE ROLE OF THE C-TERMINAL DOMAIN ON THE GATING PROPERTIES  
OF CORYNEBACTERIUM GLUTAMICUM MECHANOSENSITIVE CHANNEL  
MSCCG.

**Ruth Norman**, University of Leeds, United Kingdom  
460-Pos, B240  
METOPROLOL REVERSES  $\beta$ -ADRENERGIC REMODELING IN THE FAILING  
RIGHT VENTRICLE OF PULMONARY ARTERY HYPERTENSIVE (PAH) RATS.

**Luca Ponzoni**, International School for Advanced Studies, Italy  
282-Pos, B62  
SPECTRUS: A DIMENSIONALITY REDUCTION APPROACH FOR  
IDENTIFYING DYNAMICAL DOMAINS IN PROTEIN COMPLEXES FROM  
LIMITED STRUCTURAL DATASETS.

## Monday

**Florent Delhommel**, Pasteur Institute, France  
1566-Pos, B543  
STRUCTURAL STUDY OF WHIRLIN, A CRUCIAL PDZ CONTAINING  
PROTEIN INVOLVED IN THE MECHANOTRANSDUCTION OF AUDITORY  
HAIR CELLS.

**Peter S. Hasenhuettl**, Medical University of Vienna, Austria  
896-Plat  
DISSECTING THE CATALYTIC CYCLE OF THE SEROTONIN TRANSPORTER.

**Barbora Hoffmannova**, Comenius University, Slovakia  
1306-Pos, B283  
LOCAL CHARACTER OF RELEASE-DEPENDENT INACTIVATION OF L-TYPE  
CALCIUM CURRENT.

**Georg Krainer**, Dresden University of Technology, Germany  
972-Plat  
farFRET: EXTENDING THE RANGE IN SINGLE-MOLECULE FRET  
EXPERIMENTS BEYOND 10 NM.

**Luca Lanzano**, Italian Institute of Technology, Genoa  
974-Plat  
APPLICATION OF THE SPLIT-FLCS METHOD TO THE DETECTION OF  
NANOSCALE DIFFUSION IN 3D IN LIVE CELLS.

**Bernhard Lehofer**, Medical University of Graz, Austria  
1271-Pos, B248  
STRUCTURAL EFFECTS OF HIGH HYDROSTATIC PRESSURE ON HUMAN  
LOW DENSITY LIPOPROTEIN REVEALED BY SMALL ANGLE X-RAY AND  
NEUTRON SCATTERING.

**Hélène Lyrmann**, Saarland University, Germany  
1511-Pos, B488  
MODELING IMMUNE CELL MIGRATION.

**Yufuku Matsushita**, University of Tokyo, Japan  
1109-Pos, B86  
X-RAY OBSERVATION OF NOVEL NUCLEATION FACTOR IN PROTEIN  
SUPERSATURATED SOLUTION.

**Rashmi Panigrahi**, University of Alberta, Canada  
1142-Pos, B119  
UNDERSTANDING STRUCTURAL AND FUNCTIONAL STABILITY OF TWO  
RHOMBOID PROTEASES: HIGLPG AND PSAARA.

**Anam Qudrat**, University of Toronto, Canada  
1121-Pos, B98  
MODULAR ASSEMBLY OF SYNTHETIC PROTEINS THAT SPAN THE  
PLASMA MEMBRANE IN MAMMALIAN CELLS.

**Patrice Rassam**, University of Oxford, United Kingdom  
1222-Pos, B199  
UNRAVELING THE OUTER MEMBRANE TRANSLOCATION MECHANISM  
OF A PROTEIN ANTIBIOTIC USING SINGLE-MOLECULE MICROBIOLOGY  
AND COMPUTATIONAL BIOPHYSICS.

**Masihuz Zaman**, Aligarh Muslim University, India  
1095-Pos, B72  
BIOPHYSICAL INSIGHT OF DNA INDUCED AGGREGATION OF STEM  
BROMELAIN.

## Tuesday

**Sabareesan Ambadi Thody**, Tata Institute of Fundamental Research,  
India  
2199-Pos, B343  
THE PATHOGENIC A116V MUTATION ENHANCES THE SELECTIVE ION-  
CHANNEL ACTIVITY AND TOXICITY OF THE PRION PROTEIN IN LIVING  
CELLS.

**Shruti Arya**, Indian Institute of Science Education and Research, Mohali  
1966-Pos, B110  
WATER IN AMYLOIDOGENIC INTRINSICALLY DISORDERED PROTEINS:  
INTERPLAY OF CONFORMATIONAL PREFERENCE AND AMYLOID  
AGGREGATION.

**Chaitanya A. Athale**, Indian Institute of Science Education and  
Research, Pune  
2297-Pos, B441  
COLLECTIVE EFFECTS OF MOTORS AND MICROTUBULES GEOMETRY IN  
GLIDING ASSAYS.

**Ivan Haralampiev**, Humboldt University of Berlin, Germany  
2396-Pos, B540  
TRACKING THE SWITCH OF INFLUENZA RNA GENESIS BY A NOVEL  
MULTIPLEXED FISH METHOD IN SINGLE CELLS.

**Vikash Kumar**, York University, Canada  
2482-Pos, B626  
MAGNETIC FOCUSING AND HYDRODYNAMIC DEFLECTION OF MICRO-  
PARTICLES IN A MICRODEVICE.

**Reinier Oropesa-Nuñez**, Italian Institute of Technology, Genoa  
2456-Pos, B600  
SELECTIVE INTERACTION BETWEEN TOXIC AMYLOID OLIGOMERS AND  
THE CELL MEMBRANE REVEALED BY INNOVATIVE AFM APPLICATIONS.



**Caterina Ricci**, Marche Polytechnic University, Italy  
1813-Plat  
STRUCTURE AND STABILITY OF HSP60 AND GROEL IN SOLUTION.

**Zhaokun Zhou**, University of York, United Kingdom  
2460-Pos, B604  
COMBINED MAGNETO-OPTICAL TWEEZERS AND SUPER-RESOLUTION FLUORESCENCE IMAGING FOR PROBING DYNAMIC SINGLE-MOLECULE TOPOLOGY OF DNA, AND PROTEIN MACHINES THAT MANIPULATE DNA TOPOLOGY.

## Wednesday

**Matteo Aldeghi**, University of Oxford, United Kingdom  
2687-Pos, B64  
PREDICTING LIGAND SELECTIVITY ACROSS BROMODOMAIN FAMILIES.

**Annemie Biesemans**, KU Leuven, Belgium  
2553-Plat  
CONTROLLING THE NANOSCOPIC CONFINEMENT OF ENZYMES INSIDE CLYA NANOPORES FOR SINGLE-PROTEIN STUDIES.

**Marco Castello**, Italian Institute of Technology, Genoa  
3199-Pos, B576  
BOOST YOUR MICROSCOPE BY EXPLORING NEW DIMENSIONS.

**Tao-Hsin Chang**, University of Oxford, United Kingdom  
2912-Pos, B289  
STRUCTURAL AND FUNCTIONAL INSIGHTS OF NORRIN MIMICS WNT FOR SIGNALLING.

**Pilar Cossio**, Max Planck Institute of Biophysics, Germany  
3126-Pos, B503  
ON ARTIFACTS IN SINGLE-MOLECULE FORCE SPECTROSCOPY.

**Wei Ding**, Queen Mary University of London, United Kingdom  
2826-Pos, B203  
ATOMISTIC AND COARSE-GRAINED MOLECULAR SIMULATIONS OF MIXED LAMELLAR/NONLAMELLAR LIPID MEMBRANES.

**Bárbara Gomes**, Institute of Molecular Medicine, University of Lisbon, Portugal  
2566-Plat  
THE MECHANISM OF HIV ENTRY INHIBITION BY 25-HYDROXYCHOLESTEROL.

**Deepak K. Hansda**, Indian Institute of Technology, Bombay  
3046-Pos, B423  
EFFECT OF BRANCHING ON FORCE-VELOCITY CURVES AND LENGTH FLUCTUATIONS OF ACTIN NETWORKS.

**Rikke Holm**, Aarhus University, Denmark  
3101-Pos, B478  
RESCUE OF NA<sup>+</sup> AFFINITY IN ASPARTATE-928 MUTANTS OF NA<sup>+</sup>,K<sup>+</sup>-ATPASE BY SECONDARY MUTATION OF GLUTAMATE-314.

**Ishutesh Jain**, Indian Institute of Technology, Bombay  
3045-Pos, B422  
DYNAMIC INSTABILITY EMERGES FROM MICROMECHANICS AND CHEMICAL KINETICS OF MICROTUBULE PROTOFILAMENTS.

**Yadira Medina Guevara**, University of Sao Paulo, Brazil  
2664-Pos, B41  
MODELING PROTEIN- DNA INTERACTION ON GROUNDS OF QUANTUM ENTANGLEMENT.

**Yury A. Nikolaev**, Victor Chang Cardiac Research Institute, Australia  
3015-Pos, B392  
MECHANOSENSITIVITY OF TRPC6 ION CHANNEL RECONSTITUTED IN THE LIPOSOMES.

**Michele Oneto**, Italian Institute of Technology, Genoa  
3198-Pos, B575  
3D MULTICOLOR STED NANOSCOPE A SUPER-RESOLUTION APPROACH TO MAMMALIAN PHOTORECEPTOR.

**SS Soumya**, Indian Institute of Technology, Bombay  
3082-Pos, B459  
COHERENT MOTION OF MONOLAYER SHEETS UNDER ACTIVE AND PASSIVE CONFINEMENT: FROM BUILD-UP TO CONSEQUENCE.

## PROFESSIONAL OPPORTUNITIES FOR WOMEN

### Sunday

**Jana Broecker**, University of Toronto, Canada  
208-Plat  
ADVANCES IN IN SITU X-RAY CRYSTALLOGRAPHY OF MEMBRANE PROTEINS.

**Ana M. Melo**, University of Pennsylvania  
197-Plat  
DETERMINING A TOPOLOGICAL MODEL FOR TAU BOUND TO TUBULIN HETERODIMERS.

**Rebecca J. Moen**, Minnesota State University, Mankato  
763-Pos, B543  
DETECTING STRUCTURAL CHANGES IN MYOSIN USING BIFUNCTIONAL SPIN LABELS.

**Sonia Troeira Henriques**, University of Queensland, Australia  
399-Pos, B179  
STRUCTURE-ACTIVITY RELATIONSHIP STUDIES REVEAL THAT THE SPIDER TOXIN PROTX-II HAS UNUSUAL MEMBRANE-BINDING PROPERTIES AND INHIBITS NAV1.7 CHANNEL AT THE MEMBRANE SURFACE.

### Monday

**Nabanita Das**, University of Colorado, Boulder  
1084-Pos, B61  
ACTIVATION OF TOLL-LIKE RECEPTOR 5 IMMUNE SIGNALING BY HMGB1.

**Sherry S.W. Leung**, Simon Fraser University, Canada  
1228-Pos, B205  
DEVELOPMENT OF LIPID-BASED DRUG DELIVERY SYSTEMS FOR GENE THERAPY: PHYSICOCHEMICAL CHARACTERIZATION OF CHARGED LIPID INTERACTIONS.

**Sabine Lotteau**, University of Leeds, United Kingdom  
1319-Pos, B296  
SIMVASTATIN HAS PROFOUND EFFECTS ON SARCOPLASMIC RETICULUM CA<sup>2+</sup> LEAK IN SKELETAL BUT NOT CARDIAC MUSCLE: A MECHANISM FOR MYOPATHY.

**Gaelle Robin**, University of California, Davis  
1568-Pos, B545  
FRAGILE X~ASSOCIATED TREMOR~ATAXIA SYNDROME: LINKING CA<sup>2+</sup> DYSREGULATION AND DNA DAMAGE RESPONSES.

**Adelene Sim**, Bioinformatics Institute, A\*Star, Singapore  
1198-Pos, B175  
MODELING PROTEIN-RNA COMPLEXES.

**Jinfeng Teng**, University of Texas Southwestern Medical Center  
1413-Pos, B390  
A LIPID-EXPOSED RESIDUE AT THE START OF S4-S5 LINKER CONTROLS TRPV4 GATING.

**Xiaohua Zhang**, Cardiac Signaling Center of University of South Carolina, Medical University of South Carolina, and Clemson University  
1291-Pos, B268  
NEW TARGETED CA<sup>2+</sup> PROBES REVEAL MITOCHONDRIAL CA<sup>2+</sup> SIGNALING PLAYS A CRITICAL ROLE IN RAT SINOATRIAL (SA) NODAL PACING.

## Tuesday

**Jemma L. Gatliff**, Royal Veterinary College, United Kingdom  
2330-Pos, B474  
REGULATION OF MITOCHONDRIAL SIGNALING AND QUALITY CONTROL BY THE 18KDA TRANSLOCATOR PROTEIN (TSPO).

**Whasil Lee**, Duke University  
1721-Plat  
INFLAMMATORY CYTOKINE IL-1 $\alpha$  UP-REGULATES PIEZO1 AND HYPERSENSITIZES CHONDROCYTES TO COMPRESSION.

**Eri Nakatani-Webster**, University of Washington  
1967-Pos, B111  
ILL-POSED? NOT A PROBLEM: INFERRING MECHANISMS OF ACTION FROM AMYLOID FORMATION KINETICS USING APPROXIMATE BAYESIAN COMPUTATION.

## Wednesday

**Sonya M. Hanson**, Memorial Sloan Kettering Cancer Center  
2690-Pos, B67  
DISSECTING THE CONTRIBUTION OF KINASE CONFORMATIONAL REORGANIZATION ENERGIES TO INHIBITOR SELECTIVITY.

**Verena Ruprecht**, Institute of Science and Technology, Austria  
3075-Pos, B452  
ACTOMYOSIN NETWORK CONTRACTILITY TRIGGERS A STOCHASTIC TRANSFORMATION INTO HIGHLY MOTILE AMOEBOID CELLS.

**Monica Sala-Rabanal**, Washington University School of Medicine  
2991-Pos, B368  
SECRETED HUMAN CLCA1 ACTIVATES CALCIUM-DEPENDENT CHLORIDE CURRENTS THROUGH DIRECT BINDING OF ITS VWA DOMAIN WITH AN EXTRACELLULAR LOOP OF TMEM16A/ANOCTAMIN 1.

## Ancillary Meetings

### Society of General Physiologists Council Meeting

Saturday, February 27, 10:00 AM–1:00 PM  
Room 510

### Korean Biophysicists Meeting

Sunday, February 28, 5:00 PM–6:00 PM  
Room 403B

### Biophysics Austria Mixer

Sunday, February 28, 6:00 PM–7:00 PM  
Room 404AB

### SOBLA (The Society for Latinoamerican Biophysicists) Meeting

Tuesday, March 1, 8:00 PM–10:00 PM  
Room 409AB

# How to Navigate the BPS Annual Meeting

## About the Meeting

The Biophysical Society (BPS) Annual Meeting is the largest gathering of biophysicists in the world, bringing together **more than 7,000 researchers** from **over 45 countries**. With over 200 sessions and more than 4,500 poster presentations, it can be overwhelming! Use this Guide to help you get the most from your attendance at this world famous event.

## Scientific Sessions

The BPS Annual Meeting is known for its many types of sessions, often taking place concurrently. Each type has its own distinct scope, format, and speaker makeup.

### Symposia

- Broad topics featuring talks by leading researchers presenting new research
- Four speakers per two-hour session
- Two-to-three held concurrently

### Platforms

- More focused topics selected from among submitted abstracts held concurrently with symposia
- Eight speakers per two-hour session, including younger researchers
- Approximately six held concurrently during each symposium session

### Workshops

- Technique-oriented sessions
- Four-to-eight speakers per two-hour session
- Two-to-four held concurrently on Tuesday evenings

### Posters

- Most interactive and well attended scientific sessions of the meeting
- Poster presentations held Sunday–Wednesday, with no competing scientific programming
- Late abstracts are scheduled each day during the same time as abstracts submitted by the regular deadline

### Subgroup Programs

- Scientific sessions held on the Saturday before the start of the Meeting
- Feature speakers presenting the latest research in biophysics subfields

### National Lecture

- One-hour presentation by a world-renowned biophysicist

## Professional Development

The Annual Meeting includes daily sessions and resources for the professional development of biophysicists at all stages of their careers: undergrads and grad students, early and mid-stage, and senior scientists. These sessions are held before, after, and in-between the scientific sessions.

### Career Center

Open all day, includes job and resume postings, interview scheduling, CV reviews, and job-related workshops

### Breakfasts

For students and postdocs to network and learn about available resources

### Panel Discussions

Expert presentations on career options, guidance on career transitions, funding resources, science policy

### Workshops

On publishing, teaching and science education, social media, grant writing, communication, and outreach

### Exhibits

Over 200 displays of new equipment, publications, and products

### Exhibitor Presentations

Hands-on demonstrations conducted by exhibiting companies of scientific products and their use

## Social and Networking Events

### Opening Reception

- Hors d'oeuvres and cash bar
- First-Time Attendee Drop-By for help in navigating the meeting

### Daily Meet-Ups

- Local student and early career attendees available each day at the Society Booth to help you explore local restaurants and neighborhoods

### Monday Evening Reception

- The place to meet, drink, eat, dance, and socialize with other meeting attendees
- Photo Booth to capture memories
- Lounge with soft music for those who prefer a more quiet atmosphere

### New Member Welcome

- Opportunity to meet and socialize with new members and members of Society governance and committees



# Friday, February 26, 2016

## Daily Program Summary

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

8:00 AM–5:00 PM	Exhibitor Registration	West Lobby
8:00 AM–5:00 PM	Drug Discovery Satellite Meeting	Room 411
3:00 PM–4:30 PM	New Council Orientation	J.W. Marriott - Plaza III
3:00 PM–5:00 PM	Registration Open	West Lobby
5:00 PM–9:00 PM	Joint Council Reception, Dinner, and Meeting	J.W. Marriott - Plaza I & II

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## Plan and Navigate the BPS Annual Meeting through BPS 360

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# Friday, February 26

## Exhibitor Registration

8:00 AM–5:00 PM, WEST LOBBY

## Drug Discovery Satellite Meeting XVI

8:00 AM–5:00 PM, ROOM 411

*Sponsored by Axiogenesis, Sophion together with Biolin Scientific, Cellular Dynamics International, Charles River, Maxcyte Inc, Molecular Devices LLC, Nanion Technologies GmbH*

Ion channels are an important class of therapeutic drug targets, and mutations in ion channel genes are found to be responsible for an increasing number of diseases. While conventional electrophysiological techniques permit the most detailed and direct study of ion channel function, they are limited due to the manual nature of the method and their low throughput. Because of this, ion channels remain an underrepresented target class for drug discovery. But the advent of automated electrophysiological systems with higher throughput has begun to revolutionize ion channel drug discovery. This symposium focuses on the emerging technology of automated electrophysiology and how it is changing the face of ion channel drug discovery. Speakers from industry and academia will discuss the development and potential of these new technologies, present experimental results obtained using these systems and discuss the impact these technologies are having on ion channel drug discovery.

### Co-Chairs

*Niels Fertig, Nanion Technologies GmbH*

*Jeff Webber, Molecular Devices LLC*

*Eugenia Jones, Cellular Dynamics International*

*Richard Kondos, Sophion – Biolin Scientific*

**7:30 AM REGISTRATION**

**8:00 AM INTRODUCTION**

### SESSION I

Chair, Niels Fertig

**8:30 AM**  
WETWARE IN THE LOOP: REALTIME MODELLING USING DYNAMIC CLAMP FOR SAFETY AND DRUG DISCOVERY. **Steve Petrou**

**9:00 AM**  
GIGASEAL AUTOMATED PATCH-CLAMP RECORDINGS OF ION CHANNEL ACTIVITY EXPRESSED IN CELL LINES AND NATIVE CELLS. **Arturo Picones**

**9:30 AM**  
NEXT GENERATION ELECTROPHYSIOLOGY: COMPARISON OF PLATFORMS TO PROGRESS EFFICACY AND LIABILITY CAPABILITY AT ASTRAZENECA.  
**Matthew Bridgland-Taylor**

**10:00 AM BREAK**

### SESSION II

Chair, Jeff Webber

**10:30 AM**  
OPTICAL METHODS FOR EXAMINING EXCITATION-CONTRACTION COUPLING IN IPS-DERIVED CARDIOMYOCYTES AND THEIR APPLICATION TO MEDIUM/HIGH THROUGH-PUT ASSAYS. **Godfrey Smith**

**11:00 AM**  
IDENTIFICATION AND CHARACTERIZATION OF NOVEL NMDA RECEPTOR POSITIVE ALLOSTERIC MODULATORS (PAMS). **David Hackos**

**11:30 AM**  
AUTOMATED ELECTROPHYSIOLOGY FOR TRANSLATIONAL CARDIAC MUSCLE. **Liudmila Polonchuk and Ken Wang**

**12:00 PM LUNCH (PROVIDED)**

### SESSION III

Chair, Eugenia Jones

**1:00 PM**  
THE COMBINED USE OF ION CHANNEL STUDIES AND HUMAN IPS-DERIVED CARDIAC MYOCYTES IN PRECLINICAL SAFETY ASSESSMENT.  
**Alison Easter**

**1:30 PM**  
INVESTIGATION OF POTASSIUM CHANNEL FUNCTION UTILIZING HUMAN iPSC-DERIVED NEURONS. **Matthew Fuller**

**2:00 PM**  
AUTOMATED PATCH CLAMP ASSAYS FOR STATES DEPENDENT ION CHANNEL MODULATORS. **Rok Cerne**

**2:30 PM**  
AUTOMATED ELECTROPHYSIOLOGY AS A PLATFORM FOR BIOPHYSICAL CHARACTERIZATION AND ION CHANNEL DRUG DISCOVERY. **Sophia Lin**

**3:00 PM BREAK**

### SESSION IV

Chair, Richard Kondo

**3:30 PM**  
HUMAN IPS CELL-DERIVED CARDIOMYOCYTES AS A MODEL FOR CHARACTERIZATION OF NEW LQT SYNDROM MUTATION. **Roselle Gélinas**

**4:00 PM**  
COUPLING HIGH CAPACITY ELECTROPORATION WITH AUTOMATED PATCHY CLAMP RECORDING FOR FUNCTIONAL ANNOTATION OF HUMAN ION CHANNEL VARIANTS. **Alfred George**

**4:30 PM**  
**Speaker to be announced**

**5:00 PM**  
**CLOSING REMARKS**  
**Richard Kondo**

## New Council Orientation

3:00 PM - 4:30 PM, J.W. MARRIOTT - PLAZA III

## Registration Open

3:00 PM - 5:00 PM, WEST LOBBY

## Joint Council Reception, Dinner, and Meeting

5:00 PM - 9:00 PM, J.W. MARRIOTT - PLAZA I & II

# Saturday, February 27, 2016

## Daily Program Summary

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

8:00 AM–6:30 PM	Registration/Exhibitor Registration	West Lobby
8:30 AM–11:00 AM	Joint Council Meeting	J.W. Marriott - Plaza I & II
9:00 AM–7:00 PM	Mechanobiology Subgroup	Room 403B
9:00 AM–7:00 PM	Bioenergetics Subgroup	Room 403A
9:15 AM–1:45 PM	Molecular Biophysics Subgroup	Room 502A
10:00 AM–1:00 PM	Society of General Physiologists Council Meeting	Room 510
10:00 AM–6:30 PM	Intrinsically Disordered Proteins Subgroup	Room 515A
10:45 AM–6:45 PM	Biopolymers in vivo Subgroup	Room 501ABC
12:00 PM–6:00 PM	Nanoscale Biophysics Subgroup	Room 515B
1:00 PM–5:00 PM	Membrane Structure and Assembly Subgroup	Petree Hall D
1:00 PM–5:00 PM	Biological Fluorescence Subgroup	Room 502B
1:00 PM–6:00 PM	Membrane Biophysics Subgroup	Petree Hall C
1:00 PM–6:15 PM	Motility Subgroup	Room 408A
1:00 PM–6:30 PM	Exocytosis & Endocytosis Subgroup	Room 511ABC
1:30 PM–4:45 PM	Permeation & Transport Subgroup	Room 408B
3:00 PM–4:00 PM	Career Center Workshop Networking: Optimizing Your Time at BPS 2016	Room 518
3:00 PM–5:00 PM	Bioengineering Subgroup	Room 409AB
4:00 PM–5:00 PM	Undergraduate Mixer and Poster Fest	West Lobby Entrance
5:00 PM–7:00 PM	Opening Mixer	Concourse Foyer
5:00 PM–7:00 PM	First-Time Attendee Drop By	West Lobby Entrance
6:00 PM–10:00 PM	Poster Viewing	West Hall
6:30 PM–7:30 PM	CID/CPOW/Education Travel Awardee Reception	Room 404AB
7:00 PM–9:00 PM	Cryo-EM Subgroup	Room 411

# Saturday, February 27

## Registration/Exhibitor Registration Open

8:00 AM - 6:30 PM, WEST LOBBY

## Joint Council Meeting

8:30 AM - 11:00 AM, J.W. MARRIOTT - PLAZA I & II

## Mechanobiology Subgroup

9:00 AM - 7:00 PM, ROOM 403B

### Subgroup Chair

G.V. Shivashankar, MBI, National University of Singapore

#### 1-SUBG 9:00 AM

MECHANICAL ACTION OF BAR-DOMAIN PROTEINS ON FLUID MEMBRANES. **Patricia Bassereau**, Coline Prévost, Mijo Simunovic, Andrew Callan-Jones

#### 2-SUBG 9:30 AM

ACTOMYOSIN DEPENDENT CLUSTERING AND SEGREGATION OF CELL SURFACE MOLECULES AT MULTIPLE SCALES. **Madan Rao**

#### 10:00 AM INVITED SHORT TALK

CYTOSKELETAL DYNAMICS AND MECHANOSENSING IN IMMUNE CELLS. **Arpita Upadhyaya**

#### 10:15 AM STUDENT TALK CHOSEN FROM POSTER ABSTRACT

#### 10:30 AM COFFEE BREAK

#### 3-SUBG 11:00 AM

REGULATION OF ACTOMYOSIN CONTRACTILITY IN NON-MUSCLE CELLS. Zhenhuan Guo, Wei Yung Ding, **Ronen Zaidel-Bar**

#### 4-SUBG 11:30 AM

JUNCTIONAL TENSION, MECHANOSENSING AND EPITHELIAL HOMEOSTASIS. **Alpha Yap**, Rashmi Priya, Magdalene Michael, Guillermo Gomez

#### 12:00 PM INVITED SHORT TALK

#### 12:15 PM STUDENT TALK CHOSEN FROM POSTER ABSTRACT

#### 12:30 PM LUNCH

#### 5-SUBG 2:00 PM

CHROMOSOMES AS MECHANICAL OBJECTS: COMMONALITIES FROM BACTERIA TO MAMMALIAN CELLS. **Nancy E. Kleckner**

#### 6-SUBG 2:30 PM

MECHANICS OF GENOME INTEGRITY. **Marco Foiani**

**3:00 PM POSTDOC TALK CHOSEN FROM POSTER ABSTRACTS**  
RESOLVING AND TARGETING THE MECHANOBIOLOGY OF PANCREATIC DUCTAL ADENOCARCINOMA. **Alexandra Surcel**, Qingfeng Zhu, Eric Schifffhauer, Robert Anders, Douglas Robinson

#### 3:30 PM POSTDOC TALK CHOSEN FROM POSTER ABSTRACTS

#### 3:45 PM COFFEE BREAK

#### 7-SUBG 4:15 PM

TISSUE MECHANICS AND DISEASE MODELS. **Valerie Weaver**

#### 8-SUBG 4:45 PM

HOW MECHANICAL FORCES REGULATE THE STRUCTURAL POLARIZATION OF THE NUCLEAR LAMINA. **Viola Vogel**

#### 5:15 PM POSTDOC TALK CHOSEN FROM POSTER ABSTRACTS

5:30 PM INVITED SHORT TALK

5:45 PM GENERAL DISCUSSION

7:00 PM SUBGROUP DINNER

## Bioenergetics Subgroup

9:00 AM - 7:00 PM, ROOM 403A

### Subgroup Chairs

György Hajnóczky, Thomas Jefferson University

Jan Hoek, Thomas Jefferson University

### MORNING SYMPOSIUM: MAMMALIAN MITOCHONDRIA: ONTOGENY AND PHYLOGENY

9:00 AM INTRODUCTIONS

NO ABSTRACT 9:10 AM

INVITED SATURDAY SUBGROUP SPEAKER. **Douglas Wallace**

NO ABSTRACT 9:40 AM

CONTROL OF MITOCHONDRIAL BIOGENESIS AND METABOLISM. **Richard Scarpulla**

NO ABSTRACT 10:10 AM

MITOCHONDRIAL FUNCTION AND REGULATION DURING STEM CELL DIFFERENTIATION. **Michael Teitell**

10:40 AM COFFEE BREAK

9-SUBG 11:00 AM

MITOCHONDRIAL FUNCTION DURING AND REGULATION OF CARDIAC DEVELOPMENT. **George A. Porter, Jr.**

NO ABSTRACT 11:30 AM

ABROGATION OF PARKIN-MEDIATED MITOPHAGY DISRUPTS PERINATAL MITOCHONDRIAL MATURATION. **Moshi Song**

### AFTERNOON SYMPOSIUM: SUB-DIFFRACTION RESOLUTION OF MITOCHONDRIAL STRUCTURE AND MOLECULAR LANDSCAPE

1:45 PM PRESENTATION OF YOUNG BIOENERGETICIST AWARD AND INTRODUCTIONS

NO ABSTRACT 2:10 PM

SUPER-RESOLUTION MICROSCOPY OF MITOCHONDRIA. **Stefan Jakobs**

NO ABSTRACT 2:40 PM

MUSCLE MITOCHONDRIA DISTRIBUTION IN THE ANIMAL KINGDOM. **Clara Franzini-Armstrong**

NO ABSTRACT 3:10 PM

THE MITOCHONDRIAL RETICULUM IN SKELETAL AND CARDIAC MUSCLE. **Robert S. Balaban**

3:40 PM COFFEE BREAK

NO ABSTRACT 4:00 PM

TRANS-MITOCHONDRIAL COORDINATION OF CRISTAE AT REGULATED MEMBRANE JUNCTIONS. **Martin Picard**

NO ABSTRACT 4:30 PM

STRUCTURE AND MECHANISM OF THE MITOCHONDRIAL ATP SYNTHASE BY ELECTRON CRYO-MICROSCOPY. **Werner Kuhlbrandt**

5:00 PM GENERAL DISCUSSION & BUSINESS MEETING

7:00 PM SUBGROUP DINNER

## Molecular Biophysics Subgroup

9:15 AM - 1:45 PM, ROOM 502A

### Subgroup Chair

Justin Benesch, University of Oxford, United Kingdom

### NEW METHODS FOR STUDYING THE STRUCTURAL DYNAMICS OF MACROMOLECULES

9:15 AM OPENING REMARKS

**NO ABSTRACT 9:20 AM**

STRUCTURE, DYNAMICS, AND FREE ENERGY LANDSCAPES BY NMR. **Dorothee Kern**

**NO ABSTRACT 10:05 AM**

TIME-RESOLVED X-RAY CRYSTALLOGRAPHY. **Arwen Pearson**

**NO ABSTRACT 10:35 AM**

HIGH-SPEED SCATTERING FOR VISUALIZING NANOMETRIC PROTEIN COMPLEXES. **Philipp Kukura**

**NO ABSTRACT 11:05 AM**

ASSEMBLING MACROMOLECULAR COMPLEXES WITH EVOLUTIONARY-BASED INTEGRATIVE MODELING. **Matteo Dal Peraro**

11:35 AM COFFEE BREAK AND SUBGROUP BUSINESS MEETING

**10-SUBG 12:05 PM**

CHARTING CELLULAR LANDSCAPES IN MOLECULAR DETAIL BY IN SITU CRYO-ELECTRON TOMOGRAPHY. **Jürgen Plitzko**, Julia Mahamid, Benjamin D. Engel, Sahradha Albert, Miroslava Schaffer, Jan Arnold, Yoshiyuki Fukuda, Radostin Danev, Wolfgang Baumeister

**NO ABSTRACT 12:35 AM**

NEW MICROFLUIDIC APPROACHES FOR STUDYING THE SELF-ASSEMBLY AND MISASSEMBLY OF PROTEINS. **Tuomas Knowles**

**NO ABSTRACT 1:05 PM**

DYNAMICS OF VIRAL STRUCTURES - FROM MASS SPECTROMETRY TO X-RAY FREE-ELECTRON LASERS. **Charlotte Uetrecht**

1:35 PM CLOSE

## Society of General Physiologists Council Meeting

10:00 AM - 1:00 PM, ROOM 510

## Intrinsically Disordered Proteins Subgroup

10:00 AM - 6:30 PM, ROOM 515A

### Subgroup Chair

Elizabeth Rhoades, Yale University

10:00 AM BUSINESS MEETING

12:30 PM OPENING REMARKS AND INTRODUCTION OF KEYNOTE SPEAKER 1

**11-SUBG 12:35 PM**

INTRINSICALLY DISORDERED PROTEINS IN NEURODEGENERATION. **Markus Zweckstetter**

**12-SUBG 1:20 PM**

BALANCING ORDER AND DISORDER IN NEURODEGENERATION AND NEUROTRANSMISSION. **David Eliezer**

**13-SUBG 1:45 PM**

ATOMIC-RESOLUTION IN-CELL NMR ANALYSIS OF ALPHA-SYNUCLEIN IN MAMMALIAN CELLS REVEALS DISORDERED MONOMER. **Phil Selenko**

2:10 PM

SHORT TALKS BY POSTDOCTORAL AWARDEES

PHASE SEPERATION OF DISORDERED PROTEINS INTO LIQUID DROPLETS WITH TUNABLE PROPERTIES. **Shana Elbaum-Garfinkle**.

A GOLDILOCKS PREDICAMENT FOR VON WILLEBRAND FACTOR MEDIATED PLATELET ADHESION. **Alexander Tischer (SEE LATE ABSTRACTS)**

**14-SUBG 2:40 PM**

STRUCTURE AND DYNAMICS OF INTRINSICALLY DISORDERED PROTEINS FROM A PHYSICS-BASED MODEL. **Jeetain Mittal**

**15-SUBG 3:05 PM**

DISCOVERY AND CHARACTERISATION OF NOVEL FUNCTIONAL MODULES IN INTRINSICALLY DISORDERED REGIONS. **Norman Davey**

3:30 PM COFFEE BREAK

**16-SUBG 3:50 PM**

SIMULTANEOUS TUNING OF ACTIVATION AND REPRESSION IN INTRINSIC DISORDER-MEDIATED ALLOSTERY. **Vincent J. Hilser**

**17-SUBG 4:15 PM**

DISORDERED CDK SUBSTRATES ACT AS MULTI-INPUT SIGNAL PROCESSORS TO CONTROL THE KEY DECISION POINTS IN THE CELL CYCLE. **Mart Loog**

**18-SUBG 4:40 PM**

SLOW INTERNAL DYNAMICS AND STRUCTURAL PROPERTIES OF IDPS OF THE CT FAMILY: COMPARING AMYLOID AND NON-AMYLOID VARIANTS. **Sara M. Vaiana**

**19-SUBG 5:05 PM**

STRUCTURAL AND FUNCTIONAL ANALYSES OF IDPS BY HIGH-SPEED AFM IMAGING. **Toshio Ando**, Noriyuki Kodera

5:30 PM INTRODUCTION OF KEYNOTE SPEAKER 2

**20-SUBG 5:35 PM**

SEQUENCE CONSTRAINTS ON FOLDING AND BINDING. **Susan Marqusee**

6:20 PM CLOSING REMARKS

## Biopolymers in vivo Subgroup

10:45 AM - 6:45 PM, ROOM 501ABC

### Subgroup Chair

Martin Gruebele, University of Illinois at Urbana Champaign

TRANSLATION DYNAMICS AND NASCENT PROTEOME BEHAVIOR

10:45 AM BUSINESS MEETING

11:45 AM LUNCH BREAK

1:15 PM INTRODUCTION BY THE PROGRAM CO-CHAIRS, CHRISTIAN KAISER AND ED O'BRIEN

**21-SUBG 1:20 PM**

MONITORING TRANSLATION IN SPACE AND TIME WITH RIBOSOME PROFILING. **Jonathan Weissman**

**NO ABSTRACT 1:50 PM**

PROBING DIMENSIONALITY BEYOND THE LINEAR SEQUENCE OF MRNA. **Zoya Ignatova**

**22-SUBG 2:20 PM**

LOW ENERGY BARRIERS AND A DYNAMIC CONTACT NETWORK BETWEEN RIBOSOMAL SUBUNITS ENABLE RAPID TRNA TRANSLOCATION. **Lars V. Bock**, Christian Blau, Andrea C. Vaiana, **Helmut Grubmuller**

**NO ABSTRACT 2:50 PM**

DYNAMICS OF TRANSLATION. **Joseph Puglisi**



3:20 PM COFFEE BREAK

3:50 PM NO ABSTRACT  
ACCURATE DECISION MAKING AT THE RIBOSOME DURING PROTEIN BIOGENESIS. **Shu-ou Shan**

23-SUBG 4:20 PM  
REGULATION OF SEC-FACILITATED PROTEIN TRANSLOCATION AND MEMBRANE INTEGRATION. **Thomas Miller**

24-SUBG 4:50 PM  
COTRANSLATIONAL PROTEIN FOLDING. **Gunnar von Heijne**

5:20 PM TALK CHOSEN FROM SUBMITTED POSTER ABSTRACTS  
CHAPERONE-MEDIATED MECHANICAL PROTEIN FOLDING AT THE SINGLE MOLECULE LEVEL. **Judit Perales-Calvo**

25-SUBG 5:35 PM  
SOME CELL BEHAVIOR IS ENCODED IN PROTEOME PHYSICS. **Ken Dill**

6:05 PM CONCLUDING REMARKS

6:45 PM DINNER

## Nanoscale Biophysics Subgroup

12:00 PM - 6:00 PM, ROOM 515B

### Subgroup Chair

*Bianxiao Cui, Stanford University*

26-SUBG 12:00 PM  
NANOSCOPE STUDY OF CHROMATIN STRUCTURE AND PROCESS IN MAMMALIAN CELLS. **Yujie Sun**

NO ABSTRACT 12:30 PM  
IN SITU RNA PROFILING IN SINGLE CELLS BY FISH SCALYS. **Long Cai**

NO ABSTRACT 1:00 PM  
ILLUMINATING BIOLOGY AT THE NANOSCALE WITH SINGLE-MOLECULE AND SUPER-RESOLUTION MICROSCOPY. **Xiaowei Zhuang**

NO ABSTRACT 1:30 PM  
3D MULTI-RESOLUTION IMAGING OF NANOSCALE DYNAMICS IN CELLULAR MILIEU. **Haw Yang**

27-SUBG 2:00 PM  
CAPTURING THE DYNAMIC, HETEROGENEOUS RESPONSE OF MICROBES TO THEIR ENVIRONMENT IN THE HUMAN MICROBIOME. **Julie Biteen**

2:30 PM BREAK

3:00 PM STUDENT/POSTDOC SHORT TALKS

28-SUBG 4:00 PM  
CONVERGING AND CORRELATIVE TECHNOLOGIES FOR OPTICAL NANOSCOPY. **Alberto Diaspro**, Paolo Bianchini, Claudio Canale, Francesca Cella Zanacchi, Marta Duocastella, Luca Lanzaò, Nirmal Mazumder, Colin Sheppard, Giuseppe Vicidomini

29-SUBG 4:30 PM  
SEEING SINGLE MOLECULES, FROM EARLY SPECTROSCOPY IN SOLIDS, TO SUPER-RESOLUTION MICROSCOPY, TO 3D DYNAMICS OF BIOMOLECULES IN CELLS. **W.E. Moerner**

5:00 PM SUBGROUP BUSINESS MEETING

6:00 PM SUBGROUP DINNER

## Membrane Structure and Assembly Subgroup

1:00 PM - 5:00 PM, PETREE HALL D

### Subgroup Chair

*Anne Kenworthy, Vanderbilt University*

### TRANSLATION DYNAMICS AND NASCENT PROTEOME BEHAVIOR

30-SUBG 1:00 PM  
MEMBRANE DOMAINS ON THE SUB-NANOMETER SCALE. **Georg Pabst**

31-SUBG 1:35 PM  
USING GLYCOSPHINGOLIPIDS TO BUILD ENDOCYTIC PITS IN CLATHRIN-INDEPENDENT ENDOCYTOSIS. **Ludger Johannes**

NO ABSTRACT 2:10 PM  
MEMBRANE CURVATURE REGULATION BY PERIPHERAL PROTEINS. **Tobias Baumgart**

2:45 PM BREAK

32-SUBG 3:10 PM  
STRUCTURE AND MECHANISMS OF ACTIONS OF CURVATURE-INDUCING VIRAL MEMBRANE PROTEINS FROM SOLID-STATE NMR. **Mei Hong**

NO ABSTRACT 3:45 PM  
TRANSLOCON-GUIDED INSERTION OF TRANSMEMBRANE HELICES: CARTOONS VS. REALITY. **Stephen H. White**

33-SUBG 4:20 PM THOMPSON AWARD LECTURE  
THE VERSATILE BETA-BARREL GIVES UP SECRETS OF THE MEMBRANE. **Karen G. Fleming**

5:00 PM BUSINESS MEETING

## Biological Fluorescence Subgroup

1:00 PM - 5:00 PM, ROOM 502B

### Subgroup Chair

*Marcia Levitus, Arizona State University*

34-SUBG 1:00 PM  
SINGLE-MOLECULE FLUORESCENCE STUDIES OF NUCLEIC-ACID TRANSACTIONS IN LIVING BACTERIA. **Achilles Kapanidis**

35-SUBG 1:30 PM  
SPATIO-TEMPORAL DYNAMICS AND METABOLIC ALTERATIONS OF P53 UPON DNA DAMAGE. **Michelle A. Digman**, Swathi Baglithaya

36-SUBG 2:00 PM  
IMAGING THE EARLY EVENTS IN MEMBRANE RECEPTOR SIGNALING. **Diane S. Lidke**

37-SUBG 2:30 PM  
FROM SINGLE-MOLECULE SPECTROSCOPY TO SUPER-RESOLUTION MICROSCOPY: SUPER-RESOLUTION OPTICAL FLUCTUATION IMAGING AND METAL-INDUCED ENERGY TRANSFER. **Joerg Enderlein**

3:00 PM BREAK & BUSINESS MEETING

38-SUBG 3:20 PM  
NEW ISOMORPHIC FLUORESCENT NUCLEOSIDES AND NUCLEOTIDES AS BIOPHYSICAL TOOLS. **Yitzhak Tor**

39-SUBG 3:50 PM  
PROBING SINGLE-MOLECULE ION CHANNEL CONFORMATIONAL DYNAMICS IN LIVING CELLS. **H. Peter Lu**

4:20 PM YOUNG FLUORESCENCE INVESTIGATOR AWARD & LECTURE

4:40 PM GREGORIO WEBER AWARD & LECTURE

5:00 PM ADJOURNMENT

## Membrane Biophysics Subgroup

1:00 PM - 6:00 PM, PETREE HALL C

### Subgroup Chair

Alessio Accardi, Weill Cornell Medical College

### UNUSUAL MECHANISMS IN MEMBRANE TRANSPORT

1:00 PM

OPENING REMARKS

NO ABSTRACT

1:05 PM

TMEM16/ANOCTAMINS FLIRTING WITH LIPIDS. **H C. Hartzell**

40-SUBG

1:35 PM

ENGINEERING OF A LIGHT-GATED POTASSIUM CHANNEL. **Anna Moroni**, Laura Alberio, Edoardo Romano, Solei Cermentati, Monica Beltrame, Gerhard Thiel

41-SUBG

2:05 PM

REGULATION OF GATING OF TRPM2 CHANNELS BY NUCLEOTIDES, CA<sup>2+</sup>, AND PHOSPHOLIPIDS. **László Csanády**, Balázs Tóth, Iordan Iordanov, Beáta Töröcsik

NO ABSTRACT

2:35 PM

MASS SPECTROMETRY OF MEMBRANE PROTEINS - THE LIPID CONNECTION. **Kallol Gupta**

3:05 PM

SUBGROUP BUSINESS MEETING AND COFFEE BREAK

NO ABSTRACT

3:40 PM

STRUCTURE AND INSIGHTS INTO THE FUNCTION OF THE BESTROPHIN CALCIUM-ACTIVATED CHLORIDE CHANNEL. **Stephen B. Long**

42-SUBG

4:10 PM

CRYSTAL STRUCTURES OF A DOUBLE-BARRELLED FLUORIDE CHANNEL. **Randy Stockbridge**, Ludmila Kolmakova-Partensky, Tania Shane, Akiko Koide, Shohei Koide, Christopher Miller, Simon Newstead

43-SUBG

4:40 PM

HOW TO FILL A SYNAPTIC VESICLE WITH NEUROTRANSMITTERS? TRANSPORT MECHANISMS AND ION BALANCE. **Reinhard Jahn**

5:10 PM

CONCLUSION

6:00 PM

COLE AWARD TALK AND DINNER:  
AWARDEE RODERICK MACKINNON

### Motility Subgroup

1:00 PM - 6:15 PM, ROOM 408A

### Subgroup Chairs

Arne Gennerich, Albert Einstein College of Medicine  
Charles Sindelar, Yale University

1:00 PM

OPENING REMARKS

44-SUBG

1:05 PM

SINGLE-MOLECULE INSIGHT INTO THE ACTIVATION OF HUMAN DYNEIN BY ADAPTER PROTEINS. **Vladislav Belyy**, Max A. Schlager, Armando E. Reimer, Andrew P. Carter, Ahmet Yildiz

45-SUBG

1:20 PM

MECHANO-CHEMICAL MODEL FOR THE MECHANISM OF DIRECTED PROGRESSIVE MOTILITY OF CYTOPLASMIC DYNEIN. **Andreja Šarlah**, Andrej Vilfan

46-SUBG

1:35 PM

MODELING COORDINATED KINETICS IN LARGE GROUPS OF MUSCLE MYOSIN MOTORS. **Lennart Hilbert**

47-SUBG

1:50 PM

HIGH-SPEED NANOMETRIC TRACKING OF MYOSIN 5 WITH INTERFEROMETRIC SCATTERING MICROSCOPY. **Joanna Andrecka**

2:05 PM

BREAK

NO ABSTRACT

2:20 PM

TRANSPORT BY MEMBRANE-ANCHORED KINESIN MOTORS. **Stefan Diez**

48-SUBG

2:45 PM

MAPS AND MOTORS COOPERATE TO FORM THE PARAXIAL MICROTUBULE CYTOSKELETON IN DIFFERENTIATING MUSCLE CELLS. **Anne Straube**

49-SUBG

3:10 PM

SYNTHETIC MANIPULATION AND ANALYSES OF TRANSPORT AND CYTOSKELETAL REGULATORY SYSTEMS. **Michael Diehl**

3:35 PM

BUSINESS MEETING AND BREAK

50-SUBG

4:05 PM

STRUCTURAL AND FUNCTIONAL ADAPTATIONS IN KINESIN MOTORS. **Hernando Sosa**, Chandrima Chatterjee, Mathieu Benoit, Juan Daniel Diaz Valencia, Vania DePaoli, Ana B. Asenjo

51-SUBG

4:30 PM

CRYO-EM REVEALS HOW DYNEIN BINDS DYNACTIN AND CARGO. **Andrew P. Carter**, Linas Urnavicius, Kai Zhang, Helen Foster

4:55 PM

BREAK

52-SUBG

5:20 PM

ON THE MOLECULAR BASIS OF MONOGENIC HUMAN HYPERTROPHIC AND DILATED CARDIOMYOPATHIES. **James Spudich**, Suman Nag, Shirley Sutton, Saswata Sarkar, Rebecca Taylor, Darshan Trivedi, Chao Liu, Arjun Adhikari, Kathleen Ruppel

6:15 PM

CLOSING REMARKS

### Exocytosis & Endocytosis Subgroup

1:00 PM - 6:30 PM, ROOM 511ABC

### Subgroup Chair

Jürgen Klingauf, Institute of Medical Physics and Biophysics, Germany

1:00 PM

STUDENT TALKS SELECTED FROM POSTERS

NO ABSTRACT

1:55 PM

IMAGING THE NANOMETER-SCALE STRUCTURE OF ENDOCYTOSIS. **Justin Taraska**

2:25 PM

COFFEE BREAK

NO ABSTRACT

2:40 PM

CAPTURING THE SEQUENTIAL STEPS OF DYNAMIN-MEDIATED FISSION BY CRYO-EM. **Jenny Hinshaw**

NO ABSTRACT

3:20 PM

NEW INSIGHTS INTO CA<sup>2+</sup> SENSOR FUNCTION AND FUSION PORE STRUCTURE. **Edwin R. Chapman**

4:00 PM

COFFEE BREAK

53-SUBG

4:15 PM

AN ELEGANT FISSION MACHINE. **Sandra L. Schmid** **KATZ AWARD LECTURE**

5:30 PM

BUSINESS MEETING

6:30 PM

RECEPTION AND SUBGROUP DINNER

### Permeation & Transport Subgroup

1:30 PM - 4:45 PM, ROOM 408B

### Subgroup Chair

Emad Tajkhorshid, University of Illinois at Urbana-Champaign

54-SUBG

1:30 PM

MECHANISMS OF GATING AND MODULATION IN PENTAMERIC LIGAND GATED CHANNELS. **Sudha Chakrapani**



**55-SUBG 2:00 PM**

THE MOLECULAR DYNAMICS OF ION CHANNEL PERMEATION, SELECTIVITY AND GATING. **Bert L. de Groot.**, David Koepfer, Chen Song, Tim Gruene, George M. Sheldrick, Ulrich Zachariae

**56-SUBG 2:30 PM**

STRUCTURAL INTERPRETATION OF THE ALTERNATING ACCESS MECHANISM OF GLUCOSE TRANSPORTERS GLUTS. **Nieng Yan**

**3:00 PM BREAK****57-SUBG 3:15 PM**

SMOLUCHOWSKI EQUATION APPROACH IN CHANNEL-FACILITATED TRANSPORT PROBLEMS: COUNTER-INTUITIVE ANALYTICAL RESULTS AND SUPPORTING EXPERIMENTS. **Sergey M. Bezrukov**

**58-SUBG 3:45 PM**

NANOPHARMACOLOGICAL FORCE SENSING REVEALS TWO LIGAND BINDING SITES IN MONOAMINE TRANSPORTERS. Rong Zhu, Alexander Heilinger, Amy H. Newman, Michael Freissmuth, Harald H. Sitte, **Peter Hinterdorfer**

**4:15 PM BUSINESS MEETING**

### Career Center Workshop

#### Networking: Optimizing Your Time at BPS 2016

**3:00 PM - 4:00 PM, ROOM 518**

You surely have heard that networking is a key component of the successful job search. The term itself often conjures up negative thoughts and reactions to the uninitiated, sometimes to the point of paralysis. Professional conferences (such as BPS 2016) provide endless networking opportunities. If, however, your perception of networking means tackling someone at the coffee station while thrusting your CV in his/her hands, you may want to stop in on this session. The practice of networking has become so much easier with the advent of the internet. We will discuss what you hope to get out of your presence at the meeting, how to set objectives beforehand, and how to meet those objective once you arrive (while minimizing anxiety).

### Bioengineering Subgroup

**3:00 PM - 5:00 PM, ROOM 409AB**

#### Program Chairs

*Jonathan Rocheleau, University of Toronto*  
*Chris Yip, University of Toronto*

**NO ABSTRACT 3:00 PM**

THE STATE OF BIOENGINEERING RESEARCH AND LINKAGES WITH BIOPHYSICS. **Christopher M. Yip**

**3:30 PM STATESMEN TALK****4:00 PM BREAK****4:15 PM TRAINEE TALK****4:30 PM TRAINEE TALK****4:45 PM BUSINESS MEETING**

### Undergraduate Mixer and Poster Fest

**4:00 PM - 5:00 PM, WEST LOBBY ENTRANCE**

A social and scientific mixer for all undergraduate students attending the meeting. Meet other undergraduates and learn about their research projects. Pre-registered undergraduates listed as coauthors on posters are welcome to practice their poster presentation in a less formal setting, even if they are not listed as the presenting author. For undergrads who will be presenting during the standard scientific sessions, this mixer provides an additional opportunity to hone presentation skills. Organized by the Education Committee.

### Opening Mixer

**5:00 PM - 7:00 PM, CONCOURSE FOYER**

All registered attendees are welcome to attend this cash bar and light refreshments reception.

### First-Time Attendee Drop By

**5:00 PM - 7:00 PM, WEST LOBBY ENTRANCE**

Is this your first time attending a Biophysical Society Annual Meeting? Wondering what to do first? Feeling overwhelmed? Wondering how to get the most out of your time? Drop by the First-Time Attendee event on Saturday evening during the Opening Mixer to learn how to navigate the meeting. Society staff and Committee Members will be on hand to answer your questions about the meeting and help you gain the most from your time.

### Poster Viewing

**6:00 PM - 10:00 PM, WEST HALL**

### CID/CPOW/Education Travel Awardee Reception

**6:30 PM - 7:30 PM, ROOM 404AB**

During this reception, students, postdocs, and early and mid-career scientists will be honored and presented with their travel awards by the chairs of the Education, Inclusion and Diversity, and Professional Opportunities for Women Committees.

### Cryo-EM Subgroup

**7:00 PM - 9:00 PM, ROOM 411**

#### Program Chairs

*Edward Egelman, University of Virginia*  
*Da-Neng Wang, New York University*  
*Bridget Carragher, New York Structural Biology Center*  
*Yifan Cheng, University of California, San Francisco*  
*Irina Serysheva, University of Texas Medical School*  
*David Stokes, New York University*

**59-SUBG 7:00 PM**

MICROED: THREE DIMENSIONAL ELECTRON DIFFRACTION OF MICROSCOPIC CRYSTALS. **Tamir Gonen**

**60-SUBG 7:20 PM**

1D SELF-ASSEMBLY OF PEPTIDES AND LIPIDS INTO RIBBONS AND NANOTUBES. **Dganit Danino, Luba Kolik**

**61-SUBG 7:40 PM**

STRUCTURE OF THE ACRABZ-TOLC MULTIDRUG EFFLUX PUMP IN A DRUG-BOUND STATE. **Zhao Wang, Dijun Du, Guizhen Fan, Irina I. Serysheva, Ben F. Luisi, Wah Chiu**

**62-SUBG 8:00 PM**

SINGLE-PARTICLE CRYO-EM STUDIES OF A 200-KDA MAGNESIUM ION CHANNEL REVEAL LARGE STRUCTURAL CHANGES UPON GATING. **Doreen Matthies, Olivier Dalmas, Mario J. Borgnia, Pawel K. Dominik, Alan Merk, Prashant Rao, Bharat G. Reddy, Shahidul Islam, Alberto Bartesaghi, Eduardo Perozo, Sriram Subramaniam**

**63-SUBG 8:20 PM**

IF GEL AND MASS SPEC DON'T HELP, USE CRYO-EM TO CHARACTERISE YOUR SPECIMEN. **Alexey Amunts**

**64-SUBG 8:40 PM**

HIGH-RESOLUTION CRYO-EM STRUCTURES OF TRPV1 REVEAL STRUCTURAL BASIS OF LIGAND BINDING AND CHANNEL GATING. **Yuan Gao, Erhu Cao, David Julius, Yifan Cheng**

**9:00 PM BUSINESS MEETING**

# Sunday, February 28, 2016

## Daily Program Summary

All rooms are located in the *Baltimore Convention Center* unless noted otherwise.

7:30 AM–8:30 AM	Postdoctoral Breakfast	Room 404AB
7:30 AM–5:00 PM	Registration/Exhibitor Registration	West Lobby
8:00 AM–10:00 PM	Poster Viewing	West Hall
8:15 AM–10:15 AM	<p><b>Symposium: Synthetic Biology</b>            Chair: <i>Pamela Silver, Harvard University</i></p> <p>TRIGGER WAVES IN MITOSIS AND APOPTOSIS. <i>James Ferrell</i>            FEEDBACK CONTROL OF MAMMALIAN CELL DIFFERENTIATION. <i>Mary N. Teruel</i>            COMMUNICATION AND COLLABORATION IN SYNTHETIC MICROBIAL CONSORTIA. <i>Cynthia H. Collins</i>            DESIGNING WITH BIOLOGY. <i>Pamela Silver</i></p>	Petree Hall C
8:15 AM–10:15 AM	<p><b>Symposium: Pentameric Ligand-gated Ion Channels</b>            Chair: <i>Cynthia Czajkowski, University of Wisconsin-Madison</i></p> <p>PROBING CHANNEL STRUCTURE, DYNAMICS, AND FUNCTION. <i>Pei Tang</i>            CHARGE SELECTIVITY IN PLGICS: AN ASPECT OF CHANNEL FUNCTION THAT REMAINS ELUSIVE EVEN WHEN MULTIPLE STRUCTURES ARE KNOWN. <i>Claudio Grosman</i>            INSIGHTS INTO INTRACELLULAR DOMAINS OF PENTAMERIC LIGAND-GATED ION CHANNELS. <i>Michaela Jansen</i>            DETECTING LIGAND-INDUCED MOTIONS IN PENTAMERIC LIGAND-GATED ION CHANNELS. <i>Cynthia Czajkowski</i></p>	Petree Hall D
8:15 AM–10:15 AM	Platform: Alternative Protein Conformations and Function	Room 502A
8:15 AM–10:15 AM	Platform: Skeletal Muscle Mechanics, Structure, and Regulation	Room 502B
8:15 AM–10:15 AM	Platform: Optical Microscopy and Super-Resolution Imaging I	Room 515A
8:15 AM–10:15 AM	Platform: Membrane Physical Chemistry I	Room 515B
8:15 AM–10:15 AM	Platform: Bioenergetics and Mitochondrial Signaling	Room 501ABC
8:15 AM–10:15 AM	Platform: DNA Replication and Transcription	Room 511ABC
8:30 AM–10:30 AM	CID Committee Meeting	Room 506
9:00 AM–10:00 AM	<p>Career Center Workshop            Selling Yourself to the Life Sciences Industry</p>	Room 518
10:00 AM–5:00 PM	Exhibits	West Hall
10:15 AM–11:00 AM	Coffee Break	West Hall
10:30 AM–11:30 AM	<p>Career Center Workshop            Leveraging Social Media for Networking and Career Advancement</p>	Room 518
10:30 AM–12:00 PM	<p>Exhibitor Presentation: Carl Zeiss Microscopy LLC            Technology Innovations: ZEISS LSM 880 Confocal with Airyscan and ZEISS Lightsheet Z.1</p>	Room 513
10:30 AM–12:00 PM	International Relations Committee Meeting	Room 410

	<p><b>Symposium: New and Notable</b> <span style="float: right;"><b>Petree Hall C</b></span>  <b>Co-Chairs:</b> <i>Vasanthi Jayaraman, University of Texas Health Science Center, and E. Michael Ostap, University of Pennsylvania</i></p> <p>STRUCTURE OF A TRPV2 ION CHANNEL, <i>Seok-Yong Lee</i>  CRYO-EM STRUCTURE OF A MICRONUTRIENT TRANSPORTER WITH UNUSUAL ARCHITECTURE. <i>Filippo Mancina</i></p> <p><b>10:45 AM–12:45 PM</b> STRUCTURAL DYNAMICS OF K CHANNEL GATING REVEALED BY SINGLE MOLECULE FRET. <i>Colin Nichols</i>  THE MOTIONS AND INTERACTIONS IN MISMATCH REPAIR TARGET SEARCH DYNAMICS ARE REVEALED BY LIVE-CELL SINGLE-MOLECULE MICROSCOPY. <i>Julie Biteen</i>  INTEGRATIVE STRUCTURAL BIOLOGY OF TETRAHYMENA TELOMERASE. <i>Juli Feigon</i>  INTRINSICALLY DISORDERED PROTEINS AS PHYSICAL DRIVERS OF MEMBRANE TRAFFIC. <i>Jeanne C. Stachowiak</i>  FLOPPY BUT NOT SLOPPY: DECODING PLASTICITY IN THE DARK PROTEOME OF THE NUCLEAR TRANSPORT MACHINERY. <i>Edward Lemke</i></p>
<b>10:45 AM–12:45 PM</b>	<p><b>Symposium: Computational and Experimental Approaches to Protein Design</b> <span style="float: right;"><b>Petree Hall D</b></span>  <b>Chair:</b> <i>Rama Ranganathan, University of Texas, Southwestern</i></p> <p>MAPPING CONSTRAINTS ON PROTEIN EVOLUTION. <i>Jesse Bloom</i>  UNCOVERING AND REPROGRAMMING G PROTEIN COUPLED RECEPTOR SIGNALING. <i>Patrick Barth</i>  DESIGNING PEPTIDE INHIBITORS OF ANTI-APOPTOTIC BCL-2 FAMILY PROTEINS. <i>Amy E. Keating</i>  PROTEIN MECHANICS: THE LINK BETWEEN STRUCTURE AND FUNCTION. <i>Rama Ranganathan</i></p>
<b>10:45 AM–12:45 PM</b>	<b>Platform: Cryo-Electron Microscopy</b> <span style="float: right;"><b>Room 502A</b></span>
<b>10:45 AM–12:45 PM</b>	<b>Platform: Cell Mechanics, Mechanosensing, and Motility I</b> <span style="float: right;"><b>Room 502B</b></span>
<b>10:45 AM–12:45 PM</b>	<b>Platform: TRP Channels</b> <span style="float: right;"><b>Room 515A</b></span>
<b>10:45 AM–12:45 PM</b>	<b>Platform: Protein Assembly and Function</b> <span style="float: right;"><b>Room 515B</b></span>
<b>10:45 AM–12:45 PM</b>	<b>Platform: Membrane Active Peptides and Toxins</b> <span style="float: right;"><b>Room 501ABC</b></span>
<b>10:45 AM–12:45 PM</b>	<b>Platform: Cardiac Smooth and Skeletal Muscle Electrophysiology</b> <span style="float: right;"><b>Room 511ABC</b></span>
<b>11:30 AM–1:00 PM</b>	<b>Undergraduate Student Pizza "Breakfast"</b> <span style="float: right;"><b>Room 406AB</b></span>
<b>11:30 AM–5:00 PM</b>	<b>Colleges in the Community Day</b> <span style="float: right;"><b>Room 406AB</b></span>
<b>12:00 PM–1:00 PM</b>	<b>International Travel Awardee Luncheon</b> <span style="float: right;"><b>Room 404AB</b></span>
<b>12:00 PM–1:00 PM</b>	<b>Career Center Workshop</b> <b>Creating and Using an Effective CV/Résumé</b> <span style="float: right;"><b>Room 518</b></span>
<b>12:15 PM–2:15 PM</b>	<b>Public Affairs Committee Meeting</b> <span style="float: right;"><b>Room 506</b></span>
<b>1:00 PM–2:30 PM</b>	<b>The World Outside the Lab: Many Ways to Use Your PhD Skills in Industry</b> <span style="float: right;"><b>Room 403A</b></span>
<b>1:00 PM–3:00 PM</b>	<b>Graduate &amp; Postdoc Institution Fair</b> <span style="float: right;"><b>West Hall</b></span>
<b>1:45 PM–3:00 PM</b>	<b>Snack Break</b> <span style="float: right;"><b>West Hall</b></span>
<b>1:45 PM–3:45 PM</b>	<b>Poster Presentations and Late Posters</b> <span style="float: right;"><b>West Hall</b></span>
<b>2:00 PM–3:30 PM</b>	<b>Teaching Science Like We Do Science</b> <span style="float: right;"><b>Room 408A</b></span>
<b>2:30 PM–3:30 PM</b>	<b>Career Center Workshop</b> <b>Networking for Nerds</b> <span style="float: right;"><b>Room 518</b></span>
<b>2:30 PM–4:00 PM</b>	<b>Transparency, Reproducibility, and the Progress of Science</b> <span style="float: right;"><b>Room 411</b></span>
<b>3:30 PM–5:00 PM</b>	<b>Early Careers Committee Meeting</b> <span style="float: right;"><b>Room 506</b></span>
<b>4:00 PM–5:00 PM</b>	<b>Career Center Workshop</b> <b>Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)</b> <span style="float: right;"><b>Room 518</b></span>
<b>4:00 PM–6:00 PM</b>	<p><b>Symposium: Signaling Complexes and Dynamics</b> <span style="float: right;"><b>Petree Hall C</b></span>  <b>Chair:</b> <i>Hao Wu, Harvard Medical School</i></p> <p>STRUCTURAL ELUCIDATION OF INNATE IMMUNITY. <i>Hao Wu</i>  MECHANISM OF JAK2 ACTIVATION BY THE ARCHETYPE CLASS I CYTOKINE RECEPTOR, THE GROWTH HORMONE RECEPTOR. <i>Andrew J. Brooks</i>  MECHANISM AND FUNCTIONS OF PLATELET MECHANOSENSING. <i>Renhao Li</i>  CONFORMATIONAL PLASTICITY AND DRUGGABILITY OF MEMBRANE-BOUND K-RAS. <i>Alemayehu A. Gorfe</i></p>

4:00 PM–6:00 PM	<b>Symposium: Structure and Motion of Cilia and Flagella</b> Chair: <i>Jonathan Howard, Yale University</i>	Petree Hall D
	CRYO-ELECTRON TOMOGRAPHY PROVIDES A NEW WINDOW INTO CILIARY STRUCTURE AND FUNCTION. <i>Daniela Nicastro</i> STRUCTURAL GENETICS OF CILIA/FLAGELLA. <i>Masahide Kikkawa</i> MOTOR COORDINATION UNDERLYING THE FLAGELLAR BEAT IN CHLAMYDOMONAS. <i>Jonathon Howard</i> SYNCHRONIZATION OF EUKARYOTIC FLAGELLA. <i>Raymond E. Goldstein</i>	
4:00 PM–6:00 PM	<b>Symposium: DNA Nanostructures for Biophysics</b> Chair: <i>William Shih, Harvard University</i>	Room 502A
	DNA NANOSTRUCTURES AS BUILDING BLOCKS FOR MOLECULAR BIOPHYSICS AND FUTURE THERAPEUTICS. <i>William Shih</i> CREATING PROGRAMMABLE DISORDER IN DNA ORIGAMI ARRAYS WITH COMBINATORIAL PATTERNS. <i>Lulu Qian</i> DNA ORIGAMI FOR NANOPORES: DESIGN, DEVELOPMENTS, AND CHALLENGES. <i>Ulrich F. Keyser</i> NANOSCALE CONSTRUCTION AND IMAGING WITH DNA. <i>Peng Yin</i>	
4:00 PM–6:00 PM	<b>Platform: Voltage-gated Channels (Na and Ca)</b>	Room 502B
4:00 PM–6:00 PM	<b>Platform: Membrane Structure</b>	Room 515A
4:00 PM–6:00 PM	<b>Platform: Intrinsically Disordered Proteins (IDP) and Aggregates I</b>	Room 515B
4:00 PM–6:00 PM	<b>Platform: Membrane Protein Structure and Folding I</b>	Room 501ABC
4:00 PM–6:00 PM	<b>Platform: Biomaterials and Biosurfaces</b>	Room 511ABC
5:00 PM–6:00 PM	<b>Korean Biophysicists Meeting</b>	Room 403B
5:00 PM–7:00 PM	<b>PI to PI, a Wine &amp; Cheese Mixer</b>	Room 406AB
5:30 PM–7:00 PM	<b>Exhibitor Presentation: HEKA Elektronik + Multi Channel Systems PATCHMASTER and PatchServer: Solutions for Patch Clamp</b>	Room 505
6:00 PM–7:00 PM	<b>Biophysics Austria Mixer</b>	Room 404AB
6:00 PM–9:00 PM	<b>Student Research Achievement Award (SRAA) Poster Competition</b>	West Hall

# Sunday, February 28

## Postdoctoral Breakfast

7:30 AM - 8:30 AM, ROOM 404AB

Supported by the Burroughs Wellcome Fund

This breakfast presents an opportunity for postdoctoral members of the Society to meet and discuss the issues they face in their current career stage. Members of the Early Careers Committee will be available to answer questions about how the Committee serves postdocs in the biophysical community. Limited to the first 100 attendees.

## Registration/Exhibitor Registration

7:30 AM - 5:00 PM, WEST LOBBY

## Poster Viewing

8:00 AM - 10:00 PM, WEST HALL

## Symposium Synthetic Biology

8:15 AM - 10:15 AM, PETREE HALL C

### Chair

*Pamela Silver, Harvard University*

**NO ABSTRACT** 8:15 AM

TRIGGER WAVES IN MITOSIS AND APOPTOSIS. **James Ferrell**

**65-SYMP** 8:45 AM

FEEDBACK CONTROL OF MAMMALIAN CELL DIFFERENTIATION.

**Mary N. Teruel**

**66-SYMP** 9:15 AM

COMMUNICATION AND COLLABORATION IN SYNTHETIC MICROBIAL CONSORTIA. **Cynthia H. Collins**

**NO ABSTRACT** 9:45 AM

DESIGNING WITH BIOLOGY. **Pamela Silver**

## Symposium Pentameric Ligand-gated Ion Channels

8:15 AM - 10:15 AM, PETREE HALL D

### Chair

*Cynthia Czajkowski, University of Wisconsin-Madison*

**NO ABSTRACT** 8:15 AM

PROBING CHANNEL STRUCTURE, DYNAMICS, AND FUNCTION. **Pei Tang**

**67-SYMP** 8:45 AM

CHARGE SELECTIVITY IN PLGICS: AN ASPECT OF CHANNEL FUNCTION THAT REMAINS ELUSIVE EVEN WHEN MULTIPLE STRUCTURES ARE KNOWN. **Claudio Grosman**

**68-SYMP** 9:15 AM

INSIGHTS INTO INTRACELLULAR DOMAINS OF PENTAMERIC LIGAND-GATED ION CHANNELS. **Michaela Jansen**

**69-SYMP** 9:45 AM

DETECTING LIGAND-INDUCED MOTIONS IN PENTAMERIC LIGAND-GATED ION CHANNELS. **Cynthia Czajkowski**

## Platform Alternative Protein Conformations and Function

8:15 AM - 10:15 AM, ROOM 502A

### Co-Chairs

*Albert Lau, Johns Hopkins University*

*Nagarajan Vaidehi, Beckman Research Institute of City of Hope*

**70-PLAT** 8:15 AM

SEEING THE UNSEEN: SAMPLING THE EXCITED STATE OF T4 LYSOZYME L99A WITH SIMULATIONS ON THE ANTON SUPERCOMPUTER. **Jamie Schiffer**, Roxana Sida, Dariana Arciniega, Robert Malmstrom, Victoria Feher, Rommie Amaro

**71-PLAT** 8:30 AM

COMPUTATIONAL AND EXPERIMENTAL STUDIES OF A PROKARYOTIC GLUTAMATE RECEPTOR. **John Belcher**, Albert Lau

**72-PLAT** 8:45 AM

SIMULATING THE FUNCTION OF SODIUM/PROTON ANTIPORTERS. **Raphael Alhadeff**, Arieh Warshel

**73-PLAT** 9:00 AM

MODULATING CONFORMATIONAL STATES IN THE GLUTAMATE TRANSPORTER HOMOLOGUE GLTPH USING PROTECTIVE OSMOLYTES. **Sara Blankenship**, Jessica Sarver, David Cafiso

**74-PLAT** 9:15 AM

ATOMIC LEVEL INSIGHTS INTO THE ACTIVATION MECHANISM OF NEURONAL ROTENSIN RECEPTOR 1. **Supriyo Bhattacharya**, Reinhard Grisshammer, Nagarajan Vaidehi

**75-PLAT** 9:30 AM

DYNAMIC SAMPLING OF MULTIPLE CONFORMATIONS IN FIMH MODULES BACTERIAL ADHESION. **Vasilios Kalas**, Jerome S. Pinkner, Alex S. Holehouse, Hao Zhang, Michael L. Gross, Rohit V. Pappu, Scott J. Hultgren

**76-PLAT** 9:45 AM

INVESTIGATION OF THE PH INDUCED CONFORMATIONAL REARRANGEMENT OF INFLUENZA HEMAGGLUTININ. **Xingcheng Lin**, Jeffrey K. Noel, Nathaniel R. Eddy, Jianpeng Ma, José N. Onuchic

**77-PLAT** 10:00 AM

ATOMIC STRUCTURE OF A NON-ENVELOPED DSRNA VIRUS REVEALS PH SENSING FOR CELL ENTRY. **Xing Zhang**

## Platform Skeletal Muscle Mechanics, Structure, and Regulation

8:15 AM - 10:15 AM, ROOM 502B

### Co-Chairs

*Sanford Bernstein, San Diego State University*

*Raul Perez-Jimenez, CIC nanoGUNE, Spain*

**78-PLAT** 8:15 AM

THE FORCE PRODUCING ADP STATE OF MYOSIN BOUND TO ACTIN. **Rasmus R. Schroeder**, Sarah F. Wulf, Virginie Ropars, Setsuko Fujita-Becker, Marco Oster, Goetz Hofhaus, Leonardo G. Trabuco, Olena Pylypenko, H. Lee Sweeney, Anne Houdusse

**79-PLAT** 8:30 AM

RIBBONS, NOT SUBFILAMENTS. **Michael K. Reedy**, Robert J. Perz-Edwards

**80-PLAT 8:45 AM**  
STRESS-SENSING MOBILIZES MYOSIN MOTORS IN THE THICK FILAMENTS OF RESTING MUSCLE. Massimo Reconditi, Elisabetta Brunello, Marco Caremani, Luca Fusi, Marco Linari, Theyencheri Narayanan, Gabriella Piazzesi, Malcom Irving, **Vincenzo Lombardi**

**81-PLAT 9:00 AM**  
SKELETAL MUSCLE DEFICIENCIES IN HOMOZYGOUS FAST-SKELETAL MYOSIN BINDING PROTEIN-C MUTANT MICE. **Brian L. Lin**, Suresh Govindan, Sakthivel Sadayappan

**82-PLAT 9:15 AM**  
MECHANOCHEMICAL EVOLUTION OF THE GIANT MUSCLE PROTEIN TITIN AS INFERRED FROM ANCIENT PROTEINS. **Raul Perez-Jimenez**, Aitor Manteca, David De Sancho, Elías Herrero-Galán, Jorge Alegre Cebollada

**83-PLAT 9:30 AM**  
THE MUSCLE MECHANICAL BASIS OF FREEMAN-SHELDON SYNDROME. **Kaylyn M. Bell**, William A. Kronert, Yiming Guo, Deepti Rao, Alice Huang, Sanford I. Bernstein, Douglas M. Swank

**84-PLAT 9:45 AM**  
STRUCTURAL AND FUNCTIONAL IMPACTS OF NOVEL MUTATIONS IN SLOW SKELETAL MUSCLE TROPONIN T FOUND IN NON-AMISH TNNT1 NEMALINE MYOPATHIES. **Chinthaka K. Amarasinghe**, Jian-Ping Jin

**85-PLAT 10:00 AM**  
MOLECULAR MECHANISM OF NOVEL DELETIONS IN TPM3 THAT CAUSE A HYPERCONTRACTILE PHENOTYPE WITH CONGENITAL MUSCLE STIFFNESS. **Steven Marston**, Maria Papadaki, Massimiliano Memo, Andrew Messer, Sandra Donkervoort, Carsten Bonneman, Kristen Nowak, Royston Ong, Elyshia McNamara

## Platform

### Optical Microscopy and Super-Resolution Imaging I

8:15 AM - 10:15 AM, ROOM 515A

#### Co-Chairs

*Jingyi Fei, University of Chicago*

*Enrico Gratton, University of California, Irvine*

**86-PLAT 8:15 AM**  
CONNECTIVITY MAP OF THE CELL INTERIOR. **Enrico Gratton**, Carmine Di Rienzo, Francesco Cardarelli, Per Niklas Hedde

**87-PLAT 8:30 AM**  
SIMULTANEOUS HIGH-SPEED TRACKING OF MULTIPLE SINGLE-MOLECULES REVEALS FUNCTIONAL INTERACTIONS IN LIVING CELLS. **Brian P. English**, Robert H. Singer

**88-PLAT 8:45 AM**  
INVESTIGATING MOLECULAR CROWDING WITHIN NUCLEAR PORES USING POLARIZATION PALM (P-PALM). Guo Fu, Anton Zilman, **Siegfried Musser**

**89-PLAT 9:00 AM**  
UNRAVELLING 3D CARGO TRANSPORT DYNAMICS AT THE MICROTUBULE NETWORK. **Ione Verdeny Vilanova**, Fabian Wehnekamp, Nitin Mohan, Ángel Sandoval Álvarez, Joe Borbely, Jason Otterstrom, Don Lamb, Melike Lakadamyali

**90-PLAT 9:15 AM**  
NON-RANDOM COMPOSITIONAL ORGANIZATION OF NUCLEAR SPECKLES. **Jingyi Fei**, Mahdieh Jadaliha, Isaac Li, Boyang Hua, Kannanganattu V. Prasanth, Taekjip Ha

**91-PLAT 9:30 AM**  
ACCURATE HIGH SPEED IMAGING OF SINGLE PROTEIN DIFFUSION WITHIN THE LIVE CELL MEMBRANE. **Richard W. Taylor**, Vahid Sandoghdar

**92-PLAT 9:45 AM**  
FLUORESCENCE DENSITY MAPPING: EXTENDING THE POSSIBILITIES OF TIRFM TO STUDY PM-ER JUNCTIONS. **Michael Poteser**, Elisabeth Pritz, Gerd Leitinger, Klaus Groschner

**93-PLAT 10:00 AM**  
NONCONTACT MAPPING OF INTRACELLULAR ELASTICITY VIA BRILLOUIN MICROSCOPY. **Giuliano Scarcelli**

## Platform

### Membrane Physical Chemistry I

8:15 AM - 10:15 AM, ROOM 515B

#### Co-Chairs

*Aurelia Honerkamp-Smith, University of Cambridge, United Kingdom*

*Drew Marquardt, University of Graz, Austria*

**94-PLAT 8:15 AM**  
KINETICS OF REGISTRATION, ANTIREGISTRATION, AND FLIP-FLOP IN PHASE-SEPARATING BILAYERS. John J. Williamson, **Peter Olmsted**

**95-PLAT 8:30 AM**  
ATOMIC RECOMBINATION IN NANOSIMS AS A METHOD TO MEASURE NANOMETER-SCALE INTERMOLECULAR DISTANCES IN LIPID BILAYERS. **Frank R. Moss**, Steven G. Boxer

**96-PLAT 8:45 AM** EDUCATION TRAVEL AWARDEE  
A DEMONSTRATION OF LIPID FLIP-FLIP IN FREE-FLOATING LIPOSOMES. **Drew Marquardt**, Barbara Geier, Frederick A. Heberle, Milka Doktorova, John Katsaras, Georg Pabst

**97-PLAT 9:00 AM**  
HOW THE STRUCTURAL ASPECTS OF CHOLESTEROL MEDIATE LIPID FLIP-FLOP. **John S. Allhusen**, Dylan R. Kimball, John C. Conboy

**98-PLAT 9:15 AM**  
CONFIGURABLE LIPID MEMBRANE GRADIENTS QUANTIFY DIFFUSION, PHASE SEPARATIONS AND BINDING DENSITIES. **Katherine N. Liu**, Chen-Min S. Hung, Michael A. Swift, Kristen A. Muñoz, Jose L. Cortez, Babak Sanii

**99-PLAT 9:30 AM**  
A MICROFLUIDIC PLATFORM TO PRODUCE AND MANIPULATE LIPOSOMES - TOWARDS SYNTHETIC CELLS ON CHIP. **Siddharth Deshpande**, Yaron Caspi, Anthony Birnie, Cees Dekker

**100-PLAT 9:45 AM**  
FLUID FLOW AS A STRATEGY FOR SORTING AND LOCALIZATION OF MEMBRANE PROTEINS. **Aurelia R. Honerkamp-Smith**, Rita E. Monson, Ross F. Waller, Raymond E. Goldstein

**101-PLAT 10:00 AM**  
REMODELING OF GAMETE MEMBRANE DURING MAMMALIAN FERTILIZATION. **Benjamin Ravaux**, Christine Gourier

## Platform

### Bioenergetics and Mitochondrial Signaling

8:15 AM - 10:15 AM, ROOM 501ABC

#### Co-Chairs

*Peter Adams, University of Leeds, United Kingdom*

*Tatiana Rostovtseva, NIH*

**102-PLAT 8:15 AM** EDUCATION TRAVEL AWARDEE  
ULTRAFAST LIMITS OF PHOTO-INDUCED ELECTRON TRANSFER RATES IN PPCA, A MULTI-HEME C-TYPE CYTOCHROME. **Aidan M. McKenzie**



**103-PLAT 8:30 AM**

INFRARED SPECTROSCOPIC AND ELECTROCHEMICAL APPROACHES FOR THE STUDY OF THE REACTION MECHANISM OF IMMOBILIZED MEMBRANE PROTEINS FROM THE RESPIRATORY CHAIN. Melin Frederic, Sebastien Kriegel, Thomas Meyer, **Petra Hellwig**

**104-PLAT 8:45 AM**

THEORETICAL INVESTIGATION INTO THE COLOR-TUNING MECHANISM OF PROTEORHODOPSIN. **Choongkeun Lee**, Blake Mertz

**105-PLAT 9:00 AM**

REDESIGNING PHOTOSYNTHETIC MEMBRANES: DEVELOPMENT OF BIO-INSPIRED PHOTONIC NANOMATERIALS. **Peter G. Adams**, Cvetelin Vasilev, Aaron M. Collins, Gabriel A. Montaño, C. Neil Hunter, Matthew P. Johnson

**106-PLAT 9:15 AM**

ENGINEERED AAA+ PROTEASES REVEAL MECHANISMS OF DEGRADATION AT THE MITOCHONDRIAL INNER MEMBRANE. Hui Shi, Anthony J. Rampello, Bojian Ding, **Steven E. Glynn**

**107-PLAT 9:30 AM**

ER CALCIUM RELEASE IS TUNED BY MITOCHONDRIAL REDOX NANODOMAINS. **David M. Booth**, Balázs Enyedi, Miklós Geiszt, Péter Várnai, György Hajnóczky

**108-PLAT 9:45 AM**

UNEXPECTED MODIFICATIONS OF CYSTEINES IN VDAC3: INDICATION THAT VDAC3 MAY SIGNAL THE MITOCHONDRIAL INTERMEMBRANE REDOX STATE. Simona Reina, Vanessa Checchetto, Rosaria Saletti, Ankit Gupta, Deepti Chaturvedi, Carlo Guardiani, Francesca Guarino, Mariano Andrea Scorciapino, Andrea Magri, Salvatore Foti, Matteo Ceccarelli, Angela A. Messina, Radhakrishnan Mahalakshmi, Ildiko Szabo, **Vito De Pinto**

**109-PLAT 10:00 AM**

MEMBRANE LIPID COMPOSITION REGULATES ALPHA-SYNUCLEIN BLOCKAGE OF AND TRANSLOCATION THROUGH THE MITOCHONDRIAL VOLTAGE-DEPENDENT ANION CHANNEL. Daniel Jacobs, David P. Hoogerheide, Amandine Rovini, Philip A. Gurnev, Sergey M. Bezrukov, **Tatiana K. Rostovtseva**

**Platform****DNA Replication and Transcription****8:15 AM - 10:15 AM, ROOM 511ABC****Co-Chairs***Juli Feigon, University of California, Los Angeles**Kenneth Johnson, University of Texas at Austin***110-PLAT 8:15 AM**

RATE-LIMITING PYROPHOSPHATE RELEASE BY HIV REVERSE TRANSCRIPTASE AND ITS EFFECT ON ENZYME SPECIFICITY. **An Li**, Kenneth Johnson

**111-PLAT 8:30 AM**

A HYBRID METHODS APPROACH TO DETERMINE THE STRUCTURE OF TETRAHYMENA TELOMERASE. **Juli Feigon**

**112-PLAT 8:45 AM**

TWO-STAGE SYNAPSIS OF DNA ENDS DURING NON-HOMOLOGOUS END JOINING. **Thomas G.W. Graham**, Johannes C. Walter, Joseph J. Loparo

**113-PLAT 9:00 AM**

REAL-TIME OBSERVATION OF THE INITIATION OF RNA POLYMERASE II TRANSCRIPTION. **Furqan M. Fazal**, Cong A. Meng, Kenji Murakami, Roger D. Kornberg, Steven M. Block

**114-PLAT 9:15 AM**

SINGLE-MOLECULE IMAGING OF TRANSCRIPTION, CHROMOSOME ORGANIZATION, AND DNA REPAIR IN LIVE BACTERIA. **Mathew Stracy**, Christian Lesterlin, Stephan Uphoff, Pawel Zawadzki, Achillefs N. Kapanidis

**115-PLAT 9:30 AM**

E. COLI RNA POLYMERASE PAUSES DURING INITIAL TRANSCRIPTION. **David LV Bauer**, Diego Duchi, Achillefs N. Kapanidis

**116-PLAT 9:45 AM**

SINGLE-PROBE FLUORESCENCE IN SITU HYBRIDIZATION (FISH) IN BUD-DING YEAST. **Gable M. Wadsworth**, Harold Kim

**117-PLAT 10:00 AM**

EDUCATION TRAVEL AWARDEE  
CRACKING OPEN A MOLECULAR CALCULATOR: DNA CHARGE TRANSPORT AND PRIMASE. **Marilyn E. Holt**, Elizabeth O'Brien, Lauren Salay, Matthew Thompson, Aaron Ehlinger, Jacqueline Barton, Walter Chazin

**CID Committee Meeting****8:30 AM - 10:30 AM, ROOM 506****Career Center Workshop****Selling Yourself to the Life Sciences Industry****9:00 AM - 10:00 AM, ROOM 518**

The industrial employer is looking for a different set of skills and attitudes than either the academic or government employer. Learn what the pharmaceutical/biotechnology industries want to hear from potential employees and why. Learn how to develop and best position your marketing message in order to improve the chances of a successful industrial job search.

**Exhibits****10:00 AM - 5:00 PM, WEST HALL****Coffee Break****10:15 AM - 11:00 AM, WEST HALL****Career Center Workshop****Leveraging Social Media for Networking and Career Advancement****10:30 AM - 11:30 AM, ROOM 518**

More and more recruiters, job decision-makers and hiring managers are using the web to find and research potential candidates. How can you make sure that you are not only found, but are ahead of the pack? In this session, we will discuss how decision-makers use LinkedIn and Facebook, and how you can use LinkedIn to establish yourself as a leader in your field, enhance your research reputation, and seek out and take advantage of innovative opportunities. We will demonstrate how to create a winning LinkedIn profile, and how to use its multitude of features (such as joining and commenting in groups) to generate solid leads for your career.

**Exhibitor Presentation****Carl Zeiss Microscopy LLC****10:30 AM - 12:00 PM, ROOM 513****Technology Innovations: ZEISS LSM 880 Confocal with Airyscan and ZEISS Lightsheet Z.1**

These microscopes from ZEISS address both ends of the spectrum of samples, live high speed imaging with superresolution and high speed imaging of large live and fixed tissues. Learn how ZEISS LSM 880 with Airyscan maintains the mantra that each photon of emission light is precious, while expanding the triangle of sensitivity, resolution and speed of acquisition.

ZEISS LSM 880 with Airyscan allows you to use multicolor samples with any label and get image quality like you have never seen before. With Airyscan you are always able to select the optimal acquisition strategy for your sample: Simply decide whether you want to gain 1.7x higher

resolution in all three dimensions – resulting in a 5x smaller confocal volume. Or push the sensitivity beyond the limits of all conventional confocal microscopes; or use the increase in signal-to-noise ratio to speed up your image acquisition.

Traditionally, deeply imaging into intact tissue typically requires multiphoton excitation to penetrate deeper than near the surface of a tissue. Using a “clearing” method to remove the light obstructing opaque molecules from a tissue has been another technique for deep imaging. Techniques such as SCALE, CLARITY, ClearT, SeeDB, CUBIC and others have allowed researchers to image deeper than a millimeter into cleared animal model brains and organs.

ZEISS Lightsheet Z.1 features high speed image acquisition and greatly reduced photo damage making imaging of live developmental samples and fixed and cleared tissues easier than ever before. Come learn about using the innovative ZEISS Lightsheet Z.1 microscope for imaging of fixed and cleared tissues.

#### Speakers

Joseph Huff, Product Marketing Manager, Laser Scanning and Superresolution Microscopy, Carl Zeiss Microscopy LLC

Scott Olenych, Product Marketing Manager, Imaging Products, Carl Zeiss Microscopy LLC

## International Relations Committee Meeting

10:30 AM - 12:00 PM, ROOM 410

## Symposium New and Notable

10:45 AM - 12:45 PM, PETREE HALL C

#### Co-Chairs

Vasanthi Jayaraman, University of Texas Health Science Center, and E. Michael Ostap, University of Pennsylvania

**NO ABSTRACT 10:45 AM**

STRUCTURE OF A TRPV2 ION CHANNEL, **Seok-Yong Lee**

**NO ABSTRACT 11:02 AM**

CRYO-EM STRUCTURE OF A MICRONUTRIENT TRANSPORTER WITH UNUSUAL ARCHITECTURE. **Filippo Mancina**

**NO ABSTRACT 11:19 AM**

STRUCTURAL DYNAMICS OF K CHANNEL GATING REVEALED BY SINGLE MOLECULE FRET. **Colin Nichols**

**NO ABSTRACT 11:36 AM**

THE MOTIONS AND INTERACTIONS IN MISMATCH REPAIR TARGET SEARCH DYNAMICS ARE REVEALED BY LIVE-CELL SINGLE-MOLECULE MICROSCOPY. **Julie Biteen**

**NO ABSTRACT 11:53 AM**

INTEGRATIVE STRUCTURAL BIOLOGY OF TETRAHYMENA TELOMERASE. **Juli Feigon**

**NO ABSTRACT 12:10 AM**

INTRINSICALLY DISORDERED PROTEINS AS PHYSICAL DRIVERS OF MEMBRANE TRAFFIC. **Jeanne C. Stachowiak**

**NO ABSTRACT 12:27 PM**

FLOPPY BUT NOT SLOPPY: DECODING PLASTICITY IN THE DARK PROTEOME OF THE NUCLEAR TRANSPORT MACHINERY. **Edward Lemke**

## Symposium Computational and Experimental Approaches to Protein Design

10:45 AM - 12:45 PM, PETREE HALL D

#### Chair

Rama Ranganathan, University of Texas, Southwestern

**118-SYMP 10:45 AM**

MAPPING CONSTRAINTS ON PROTEIN EVOLUTION. **Jesse Bloom**

**119-SYMP 11:15 AM**

UNCOVERING AND REPROGRAMMING G PROTEIN COUPLED RECEPTOR SIGNALING. **Patrick Barth**

**120-SYMP 11:45 AM**

DESIGNING PEPTIDE INHIBITORS OF ANTI-APOPTOTIC BCL-2 FAMILY PROTEINS. **Amy E. Keating**

**NO ABSTRACT 12:15 PM**

PROTEIN MECHANICS: THE LINK BETWEEN STRUCTURE AND FUNCTION. **Rama Ranganathan**

## Platform Cryo-Electron Microscopy

10:45 AM - 12:45 PM, ROOM 502A

#### Co-Chairs

Gunnar Schroeder, Forschungszentrum Juelich, Germany  
Sharon Wolf, Weizmann Institute of Science, Israel

**121-PLAT 10:45 AM**

HIGH-RESOLUTION STRUCTURAL INSIGHT INTO THE MYOSIN VI-F-ACTIN INTERFACE. **Laura Y. Kim, Pinar S. Gurel, Tosan Omabegho, Zev Bryant, Gregory M. Alushin**

**122-PLAT 11:00 AM**

USING CRYO-EM TO UNTANGLE THE CONFORMATIONAL LANDSCAPE OF A SMALL ALLOSTERICALLY-REGULATED COMPLEX. **Mario J. Borgnia, Soojay Banerjee, Alberto Bartesaghi, Doreen Matthies, Prashant Rao, Alan Merk, Jason Pierson, Jacqueline L. Milne, Sriram Subramaniam**

**123-PLAT 11:15 AM**

THE STRUCTURE OF THE METHANOSPIRILLUM HUNGATEI FLAGELLUM AS DETERMINED BY CRYO ELECTRON MICROSCOPY. **Nicole Poweleit**

**124-PLAT 11:30 AM**

IN SILICO REDUCTION OF CONFORMATIONAL VARIANCE IN CRYO-EM IMAGING. **Gunnar F. Schröder, Michaela Spiegel, Amudha Kumari Duraisamy**

**125-PLAT 11:45 AM**

COLLAPSE OF INDIVIDUAL DNA CHAINS CONFINED IN BACTERIOPHAGE CAPSIDS. **Françoise Livolant, Amélie Leforestier, Marta De Frutos, Dominique Durand**

**126-PLAT 12:00 PM**

STRUCTURAL REMODELING OF BACTERIOPHAGE  $\Phi$ 29 DURING INFECTION OF GRAM-POSITIVE BACTERIUM. **Madeline M. Farley, Jiagang Tu, Ian Molineux, Jun Liu**

**127-PLAT 12:15 PM**

CRYO-STEM TOMOGRAPHY PROVIDES MORPHOLOGICAL AND CHEMICAL CHARACTERIZATION OF PRECIPITATED CALCIUM-PHOSPHATE CLUSTERS SEQUESTERED IN MITOCHONDRIA OF INTACT VITRIFIED FIBROBLASTS. **Sharon G. Wolf, Yael Mutsafi, Ben Horowitz, Michael Elbaum, Deborah Fass**

**128-PLAT 12:30 PM**

ELECTRON CRYO-TOMOGRAPHY OF NANOWIRES IN SHEWANELLA ONEIDENSIS MR-1. **Poorna Subramanian, Sahand Pirbadian, Mohamed Y. El-Nagggar, Grant J. Jensen**

## Platform

## Cell Mechanics, Mechanosensing, and Motility I

10:45 AM - 12:45 PM, ROOM 502B

## Co-Chairs

*Melissa Knothe Tate, University of New South Wales, Australia*  
*Mohammad Mofrad, University of California, Berkeley*

## 129-PLAT 10:45 AM

MECHANO-SENSITIVE INTERACTION BETWEEN TALIN AND FULL-LENGTH VINCULIN. **Yinan Wang**, Benjamin T. Goult, Mingxi Yao, Jie Yan

## 130-PLAT 11:00 AM

DISSIPATION OF STRESS IN THE CYTOSKELETON VIA ALPHA-ACTININ DYNAMIC CROSSLINKING. **Hossein Khadivi Heris**, Adele Khavari, Adam Hendricks, Allen Ehrlicher

## 131-PLAT 11:15 AM

MECHANOTRANSDUCTION OF THE ENDOTHELIAL GLYCOALYX MEDIATES NITRIC OXIDE PRODUCTION THROUGH ACTIVATION OF TRP CHANNELS. **Matthew Dragovich**, Daniel Chester, X. Frank Zhang

## 132-PLAT 11:30 AM

A LAMIN A CHIMERIC PROTEIN CONTAINING A FRET BASED STRESS SENSORS REPORTS SPATIO-TEMPORAL FORCES IN THE NUCLEAR LAMINA. **Thomas M. Suchyna**, Fanji Meng, Frederick Sachs, Wilma Hofmann

## 133-PLAT 11:45 AM

EDUCATION TRAVEL AWARDEE

MOLECULAR MECHANISMS OF MECHANOTRANSDUCTION THROUGH LINC COMPLEXES. **Zeinab Jahed**, Hengameh Shams, Mohammad Mofrad

## 134-PLAT 12:00 PM

CELL INVASION THROUGH STIFF CONSTRICTIONS CAUSES MUTATIONS WHILE DAMAGING THE NUCLEUS. **Jerome Irianto**, Charlotte R. Pfeifer, Avathamsa Athirasala, Irena L. Ivanovska, Roger E. Greenberg, Dennis E. Discher

## 135-PLAT 12:15 PM

VISUALIZING DIRECT INTERACTIONS IN THE MECHANOBIOOME. **Priyanka Kothari**, Vasudha Srivastava, Irina Tchernyshyov, Jennifer Van Eyk, Douglas N. Robinson

## 136-PLAT 12:30 PM

MAPPING THE MECHANOME: NEW EXPERIMENTAL AND COMPUTATIONAL APPROACHES TO ELUCIDATE STEM CELL MECHANOADAPTATION AND LINEAGE COMMITMENT. **Melissa L. Knothe Tate**, Iman Jalilian, Min Jae Song, Sara McBride

Platform  
TRP Channels

10:45 AM - 12:45 PM, ROOM 515A

## Co-Chairs

*Avi Priel, The Hebrew University of Jerusalem, Israel*  
*Theodore Wensel, Baylor College of Medicine*

## 137-PLAT 10:45 AM

THE STOICHIOMETRY AND ACTIVATION MECHANISM OF TRPV1 BY VANILLOIDS. **Rakesh Kumar**, Adina Hazan, Henry Matzner, **Avi Priel**

## 138-PLAT 11:00 AM

ION-ION INTERACTION AT THE MULTI-ION TRPV1 PORE. **Bo Hyun Lee**, Jie Zheng

## 139-PLAT 11:15 AM

A COMBINED COARSE-GRAINED AND ALL-ATOM MOLECULAR SIMULATION OF THE TRPV1 CHANNEL. **Wenjun Zheng**

## 140-PLAT 11:30 AM

N-HMME UPREGULATES LIPOLYTIC PROTEINS IN THE LIVER TO COUNTER NAFLD. **Padmamalini Baskaran**, Ross Cook, Sara Cisneros, Steven McAllisted, Baskaran Thyagarajan

## 141-PLAT 11:45 AM

STRUCTURE OF THE FULL-LENGTH TRPV2 CHANNEL BY CRYOEM. **Kevin Huynh**

## 142-PLAT 12:00 PM

STRUCTURAL BASIS OF TRPV2 CHANNEL GATING INVESTIGATED WITH CRYO-EM. **Timothy L. Dosey**, Zhao Wang, Fan Guizhen, Irina I. Serysheva, Wah Chiu, Theodore G. Wensel

## 143-PLAT 12:15 PM

STRUCTURE OF THE TRPA1 ION CHANNEL SUGGESTS REGULATORY MECHANISMS. **Candice E. Paulsen**, Jean-Paul Armache, Yuan Gao, Yifan Cheng, David Julius

## 144-PLAT 12:30 PM

THE ROLE OF LIPID RAFTS IN THE LOCALIZATION AND FUNCTION OF THE CHEMOSENSORY TRPA1 CHANNEL. **Justyna B. Startek**, Debapriya Ghosh, Yerandy A. Alpizar, Alejandro López-Requena, Nele Van Ranst, Thomas Voets, Karel Talavera

Platform  
Protein Assembly and Function

10:45 AM - 12:45 PM, ROOM 515B

## Co-Chairs

*Jennifer Boatz, University of Pittsburgh*  
*Jochen Mueller, Ludwig Maximilian University of Munich, Germany*

## 145-PLAT 10:45 AM

STRUCTURAL STUDIES OF THE OLIGOMERIZATION PROCESS OF HUMAN CYSTATIN C VARIANTS. **Zuzanna Pietralik**, Magdalena Murawska, Aneta Szymanska, Janet R. Kumita, Christopher M. Dobson, **Maciej Kozak**

## 146-PLAT 11:00 AM

THE STRUCTURAL BASIS OF ENZYME REGULATION BY CTP SYNTHASE METABOLIC FILAMENTS. **Eric Lynch**, **Justin Kollman**

## 147-PLAT 11:15 AM

TUBULIN MONOMER-MONOMER ASSOCIATION IS LESS INFLUENCED BY THE SOLVENT THAN DIMER-DIMER ASSOCIATION: STRUCTURE AND FUNCTION OF TUBULIN INTERACTION INTERFACES. **Felipe Montecinos-Franjola**, Peter Schuck, Dan L. Sackett

## 148-PLAT 11:30 AM

STRUCTURAL STUDIES OF PLANT CESA SUPPORT EIGHTEEN CESAS IN THE PLANT CSC. **Venu G. Vandavasi**, Daniel K. Putnam, Qiu Zhang, Loukas Petridis, William T. Heller, B. Tracy Nixon, Candace H. Haigler, Udaya Kalluri, Leighton Coates, Paul Langan, Jeremy C. Smith, Jens Meiler, Hugh O'Neill

## 149-PLAT 11:45 AM

STRUCTURAL INSIGHTS INTO TC TOXIN ACTION. **Stefan Raunser**

## 150-PLAT 12:00 PM

AN INVESTIGATION OF THE ATOMIC STRUCTURE OF CATARACT-FORMING MUTANT GAMMA-D-CRYSTALLIN AGGREGATES FORMED UNDER DISTINCT ENVIRONMENTAL CONDITIONS. **Jennifer C. Boatz**, Matthew J. Whitley, Cody L. Hoop, Xuemei Zeng, Nathan Yates, Angela M. Gronenborn, Patrick C A van der Wel

## 151-PLAT 12:15 PM

THE GIANT CYTOSKELETAL PROTEIN OBSCURIN ACTS AS A VARIABLE FORCE RESISTOR. **Nathan T. Wright**, Tracy A. Caldwell, Logan C. Meyer

**152-PLAT 12:30 PM**  
FORCE SENSING BY THE VASCULAR PROTEIN VON WILLEBRAND FACTOR IS TUNED BY A STRONG INTERMONOMER INTERACTION. **Jochen P. Mueller**, Salomé Mielke, Achim Löff, Tobias Obser, Christof Beer, Diana A. Pippig, Willem Vanderlinden, Reinhard Schneppenheim, Martin Benoit

## Platform Membrane Active Peptides and Toxins

10:45 AM - 12:45 PM, ROOM 501ABC

### Co-Chairs

*Estefania Mulvihill, Eidgenössische Technische Hochschule Zürich, Switzerland*

*Marc-Antoine Sani, University of Melbourne, Australia*

**153-PLAT 10:45 AM**  
A PORE MODEL OR THE CARPET MODEL? THE MODE OF ACTION OF AMPS ON E. COLI SPHEROPLASTS. Yen Sun, Tzu-Lin Sun, **Huey W. Huang**

**154-PLAT 11:00 AM**  
PROBING THE ANTIMICROBIAL ACTION OF POLYMYXIN B1 AND MELITTIN VIA COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS. **Damien F. Jefferies**, Pin-Chia Hsu, Syma Khalid

**155-PLAT 11:15 AM**  
THE DISRUPTIVE STATE OF THE MEMBRANE ACTIVE ANTIMICROBIAL PEPTIDE PISCIDIN 1 INVESTIGATED BY MULTI- $\mu$ S ALL-ATOM SIMULATIONS AND SOLID-STATE NMR: SURFACE DEFECTS ARE FAVORED OVER STABLE PORES. **B. Scott Perrin Jr**, Riqiang Fu, Myriam Cotten, Richard W. Pastor

**156-PLAT 11:30 AM**  
DIRECTLY OBSERVING THE LIPID-DEPENDENT SELF-ASSEMBLY AND PORE FORMING MECHANISM OF THE CYTOLYTIC TOXIN LISTERIOLISYN O. **Estefania S. Mulvihill**, Katharina van Pee, Stefania Mari, Daniel J. Mueller, Özkan Yildiz

**157-PLAT 11:45 AM**  
LIPID-PROTEIN PARTNERING DURING PORE FORMATION OF FRAGACEA-TOXIN C. **Koldo Morante**, Jose M. M. Caaveiro, Kouhei Tsumoto

**158-PLAT 12:00 PM**  
INHIBITION OF RTX TOXIN ACTIVITY BY THE NUCLEAR STAIN, DRAQ5. **Angela C. Brown**, Joshua Webb

**159-PLAT 12:15 PM**  
MEMBRANE-BINDING PROPERTIES OF GATING-MODIFIER AND PORE BLOCKING TOXINS: MEMBRANE INTERACTION IS NOT A PREREQUISITE FOR MODIFICATION OF CHANNEL GATING. **Evelyne Deplazes**, Sónia Troeira Henriques, Glenn F. King, David J. Craik, Alan E. Mark, Christina I. Schroeder

**160-PLAT 12:30 PM**  
STRUCTURAL CHANGES IN LIPID MODEL MEMBRANES INDUCED BY THE FUNGAL PEPTIDE TOXIN ECE1-III. **Julia Wernecke**, Laura Paulowski, Bernhard Hube, Oliver H. Seeck, Thomas Gutschmann

## Platform Cardiac Smooth and Skeletal Muscle Electrophysiology

10:45 AM - 12:45 PM, ROOM 511ABC

### Co-Chairs

*Edward Lakatta, NIH*

*Eric Sobie, University of Maryland Biotechnology Institute*

**161-PLAT 10:45 AM**  
SUBSTANTIAL CELL-TO-CELL HETEROGENEITY OF ION CURRENTS IS AN ESSENTIAL CHARACTERISTIC OF THE SINOATRIAL NODE. **Oliver J. Monfredi**, Bruce Ziman, Mark Boyett, Edward Lakatta, Victor A. Maltsev

**162-PLAT 11:00 AM** INTERNATIONAL TRAVEL AWARDEE  
SK4 K<sup>+</sup> CHANNELS REGULATE SINOATRIAL PACEMAKER AND THEIR BLOCKADE AMELIORATE ARRHYTHMIAS IN CPVT2 PATIENT-DERIVED IPSC AND IN VIVO IN CASQ2 KNOCK-IN AND KNOCK-OUT MICE. **Shiraz Haron-Khun**, David Weisbrod, Dor Yadin, Asher Peretz, Michael Eldar, Michael Arad, Bernard Attali

**163-PLAT 11:15 AM**  
ACTION POTENTIAL MORPHOLOGY MEASUREMENT OF CARDIAC CELL CHAMBER SPECIFIC CELL TYPES OF STEM CELL-DERIVED CARDIAC MYOCYTES. Aaron D. Kaplan, Glenna CL Bett, **Randall L. Rasmusson**

**164-PLAT 11:30 AM**  
FLUORESCENCE LOCAL FIELD OPTICAL MAPPING (FLOM) OF CA<sup>2+</sup> ALTERNANCES TEMPERATURE DEPENDENCY IN INTACT PERFUSED MOUSE HEARTS. **Yuriana Aguilar-Sanchez**, Moris A. Saravia, Jose Millet, Ariel L. Escobar

**165-PLAT 11:45 AM**  
SUDDEN INFANT DEATH AND MODULATION OF LATE SODIUM CURRENT BY HYPOXIA, INVESTIGATED IN INDUCED PLURIPOTENT STEM CELLS. **Stefan A. Mann**, Jamie I. Vandenberg, Adam P. Hill

**166-PLAT 12:00 PM**  
INCREASED SUSCEPTIBILITY OF SPONTANEOUSLY HYPERTENSIVE RATS TO VENTRICULAR TACHYARRHYTHMIAS DURING THE EARLY STAGES OF HYPERTENSION. **Christopher Y. Ko**, Thao P. Nguyen, Ali A. Sovari, Arash Pezhouman, Shankar Iyer, Hong Cao, Aneesh Bapat, Nooshin Vahdani, Mostafa Ghanim, Michael C. Fishbein, James N. Weiss, Hrayr S. Karagueuzian

**167-PLAT 12:15 PM**  
EXTRACELLULAR SODIUM DEPENDENCE OF THE CONDUCTION VELOCITY-CALCIUM RELATIONSHIP: EVIDENCE OF EPHAPTIC SELF-ATTENUATION. **Sharon George**, Mohammad Bonakdar, Michael Zeitz, Rafael Davalos, James Smyth, Steven Poelzing

**168-PLAT 12:30 PM**  
EVIDENCE FOR PHOSPHORYLATION-DEPENDENT MODULATION OF BK CHANNEL ACTIVITY IN VASCULAR SMOOTH MUSCLE (VSM) MYOCYTES AND RESISTANCE ARTERIES. Barry D. Kyle, Ramesh C. Mishra, **Andrew P. Braun**

## Undergraduate Student Pizza "Breakfast"

11:30 AM - 1:00 PM, ROOM 406AB

The Education Committee hosts this "breakfast" for undergraduate students. This session provides a valuable networking and social opportunity to meet other students and Committee members, to discuss academic goals and questions, and to develop a biophysics career path. Space is limited to the first 100 registrants. Meeting attendees do not need to pre-register for this event.

## Colleges in the Community Day

11:30 AM - 5:00 PM, ROOM 406AB

This full day of activities for local college students and their instructors kicks off with an Undergraduate Student Pizza "Breakfast" where participants have an opportunity to socialize and network with their peers and members of the Biophysical Society's Education Committee in a fun and relaxed environment. Next, students have a chance to win prizes during a scavenger hunt designed to promote learning and interaction with researchers. Undergraduates also have a unique opportunity to ask graduate students, postdocs, and leading biophysicists about training and career opportunities in biophysics and related fields during this interactive Q & A session. Come prepared to find out about the course of study that biophysicists undertake, what it means to be a biophysicist, and how biophysicists make important discoveries. Finally, students have access to an exclusive tour of the Exhibit Hall where they will view special demonstrations featuring cutting edge instrumentation producing breakthroughs in structural biology and other areas.

## International Travel Awardee Luncheon

12:00 PM - 1:00 PM, ROOM 404AB

A number of international students, postdocs, and scientists will be recognized during this luncheon for their outstanding achievements in biophysics research. This event is hosted by the International Relations Committee.

## Career Center Workshop Creating and Using an Effective CV/Résumé

12:00 PM - 1:00 PM, ROOM 518

The CV and Résumé are critical components of any effective job search, regardless of function, level, or industry. In this workshop, we will look at what constitutes a good résumé or CV, what makes the two documents different, as well as what makes them similar. We will examine sample documents (both good and bad) and discuss which document to use, when to use it, and how to most effectively use it when conducting your job search.

## Public Affairs Committee Meeting

12:15 PM - 2:15 PM, ROOM 506

## The World Outside the Lab: Many Ways to Use Your PhD Skills in Industry

1:00 PM - 2:30 PM, ROOM 403A

Have you ever wondered how you can apply the skills learned while working on your PhD in a career away from the bench? The Early Careers Committee is sponsoring a panel to discuss the plethora of career options that exist beyond the bench, such as publishing, science writing, patent law, policy, marketing, etc. Panelist involved in a wide variety of careers will share their personal experiences.

### Speakers

Anna Amcheslavsky, Illumina  
Ragan Robertson, University of California, Los Angeles  
Jeanne Small, Quantum Northwest

## Graduate & Postdoc Institution Fair

1:00 PM - 3:00 PM, WEST HALL

This fair will introduce students and postdoctoral candidates to colleges and universities with leading programs in biophysics. Registration is not needed to participate as a student.

## Snack Break

1:45 PM - 3:00 PM, WEST HALL

## Poster Presentations and Late Posters

1:45 PM - 3:45 PM, WEST HALL

## Teaching Science Like We Do Science

2:00 PM - 3:30 PM, ROOM 408A

This interactive workshop provides participants with practical tools, tips and open educational resources for bringing biophysics topics in the lab and in the classroom to life for undergraduate and graduate students. Small group discussions guided by Discipline-Based Education Research (DBER) recommendations provide opportunities to apply the teaching tools presented to participants' educational practice.

### Speakers

Gundala Bosch, Johns Hopkins Bloomberg School of Public Health  
Scott Gould, Claremont College  
Patricia Soto, Creighton University

## Career Center Workshop Networking for Nerds

2:30 PM - 3:30 PM, ROOM 518

It's elementary—networking is an absolute necessity in any career, and especially in science and engineering, and math. In fact, networking is not only critical to advancing your own career, but also to advancing scholarship itself. But what exactly is “networking”? It's more than just saying hello at a conference! Learn how to appropriately promote yourself and build a network. Discover how to “work a room,” start conversations with people you have never met before, and obtain information that can set you on a path to career victory. The importance and use of social networks will be emphasized.

## Transparency, Reproducibility, and the Progress of Science

2:30 PM - 4:00 PM, ROOM 411

At this panel discussion sponsored by the Public Affairs Committee and the Publications Committee, the panelists will examine the complex issues relating to reproducibility in science, how it can be improved by greater transparency, and how it affects how we communicate science. Speakers will address reproducibility as it pertains to researchers, publishers, and government, and explore why this is a hot topic in the popular press.

### Panelists

Helen Berman, Protein Data Bank  
Emilie Marcus, Cell/Cell Press  
Keith Yamamoto, University of California, San Francisco

## Early Careers Committee Meeting

3:30 PM - 5:00 PM, ROOM 506

## Career Center Workshop Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)

4:00 PM - 5:00 PM, ROOM 518

You've been invited to interview with that drug development company that you've always wanted to work for. You've soaked up the details of the position description. You are confident in your ability to do the job, as well as answer any/all technical questions during the interview process. The day is yours...until...that first question catches you by surprise and your confidence begins to wilt. Be prepared for those non-technical questions that you will almost certainly hear at some point, know why they are asked, and learn what a good (if not great) response to each question might be by attending this workshop.

## Symposium

### Signaling Complexes and Dynamics

4:00 PM - 6:00 PM, PETREE HALL C

### Chair

Hao Wu, Harvard Medical School

### 169-SYMP

4:00 PM

STRUCTURAL ELUCIDATION OF INNATE IMMUNITY. **Hao Wu**

### 170-SYMP

4:30 PM

MECHANISM OF JAK2 ACTIVATION BY THE ARCHETYPE CLASS I CYTOKINE RECEPTOR, THE GROWTH HORMONE RECEPTOR. **Andrew J. Brooks**, Megan L. O'Mara, Wei Dai, Daniel Abankwa, Yash Chhabra, Kathryn A. Tunny, Michael W. Parker, Emma Sierceki, Yann Gambin, Guillermo A. Gomez, Gitte W. Haxholm, Louise F. Nikolajsen, Manolis Doxastakis, Alan E. Mark, Michael J. Waters

**171-SYMP 5:00 PM**  
MECHANISM AND FUNCTIONS OF PLATELET MECHANOSENSING.  
**Renhao Li**

**172-SYMP 5:30 PM**  
CONFORMATIONAL PLASTICITY AND DRUGGABILITY OF MEMBRANE-BOUND K-RAS. **Alemayehu A. Gorfe**

## Symposium Structure and Motion of Cilia and Flagella

4:00 PM - 6:00 PM, PETREE HALL D

**Chair**  
*Jonathan Howard, Yale University*

**173-SYMP 4:00 PM**  
CRYO-ELECTRON TOMOGRAPHY PROVIDES A NEW WINDOW INTO CILIARY STRUCTURE AND FUNCTION. **Daniela Nicastro**

**174-SYMP 4:30 PM**  
STRUCTURAL GENETICS OF CILIA/FLAGELLA. **Masahide Kikkawa**

**175-SYMP 5:00 PM**  
MOTOR COORDINATION UNDERLYING THE FLAGELLAR BEAT IN CHLAMYDOMONAS. **Jonathon Howard**

**176-SYMP 5:30 PM**  
SYNCHRONIZATION OF EUKARYOTIC FLAGELLA. **Raymond E. Goldstein**

## Symposium DNA Nanostructures for Biophysics

4:00 PM - 6:00 PM, ROOM 502A

**Chair**  
*William Shih, Harvard University*

**177-SYMP 4:00 PM**  
DNA NANOSTRUCTURES AS BUILDING BLOCKS FOR MOLECULAR BIOPHYSICS AND FUTURE THERAPEUTICS. **William Shih**

**178-SYMP 4:30 PM**  
CREATING PROGRAMMABLE DISORDER IN DNA ORIGAMI ARRAYS WITH COMBINATORIAL PATTERNS. **Lulu Qian, Grigory Tikhomirov, Philip Petersen**

**179-SYMP 5:00 PM**  
DNA ORIGAMI FOR NANOPORES: DESIGN, DEVELOPMENTS AND CHALLENGES. **Ulrich F. Keyser**

**180-SYMP 5:30 PM**  
NANOSCALE CONSTRUCTION AND IMAGING WITH DNA. **Peng Yin**

## Platform Voltage-gated Channels (Na and Ca)

4:00 PM - 6:00 PM, ROOM 502B

**Co-Chairs**  
*Christopher Ahern, University of Iowa*  
*Coeli Lopes, University of Rochester*

**181-PLAT 4:00 PM**  
RATIONAL DESIGN AND SYNTHESIS OF A NOVEL MEMBRANE BINDING NAV1.8 SELECTIVE INHIBITOR WITH IN VIVO ACTIVITY IN PAIN MODELS. **Christina I. Schroeder, Jennifer Deuis, Sonia Troeria Henriques, Zoltan Dekan, Marco Inserra, Mehdi Mobli, Irina Vetter**

**182-PLAT 4:15 PM**  
SODIUM CHANNEL/LIGAND COMPLEX STRUCTURES AS A GUIDE FOR RATIONAL DRUG DESIGN. **Altin Sula, Paul DeCaen, Claire Naylor, Geancarlo Zanatta, Claire Bagneris, David E. Clapham, David Pryde, B.A. Wallace**

**183-PLAT 4:30 PM**  
STRUCTURAL BASIS OF NAV1.7 INHIBITION BY AN ISOFORM-SELECTIVE SMALL MOLECULE ANTAGONIST. **David H. Hackos, Shivani Ahuja, Susmith Mukund, Lunbin Deng, Kuldip Khakh, Elaine Chang, Clint Young, Sophia Lin, J.P. Johnson Jr., Daniel F. Ortwine, Brian S. Safina, Daniel P. Sutherlin, Charles J. Cohen, Christopher M. Koth, Jian Payandeh**

**184-PLAT 4:45 PM**  
MUTATION-SPECIFIC CARDIAC RISK ASSESSMENT IN LQT3. **Elsa Ronzier, Alessandra Matavel, Yitschak Biton, Niels Otani, Wojciech Zareba, Arthur J. Moss, Coeli Lopes**

**185-PLAT 5:00 PM**  
GENETICALLY ENCODING SINGLE-MOLECULE FLUOROPHORES INTO ION CHANNELS IN LIVING CELLS. **Lilia Leisle, Rahul Chadda, Jason D. Galpin, Janice L. Robertson, Christopher A. Ahern**

**186-PLAT 5:15 PM**  
GABAPENTINOIDS SUPPRESS EARLY AFTERDEPOLARIZATIONS BY UNCOUPLING  $\alpha_2\delta$ -1 SUBUNITS FROM  $CA_{v1.2}$  CHANNELS: IMPLICATIONS FOR  $CA_{v}$  CHANNEL GATING-MODIFIERS AS A NEW CLASS OF ANTIARRHYTHMICS. **Nicoletta Savalli, Marina Angelini, James N. Weiss, Riccardo Olcese**

**187-PLAT 5:30 PM**  
BIOPHYSICAL CHARACTERIZATION OF THE HONEYBEE'S DSC1 ORTHOLOG HIGHLIGHTS A NEW VOLTAGE DEPENDANT CALCIUM CHANNEL SUBFAMILY. **Pascal Gosselin-Badaroudine, Adrien Moreau, Louis Simard, Thierry Cens, Matthieu Rousset, Pierre Charnet, Mohamed Chahine**

**188-PLAT 5:45 PM**  
REGULATION OF MEMBRANE LOCALIZATION OF TYPE TWO VOLTAGE GATED CALCIUM CHANNELS. **Mallory B. Scott, Paul J. Kammermeier**

## Platform Membrane Structure 4:00 PM - 6:00 PM, ROOM 515A

**Co-Chairs**  
*Lisa Della Ripa, University of Illinois at Urbana-Champaign*  
*Tyler Reddy, University of Oxford, United Kingdom*

**189-PLAT 4:00 PM**  
THE COMPLEX, ASYMMETRIC, ESCHERICHIA COLI ENVELOPE STUDIED BY NEUTRON SCATTERING. **Luke A. Clifton, Stephen A. Holt, Nico Paracini, Arwel V. Hughes, Syma Khalid, Damien Jefferies, Jeremy H. Lakey**

**190-PLAT 4:15 PM**  
A COARSE GRAINED FORCE FIELD FOR PSEUDOMONAS AERUGINOSA PAO1 LIPOPOLYSACCHARIDE. **Brad J. Van Oosten, Thad A. Harroun**

**191-PLAT 4:30 PM**  
MOLECULAR INSIGHTS INTO THE LOW PERMEABILITY BARRIER OF GRAM-NEGATIVE PATHOGENS. **Cesar A. Lopez Bautista, S. Gnanakaran, Helen Zgurskaya**

**192-PLAT 4:45 PM**  
COMPARTMENTAL VOLUME REGULATION OF E. COLI UNDER VARIOUS GROWTH CONDITIONS. **Jonas van den Berg, Bert Poolman**

**193-PLAT 5:00 PM**  
ATOMIC RESOLUTION STUDIES OF STEROL INTERACTIONS BY SOLID-STATE NMR SPECTROSCOPY. **Lisa A. Della Ripa, Alexander G. Cioffi, Samantha Phinney, Xiangyan Shi, Taras V. Pogorelov, Martin D. Burke, Chad M. Rienstra**

**194-PLAT 5:15 PM** INTERNATIONAL TRAVEL AWARDEE  
STRUCTURAL CHARACTERIZATION ON ASYMMETRIC LIPID VESICLES AT SUBNANOMETER RESOLUTION. **Barbara Geier, Drew Marquardt, Frederick Heberle, Milka Doktorova, John Katsaras, Georg Pabst**

**195-PLAT 5:30 PM**  
STIRRING A LOW REYNOLDS NUMBER MARTINI. **Edward R. Lyman**

**196-PLAT 5:45 PM**  
VENI, VIDI, VORONOI: ATTACKING VIRUSES WITH SPHERICAL VORONOI DIAGRAMS. **Tyler Reddy**, Ross Hemsley, Edd Edmondson, Nikolai Nowaczyk, Joe Pitt-Francis, Mark S.P. Sansom

**Platform**  
**Intrinsically Disordered Proteins (IDP)**  
**and Aggregates I**

**4:00 PM - 6:00 PM, ROOM 515B**

**Co-Chairs**

*Claudiu Gradinaru, University of Toronto, Canada*  
*Ana Melo, University of Pennsylvania*

**197-PLAT 4:00 PM CPOW TRAVEL AWARDEE**  
DETERMINING A TOPOLOGICAL MODEL FOR TAU BOUND TO TUBULIN HETERODIMERS. **Ana M. Melo**, Garrett Cobb, Juliana Coraor, Shana Elbaum-Garfinkle, Elizabeth Rhoades

**198-PLAT 4:15 PM**  
A NEW APPROACH TO INFER SIZE AND SHAPE OF DISORDERED CONFORMATIONS OF PROTEINS FROM SM-FRET DATA. Gregory-Neal Gomes, Jianhui Song, Hue-Sun Chan, **Claudiu C. Gradinaru**

**199-PLAT 4:30 PM**  
FTIR STUDY REVEAL INTRINSICALLY DISORDERED NATURE OF HEAT SHOCK PROTEIN 90. **Aihua Xie**, Maurie Balch, David Neto, Oliver Causey, Johnny Hendriks, Junpeng Deng, Robert Matts

**200-PLAT 4:45 PM**  
PHYSICAL PRINCIPLES THAT GOVERN THE SEQUENCE-ENCODED PHASE BEHAVIOR OF INTRINSICALLY DISORDERED BLOCK-COPOLYMERIC PROTEINS. **Alex S. Holehouse**, Tyler S. Harmon, Rohit V. Pappu

**201-PLAT 5:00 PM**  
CYTOTOXICITY OF PRION PROTEIN-DERIVED CELL PENETRATING PEPTIDES IS INDEPENDENT OF AMYLOID FORMATION. Vineeth Mukundan, Christy Maksoudian, Maria Vogel, **Mazin Magzoub**

**202-PLAT 5:15 PM**  
INTRINSICALLY DISORDERED PROTEINS DRIVE MEMBRANE CURVATURE. **David J. Busch**, Justin R. Houser, Carl C. Hayden, Michael B. Sherman, Eileen M. Lafer, Jeanne C. Stachowiak

**203-PLAT 5:30 PM**  
KINETICS OF AMYLOID FIBRIL SELF-ASSEMBLY BY DIRECT OBSERVATION OF ELONGATION. **Laurence J. Young**, Clemens F. Kaminski

**204-PLAT 5:45 PM**  
FROM PHYSIOLOGICAL FLUIDS TO PATHOLOGICAL GELS: DISORDERED PROTEINS AT THE NEXUS OF LIQUID PHASE SEPARATION AND NEURODEGENERATIVE DISEASE. Shana Elbaum-Garfinkle, **Nicole Taylor**, Clifford P. Brangwynne

**Platform**

**Membrane Protein Structure and Folding I**

**4:00 PM - 6:00 PM, ROOM 501ABC**

**Co-Chairs**

*Vadim Cherezov, University of Southern California*  
*Syma Khalid, University of Southampton, United Kingdom*

**205-PLAT 4:00 PM**  
ARNT: STRUCTURE AND MECHANISM OF THE AMINOARABINOSYL TRANSFERASE RESPONSIBLE FOR RESISTANCE TO POLYMYXIN-CLASS ANTIBIOTICS. **Vasileios I. Petrou**, Carmen M. Herrera, Kathryn M. Schultz, Oliver B. Clarke, Jeremie Vendome, David Tomasek, Surajit Banerjee, Kanagalaghatta R. Rajashankar, Brian Kloss, Edda Kloppmann, Burkhard Rost, Candice S. Klug, M. Stephen Trent, Lawrence Shapiro, Filippo Mancia

**206-PLAT 4:15 PM**  
STRUCTURAL STUDIES OF THE HUMAN KAPPA OPIOID RECEPTOR ACTIVE STATE CONFORMATIONS. **Ming-Yue Lee**, Nilkanth Patel, Vsevolod Katritch, Raymond C. Stevens, Vadim Cherezov

**207-PLAT 4:30 PM**  
CRYSTAL STRUCTURE OF THE CALCIUM ATPASE SERCA IN COMPLEX TO A NOVEL ANTI-CANCER AGENT THAT TARGETS MULTIDRUG-RESISTANT LEUKEMIA. **John K. Lee**, Joseph M. Autry, Razvan Cornea, Nicholas Bleeker, Denise Casemore, Chengguo Xing, David D. Thomas

**208-PLAT 4:45 PM CPOW TRAVEL AWARDEE**  
ADVANCES IN IN SITU X-RAY CRYSTALLOGRAPHY OF MEMBRANE PROTEINS. **Jana Broecker**, Viviane Klingel, Bryan T. Eger, Oliver P. Ernst

**209-PLAT 5:00 PM**  
A MACHINE LEARNING APPROACH TO HETEROLOGOUS MEMBRANE PROTEIN OVEREXPRESSION. **Shyam M. Saladi**, Nauman Javed, Axel Müller, William M. Clemons

**210-PLAT 5:15 PM**  
LINKING THE OUTER MEMBRANE OF E.COLI TO THE CELL WALL VIA OMPA & BRAUN'S LIPOPROTEIN: TOWARDS A MOLECULAR MODEL OF A VIRTUAL BACTERIAL CELL ENVELOPE. **Syma Khalid**, Maite Ortiz-Suarez, Peter J. Bond, Thomas Piggot

**211-PLAT 5:30 PM**  
SYSTEMATIC EVALUATION OF THE CS-ROSETTA DE NOVO STRUCTURE PREDICTION METHOD FOR MEMBRANE PROTEINS. **Katrin Reichel**, Olivier Fiset, Tatjana Braun, Gerhard Hummer, Oliver Lange, Lars Schäfer

**212-PLAT 5:45 PM**  
INSIGHTS INTO HOW MUTATIONS THERMOSTABILIZE G-PROTEIN-COUPLED RECEPTORS. **Nagarajan Vaidehi**, Sangbae Lee, Supriyo Bhattacharya, Manbir Sandhu, Reinhard Grisshammer, Christopher G. Tate

## Platform Biomaterials and Biosurfaces

4:00 PM - 6:00 PM, ROOM 511ABC

### Co-Chairs

*Ehud Landau, University of Zurich, Switzerland*

*Birgit Plochberger, Vienna University of Technology, Austria*

### 213-PLAT 4:00 PM

CONFINEMENT OF LIPID MEMBRANES BY NANOSTRUCTURED POLYMER PATTERNS FOR CELL TO CELL MIMICKING. **Birgit Plochberger**, Richard Wollhofen, Jaroslav Jacak, Markus Axmann, Viktoria Motsch, Gerhard J. Schütz, Thomas Klar

### 214-PLAT 4:15 PM

RATIONALLY DESIGNED DYNAMIC PROTEIN HYDROGELS WITH REVERSIBLY TUNABLE MECHANICAL PROPERTIES. Na Kong, **Hongbin Li**

### 215-PLAT 4:30 PM

THE MUSSEL ATTACHMENT PLAQUE: A LOAD BEARING PROTEIN SCAFFOLD. **Emmanouela Filippidi**, Daniel G. DeMartini, Paula Malo de Molina, Eric W. Danner, Juntae Kim, Matthew E. Helgeson, J. Herbert Waite, Megan T. Valentine

### 216-PLAT 4:45 PM

LIPID PHASE BEHAVIOR AND PROTEIN-LIPID INTERACTIONS WITHIN NANOLIPOPROTEIN PARTICLES UPON SOL-GEL DERIVED ENCAPSULATION. **Wade F. Zeno**, Silvia L. Hilt, Subhash H. Risbud, John C. Voss, Marjorie L. Longo

### 217-PLAT 5:00 PM

DESIGNED FUNCTIONAL LIPIDIC BIOMATERIALS: APPLICATIONS IN MOLECULAR RECOGNITION, DRUG DELIVERY AND MEMBRANE PROTEIN CRYSTALLIZATION. Yazmin M. Osornio, Livia Salvati Manni, Simone Aleandri, **Ehud Landau**

### 218-PLAT 5:15 PM

OPTIMIZATION OF PEPTIDE-TAGGED CATIONIC LIPID NANOPARTICLES FOR TARGETED GENE DELIVERY. **Emily Wonder**, Ramsey Majzoub, Kai K. Ewert, V. Ramana Kotamraju, Erkki Ruoslahti, Tambet Teesalu, Cyrus R. Safinya

### 219-PLAT 5:30 PM

THE MICROMECHANICS OF CELLULARIZED EXTRACELLULAR MATRIX. **Bo Sun**, Christopher AR Jones, Matthew Cibula, David H. McIntyre

### 220-PLAT 5:45 PM

ELECTROPHYSIOLOGY OF PATTERNED NEURONAL NETWORKS ON MONOLAYER GRAPHENE. **Sandeep Keshavan**, Shovan Naskar, Alberto Diaspro, Laura Cancedda, Silvia Dante

## Korean Biophysicists Meeting

5:00 PM - 6:00 PM, ROOM 403B

## PI to PI, a Wine & Cheese Mixer

5:00 PM - 7:00 PM, ROOM 406AB

You finally have a job working in biophysics, in industry or academia, with some funding and a lab, but you've realized that the career challenges continue. Come relax and network with your contemporaries and senior biophysicists over a beer or glass of wine. This event is a great chance to compare notes with colleagues and discuss one-on-one your unique solutions to issues that arise in the time between getting your job and getting your next promotion, including management of lab staff, getting your work published, and renewing your funding. Refreshments will be provided, with cash bar.

## Exhibitor Presentation HEKA Elektronik + Multi Channel Systems

5:30 PM - 7:00 PM, ROOM 505

### PATCHMASTER and PatchServer: Solutions for Patch Clamp

Presentation 1: Combined Patch Clamp and Imaging with PATCHMASTER and SmartLUX

SmartLUX is the new imaging extension for PATCHMASTER software synchronizing image acquisition and patch clamp data recordings. Image based data such as fluorescence intensities form ROIs that are stored as traces together with current and voltage traces in the PATCHMASTER data file. A link between data points of the trace and the images enables convenient automatic display of the corresponding images when replaying the patch clamp data.

Presentation 2: Multi-Patch Experiments with EPC 10 Quadro and PATCHMASTER

PATCHMASTER software allows the user to control up to 8 patch clamp amplifiers (2 x EPC 10 USB Quadro) in parallel, making it an ideal platform for either conventional multi-patch experiments or automated patch clamping. The Multi-Cell extension of PATCHMASTER allows easy setup and execution of acquisition sequences and analysis methods for operating all amplifiers in parallel. Conventional patch clamping with multiple electrodes can be facilitated by automating processes using the Protocol Editor.

Presentation 3: PatchServer: A Pipette-Based Automatic Patch Clamp System

PatchServer is Multi Channel Systems' new automated patch-clamp system that adds on to a manual patch-clamp setup. It is able to establish single-channel and whole-cell recording configurations using standard glass electrodes. The automation includes sealing on suspended cells, establishing recording configurations, and moving to application bays for solution exchange – all under visual control. PatchServer comes in a one channel version for performing single experiments, as well as a four channel version for recording from four cells in parallel using the EPC 10 Quadro from HEKA. A piezo-driven ultra-fast solution exchanger (UFA tool) is available as an option and can be easily integrated.

### Speakers

Christian Heinemann, Head of Engineering at HEKA Elektronik  
Juergen Rettinger, Product Manager – Ion Channel Product Line at Multi Channel Systems

## Biophysics Austria Mixer

6:00 PM - 7:00 PM, ROOM 404AB

## Student Research Achievement Award (SRAA) Poster Competition

6:00 PM - 9:00 PM, WEST HALL

See page 47 for list of participants.

*Supported by The Journal of Physical Chemistry*

This session features students who are presenting posters at the Meeting and have pre-registered for the competition. During the SRAA competition, students give a five-to-seven minute oral presentation of their poster to one or more judges. Winners will be recognized on Monday evening prior to the National Lecture.



# SUNDAY POSTER SESSIONS

1:45 PM–3:45 PM, WEST HALL

*Below is the list of poster presentations of abstracts submitted by October 1.*

*The list of late abstracts scheduled for Sunday is available in the Program addendum and the posters can be viewed on boards beginning with L. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted beginning at 6:00 PM on Saturday and removed by 5:30 PM on Sunday evening. Posters will be on view until 10:00 PM the night before presentation. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

Board Numbers	Category
B1 – B29	Protein Structure and Conformation I
B30 – B48	Protein-Small Molecule Interactions I
B49 – B71	Protein Dynamics and Allostery I
B72 – B102	Membrane Protein Structure and Folding I
B103 – B121	DNA Replication, Recombination, and Repair
B122 – B144	Chromatin and the Nucleoid
B145 – B173	Membrane Physical Chemistry I
B174 – B196	Membrane-active Peptides and Toxins I
B197 – B226	Membrane Structure I
B227 – B248	Membrane Receptors and Signal Transduction I
B249 – B278	Mechanosensation
B279 – B301	Excitation-Contraction Coupling I
B302 – B331	Voltage-gated K Channels, Mechanisms of Voltage Sensing and Gating I
B332 – B361	Voltage-gated Na Channels I
B362 – B390	Other Channels
B391 – B413	Cardiac Muscle Regulation
B414 – B429	Actin Structure, Dynamics, and Associated Proteins
B430 – B445	Microtubules, Structure, Dynamics, and Associated Proteins
B446 – B464	Cell Mechanics, Mechanosensing, and Motility I
B465 – B490	Membrane Pumps, Transporters, and Exchangers I
B491 – B517	Cellular Signaling and Metabolic Networks
B518 – B533	Neuroscience: Experimental Approaches and Tools
B534 – B555	Magnetic Resonance Spectroscopy: NMR and EPR
B556 – B578	Electron Microscopy
B579 – B583	Diffraction and Scattering Techniques
B584 – B613	Optical Microscopy and Super-Resolution Imaging I
B614 – B639	Bioengineering
B640 – B647	Biophysics Education

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

# Protein Structure and Conformation I (Boards B1 - B29)

## 221-Pos BOARD B1

STRUCTURAL AND MECHANISTIC INSIGHTS DERIVED FROM SATURATION MUTAGENESIS OF CCDB. **Pankaj C. Jain**, Siddharth Patel, Prasanth Kumar, Raghavan Varadarajan

## 222-Pos BOARD B2

STRUCTURAL AND FUNCTIONAL STUDY ON THE INTERACTION OF HUMAN PLASMINOGEN AND PROTEIN H FROM HAEMOPHILUS INFLUENZAE TYPE F. **Tamim Al-Jubair**, Birendra Singh, Yu Ching Su, Susanna Törnroth Horsefield, Kristian Riesbeck

## 223-Pos BOARD B3

WHMD PROMOTES THE ASSEMBLY OF MYCOBACTERIUM SMEGMATIS FTSZ: A POSSIBLE ROLE OF WHMD IN BACTERIAL CELL DIVISION. **Dipanwita Bhattacharya**, Ashutosh Kumar, Dulal Panda

## 224-Pos BOARD B4

ASSOCIATION MECHANISM OF LEISHMANIA MAJOR PEROXIDASE AND CYTOCHROME C REVEALED THROUGH BROWNIAN AND MOLECULAR DYNAMICS. **Scott A. Hollingsworth**, James B. Fields, Georges Chreifi, Matthias Heyden, Anton P. Arce, Hugo I. Magaña-Garcia, Douglas J. Tobias, Thomas L. Poulos

## 225-Pos BOARD B5

STRUCTURAL AND BIOCHEMICAL CHARACTERIZATION OF CASK PDZ INTERACTION WITH PROTEIN AND LIPID BINDING PARTNERS. **Young Joo Sun**, Titus Hou, Xu Liu, Lokesh Gakhar, Ernesto Fuentes

## 226-Pos BOARD B6

NOVEL BIVALENT INTERACTION BETWEEN VASP-EVH1 AND ZYXIN IS CRITICAL FOR BINDING ORIENTATION. **Lucila A. Acevedo**, Alex I. Greenwood, Eric B. Gibbs, Scott Showalter, Linda Nicholson

## 227-Pos BOARD B7

CHARACTERIZING PROTEIN-PROTEIN NONSPECIFIC INTERACTIONS BY STATIC LIGHT SCATTERING. **Di Wu**, Huan-Xiang Zhou

## 228-Pos BOARD B8

STRUCTURAL STUDIES ON THE MITOCHONDRIAL FISSION PROTEIN FIS1 SUGGEST A MECHANISM OF TPR PROTEIN SELF-ASSOCIATION. **Amber Bakkum**, John Egner, Megan Cleland Harwig, Doug Bierer, R. Blake Hill

## 229-Pos BOARD B9

INTRINSICALLY-DISORDERED REGION OF HUMAN SMALL HEAT SHOCK PROTEIN HSPB1 AFFECTS STRUCTURE AND FUNCTION. **Amanda F. Clouser**, Ponni Rajagopal, Rachel E. Klevit

## 230-Pos BOARD B10

INTERPLAY BETWEEN IONIC STRENGTH, ASSOCIATION RATES AND ELECTROSTATIC INTERACTION IN THE C3D:CR2 COMPLEX. **Rohith R. Mohan**, Gary L. Huber, J. Andrew McCammon, Dimitrios Morikis

## 231-Pos BOARD B11

CONFORMATIONAL CHANGES IN COMPLEMENT COMPONENT 3 UPON ACTIVATION OR THROMBOMODULIN BINDING. Daniel DeHelian, Gavin Palowitch, Nathan Fritzing, Caroline Gambone, Thomas Holt, Shelby Marchese, **Julia R. Koeppel**

## 232-Pos BOARD B12

SYNERGY OF PUTATIVE BINDING MODES IN THE FACTOR H (CCP 19-20) AND C3D COMPLEX. **Reed E S Harrison**, Ronald D. Gorham, Dimitrios Morikis

## 233-Pos BOARD B13

THERMAL DENATURATION AND DOMAIN STABILITY OF NAMPT PROTEIN. **Trivikram R. Molugu**, Udeep Chawla, Radu C. Oita, Ting Wang, Michael F. Brown, Joe G. N. Garcia

## 234-Pos BOARD B14

STRUCTURE AND FUNCTION OF THE ASB-CONTAINING E3 LIGASES. **Ryan Lumpkin**

## 235-Pos BOARD B15

STRUCTURAL BASIS FOR CONFORMATIONAL SPACE OF LINEAR POLYUBIQUITIN BY CRYSTALLOGRAPHY AND SOLUTION SCATTERING. Trung Thanh Thach, Donghyuk Shin, Seungsu Han, **Sangho Lee**

## 236-Pos BOARD B16

A HYBRID METHODS APPROACH TO THE STRUCTURAL DETERMINATION OF PHOTOACTIVATION IN THE ORANGE CAROTENOID PROTEIN. **Corie Ralston**, Sayan Gupta

## 237-Pos BOARD B17

STRUCTURAL FRAMEWORK FOR PYRIDOXAL 5'-PHOSPHATE BINDING TO THE HUMAN GLUTAMATE-OXALOACETATE TRANSAMINASE VARIANTS. Jesi Lee, Peter Ngoi, Trevor Gokey, Xiao Chang, Ten-Yang Yen, Yanping Tan, Hongyun Tong, Zheng-Hui He, **Anton Guliaev**

## 238-Pos BOARD B18

CONFORMATIONAL DIFFERENCES BETWEEN ERK2 AND JNK3 $\alpha$ 1. **Ji Young Park**, Ka Young Chung

## 239-Pos BOARD B19

COMPARISON OF THE CONFORMATIONAL DYNAMICS BETWEEN DIFFERENT ACTIVE STATES OF  $\beta$ -ARRESTIN1 ANALYZED BY HYDROGEN/DEUTERIUM EXCHANGE MASS SPECTROMETRY. **Hee Ryung Kim**, Ka Young Chung

## 240-Pos BOARD B20

STRUCTURE-DYNAMIC DETERMINANTS GOVERNING A MODE OF REGULATORY RESPONSE AND PROPAGATION OF ALLOSTERIC SIGNAL IN SPICE VARIANTS OF NA<sup>+</sup>/CA<sup>2+</sup> EXCHANGE (NCX) PROTEINS. **Su Youn Lee**, Ka Young Chung, Daniel Khanashvili, Moshe Giladi

## 241-Pos BOARD B21

THE E.COLI SEC PATHWAY UNDER A SINGLE-MOLECULE LOUPE. Niels Vandenberg, Spiridoula (Lily) Karamanou, Anastassios (Tassos) Economou, Johan Hofkens, **Jelle Hendrix**

## 242-Pos BOARD B22

SYMMETRY-CONSTRAINED NORMAL MODE ANALYSIS OF THE BACTERIAL FLAGELLAR MOTOR. **Moon Ki Choi**, Soojin Jo, Moon Ki Kim

## 243-Pos BOARD B23

RESOLVING CONFORMATIONAL SWITCHES IN THE PROTEASE FTSH USING SINGLE-MOLECULE FRET. **Martine Ruer**, Philip Gröger, Krainer Georg, Michael Schlierf

## 244-Pos BOARD B24

STRUCTURAL CHANGES IN THE SNARE PROTEIN SNAP-25 BY PH AND IONIC STRENGTH. **Kyle S. Clawson**, David Hallan, Timothy T. Harris, Katrina J. Welker, Kara L. Woodbury, Dixon J. Woodbury

## 245-Pos BOARD B25

MECHANISM OF COORDINATION OF THE BACTERIOPHAGE T4 DNA PACKAGING MOTOR ANALYZED BY REAL-TIME SINGLE MOLECULE FLUORESCENCE ASSAY. **Li Dai**, Digvijay Singh, Reza Vafabakhsh, Marthandan Mahalingam, Vishal Kottadiel, Yann Chemla, Taekjip Ha, Venigalla B. Rao

## 246-Pos BOARD B26

LID CONFORMATIONAL DYNAMICS AND SUBSTRATE SPECIFICITY OF THE PILI CONSTRUCTING SORTASE C ENZYMES. **Emmanuel Naziga**, Jeff Wereszczynski

## 247-Pos BOARD B27

A NOVEL SIGNAL TRANSDUCTION MECHANISM IN LOV DOMAIN PROTEINS. **Estella F. Yee**, Anand T. Vaidya, Peter P. Borbat, Jack H. Freed, Brian R. Crane

**248-Pos BOARD B28**  
NMR STRUCTURAL/FUNCTIONAL CHARACTERIZATION OF AN ONCOGENIC MUTANT OF CAMP-DEPENDENT PROTEIN KINASE A: PRKACA-DNA-JB1. **Adak N. Karamafrooz**, Jonggul Kim, Geoffrey Li, Sanford M. Simon, Susan S. Taylor, Gianluigi Veglia

**249-Pos BOARD B29**  
STUDY ON THE CONFORMATIONAL CHANGE OF C-SRC TYROSINE KINASE: TARGETED MOLECULAR DYNAMICS SIMULATION. **Sangwook Wu**

## Protein-Small Molecule Interactions I (Boards B30 - B48)

**250-Pos BOARD B30**  
BIOPHYSICAL STUDIES ON THE INTERACTION OF THIONINE GOLD NANOCONJUGATE TO SERUM ALBUMIN. **Puja Paul**, G. SURESH KUMAR, S. Chandra Bhattacharyya

**251-Pos BOARD B31**  
COMPUTATIONAL ASSESSMENT OF TRIMETHOPRIM RESISTANCE IN DI-HYDROFOLATE REDUCTASE. Haleh Abdizadeh, Omer Acar, Tandac Furkan Guclu, Yusuf Talha Tamer, Tugce Altinusak Batur, Erdal Toprak, Ali Rana Atilgan, **Canan Atilgan**

**252-Pos BOARD B32**  
INTERACTIONS BETWEEN A CLASSICAL ALLOSTERIC PROTEIN AND A STRONG EFFECTOR REVISITED. Shunsuke Sakurai, Daiki Sawada, Takashi Yonetani, **Antonio Tsuneshige**

**253-Pos BOARD B33**  
HUMAN SERUM ALBUMIN-[RU(PHEN)<sub>3</sub>]<sup>2+</sup> COMPLEX FORMATION STUDIED BY OPTICAL SPECTROSCOPIES. **Zuzana Jurasekova**, Veronika Huntosova, Dominik Belej, Pavol Miskovsky, Daniel Jancura

**254-Pos BOARD B34**  
MULTIMERIZATION OF SOLUTION-STATE PROTEINS BY WATER SOLUBLE PORPHYRINS. **Daniel R. Marzolf**, Aidan M. McKenzie, Alexander C. Hudson, Oleksandr Kokhan

**255-Pos BOARD B35**  
NANOSCALE MEASUREMENTS OF BIOCHEMICAL INTERACTIONS AT THE SURFACE OF OPTICALLY TRAPPED PARTICLES. **Wooten D. Simpson III**, Volkmar Heinrich

**256-Pos BOARD B36**  
CHARACTERIZATION OF THE INFLUENCE OF A SMALL MOLECULE ON A RAS-RELATED PROTEIN-PROTEIN INTERACTION. Djamali Muhoza, **Paul D. Adams**

**257-Pos BOARD B37**  
CATION-SPECIFIC INFLUENCES ON THE SOLVATION AND SOLVENT ACCESSIBILITY OF ALANINE-RICH PEPTIDES. **Taylor P. Light**, Gina MacDonald

**258-Pos BOARD B38**  
BIOPHYSICAL AND MOLECULAR INVESTIGATION OF THE INTERACTION BETWEEN ENTEROLACTONE AND HUMAN SERUM ALBUMIN. Bahareh Bigdeli, Behdad Delavari, Samaneh Samaei Daryan, Ali Akbar Saboury, **Bahram Goliaei**

**259-Pos BOARD B39**  
POLYSACCHARIDE CROWDER SHOWS OPTIMAL AFFINITY FOR SEMI-OPEN STATE OF MALTOSE BINDING PROTEIN. **Archishman Ghosh**, Huan X. Zhou

**260-Pos BOARD B40**  
EFFECT OF A COSOLVENT IN BINDING EVENTS OF HYDROPHOBIC MOLECULES. AN EXPERIMENTAL AND NUMERICAL STUDY. Caroline Senac, Patrick Fuchs, Wladimir Urbach, **Nicolas Taulier**

**261-Pos BOARD B41**  
ATOMIC MECHANISMS OF STABILIZING AND DESTABILIZING CO-SOLVENTS ON PROTEIN STABILITY. **Cristiano L. Dias**, Zhaoqian Su

**262-Pos BOARD B42**  
FCS ON PROTEINS IN CROWDED ENVIRONMENTS. **Alyazan Albarghash**, Daryan Kempe, Niklas Ole Junker, Birgit Simone Hillebrecht, Friedemann Melchior Landmesser, Jörg Fitter

**263-Pos BOARD B43**  
MODELING MACROMOLECULAR CROWDING THROUGH TRANSLATIONAL AND ROTATIONAL DIFFUSION OF SMALL MOLECULAR PROBES. **Megan Currie**, Brenden Berry, Taylor Ward, Erin D. Sheets, Ahmed A. Heikal

**264-Pos BOARD B44**  
EFFECT OF CO-SOLUTES ON MODEL REACTION EQUILIBRIA: MIGHT CHANGES IN THE FREE ENERGY OF BULK WATER BE THE UNDERLYING CAUSE? **Daryl K. Eggers**

**265-Pos BOARD B45**  
EXPLORATION OF WEAK INTERACTIONS BETWEEN FOLATE AND GLYCINE-BETAINE. **Purva P. Bhojane**, Michael R. Duff, Elizabeth E. Howell

**266-Pos BOARD B46**  
QUANTIFYING INTERACTIONS BETWEEN BIOCHEMICAL FUNCTIONAL GROUPS AND WITH HOFMEISTER SALT IONS IN WATER. **Xian Cheng**, Lixue Cheng, Irina Shkel, Ben Knowles, Kevin Connor, Evan Buechel, Cristen Molzahn, Andrew Mcclyman, David Lambert, Hunter Cochran, Thomas Jr. Record

**267-Pos BOARD B47**  
A PROTEIN EXPRESSION SYSTEM FOR EVALUATING CATION-PI AND PI-PI INTERACTION IN PROTEINS. Jinfeng Shao, Andy-Mark W.H. Thunnissen, **Jaap Broos**

**268-Pos BOARD B48**  
STRUCTURAL AND FUNCTIONAL INSIGHTS INTO THREE UNDERCHARACTERIZED FIMBRIAL ADHESINS. **Roger D. Klein**, Kevin O. Tamadonfar, Jerome S. Pinkner, Karen W. Dodson, Scott J. Hultgren

## Protein Dynamics and Allostery I (Boards B49 - B71)

**269-Pos BOARD B49**  
THE STRUCTURAL AND DYNAMIC EFFECTS OF INHIBITOR BINDING TO PROTEIN KINASE C  $\beta$ II. **Shashank Jariwala**, Sivaraj Sivaramakrishnan, Barry J. Grant

**270-Pos BOARD B50**  
MOLECULAR DYNAMICS SIMULATION AND MARKOV STATE MODEL REVEAL IRREGULAR METASTABLE CONFORMATION AND ALLOSTERY IN DNAJB-PKAC. **Yingjie Wang**, Alessandro Cembran, Jiali Gao, Gianluigi Veglia, Susan S. Taylor, Sanford M. Simon

**271-Pos BOARD B51**  
A SYSTEMS APPROACH TO UNDERSTANDING THE ALLOSTERIC MECHANISM OF PYRUVATE KINASE M2. **Jamie A. Macpherson**

**272-Pos BOARD B52**  
ROLE OF THE CENTRAL STALK IN THE ROTARY-CHEMICAL COUPLING AND TORQUE GENERATION OF F1-ATPASE. **Shayantani Mukherjee**, Arie H. Warshel

**273-Pos BOARD B53**  
PROTEIN-LIGAND INTERACTIONS THROUGH THE COMPUTATIONAL MICROSCOPE: ALLOSTERY IN A CANONICAL SIGNALING DOMAIN. **Robert D. Malmstrom**, Alexandr P. Kornev, Susan S. Taylor, Rommie E. Amaro

**274-Pos BOARD B54**  
MAPPING ALLOSTERY IN THE TWO DOMAIN CONSTRUCTS OF PDZ3 AND SH3 WITH ARTIFICIAL DOMAINS. **Kirubakaran Palani**, Lucie Pfeiferová, Jiří Vondrášek

- 275-Pos BOARD B55**  
SIALIC ACID INDUCED CONFORMATIONAL ENSEMBLE SHIFTS IN THE HEMAGGLUTININ-NEURAMINIDASE PROTEIN OF THE NEWCASTLE DISEASE VIRUS. **Nalvi D. Duro**, Priyanka Dutta, Sameer Varma
- 276-Pos BOARD B56**  
MOLECULAR INSIGHTS FOR THE ROLE OF KEY RESIDUES OF CALRETICULIN IN ITS BINDING ACTIVITIES. Hongyi Yang, Joanne E. Murphy-Ullrich, Yuhua Song
- 277-Pos BOARD B57**  
UNIQUE FLEXIBILITY PATTERNS OF PDB ENTRIES. **Monique M. Tirion**
- 278-Pos BOARD B58**  
LOSS IN ALLOSTERIC REGULATIONS THROUGH STRUCTURAL DYNAMICS LEAD TO DISEASE. **Avishek Kumar**, Tyler J. Glembo, Banu Ozkan
- 279-Pos BOARD B59**  
UNIVERSALITY OF VIBRATIONAL SPECTRA OF GLOBULAR PROTEINS. Hyuntae Na, Guang Song, **Daniel ben-Avraham**
- 280-Pos BOARD B60**  
THE DEGENERACY OF PROTEIN NORMAL MODES. **Hyuntae Na**, Guang Song
- 281-Pos BOARD B61**  
STATISTICAL PHYSICS OF THE CAUSALITY AND ENERGETICS IN ALLOSTERIC COMMUNICATION. **Enrico Guarnera**, Igor N. Berezovsky
- 282-Pos BOARD B62 INTERNATIONAL TRAVEL AWARDEE**  
SPECTRUS: A DIMENSIONALITY REDUCTION APPROACH FOR IDENTIFYING DYNAMICAL DOMAINS IN PROTEIN COMPLEXES FROM LIMITED STRUCTURAL DATASETS. **Luca Ponzoni**, Guido Polles, Vincenzo Carnevale, Cristian Micheletti
- 283-Pos BOARD B63**  
MODE LOCALIZATION IN THE COOPERATIVE DYNAMICS OF PROTEIN RECOGNITION. **Jeremy T. Copperman**, Marina G. Guenza
- 284-Pos BOARD B64**  
TUNING ALLOSTERY IN RANDOM SPRING NETWORKS. **Jason W. Rocks**, Nidhi Pashine, Irmgard Bischofberger, Carl P. Goodruch, Sidney R. Nagel, Andrea J. Liu
- 285-Pos BOARD B65**  
REVEALING THE MECHANISM FOR CONFORMATIONAL CHANGES FROM STRUCTURALLY RICH ENSEMBLES. **Laura Orellana**, Ozge Yoluk, Modesto Orozco, Erik Lindahl
- 286-Pos BOARD B66**  
FOLDING RATE AND TRANSITION PATH TIME OF A SINGLE-MOLECULE PROTEIN. **Amar Nath Gupta**
- 287-Pos BOARD B67**  
FASTER BINDING FREE-ENERGY LANDSCAPE CALCULATION BY VIRTUAL-STATE COUPLED ADAPTIVE UMBRELLA SAMPLING. **Bhaskar Dasgupta**, Higo Junichi, Haruki Nakamura
- 288-Pos BOARD B68 EDUCATION TRAVEL AWARDEE**  
DYNAMICS OF AGGREGATING MUTANTS OF THE P53 DNA BINDING DOMAIN REVEAL A NOVEL "DRUGGABLE" POCKET. **Mohan R. Pradhan**, Zahra Ouray, Srinivasaraghavan Kannan, David P. Lane, Chandra S. Verma
- 289-Pos BOARD B69**  
CALCULATING MULTI-BODY COOPERATIVITY PARAMETERS FOR CALCIUM BINDING TO CALMODULIN THROUGH COARSE-GRAINED SIMULATIONS. **Prithviraj Nandigrami**, John J. Portman

**290-Pos BOARD B70**  
UNDERSTANDING CONFORMATIONAL CHANGES IN PERIPLASMIC BINDING PROTEINS. Nahren M. Mascarenhas, **Shachi Gosavi**

**291-Pos BOARD B71**  
GENERALIZED ALLOSTERY IN THROMBIN. **Jiajie Xiao**, Freddie R. Salisbury Jr

## Membrane Protein Structure and Folding I (Boards B72 - B102)

**292-Pos BOARD B72**  
THE MODEL STRUCTURES OF C5A RECEPTOR (C5AR): INSIGHTS INTO AGONISM, INVERSE AGONISM AND ANTAGONISM. **Soumendra Rana**

**293-Pos BOARD B73**  
DESIGN PRINCIPLES OF MEMBRANE PROTEIN STRUCTURES. Diane Nguyen, **Vladimir Yarov-Yarovoy**

**294-Pos BOARD B74**  
DUAL TOPOLOGY GENERATION OF EMRE. **Nicholas Woodall**, Ying Yin, James Bowie

**295-Pos BOARD B75**  
OPENING ION-TRANSFER PATHS OF CHANNELRHODOPSIN. **Christian Spakowski**, Joachim Heberle, Ana-Nicoleta Bondar

**296-Pos BOARD B76**  
IMPROVED 3D STRUCTURE PREDICTION OF BETA-BARREL MEMBRANE PROTEINS BY USING EVOLUTIONARY COUPLING CONSTRAINTS, REDUCED STATE SPACE AND AN EMPIRICAL POTENTIAL FUNCTION. Wei Tian, Jie Liang, **Hammad Naveed**

**297-Pos BOARD B77**  
COARSE-GRAINED MODELING OF MEMBRANE PROTEIN INTEGRATION VIA THE SEC TRANSLOCON. **Michiel J.M. Niesen**, Connie Y. Wang, Thomas F. Miller III

**298-Pos BOARD B78**  
DETERMINANTS OF MULTISPANNING MEMBRANE PROTEIN INTEGRATION MEDIATED BY THE SEC TRANSLOCON. **Reid C. Van Lehn**, Bin Zhang, Thomas F. Miller III

**299-Pos BOARD B79**  
HETEROGENEITY OF THE HYDROPHOBIC CORE OF A MEMBRANE PROTEIN COMPLEX. **Satarupa Bhaduri**, Stanislav D. Zakharov, S Saif Hasan, Valentyn Stadnytskyi, Łukasz Bujnowicz, Marcin Sarewicz, Artur Osyczka

**300-Pos BOARD B80**  
PROBING CONFORMATIONAL EQUILIBRIA IN FLEXIBLE RECOGNITION BY MOLECULAR DYNAMICS AND EPR. **Jennifer M. Hays**, Marissa Kieber, Tsega Solomon, Linda Columbus, Peter M. Kasson

**301-Pos BOARD B81**  
COMPUTATIONAL STUDY OF ANTHRACYCLINE INTERACTIONS WITH MEMBRANE-EMBEDDED P-GLYCOPROTEIN. **Eric K. Wong**, J. Alfredo Freitas, Douglas J. Tobias

**302-Pos BOARD B82**  
NMR RESTRAINED PROTEIN STRUCTURE CALCULATIONS IN IMPLICIT WATER/MEMBRANE ENVIRONMENTS. **Ye Tian**, Charles Schwieters, Stanley Opella, Francesca Marassi

**303-Pos BOARD B83**  
PREDICTING THE ROLE OF A SINGLE AMINO ACIDS IN THE DIMERIZATION OF TRANSMEMBRANE HELICES. **Yao Xiao**, Mark Teese, Dieter Langosch

**304-Pos BOARD B84**  
INCLUDING H-BONDING IN DEPTH-DEPENDENT MEMBRANE BURIAL POTENTIALS FOR IMPROVING FOLDING SIMULATIONS. **Zongan Wang**, John M. Jumper, Karl F. Freed, Tobin R. Sosnick

**305-Pos BOARD B85 EDUCATION TRAVEL AWARDEE**  
A COMPUTATIONAL MODEL FOR MEMBRANE PROTEIN FLUX ACROSS THE BACTERIAL PERIPLASM. **Shawn M. Costello**, Ashlee M. Plummer, Patrick J. Fleming, Karen G. Fleming

**306-Pos BOARD B86**  
COMPUTATIONAL MODELS OF INTERACTING LOOP REGIONS IN PH-DEPENDENT GATING OF OMPG. **Alan Perez-Rathke**, Christina Chisholm, Min Chen, Jie Liang

**307-Pos BOARD B87**  
ALL-ATOM STRUCTURAL MODELS OF THE TRANSMEMBRANE DOMAINS OF INSULIN RECEPTOR AND TYPE-1 INSULIN-LIKE GROWTH FACTOR RECEPTOR. Harish Vashisth, **Hossein Mohammadiarani**

**308-Pos BOARD B88**  
MAPPING THE MEMBRANE PROTEOME OF ANAEROBIC GUT FUNGI USING RNA-SEQ. **Susanna Seppala**, Kevin S. Solomon, Sean P. Gilmore, John K. Henske, Monica D. Rieth, Michelle A. O'Malley

**309-Pos BOARD B89**  
PREPARATION AND DELIVERY OF MICROCRYSTALS IN LIPIDIC CUBIC PHASE FOR SERIAL FEMTOSECOND CRYSTALLOGRAPHY. **Andrii Ishchenko**, Vadim Cherezov, Wei Liu

**310-Pos BOARD B90**  
IMPACT OF MUTATIONS ON THE STRUCTURE OF THE HUMAN POTASSIUM CHANNEL KCNQ1. **Hui Huang**, Keenan C. Taylor, Brett M. Kroncke, Alfred L. George, Charles R. Sanders

**311-Pos BOARD B91**  
CHARACTERIZING THE STRUCTURAL BASIS FOR USHER ACTIVATION. **Natalie S. Omattage**, Zengqin Deng, Peng Yuan, Scott J. Hultgren

**312-Pos BOARD B92**  
PROTOCOL TO AVOID POSSIBLE ARTIFACTS IN ATOMISTIC SIMULATION OF GPCR PROTEINS WHOSE CRYSTAL STRUCTURE IS HEAVILY ENGINEERED. **Moutusi Manna**, Waldemar Kulig, Matti Javanainen, Joonas Tynkkynen, Ulf Hensen, Daniel J. Müller, Tomasz Rog, Ilpo Vattulainen

**313-Pos BOARD B93**  
DYNAMICAL AND STRUCTURAL ALTERATIONS WITHIN LIPID-PROTEIN ASSEMBLIES CONTROL APOPTOTIC PORE FORMATION - A SOLID STATE NMR STUDY. **Artur PG Dingeldein**, Martin Lidman, Tobias Sparrman, Gerhard Gröbner

**314-Pos BOARD B94**  
IDENTIFICATION OF CONFORMATION SPECIFIC BINDER FOR THE NA<sup>+</sup>/ GALACTOSE TRANSPORTER. **Jay P. Kumar**

**315-Pos BOARD B95 EDUCATION TRAVEL AWARDEE**  
NMR SOLUTION STRUCTURE AND EXTRACELLULAR LOOP DYNAMICS OF THE OUTER MEMBRANE PROTEIN OPRG OF PSEUDOMONAS AERUGINOSA EXPLAIN TRANSPORT OF SMALL AMINO ACIDS. **Iga Kucharska**, Patrick Seelheim, Thomas Edrington, Binyong Liang, Lukas K. Tamm

**316-Pos BOARD B96**  
MOLECULAR BASIS FOR THE INTERACTION OF LIPOPOLYSACCHARIDE WITH OUTER MEMBRANE PROTEIN OPRH FROM PSEUDOMONAS AERUGINOSA. **Iga Kucharska**, Binyong Liang, Lukas K. Tamm

**317-Pos BOARD B97**  
SYMMETRY AND SIZE OF MEMBRANE PROTEIN POLYHEDRAL NANOPARTICLES. **Di Li**, Osman Kahraman, Christoph A. Haselwandter

**318-Pos BOARD B98**  
STRUCTURAL BASIS FOR PHOSPHATIDYLINOSITOL-PHOSPHATE BIOSYNTHESIS. **Meagan L. Belcher Dufresne**, Oliver B. Clarke, David Tomasek, Carla D. Jorge, Minah Kim, Surajit Banerjee, Kanagalaghatta R. Rajashankar, Lawrence Shapiro, Wayne A. Hendrickson, Helena Santos, Filippo Mancia

**319-Pos BOARD B99**  
SANS STUDIES OF BACTERIORHODOPSIN INCORPORATION AND CRYSTALLIZATION IN CUBIC PHASE. **Thomas E. Cleveland**, Paul Butler

**320-Pos BOARD B100**  
STATISTICAL LEARNING AND DOCKING RECOVER THE REACTION COORDINATES OF A GPCR. **Evan Feinberg**, Vijay Pande

**321-Pos BOARD B101**  
STRUCTURAL CHARACTERIZATION OF THE BACTERIAL SUCCINATE/ACETATE PROTON SYMPORTER SATP IN LIPID BILAYER MEMBRANES. **Vitaly V. Vostrikov**, Tata Gopinath, Jonggul Kim, Sarah E. D. Nelson, John Lee, Gianluigi Veglia

**322-Pos BOARD B102**  
CONFORMATION OF THE MEMBRANE-INTEGRATED FUNCTIONAL STATE OF ANTI-APOPTOTIC BCL-XL. **Yong Yao**, Danielle Nisan, Lynn Fujimoto, Francesca Marassi

## DNA Replication, Recombination, and Repair (Boards B103 - B121)

**323-Pos BOARD B103**  
BASE TRIPLET STEPPING BY THE RAD51/RECA FAMILY OF RECOMBINASES DURING STRAND EXCHANGE. **Ja Yil Lee**, Tsuyoshi Terakawa, Zhi Qi, Justin B. Steinfeld, Sy Redding, YoungHo Kwon, William A. Gaines, Weixing Zhao, Patrick Sung, Eric C. Greene

**324-Pos BOARD B104**  
DYNAMICS OF HRP. **Chu Jian Ma**

**325-Pos BOARD B105**  
BACTERIAL CELL CYCLE CONTROL BY MODIFIED CRISPR BINDING. **Jakub Wiktor**, Christian Lesterlin, David Sherratt, Cees Dekker

**326-Pos BOARD B106**  
LONG-RANGE ALLOSTERIC COMMUNICATION IN MUTS AND HOMOLOGS VIA MOLECULAR DYNAMICS SIMULATIONS. **Michael Feig**, Beibei Wang, Joshua Francis

**327-Pos BOARD B107**  
THE ROLE OF THE EXCLUDED STRAND IN HEXAMERIC HELICASE UNWINDING. **Sean M. Carney**, Sanford H. Leuba, Michael A. Trakselis

**328-Pos BOARD B108**  
DNA-MEDIATED REDOX SIGNALING IN BACTERIAL NUCLEOTIDE EXCISION REPAIR BY UVRC. **Rebekah M.B. Silva**, Andy Zhou, Michael A. Grodick, Jacqueline K. Barton

**329-Pos BOARD B109**  
PROGRESSIVE DNA UNWINDING BY RECBCD HELICASE IN THE ABSENCE OF CANONICAL MOTOR TRANSLOCATION. Michael Simon, Joshua E. Sokoloski, Linxuan Hao, Elizabeth Weiland, **Timothy M. Lohman**

**330-Pos BOARD B110**  
ON THE ORIGIN OF SUGAR SELECTIVITY BY DNA POLYMERASES. **Hanwool Yoon**

**331-Pos BOARD B111**  
DNA TRANSLOCATIONS IN REAL-TIME: INSIGHTS IN NON-HOMOLOGOUS END JOINING. Ineke Brouwer, Gerrit Sitters, Andrea Candelli, Mauro Modesti, Erwin Peterman, **Gijs J. Wuite**

**332-Pos BOARD B112**  
DISSECTION OF E.COLI DNA REPLICATION IN HIGH RESOLUTION WITH TEMPERATURE-CONTROLLED MAGNETIC TWEEZERS. **Bojk A. Berghuis**, Jordi P.A. Wassenburg, Jurjen M. Wilschut, Theo van Laar, Nicholas E. Dixon, Martin Depken, Nynke H. Dekker

**333-Pos BOARD B113**  
SINGLE-MOLECULE STUDIES ON EXOI EXCISION DURING DNA MISMATCH REPAIR. Yongmoon Jeon, Daehyung Kim, Juana Martín-López, Ryanggeun Lee, Jungsic Oh, Jeunghill Hanne, Richard Fishel, **Jong-Bong Lee**

**334-Pos BOARD B114**  
GLOBAL DEFORMATION OF DNA FACILITATES RECOGNITION AND NUCLEOTIDE FLIPPING OF DAMAGED SITES: A MOLECULAR DYNAMICS SIMULATION STUDY. **Martin Zacharias**, Alexander Knips, Giuseppe La Rosa

**335-Pos BOARD B115**  
ENZYME SELECTIVITY OF HIV REVERSE TRANSCRIPTASE: CONFORMATIONS, LIGANDS AND FREE ENERGY PARTITIONS. **Serdal Kirmizialtin**, Kenneth A. Johnson, Ron Elber

**336-Pos BOARD B116**  
BROAD VELOCITY DISTRIBUTIONS IN SFIV HELICASES ARE A CONSEQUENCE OF HETEROGENEITY. **Huong T. Vu**, Shaon Chakrabarti, Michael Hinczewski, D. Thirumalai

**337-Pos BOARD B117**  
DIFFERENTIAL EFFECTS OF IONS, MOLECULAR CROWDING, AND SOLUTION DNA DENSITY ON THE DAMAGE SEARCH MECHANISMS OF HOGG1 AND HUNG. **Shannen L. Cravens**, James T. Stivers

**338-Pos BOARD B118**  
DNA CONFORMATIONAL DISTRIBUTION AND DYNAMICS DURING SEARCH AND RECOGNITION OF DAMAGED SITES BY DNA REPAIR PROTEIN RAD4/XPC. **Sagnik Chakraborty**, Xuejing Chen, Phillip Slogoff-Sevilla, Yogambigai Velmurugu, Peter J. Steinbach, Jung-Hyun Min, Anjum Ansari

**339-Pos BOARD B119**  
FLUORESCENCE LIFETIME MAPPING OF NADH REVEALS DNA REPAIR ACTIVITY IN LIVE CELLS. **Michael Murata**, Xiangduo Kong, Kyoko Yokomori, Michelle Digman

**340-Pos BOARD B120**  
VISUALIZING TRANSLATION SYNTHESIS BY POL IV IN LIVE E. COLI CELLS AT SINGLE-MOLECULE RESOLUTION. James E. Kath, **Elizabeth S. Thrall**, Joseph J. Loparo

**341-Pos BOARD B121**  
VISUALIZING THE FIRST STEPS OF HUMAN DOUBLE-STRAND BREAK REPAIR ON A CROWDED DNA TRACK. Logan Myler, Ignacio Gallardo, Yoori Kim, Tanya T. Paull, **Ilya J. Finkelstein**

## Chromatin and the Nucleoid (Boards B122 - B144)

**342-Pos BOARD B122**  
MOLECULAR MECHANISM FOR GENOME ORGANIZATION IN THE EUKARYOTIC NUCLEUS. **Yuval Garini**

**343-Pos BOARD B123**  
CHROMATIN DYNAMICS ARE CONTROLLED BY NUCLEAR LAMIN A: LIGHT SHEET MICROSCOPY - FCS STUDIES. Giulia Marcarini, Jan W. Krieger, Giuseppe Chirico, **Jörg Langowski**

**344-Pos BOARD B124**  
CELLULAR VARIATION IN THE INTERACTIONS BETWEEN CHROMOSOME TERRITORIES. Scott Davidson, Navroop Dhaliwal, Amir Mazouchi, **Joshua Milstein**, Jennifer Mitchell

**345-Pos BOARD B125**  
GENOME-WIDE MAPPING OF CHROMATIN SECONDARY STRUCTURE USING IONIZING RADIATION COUPLED WITH SEQUENCING. Viviana I. Risca, Sarah Denny, Alicia Schep, Aaron Straight, **William J. Greenleaf**

**346-Pos BOARD B126**  
CHARACTERIZING TRANSCRIPTION AND SPLICING KINETICS BY 3D ORBITAL TRACKING. Nathan A. Redman, Eric J. Hayden, **Matthew L. Ferguson**

**347-Pos BOARD B127**  
THE NC-SAC: COMPUTATIONAL PIPELINE FOR PREDICTING STRUCTURES OF 3D CHROMATIN CHAINS FROM EXPERIMENTAL DATA: ORIGIN OF SCALING PROPERTIES, EMERGENCE OF CHROMOSOME TERRITORIES AND DISCOVERY OF NOVEL LOCI INTERACTIONS ASSOCIATED WITH DIFFERENTIAL GENE EXPRESSION. **Gamze Gürsoy**, Yun Xu, Jie Liang

**348-Pos BOARD B128**  
SINGLE-MOLECULE ANALYSIS OF COLOCALIZED EPIGENETIC MODIFICATIONS. **Jen-Chien Chang**, Takashi Umehara, Keisuke Fujita, Yuichi Taniguchi, Toshio Yanagida, Akiko Minoda

**349-Pos BOARD B129**  
PHYSICAL MODELING OF STRESS COMMUNICATION BETWEEN CHROMOSOME LOCI. **Thomas J. Lampo**, Andrew S. Kennard, Andrew J. Spakowitz

**350-Pos BOARD B130**  
EPIGENETICS GOES PHYSICAL. **Christophe Lavelle**

**351-Pos BOARD B131**  
THE ESCHERICHIA COLI IS CAPABLE OF LARGE-SCALE TRANSLOCATION OF ITS CHROMOSOME. Matthew W. Bailey, **Jaán Mannik**

**352-Pos BOARD B132**  
QUANTITATIVE LOCALIZATION MICROSCOPY COMBINED WITH DNA SMFISH REVEALS NEW FEATURES OF THE ORGANIZATION OF HIGH-COPY NUMBER PLASMIDS IN BACTERIA. **Yong Wang**, Paul Penkul, Joshua N. Milstein

**353-Pos BOARD B133**  
COLLISIONS WITH PROTEINS ON DNA REVEAL A SMALL FUNCTIONAL PORE SIZE IN THE COHESIN COMPLEX. **Johannes Stigler**, Gamze Ö. Çamdere, Douglas E. Koshland, Eric C. Greene

**354-Pos BOARD B134**  
SINGLE-MOLECULE MECHANISTIC DISSECTION OF A CHROMATIN REMODELING MOTOR. **Stephanie L. Johnson**, Nathan I. Gamarra, Matthew J. Johnson, Geeta J. Narlikar

**355-Pos BOARD B135**  
FORCE SPECTROSCOPY OF NUCLEOSOMES AT THE PROMOTERS OF THE LH GENES REVEALS TWO DISTINCT STRATEGIES FOR THEIR REGULATION. **Ariel Kaplan**

**356-Pos BOARD B136**  
MAJOR DETERMINANTS OF NUCLEOSOME ORGANIZATION. **Razvan V. Chereji**, Josefina Ocampo, Tara Burke, David J. Clark

**357-Pos BOARD B137**  
UNRAVELLING THE ROLE OF LINKER HISTONE H1 AND THE H4-TAIL IN CHROMATIN (UN-)FOLDING. **Artur Kaczmarczyk**, Kim Vendel, Abdollah Allahverdi, Lars Nordenskiöld, Nynke H. Dekker, John van Noort

**358-Pos BOARD B138**  
MOLECULAR MECHANISM OF CHROMATIN TARGETING BY A POTENT ANTICANCER AGENT ACTING AT THE NUCLEOSOME CORE PARTICLE. **Giulia Palermo**, Zhujun Ma, Ben S. Murray, Paul J. Dyson, Curt A. Davey, Ursula Rothlisberger

**359-Pos BOARD B139**  
UTILIZATION OF NOVEL TECHNIQUES TO MEASURE ION COMPOSITION OF CONDENSED NUCLEOSOME CORE PARTICLES. **Abby Bull**, Kurt Andresen

**360-Pos BOARD B140**  
 MAPPING OF NUCLEOSOMES AND DNA-BOUND PROTEINS IN LIVING CELLS WITH IONIZING RADIATION. **Viviana I. Risca**, Sarah J. K. Denny, Alicia N. Schep, Arwa S. Kathiria, Aaron F. Straight, William J. Greenleaf

**361-Pos BOARD B141**  
 REGULATORS OF CHROMATOSOME DYNAMICS. **Poirier G. Poirier**

**362-Pos BOARD B142**  
 IMPACT OF HISTONE VARIANT AND POST-TRANSLATIONAL MODIFICATION ON NUCLEOSOME. **Hidetoshi Kono**, Jinzen Ikebe, Shun Sakuraba, Hisashi Ishida

**363-Pos BOARD B143**  
 STRUCTURAL DYNAMICS OF TRI-NUCLEOSOME BY COARSE-GRAINED SIMULATIONS: EFFECTS OF HISTONE TAIL ACETYLATION. **Le Chang**, Shoji Takada

**364-Pos BOARD B144**  
 THE HANDEDNESS OF NUCLEOSOMES IS GOVERNED BY THE SUPERCOILING OF DNA. **Sung Hyun Kim**, Rifka Vlijm, Paul de Zwart, Jaco van der Torre, Yamini Dalal, Cees Dekker

## Membrane Physical Chemistry I (Boards B145 - B173)

**365-Pos BOARD B145**  
 MIGRATION OF VESICLES AND THEIR DOMAINS IN A THERMAL GRADIENT. **Emma Talbot**, Lucia Parolini, Jurij Kotar, Lorenzo Di Michele, Pietro Cicuta

**366-Pos BOARD B146**  
 ASSESSING ASYMMETRY IN DETERGENT-LIPID INTERACTIONS WITH ISOTHERMAL TITRATION CALORIMETRY. **Helen Y. Fan**, Dew Das, Heiko Heerklotz

**367-Pos BOARD B147**  
 THE EQUILIBRIUM SPREADING TENSION OF PULMONARY SURFACTANT. Maayan P. Dagan, **Stephen B. Hall**

**368-Pos BOARD B148** EDUCATION TRAVEL AWARDEE  
 STERIC PRESSURE AMONG MEMBRANE-BOUND POLYMERS OPPOSES LIPID PHASE SEPARATION. **Zachary I. Imam**, Laura Kenyon, Jeanne Stachowiak

**369-Pos BOARD B149**  
 THE EFFECT OF NANODISC MSP BELT PROTEINS ON THE INCORPORATED LIPID BILAYER. **Harmen B. B. Steele**, Kristian Stipe, Cynthia Janku, Michelle C. Terwilliger, Bruce E. Bowler, J.B. Alexander Ross

**370-Pos BOARD B150** EDUCATION TRAVEL AWARDEE  
 ORDER DIFFERENCES BETWEEN COEXISTING LIQUID PHASES DRIVEN BY LIPID UNSATURATION DETERMINE PHASE SEPARATION IN BIOMIMETIC MEMBRANES. **Xubo Lin**, Joseph H. Lorent, Kandice R. Levental, Alemayehu A. Gorfe, Ilya Levental

**371-Pos BOARD B151**  
 PROPERTIES AND ORGANIZATION OF LIPIDS IN MEMBRANES DERIVED FROM THE TOTAL LIPIDS EXTRACTED FROM THE CLEAR HUMAN LENS CORTEX AND NUCLEUS OF DONORS FROM DIFFERENT AGE GROUPS. **Laxman Mainali**, Marija Raguz, William J. O'Brien, Witold Subczynski

**372-Pos BOARD B152**  
 LATERAL PHASE BEHAVIOR OF HUMAN SKIN LIPIDS. Michael J. Counihan, **Shelli L. Frey**

**373-Pos BOARD B153**  
 CHARACTERISTICS OF LIPOSOMES MADE BY PHOSPHATIDYLETHANOLAMINE. **Hayato Akizuki**, Tomoyuki Kaneko

**374-Pos BOARD B154**  
 PARAMETERIZATION OF LAMELLAR REPEAT SPACINGS FOR LIPID BILAYERS IN BINARY SALT MIXTURES. **Simran S. Gurdasani**, Ryan Z. Lybarger, Horia I. Petrache

**375-Pos BOARD B155**  
 BILAYER PROPERTIES OF CERAMIDES: ROLE OF INTERFACIAL HYDROXYLATION, ACYL CHAIN LENGTH, AND CHAIN UNSATURATION. Terhi Maula, **Md. Abdullah Al Sazzad**, Peter Slotte

**376-Pos BOARD B156**  
 THE CHAIN LENGTH OF FREE FATTY ACIDS INFLUENCES THE PHASE BEHAVIOUR OF STRATUM CORNEUM MODEL MEMBRANES: A 2H-NMR AND IR INVESTIGATION. **Adrian Paz Ramos**, Michel Lafleur

**377-Pos BOARD B157**  
 HYPERICIN AGGREGATION IN ARTIFICIAL LIPID MEMBRANES. Jaroslava Joniova, Alena Strejčková, Matúš Rebič, Veronika Huntosova, Jana Staničová, Daniel Jancura, Pavol Miskovsky, **Gregor Bánó**

**378-Pos BOARD B158**  
 PARTITIONING BEHAVIOR OF A PROBE BETWEEN LO AND LD PHASES AT THE NANO- AND MACRO-DOMAIN SCALES. **Thomas Torng**

**379-Pos BOARD B159**  
 MULTIPOLE MOMENTS OF LIPID HEADGROUPS. **Ryan Z. Lybarger**, Horia I. Petrache

**380-Pos BOARD B160**  
 MEMBRANE HETEROGENEITY IN ERYTHROCYTES STUDIED BY LAURDAN GP AND FLIM-PHASOR. **Susana A. Sanchez**, Catalina Sandoval, German Gunther

**381-Pos BOARD B161**  
 UPDATE ON MECHANICAL MODULI AND TILT THEORIES OF LIPID BILAYERS. **John F. Nagle**, Dmitry I. Kopelevich, Stephanie Tristram-Nagle

**382-Pos BOARD B162**  
 FLEXIBLE STRING MODEL ANALYTICAL DESCRIPTION OF MAIN PHASE TRANSITION IN LIPID BILAYERS. **Sergei I. Mukhin**, Boris B. Kheyfets, Timur R. Galimzyanov

**383-Pos BOARD B163**  
 DYNAMICS OF METHYL GROUPS IN MEMBRANE PROTEINS STUDIED BY DIETERIUM SOLID STATE NMR RELAXATION. **Xiaolin Xu**, Andrey V. Struts, Aswini Kumar Giri, Trivikram R. Molugu, Charitha Guruge, Samira Faylough, Carolina L. Nascimento, Nasri Nesnas, Victor J. Hruby, Michael F. Brown

**384-Pos BOARD B164**  
 DETECTION AND MECHANICAL CHARACTERIZATION OF SMALL MULTILAMELLAR VESICLES USING ATOMIC FORCE MICROSCOPY. **Margherita Marchetti**, Daan Vorselen, Wouter Roos, Gijs Wuite

**385-Pos BOARD B165**  
 LINE TENSION AND PHASE SEPARATION OF A FOUR-COMPONENT PHOSPHOLIPID BILAYER. **Wen-Chyan Tsai**, Gerald W. Feigenson

**386-Pos BOARD B166** EDUCATION TRAVEL AWARDEE  
 INVESTIGATING LARGE SCALE LIQUID-LIQUID PHASE SEPARATION IN A BIOLOGICAL MEMBRANE. **Scott Rayermann**, Sarah Keller

**387-Pos BOARD B167**  
 COMPARISON OF UNSATURATED PHOSPHOLIPIDS EFFECT ON PHASE SEPARATION IN CHOLESTEROL FREE AND CHOLESTEROL CONTAINING BILAYERS. **Oskar Engberg**, Victor Hautala, Anders Kullberg, Thomas K.M Nyholm, J.Peter Slotte

**388-Pos BOARD B168**  
A COMPARISON OF MONOLAYER PHASE BEHAVIOR FOR HYDROXY-CHOLESTEROLS LIPID SYSTEMS. **Joan C. Kunz**, Vision B. Bagonza, Blair E. Stewig, Luis H. Hernandez-Balderrama, Eleni A. Beyene, Benjamin L. Stottrup

**389-Pos BOARD B169**  
CORRELATING STEROL STRUCTURE WITH MEMBRANE SOLUBILITY LIMITS AND PHASE BEHAVIOR IN TERNARY MODEL MEMBRANES. **Ranee C. James**, Jonathan P. Litz, Sarah L. Keller

**390-Pos BOARD B170**  
OXIDATION OF CHOLESTEROL AND FORMATION OF CHOLESTEROL HYDROPEROXIDES DECREASES THE CHOLESTEROL CONCENTRATION AT WHICH FORMATION OF CHOLESTEROL BILAYER DOMAINS AND CHOLESTEROL CRYSTALS IS INITIATED IN PHOSPHOLIPID BILAYERS. **Laxman Mainali**, Mariusz Zareba, Witold Subczynski

**391-Pos BOARD B171**  
PEROXIDATION OF LIPOPROTEIN AND OF CERTAIN LIPOSOMAL LIPIDS DEPEND SIMILARLY ON THE PHYSICO-CHEMICAL PROPERTIES OF THE AGGREGATED LIPIDS. **Dov A. Lichtenberg**

**392-Pos BOARD B172**  
EFFECT OF CYCLODEXTRINS ON MEMBRANE BIOPHYSICAL PROPERTIES. **Andreia G. dos Santos**, Jules Bayiha, Marie-Paule Mingeot-Leclercq

**393-Pos BOARD B173**  
CHARACTERISATION OF THE SELF-ASSEMBLIES PROPERTIES AND INTERACTION WITH MODELS MEMBRANES OF NEW TYPE OF AMPHIPHILIC CYCLODEXTRINS: A DLS AND SS-NMR STUDY. Aurelien Furlan, Sébastien Buchoux, Véronique Bonnet, **Catherine Sarazin**

## Membrane-active Peptides and Toxins I (Boards B174 - B196)

**394-Pos BOARD B174**  
MONITORING THE CONSEQUENCES OF RELOCATING THE TRYPTOPHAN ANCHORS ON TRANSMEMBRANE PEPTIDE DYNAMICS AND ALIGNMENT. **Matthew J. McKay**, Ashley N. Martfeld, Denise V. Greathouse, Roger E. Koeppe II

**395-Pos BOARD B175**  
THE ROLE OF THERMODYNAMICS IN THE ACTIVITY AND SELECTIVITY OF ANTIMICROBIAL PEPTIDES. **Lorenzo Stella**, Daniela Roversi, Filippo Savini, Zahra Vaezi, Vincenzo Luca, Sara Bobone, Andrea Farrotti, Alessio Bocedi, Gianfranco Bocchinfuso, Yoonkyung Park, Antonio Palleschi, Maria Luisa Mangoni

**396-Pos BOARD B176**  
INSIGHTS INTO THE MECHANISM OF FENGYCIN, AN ANTIMICROBIAL LIPOPEPTIDE USING MULTISCALE SIMULATIONS. **Sreyoshi Sur**, Alan Grossfield, Tod D. Romo

**397-Pos BOARD B177**  
MEMBRANE INDUCED PEPTIDE FOLDING AND AGGREGATION. Sai Ganesan, **Silvina Matysiak**

**398-Pos BOARD B178**  
INSIGHTS FROM MICROSECOND ATOMISTIC SIMULATIONS OF MELITTIN IN THIN LIPID BILAYERS. **Jakob P. Ulmschneider**, Sanjay K. Upadhyay

**399-Pos BOARD B179 CPOW TRAVEL AWARDEE**  
STRUCTURE-ACTIVITY RELATIONSHIP STUDIES REVEAL THAT THE SPIDER TOXIN PROTX-II HAS UNUSUAL MEMBRANE-BINDING PROPERTIES AND INHIBITS NAV1.7 CHANNEL AT THE MEMBRANE SURFACE. **Sonia Troeira Henriques**, David J. Craik, Christina I. Schroeder

**400-Pos BOARD B180**  
ELECTROPHORESIS AND ELECTROOSMOSIS IN AEROLYSIN AND HEMOLYSIN NANOPORES. **Mordjane Boukhet**, Juan Pelta, Jan C. Behrends, Abdelghani Oukhaled

**401-Pos BOARD B181**  
A HEXOKINASE II DERIVED-CELL PENETRATING PEPTIDE TARGETS THE MITOCHONDRIA AND TRIGGERS APOPTOSIS IN CANCER CELLS. **Abiy D. Woldetsadik**, Mazin Magzoub

**402-Pos BOARD B182**  
ELUCIDATING THE CONNECTION BETWEEN PROTONATION SWITCHES AND BINDING AND FOLDING OF PHLIP. **Chittrak Gupta**, Blake Mertz

**403-Pos BOARD B183**  
VESICLE LEAKAGE REFLECTS TARGET SELECTIVITY OF ANTIMICROBIAL LIPOPEPTIDES FROM BACILLUS SUBTILIS. **Sebastian Fiedler**, Heiko Heerklotz

**404-Pos BOARD B184**  
RED BLOOD CELLS INTERFERE WITH THE ACTIVITY OF ANTIMICROBIAL PEPTIDES. **Charles G. Starr**, Jing He, William C. Wimley

**405-Pos BOARD B185**  
MOLECULAR DYNAMICS SIMULATION OF PASSIVE TRANSPORT OF NEUROTOXICANT ANTIDOTES THROUGH THE BLOOD-BRAIN BARRIER. **Yukun Wang**, Peter C. Searson, Martin Ulmschneider

**406-Pos BOARD B186**  
A COMPARATIVE STUDY ON TECHNIQUES FOR THE DETERMINATION OF PERMEABILIZATION EVENTS ON CHARGED AND UNCHARGED LIPID BILAYERS. **Laura Paulowski**, Nadine Gebauer, Julia Wernecke, Bruce A. Cornell, Thomas Gutschmann

**407-Pos BOARD B187**  
LOCALISATION OF THE ANTIMICROBIAL PEPTIDE MACULATIN 1.1 IN LIPID BILAYERS USING SOLID-STATE NMR. **Marc-Antoine Sani**, Frances Separovic

**408-Pos BOARD B188**  
PA-MAP 1.5 AND 1.9: MECHANISMS OF ACTION OF TWO ANTIMICROBIAL PEPTIDES. **Mário R. Felício**, Octavio L. Franco, Marlon H. Cardoso, Ludovico Migliolo, Nuno C. Santos, Sónia Gonçalves

**409-Pos BOARD B189**  
NANOSTRUCTURE-DEPENDENT ANTIMICROBIAL ACTIVITY AND SELECTIVITY OF SYNTHETIC MEMBRANE-ACTIVE POLYMERS. **Hongjun Liang**, Yunjiang Jiang, Wan Zheng, Hairong Ma

**410-Pos BOARD B190**  
INTERACTIONS OF ANTIBACTERIAL PEPTIDES WITH NANOTUBULAR LIPID BILAYERS: BINDING KINETICS AND DISTORTIONS OF THE BILAYER STRUCTURE. Morteza Jafarabadi, Antonin Marek, Amir Koolivand, Biplav Acharya, Alexander A. Nevzorov, Jacqueline Krim, **Alex I. Smirnov**

**411-Pos BOARD B191**  
FLUORESCENCE INVESTIGATIONS ON THE ATTACK OF CELL-WALL-DEFICIENT BACTERIA BY ANTIMICROBIAL PEPTIDES. **Matthew G. Burton**, Cynthia B. Whitchurch, Lynne Turnbull, Kelly Rogers, Rebecca Orth, Neil O'Brien Simpson, Michelle Gee, Andrew H.A. Clayton, Trevor A. Smith

**412-Pos BOARD B192**  
BIOPHYSICAL INVESTIGATIONS ON THE INTERACTION BETWEEN ANTIMICROBIAL PEPTIDES AND BACTERIA KILLED BY CS-137 IRRADIATION. Wilmar Correa, Lena Heinbockel, Kerstin Stephan, **Thomas Gutschmann**

**413-Pos BOARD B193**  
STREPTOCOCCAL M PROTEIN EPI TOPE 10F5 GENERATES ANTIPHOSPHOLIPID ANTIBODIES. **Marie Kelly-Worden**, Morenci Manning, Robyn Gebhard, Mathew Osborne



**414-Pos BOARD B194**

A GENERAL MECHANISM FOR DRUG PROMISCUITY: STUDIES WITH AMIODARONE AND OTHER ANTIARRHYTHMICS. **Radda Rusinova**, Roger E. Koeppe II, Olaf S. Andersen

**415-Pos BOARD B195**

WHAT IS THE FATE-DETERMINING STEP IN PHLIP-MEDIATED CARGO DELIVERY? **Ming An**, Lukas Klees, Anqi Zhang, Joab O. Onyango, Emma A. Gordon, Chee-Huat Eng, Syris Winge-Barnes, Eliezer Lichter, Vladyslav Nazarenko, Meghan M. Bell, Ilana G. Bandler, Anthony K. Awad, Nicolas S. Shu, Wei Qiang, Lan Yao

**416-Pos BOARD B196**

INVESTIGATING THE INTERACTION OF THE PUTATIVE TRANSMEMBRANE DOMAIN OF HUMAN PHOSPHOLIPID SCRAMBLASE WITH LIPID BILAYERS USING MOLECULAR DYNAMICS SIMULATIONS. **Tom Venken**, Anne-Sophie Schillinger, Edvin Fuglebakk, Nathalie Reuter

**Membrane Structure I (Boards B197 - B226)****417-Pos BOARD B197**

DISTRIBUTION OF SOLUTE MOLECULES IN BILAYER STACKS BY MEDIUM ANGLE DIFFRACTION. **Christopher Garvey**, Ben Kent, Thomas Hauß, Robert Georgii, Klaus Seemann, Ricardo Mancera, Gary Bryant

**418-Pos BOARD B198**

STRUCTURE AND CORRELATION FUNCTIONS OF AN ASYMMETRIC MODEL MEMBRANE OF FIVE COMPONENTS DISPLAY NO RAFTS BUT RATHER THE PROPENSITY TO CREATE THEM. **Michael Schick**, Ha Giang

**419-Pos BOARD B199**

ENDOTHELIAL MEMBRANE MODULATION BY OXLDL: MOLECULAR-SCALE EFFECTS OF OXIDATION PRODUCTS ON MODEL MEMBRANES. **Manuela A. Ayece**, Elizabeth LeMaster, Belinda S. Akpa, Irena Levitan

**420-Pos BOARD B200**

LIPID COMPOSITION MODULATES MEMBRANE PROTEIN CLUSTERING. **Anna L. Duncan**, Heidi Koldsø, Tyler Reddy, Jean Helie, Mark S P Sansom

**421-Pos BOARD B201**

CONTROLLING CELL GROWTH AND MEMBRANE TOPOGRAPHY USING NANOSTRUCTURED THERMORESPONSIVE SCAFFOLDS. **Rana Ashkar**, Mikhael Zhernenkov, Hao Feng, John Ankner, Ryan Toomey, Roger Pynn

**422-Pos BOARD B202**

INVESTIGATION OF THE MODE OF ACTION OF THE PROTEIN VAPA OF RHODOCOCCLUS EQUI ON PHAGOSOME MEMBRANES. **Christian Nehls**, Albert Haas, Karlo Komorowski, Thomas Gutschmann

**423-Pos BOARD B203**

MULTILAYERS OF LUNG SURFACTANT AT THE AIR/WATER INTERFACE OBSERVED BY NEUTRON REFLECTOMETRY UNDER COMPRESSION-EXPANSION CYCLES. **Jenny M. Andersson**, Marcus Larsson, Maximilian W.A. Skoda, Tiago M. Ferreira, Tommy Nylander, Emma Sparr

**424-Pos BOARD B204**

DOES THE INFLUENZA VIRUS BUD FROM CHOLESTEROL- AND SPHINGOLIPID-ENRICHED PLASMA MEMBRANE DOMAINS? **Mary L. Kraft**, Ashley N. Yeager, Peter K. Weber, Joshua Zimmerberg

**425-Pos BOARD B205**

SOLID-STATE 2H NMR REVEALS THE IMPACT OF DHA ON MOLECULAR ORGANIZATION IN RAFT-LIKE DOMAINS. **Jacob J. Kinnun**, Justin A. Williams, William Stillwell, Robert Bittman, Saame R. Shaikh, Stephen R. Wassall

**426-Pos BOARD B206**

IN SILICO MODELING OF BIOLOGICALLY COMPLEX MEMBRANES. **Helgi I. Ingolfsson**, Manuel N. Melo, Svetlana Baoukina, Tsjerk A. Wassenaar, Xavier Periole, Alex H. de Vries, D. Peter Tieleman, Siewert J. Marrink

**427-Pos BOARD B207**

VITAMIN E PROMOTES THE INVERSE HEXAGONAL PHASE VIA A NOVEL MECHANISM: IMPLICATIONS FOR ANTIOXIDANT ROLE. **Paul E. Harper**, Andres T. Cavazos, Jacob J. Kinnun, Horia I. Petrache, Stephen R. Wassall

**428-Pos BOARD B208**

ANTICANCER DRUG COLCHICINE INCREASES DISORDER AND REDUCES COMPLEXITY IN THE MACROPHAGE MEMBRANE. **Arkady Bitler**, Ron Dover, Yechiel Shai

**429-Pos BOARD B209**

HYDRATION MEDIATED G-PROTEIN-COUPLED RECEPTOR ACTIVATION. **Udeep Chawla**, Suchithranga M. D. C. Perera, Andrey V. Struts, Michael C. Pitman, Michael F. Brown

**430-Pos BOARD B210**

DIFFUSION DYNAMICS OF ACHR RECEPTORS ON LIVE MUSCLE CELL MEMBRANE. **Wei He**, Hao Song, Lin Geng, H. Benjamin Peng, Penger Tong

**431-Pos BOARD B211**

CHOLESTEROL'S ALIPHATIC SIDE CHAIN STRUCTURE MODULATES MEMBRANE PROPERTIES. **Daniel Huster**, Thomas Meyer, Jörg Nikolaus, Dong Jae Baek, Ivan Haralampiev, Robert Bittman, Peter Müller, Andreas Herrmann, Holger A. Scheidt

**432-Pos BOARD B212**

CONTENT OF PLASMALOGEN LIPIDS MARKEDLY DECREASES IN BARTH SYNDROME. Tomohiro Kimura, Atsuko Kimura, Bob Berno, Mindong Ren, Michael Schlame, **Richard M. Epand**

**433-Pos BOARD B213**

OXIDATION OF CHOLESTEROL CHANGES THE PHYSICAL PROPERTIES OF LIPID MEMBRANES. **Waldemar Kulig**, Agnieszka Olzyska, Piotr Jurkiewicz, Anu M. Kantola, Moutusi Manna, Mohsen Pourmousa, Mario Vazdar, Lukasz Cwiklik, Tomasz Rog, George Khelashvili, Daniel Harries, Ville-Veikko Telkki, Martin Hof, Ilpo Vattulainen, Pavel Jungwirth

**434-Pos BOARD B214**

CLUSTERS OF CHOLERA TOXIN B SUBUNIT ON THE OUTER LEAFLET STABILIZE LIPID HETEROGENEITY ON THE INNER LEAFLET OF B CELL MEMBRANES. **Marcos F. Nunez**, Sarah L. Veatch

**435-Pos BOARD B215**

PARTITION COEFFICIENT OF A TRANSMEMBRANE PEPTIDE, BETWEEN LO AND LD PHASES: DOES THE PEPTIDE DISTINGUISH MACRO FROM NANO DOMAINS? **Thais A. Enoki**, Sarah Kim, Frederick A. Heberle, Gerald W. Feigenson

**436-Pos BOARD B216**

HOW GOLD NANOPARTICLES AFFECT THE LIPID PACKING IN MODEL MEMBRANES. **Qi Lu**, Anupama Bhat, Lance Edwards, Zaki Harris, Albert Jin

**437-Pos BOARD B217**

STABLE FATTY ACID VESICLES FORM UNDER LOW-PH CONDITIONS AND INTERACT WITH AMINO ACIDS AND DIPEPTIDES. **Moshe T. Gordon**, Roy A. Black, Caitlin Cornell, James A. Williams, Kelly K. Lee, Sarah L. Keller

**438-Pos BOARD B218**

TUNING MEMBRANE ASYMMETRY. **Jonathan A. Purdie**, John M. Sanderson

**439-Pos BOARD B219**

SPONTANEOUSLY FORMED UNILAMELLAR VESICLES OF SILOXANE-PHOSPHOLIPIDS. **Mark Frampton**, Drew Marquardt, Georg Pabst, Paul M. Zelisko

**440-Pos BOARD B220**  
EFFECT OF CHAIN LENGTH OF HYBRID LIPIDS ON LINE TENSION IN PHASE-SEPARATED GIANT UNILAMELLAR VESICLES. **Eda Baykal-Caglar**, Juyang Huang

**441-Pos BOARD B221**  
IMPROVED METHODS FOR PREPARING ASYMMETRIC VESICLES USING METHYL-ALPHA-CYCLODEXTRIN. **Johnna St Clair**, Qing Wang, Erwin London

**442-Pos BOARD B222**  
STUDY OF SELF-ASSOCIATION OF AMPHOTERICIN B AND ITS SYNTHETIC DERIVATIVES USING UV-VIS SPECTROSCOPY. **Rosmarbel Morales-Nava**, Arturo Galván-Hernández, Mario Fernández-Zertuche, Ivan Ortega-Blake

**443-Pos BOARD B223**  
DETERMINING THE PIVOTAL PLANE OF FLUID LIPID MEMBRANES IN SIMULATIONS. **Xin Wang**, Markus Deserno

**444-Pos BOARD B224**  
LO/LD PHASE COEXISTENCE AND INTERACTION IN MODEL MEMBRANES WITH IPC LIPIDS. **Viviana Monje-Galvan**, Jeffery B. Klauda

**445-Pos BOARD B225**  
PROBING THE RIPPLE PHASE OF LIPID BILAYERS USING MOLECULAR SIMULATIONS. **Pouyan Khakbaz**, Jeffery Klauda

**446-Pos BOARD B226**  
VITAMIN E DIFFERENTIALLY DESTABILIZES BILAYER STRUCTURE OF DOCO-SAHEXAENOIC AND OLEIC-ACID CONTAINING MODEL MEMBRANES. **Andres T. Cavazos**, Jacob J. Kinnun, Ryan Z. Lybarger, Justin A. Williams, Bruce D. Ray, Paul E. Harper, Horia I. Petrache, Stephen R. Wassall

## Membrane Receptors and Signal Transduction I (Boards B227 - B248)

**447-Pos BOARD B227**  
REAL-TIME PROBING OF THE SPATIOTEMPORAL DISTRIBUTIONS OF INTEGRIN  $\alpha\beta3$  IN SINGLE LIVING CELLS USING MICRO-SCALE SURFACE ENHANCED RAMAN SPECTROSCOPY SYSTEM. **Shao-yuan Lo**

**448-Pos BOARD B228**  
FRET ANALYSIS USING SPERM-ACTIVATING PEPTIDES TAGGED WITH FLUORESCENT PROTEINS REVEALS THAT LIGAND-BINDING SITES EXIST AS CLUSTERS. **César Arcos-Hernández**, Francisco Romero, Yoloxochitl Sanchez-Guevara, Carmen Beltran, Takuya Nishigaki

**449-Pos BOARD B229 EDUCATION TRAVEL AWARDEE**  
INVESTIGATING MOLECULAR MECHANISMS OF IGE-MEDIATED SIGNALING AT SUPER RESOLUTION. **Eshan Mitra**, Sarah A. Shelby, David Holowka, Barbara Baird

**450-Pos BOARD B230**  
CHARACTERIZATION OF TROPOMYOSIN RECEPTOR KINASE (TRK-A) IN RESPONSE TO NEUROTROPHINS NERVE GROWTH FACTOR (NGF) AND NEUROTROPHIN -3 (NT-3) IN LIVE CELLS. **Fozia Ahmed**, Deo Singh, Christopher King, Kalina Hristova

**451-Pos BOARD B231**  
MICROGLIA-DERIVED INTERLEUKIN-6 INCREASES RETINAL ENDOTHELIAL CELL PERMEABILITY THROUGH STAT3 ACTIVATION IN DIABETIC RETINOPATHY. Jang-Hyuk Yun, Kyung-Jin Kim, Eun Hui Lee, Sangkyu Ye, **Chung-Hyun Cho**

**452-Pos BOARD B232**  
1H NMR SPECTROSCOPY OF DOPAMINE INTERACTING WITH LIPID VESICLES. **Yashvasi Matam**, Merrell A. Johnson, Bruce D. Ray, Horia I. Petrache

**453-Pos BOARD B233**  
MOLECULAR DETERMINANTS OF NEISSERIAL OPA PROTEIN INTERACTIONS WITH CEACAM RECEPTORS. **Jennifer Martin**, Louise M. Ball, Alison K. Criss, Linda Columbus

**454-Pos BOARD B234**  
PROTEIN ASSEMBLY ON MEMBRANE SURFACE ALTERS THE DYNAMICAL SPECTRUM OF DOWNSTREAM SIGNALING REACTIONS. **William Y. C. Huang**, Qingrong Yan, Wan-Chen Lin, Jean K. Chung, Scott D. Hansen, Sune M. Christensen, Hsiung-Lin Tu, John Kuriyan, Jay T. Groves

**455-Pos BOARD B235**  
RESTRICTED DIFFUSION OF CAMP IS MEDIATED BY MITOCHONDRIAL LOCALIZED PKA BUFFERING IN LIVING CELLS. **Shailesh R. Agarwal**, Colleen E. Clancy, Robert D. Harvey

**456-Pos BOARD B236**  
REAL-TIME PROBING OF INTEGRIN  $\alpha\beta3$  SIGNAL PATHWAY INVOLVED IN WOUND HEALING USING BIOFUNCTIONALIZED QUANTUM DOTS. **Mi-Chi Lee**

**457-Pos BOARD B237**  
MONITORING THE ORGANIZATION, DYNAMICS, AND INTERACTIONS OF EARLY B CELL RECEPTOR SIGNALING PROTEINS USING LIVE CELL SUPER-RESOLUTION MICROSCOPY. **Sarah A. Shelby**, Matthew B. Stone, Sarah L. Veatch

**458-Pos BOARD B238**  
EFFECT OF INTERNAL WATER DYNAMICS ON THE ACTIVATION MECHANISM OF  $\beta2$ -ADRENERGIC RECEPTORS. **Songmi Kim**, Changbong Hyeon

**459-Pos BOARD B239**  
GLYCOSYLATION AFFECTS THE CONFORMATIONAL BEHAVIOR OF EGFR. Karol Kaszuba, Michal Grzybek, Adam Orłowski, Reinis Danne, Tomasz Rog, Kai Simons, Unal Coskun, **Ilpo Vattulainen**

**460-Pos BOARD B240 INTERNATIONAL TRAVEL AWARDEE**  
METOPROLOL REVERSES  $\beta$ -ADRENERGIC REMODELING IN THE FAILING RIGHT VENTRICLE OF PULMONARY ARTERY HYPERTENSIVE (PAH) RATS. **Ruth Norman**, Ewan Fowler, Ed White, Sarah Calaghan

**461-Pos BOARD B241**  
POSITIVE ALLOSTERIC MODULATORS INDUCED CONFORMATIONAL CHANGES IN THE METABOTROPIC GLUTAMATE RECEPTOR 2 - IN SILICO PREDICTIONS AND EXPERIMENTAL TESTS. **Yu Xu**, Amr Ellaihy, Guoqing Xiang, Manolakou Danai, Balatsoukas Agisilaos, Takeharu Kawano, Meng Cui, Diomedes E. Logothetis

**462-Pos BOARD B242**  
IN VIVO STUDIES OF VEGFR2 INTERACTIONS IN THE PRESENCE AND ABSENCE OF VEGF. **Christopher King**, Kalina Hristova

**463-Pos BOARD B243**  
THE WNT PROTEINS INDUCE  $Ca^{2+}$  SIGNALING THROUGH THE ACTIVATION OF THE POLYCYSTIN COMPLEX. **Vasyl Nesin**, Seokho Kim, Hongguang Nie, Leonidas Tsiokas

**464-Pos BOARD B244**  
PREDICTED MODE OF BINDING OF NON-NITROGENOUS  $\mu$ -OPIOID RECEPTOR LIGANDS BY METADYNAMICS. **Sebastian Schneider**, Davide Provasi, Rachel Saylor, Thomas Prisinzano, Marta Filizola

**465-Pos BOARD B245**  
DETERMINISTIC AND STOCHASTIC MATHEMATICAL MODELING OF MELANOPSIN'S LIGHT RESPONSE IN IPRGCS AND HEK CELLS. **Phyllis R. Robinson**, Kathleen Hoffman, Hye-Won Kang

**466-Pos BOARD B246**  
COVALENT RAS DIMERIZATION ON MEMBRANE SURFACES THROUGH PHOTSENSITIZED OXIDATION. **Jean K. Chung**

**467-Pos BOARD B247**  
BIASED SIGNALING OF GPCR REGULATES PANCREATIC BETA CELL SECRETION AND SURVIVAL. **Xiao Yu**, Shanglei Ning, Jin-Peng Sun

**468-Pos BOARD B248**  
THE ENIGMATIC CHLOROPLAST STT7 KINASE: TRANS-MEMBRANE FUNCTION WITH CYTOCHROME B6F COMPLEX IN SITU; KINASE ACTIVITY IN VITRO. Sandeep K. Singh, Whitaker Cohn, Saif S. Hasan, Julian P. Whitelegge, **William A. Cramer**

## Mechanosensation (Boards B249 - B278)

**469-Pos BOARD B249**  
MECHANONSENSITIVITY AND SYMMETRY IN K2P CHANNELS. **Julian Tim Brennecke**, Bert L. de Groot

**470-Pos BOARD B250**  
ATP RELEASE VIA GAP JUNCTION HEMICHANNELS IN RAT ATRIAL MYOCYTES UNDER SHEAR STRESS. **Joon-Chul Kim**, Sun-Hee Woo

**471-Pos BOARD B251**  
INVESTIGATING THE ROLE OF NAV1.5 IN SOMATOSENSORY MECHANOSENSATION. **Evan O. Anderson**, Eve R. Schneider, Jon D. Matson, Elena O. Gracheva, Slav N. Bagriantsev

**472-Pos BOARD B252**  
FUNCTIONAL HETEROMERIC PIEZO1 ION CHANNELS. **Philip Gottlieb**, Chilman Bae, Radakrishnan Gnanasambandam, Frederick Sachs

**473-Pos BOARD B253**  
PORE DETERMINANTS OF MECHANONSENSITIVE PIEZO CHANNELS. **Qiancheng Zhao**

**474-Pos BOARD B254**  
CHARACTERIZATION AND PHYSIOLOGICAL ROLE OF A BACTERIAL-LIKE MECHANONSENSITIVE CHANNEL IN TRYPANOSOMA CRUZI OSMOREGULATION. **Noopur Dave**, Christopher Skorka, Heather Lynch, Veronica Jimenez

**475-Pos BOARD B255**  
SYSTEMATIC DISCOVERY OF THE 'FORCE-FROM-LIPID' PRINCIPLES. **Pietro Ridone**, Amrutha Patkunarajah, Andrew Battle, Boris Martinac

**476-Pos BOARD B256**  
EXPRESSION AND BIOPHYSICAL CHARACTERIZATION OF BACTERIAL MECHANO-SENSITIVE ION CHANNEL OF LARGE CONDUCTANCE INTO MAMMALIAN CELLS. **Alessandro Soloperto**, A. Bartolozzi, G. Palazzolo, M. Basso, A. Contestabile, M. Vassalli, F. Difato

**477-Pos BOARD B257 INTERNATIONAL TRAVEL AWARDEE**  
THE ROLE OF THE C-TERMINAL DOMAIN ON THE GATING PROPERTIES OF CORYNEBACTERIUM GLUTAMICUM MECHANONSENSITIVE CHANNEL MSCCG. **Yoshitaka Nakayama**, Michael Becker, Haleh Ebrahimian, Tomoyuki Konishi, Hisashi Kawasaki, Reinhard Kramer, Boris Martinac

**478-Pos BOARD B258**  
FAST OSMOTIC PERMEABILITY RESPONSES IN BACTERIA. Ian Rowe, **Ugur Cetiner**, Anthony Schams, Andriy Anishkin, Sergei Sukharev

**479-Pos BOARD B259**  
CONTINUUM MODELING OF THE GATING MECHANISMS OF A MECHANONSENSITIVE (MS) CHANNEL: BACTERIAL MS VERSUS MAMMALIAN MS CHANNELS. **Yuan-Nan Young**, On Shun Pak, Howard A. Stone

**480-Pos BOARD B260**  
THEORETICAL, COMPUTATIONAL, AND EXPERIMENTAL INVESTIGATIONS ON ACTIVATION OF MECHANONSENSITIVE CHANNELS. **Zhangli Peng**, On Shun Pak, Allen Liu, Yuan-Nan Young

**481-Pos BOARD B261**  
VOLTAGE-MEDIATED CONTROL OF BUNDLE DYNAMICS IN HAIR CELLS. **Sebastian W.F. Meenderink**, Patricia M. Quiñones, Dolores Bozovic

**482-Pos BOARD B262**  
STRUCTURAL DETERMINANTS OF PROTOCADHERIN-15 FUNCTION IN INNER-EAR MECHANOTRANSDUCTION. **Marcos Sotomayor**, Raul Araya-Secchi, Yoshie Narui, Conghui Chen, Carissa Klanseck, Lahiru Wimalasena

**483-Pos BOARD B263**  
DYNAMICS OF SPONTANEOUS OTOACOUSTIC EMISSIONS: THEORY AND EXPERIMENT. **Christopher Bergevin**, Christopher A. Shera

**484-Pos BOARD B264**  
CHAOTIC BEHAVIOR OF OSCILLATORY HAIR CELLS. **Justin Faber**, Dolores Bozovic

**485-Pos BOARD B265**  
VISUALIZATION OF MECHANICAL FORCES WITHIN THE IMMUNOLOGICAL SYNAPSE. **Janett Göhring**, Florian Kellner, Lukas Schrangl, Johannes Huppa, Gerhard Schütz

**486-Pos BOARD B266**  
VINCULIN REMODELING OF THE SARCOMERE LATTICE REGULATES CONTRACTILE FUNCTION. Gaurav Kaushik, Jennifer Van Eyk, Anthony Cammarato, **Adam Engler**

**487-Pos BOARD B267**  
ULTRASENSITIVITY OF CELL ADHESION TO THE DIFFERENTIAL MECHANICAL CUES AND REQUIREMENT OF REVERSIBILITY. **Mehdi Roein-Peikar**, Farhan Chowdhury, Benjamin Leslie, Seongjin Park, Qian Xu, Taekjip Ha

**488-Pos BOARD B268**  
LIVE QUANTIFICATION OF CHANGES TO MEMBRANE CYTOSKELETON DUE TO RESTRICTED ACCESS TO LAMININ OR SUBSTRATE STIFFNESS. Muhammed F. Simsek, Jin Weixiang, **Arnd Pralle**

**489-Pos BOARD B269**  
MATRIX AND SOLUBLE FACTOR PATHWAYS TO LINEAGE SPECIFICATION. **Irena L. Ivanovska**, Joe Swift, Kyle Spinler, Dave Dingal, Dennis E. Discher

**490-Pos BOARD B270**  
TENSION-REGULATED ACTIN SEVERING REVEALED BY SURFACE-FREE SINGLE-MOLECULE FORCE SPECTROSCOPY. **Yan Jiang**, Theodore C. Feldman, Hyeran Kang, Enrique M. De La Cruz, Wesley P. Wong

**491-Pos BOARD B271**  
ACOUSTIC TWEEZING CYTOMETRY (ATC) ON DISSOCIATED HUMAN EMBRYONIC STEM CELLS (HESCS). **Xiaowei Hong**, Xufeng Xue, Tuğba Topal, Jianping Fu, Cheri X. Deng

**492-Pos BOARD B272**  
ELECTROSTATIC AND ALLOSTERIC RESPONSE OF MYOSIN AS A MECHANOSENSOR. **Jun Ohnuki**, Takato Sato, Mitsunori Takano

**493-Pos BOARD B273**  
SCREENING CELL MECHANOTYPE BY PARALLEL MICROFILTRATION. **Navjot Kaur Gill**

**494-Pos BOARD B274**  
THE MECHANISM OF STRESS GRANULE FORMATION INDUCED BY INTRACELLULAR LOCAL THERMOGENESIS. **Beini Shi**, Kohki Okabe, Takashi Funatsu

**495-Pos BOARD B275**  
AS THE BEATING HEART STIFFENS IN DEVELOPMENT, SO DOES THE NUCLEAR LAMINA. **Sangkyun Cho**, Stephanie Majkut, Manorama Tewari, Jerome Irianto, Dennis E. Discher

**496-Pos BOARD B276 INTERNATIONAL TRAVEL AWARDEE**  
MECHANICAL REGULATION OF NUCLEAR SHAPE AND VOLUME. **Dong-Hwee Kim**, Bo Li, Fangwei Si, Jude Phillip, Denis Wirtz, Sean X. Sun

**497-Pos BOARD B277**  
MECHANOSENSING DEFECTS IN NUCLEAR ENVELOPE RELATED DISORDERS. Christine Technau, Martina Fischer, Kamel Mamchaoui, Anne Bigot, Thevy Lok, Claude Verdier, Alain Duperray, Thomas Voit, Susana Quijano-Roy, Gisèle Bonne, **Catherine Coirault**

**498-Pos BOARD B278**  
CYCLIC STRAIN OF PRECISION CUT LUNG SLICES (PCLS) INDUCES PRO-INFLAMMATORY AND PRO-PROLIFERATIVE SIGNALLING. **David Salman**, Charlotte Dean, Mark J. D Griffiths

## Excitation-Contraction Coupling I (Boards B279 - B301)

**499-Pos BOARD B279**  
RYANODINE RECEPTOR SENSITIVITY GOVERNS THE STABILITY AND SYNCHRONY OF LOCAL CALCIUM RELEASE DURING CARDIAC EXCITATION-CONTRACTION COUPLING. **Andrew P. Wescott**, M. Saleet Jafri, W. Jonathan Lederer, George S. B. Williams

**500-Pos BOARD B280**  
DANTROLENE INHIBITION OF SKELETAL MUSCLE RYR IN THE PRESENCE OF CAM. **Ye W. Oo**, M.S Imtiaz, D.F. vanHelden, D.R Laver

**501-Pos BOARD B281**  
NOVEL COMPOUNDS INHIBIT CALMODULIN DEFICIENT RYR2 ACTIVITY AND ARRHYTHMIAS IN A CPVT MOUSE MODEL. **Robert C. Klipp**, Na Li, Qiongling Wang, Martha Sibrian-Vazquez, Robert M. Strongin, Xander H.T. Wehrens, Jonathan J. Abramson

**502-Pos BOARD B282 INTERNATIONAL TRAVEL AWARDEE**  
S4-S5 LINKER REGULATES RYR2 CHANNEL GATING THROUGH MULTIPLE INTERACTIONS. **Takashi Murayama**, Nagomi Kurebayashi, Haruo Ogawa, Junji Suzuki, Kazunori Kanemaru, Masamitsu Iino, Takashi Sakurai

**503-Pos BOARD B283**  
SPONTANEOUS AND VOLTAGE-ACTIVATED ELEMENTARY CALCIUM RELEASE EVENTS IN INTACT SKELETAL MUSCLE FIBERS EXPRESSING THE EMBRYONIC CAV1.1 SPLICE VARIANT. **Beatrix Dienes**, János Vincze, Péter Szentesi, Nasreen Sultana, Bernhard E. Flucher, László Csernoch

**504-Pos BOARD B284**  
CHARACTERIZATION OF THE STAC3-CAV1.1 INTERACTION IN SKELETAL MUSCLE EXCITATION-CONTRACTION COUPLING. **Marta Campiglio**, Bernhard E. Flucher

**505-Pos BOARD B285**  
THE TRANSMEMBRANE DOMAIN IS SUFFICIENT TO DIRECT JUNCTIONAL TOPHILIN-1 LOCALIZATION AT THE JUNCTIONAL SR. **Daniela Rossi**, Angela Maria Scarcella, Stefania Lorenzini, Vincenzo Sorrentino

**506-Pos BOARD B286**  
CELLULAR PATHOPHYSIOLOGY OF "MHH", A LARGE GROUP OF PATIENTS WITH EQUIVOCAL DIAGNOSIS OF MALIGNANT HYPERTHERMIA. **Lourdes Figueroa**, Carlo Manno, Natalia Kraeva, Sheila Toro, Eduardo Rios, Sheila Riazzi

**507-Pos BOARD B287**  
THE MALIGNANT HYPERTHERMIA RYR1Y522S MUTATION AFFECTS CALCIUM HOMEOSTASIS IN ARTERIAL SMOOTH MUSCLE CELLS. Ruben Lopez, Susan N. Treves, **Francesco Zorzato**

**508-Pos BOARD B288**  
INACTIVATION OF CAV1.1 CHANNELS IN ADULT SKELETAL MUSCLE: EF-

FFECTS OF A C-TERMINAL PRE-IQ MUTATION. **Erick O. Hernández-Ochoa**, Brian R. Cannon, Camilo Vanegas, David J. Weber, Martin F. Schneider

**509-Pos BOARD B289**  
STIM1-DEPENDENT CA<sup>2+</sup> SIGNALING IN CARDIAC MYOCYTES. Cory Parks, Ryan Sullivan, **Salvatore Mancarella**

**510-Pos BOARD B290**  
MODELING THE ROLE OF NCX IN THE REGULATION OF CARDIOMYOCYTE MICRODOMAIN CA<sup>2+</sup> DYNAMICS. **Lulu Chu**, Joseph L. Greenstein, Raimond L. Winslow

**511-Pos BOARD B291**  
TRANSMURAL DIFFERENCES IN PRELOAD-DEPENDENCY OF CA<sup>2+</sup> TRANSIENTS IN ISOLATED CARDIOMYOCYTES. **Anastasia Khokhlova**, Gentaro Iribe, Olga Solovyova

**512-Pos BOARD B292**  
THE TRPV4 ION CHANNEL ALTERS INTRACELLULAR CALCIUM TRANSIENTS IN CARDIOMYOCYTES OF AGED MICE. **John L. Jones**, Michelle D. Lambert, Justin T. Whitfield, Timothy L. Domeier

**513-Pos BOARD B293**  
THE CONCENTRATIONS OF TOTAL CALCIUM IN FAST-TWITCH AND HEART MUSCLES FROM MICE IN AN AGITATED AND ACTIVE STATE IS ALMOST 2-FOLD GREATER THAN THOSE FROM RESTING MICE. Abby F. McDonnell, **Paul C. Pape**

**514-Pos BOARD B294**  
CA<sup>2+</sup> TIDES IN CARDIOMYOCYTES UNDER MECHANICAL LOADING. **Zhong Jian**, Leighton T Izu, Yi-Je Chen, Brittani Wood, Julie Bossuyt, Kit S Lam, Ye Chen-Izu

**515-Pos BOARD B295**  
DYSSYNCHRONOUS CA REMOVAL IN ATRIAL CARDIAC MYOCYTES. **Felix Hohendanner**, Frank Heinzl, Lothar Blatter

**516-Pos BOARD B296**  
INTEPLAY OF TRIGGER CA<sup>2+</sup> WAVES AND CA<sup>2+</sup> TRANSIENT ALTERNANS IN ATRIAL MYOCYTES. **Gary Aistrup**, Yohannes Shiferaw, Rishi Arora, Georg Gussak, Soren Grubb, William Marszalec, J. Andrew Wasserstrom

**517-Pos BOARD B297**  
ACTIVATION OF REVERSE NA/CA EXCHANGER BY SKELETAL NA CHANNEL ISOFORM INCREASES EXCITATION-CONTRACTION COUPLING EFFICIENCY IN RABBIT CARDIOMYOCYTES. **Natalia S. Torres**, John HB Bridge

**518-Pos BOARD B298**  
USING ACTION POTENTIAL CLAMP DATA TO DETERMINE THE CALCIUM FLUXES AND CONTRIBUTIONS IN EXCITATION-CONTRACTION COUPLING IN VIVO IN CARDIOMYOCYTES. **Martin Laasmaa**, Marko Vendelin, Rikke Birkedal

**519-Pos BOARD B299**  
CHARACTERIZATION OF TWO HUMAN SKELETAL CALSEQUESTRIN MUTANTS IMPLICATED IN MALIGNANT HYPERTHERMIA AND VACUOLAR AGGREGATES MYOPATHY. **Eduardo Rios**, Kevin M. Lewis, Leslie A. Ronish, ChulHee Kang

**520-Pos BOARD B300**  
IMAGING STUDIES OF CALSEQUESTRIN STRUCTURE IN SKELETAL MUSCLE. EFFECTS OF CALCIUM RELEASE. **Eduardo Rios**, Carlo Manno, Lourdes Figueroa, Clara Franzini-Armstrong

**521-Pos BOARD B301**  
MECHANICAL ANALYSIS OF SINGLE MYOCYTE CONTRACTION IN A 3D VISCOELASTIC GEL. **John A. Shaw**, Alan Wineman, Rafael Shimkunas, Leighton Izu, Ye Chen-Izu

# Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating I (Boards B302 - B331)

## 522-Pos BOARD B302

WATER TRANSPORT ACROSS THE VOLTAGE SENSOR OF SHAKER K-CHANNELS DURING ACTIVATION. **Ignacio Diaz-Franulic**, David Naranjo

## 523-Pos BOARD B303

HYDRATION AND THE ELECTRIC FIELD IN THE VOLTAGE SENSING DOMAIN OF THE KV1.2 CHANNEL: QUANTUM CALCULATIONS SHOW S4 DOESN'T MOVE, BUT WATER AND PROTONS MOVE. **Alisher M. Kariev**, **Michael E. Green**

## 524-Pos BOARD B304

WATER AND A PROTON SHIFT BETWEEN A TYROSINE AND A GLUTAMATE ARE TWO KEYS TO GATING IN KV1.2; A HYPOTHESIS BASED ON QUANTUM CALCULATIONS: THE SENSOR IS DYNAMIC, BASED ON HYDROGEN BOND REARRANGEMENTS, PRINCIPALLY IN WATER ROTATIONAL DEGREES OF FREEDOM, PLUS A PROTON PATHWAY. **Alisher M. Kariev**, **Michael E. Green**

## 525-Pos BOARD B305

STRUCTURAL INSIGHTS OF THE CALCIUM MEDIATED REORGANIZATION OF THE CALMODULIN/KV7.2 CHANNEL COMPLEX. **Alvaro Villarroel**, **Ganeko Bernardo-Seisdedos**, **Alessandro Alaimo**, **Carolina Gomis-Perez**, **Araitz Alberdi**, **Covadonga Malo**, **Pilar Areso**, **Oscar Millet**

## 526-Pos BOARD B306

CID TRAVEL AWARDEE

BIOCHEMICAL ANALYSIS OF THE REGULATION OF KV7 CHANNELS BY PIP2 AND CALMODULIN. **Crystal R. Archer**, **Benjamin T. Enslow**, **Mark S. Shapiro**

## 527-Pos BOARD B307

CENTRIN 4 IS A BINDING PARTNER OF RAT EAG1 K<sup>+</sup> CHANNELS. **Po-Hao Hsu**, **Chih-Yung Tang**, **Chung-Jiuan Jeng**

## 528-Pos BOARD B308

GATING CURRENT MODELS COMPUTED WITH CONSISTENT INTERACTIONS. **Tzyy-Leng Horng**, **Robert S. Eisenberg**, **Chun Liu**, **Francisco Bezanilla**

## 529-Pos BOARD B309

INTERNATIONAL TRAVEL AWARDEE

A MOLECULAR SUBSTRATE FOR LONG QT IN HIV PATIENTS: TAT PROTEIN REDUCES IKR IN HUMAN INDUCED PLURIPOTENT STEM CELLS-DERIVED CARDIOMYOCYTES. **Zeineb Es-Salah-Lamoureux**, **Mariam Jouni**, **Nadjet Belbachir**, **Marine Gandon-Renard**, **Bruno Beaumelle**, **Isabelle Baró**, **Flavien Charpentier**, **Kazem Zibara**, **Patricia Lemarchand**, **Nathalie Gaborit**, **Gildas Loussouarn**

## 530-Pos BOARD B310

CHARACTERIZATION OF A FAST VOLTAGE-SENSING PROTEIN USING VOLTAGE-CLAMP FLUOROMETRY. **Ferenc Papp**, **Jaime Smith**, **Orsolya Szilagyfi**, **Tsg-Hui Chang**, **Kenton J. Swartz**

## 531-Pos BOARD B311

PATCH-CLAMP FLUOROMETRY BASED DETERMINATION OF RELATIVE ION PERMEABILITY FOR HCN CHANNELS. **Khade L. Grant**, **Chang Liu**, **Lei Zhou**

## 532-Pos BOARD B312

DISTANCE-RESOLVING VOLTAGE CLAMP FLUOROMETRY (DRVCF) QUANTIFIES INTRAMOLECULAR TRANSITIONS IN THE HUMAN BK AND CI-VSP VOLTAGE SENSORS UNDER PHYSIOLOGICALLY-RELEVANT CONDITIONS. **Antonios Pantazis**, **Riccardo Olcese**

## 533-Pos BOARD B313

EFFECT OF SMALL-MOLECULES ON S4 MOVEMENT AND GATING OF NORMAL AND MUTATED IKM CHANNELS. **Rene Barro-Soria**

## 534-Pos BOARD B314

PROBING THE S4-S5 LINKER MOVEMENT DURING ACTIVATION IN KV CHANNELS. **Tanja Kalstrup**, **Rikard Blunck**

## 535-Pos BOARD B315

THE EFFECT OF MEMBRANE CHOLESTEROL CONTENT ON THE GATING MECHANISM OF VOLTAGE GATED POTASSIUM CHANNELS. **Pal Pap**, **Zoltan Petho**, **Gyorgy Panyi**, **Zoltan Varga**

## 536-Pos BOARD B316

THE CONSTRICTED FILTER CONFORMATION: A GENERAL PROPERTY FOR C-TYPE INACTIVATION OF DIFFERENT POTASSIUM CHANNELS? **Jing Li**, **Jared Ostmeier**, **Mikolai Fajer**, **Benoit Roux**

## 537-Pos BOARD B317

A RECIPROCAL VOLTAGE SENSOR-TO-PORE COUPLING IN C-TYPE INACTIVATION. **Luca Conti**, **Jakob Renhorn**, **Anders Gabrielsson**, **Fredrik Turesson**, **Sara Liin**, **Erik Lindahl**, **Fredrik Elinder**

## 538-Pos BOARD B318

DYN-MEDIATED INTERNALIZATION OF KCNQ1/KCNE1 CHANNELS UNDER SUSTAINED CPKC ACTIVATION. **Xiaorong Xu Parks**, **Elsa Ronzier**, **Jin O-Uchi**, **Coeli M. Lopes**

## 539-Pos BOARD B319

TRAFFICKING DEFICIENT KV11.1 (HERG) MUTATIONS LINKED TO LONG QT SYNDROME LOCALIZE TO DIFFERENT ENDOPLASMIC RETICULUM SUB-COMPARTMENTS. **Jennifer L. Smith**, **Corey L. Anderson**, **Craig T. January**, **Brian Delisle**

## 540-Pos BOARD B320

INTERACTIONS BETWEEN THE C-LINKER AND THE S4-S5 LINKER MEDIATE GATING IN CNGA1 CHANNELS. **Manuel Arcangeletti**, **Monica Mazzolini**, **Claudio Anselmi**, **Debora Grosa**, **Sourav Maity**, **Arin Marchesi**, **Luisa Napolitano**, **Vincent Torre**

## 541-Pos BOARD B321

ENGINEERING SUBUNIT AND NONSENSE SUPPRESSION STOICHIOMETRY IN POTASSIUM CHANNELS. **John D. Lueck**, **Adam L. Mackey**, **Jason D. Galpin**, **Christopher A. Ahern**

## 542-Pos BOARD B322

SLACK CHANNELS NULL MICE EXHIBIT INCREASED SENSITIVITY TO MECHANICAL STIMULI BUT NORMAL RESPONSE TO THERMAL STIMULI. **Ran Wang**, **Ying Song**, **Jie Xu**, **Meng-Jiao Tan**, **Tian-Yu Cao**, **Shun-Heng Gao**, **Meng-Han Sun**, **Fei-Fei Zhang**, **Zhe Zhang**

## 543-Pos BOARD B323

EQUILIBRIUM FLUCTUATION RELATIONS FOR GATING CHARGE IN VOLTAGE SENSITIVE MEMBRANE PROTEINS: A MICROSCOPIC CAPACITOR MODEL APPROACH. **ILSOO KIM**, **Arieh Warshel**

## 544-Pos BOARD B324

MEMBRANE FORCES REGULATE VOLTAGE SENSOR MOVEMENT. **Mehdi Torbati**, **Vikash Chaurasia**, **Kranthi Mandadapu**, **Ashutosh Agrawal**

## 545-Pos BOARD B325

GATING CHARGE CALCULATIONS: PROBING VOLTAGE-SENSING PROTEINS THROUGH COMPUTATIONAL ELECTROPHYSIOLOGY. **Jan-Philipp Machtens**, **Rodolfo Briones**, **Bert L. de Groot**, **Christoph Fahlke**

## 546-Pos BOARD B326

COMPUTATIONAL CHARACTERIZATION OF CONFORMATIONAL TRANSITIONS IN THE VOLTAGE-SENSING DOMAIN OF CI-VSP. **Rong Shen**, **Qufei Li**, **David Medovoy**, **Yilin Meng**, **Benoit Roux**, **Eduardo Perozo**

## 547-Pos BOARD B327

MODELING OF THE SMALL-CONDUCTANCE CALCIUM-ACTIVATED POTASSIUM CHANNEL AND CARDIAC ALTERNANS. **Matthew Kennedy**, **Donald M. Bers**, **Nipavan Chiamvimonvat**, **Daisuke Sato**

**548-Pos BOARD B328**

WHAT DETERMINES THE CHARYBDOTOXIN SPECIFICITY AMONG KV1 POTASSIUM CHANNELS? **Drew C. Tilley**, Sarel Fleishman, Jon T. Sack, Vladimir Yarov-Yarovoy

**549-Pos BOARD B329**

THE MOLECULAR MECHANISM OF THE DUAL SPIDER TOXIN EFFECT ON VOLTAGE GATED K<sup>+</sup> CHANNELS. Sara Liin, Anders Gabrielsson, Fredrik Elinder, **Erik Lindahl**

**550-Pos BOARD B330**

IN-SILICO ELECTROPHYSIOLOGY: ON THE ACTIVATION OF VOLTAGE-GATED ION CHANNELS USING MOLECULAR DYNAMICS SIMULATIONS. **Mounir Tarek**, Lucie Delemotte, Marina Kasimova, Michael L. Klein, Vincenzo Carnevale

**551-Pos BOARD B331**

INSERTION OF CROSSLINKABLE AMINO ACIDS INTO THE I<sub>Ks</sub> CHANNEL COMPLEX DEMONSTRATES A VARIABLE KCNQ1:KCN1 STOICHIOMETRY OF UP TO 4:4. **Maartje F.E. Westhoff**, Christopher I. Murray, Emely Thompson, Robert Emes, Jodene Eldstrom, David Fedida

## Voltage-gated Na Channels I (Boards B332 - B361)

**552-Pos BOARD B332**

MOLECULAR SCALE PREDICTION OF LIDOCAINE INTERACTION WITH THE PORE DOMAIN OF HUMAN NAV1.5. **Kevin DeMarco**, Céline Boiteux, Toby W. Allen, Vladimir Yarov-Yarovoy, Colleen E. Clancy

**553-Pos BOARD B333**

A COMPUTATIONAL MODELING INVESTIGATION INTO SCN10A LINKED BRUGADA SYNDROME. **Marcus Vincent**, Pei-Chi Yang, Colleen E. Clancy

**554-Pos BOARD B334**

FACILITATION OF RAPID TEMPORAL PROCESSING BY ION CHANNEL COOPERATIVITY SUGGESTS COORDINATION THROUGH MEMBRANE ELECTRO-MECHANICS. **Mussie K. Araya**, William E. Brownell

**555-Pos BOARD B335**

COMPUTATIONAL MODELING OF SODIUM CHANNEL INACTIVATION. **Kim Lam**, Zhe Wu, Klaus Schulten

**556-Pos BOARD B336**

MOLECULAR DYNAMICS SIMULATIONS OF THE OPEN STATE STRUCTURE OF A BACTERIAL VOLTAGE-GATED SODIUM CHANNEL REVEAL THE BINDING MECHANISMS OF CHANNEL BLOCKERS. **Song Ke**, B. Ann Wallace, Jakob P. Ulmschneider, Martin B. Ulmschneider

**557-Pos BOARD B337**

COMPUTATIONAL STUDY OF BINDING OF  $\mu$ -CONOTOXIN GI<sub>IIA</sub> ( $\mu$ -CTX) TO NAVRH AND NAVAB. **Dharmeshkumar J. Patel**

**558-Pos BOARD B338**

BINARY ARCHITECTURE OF THE NAV1.2- $\beta$ 2 SIGNALING COMPLEX. **John M. Gilchrist**, Samir Das, Filip Van Petegem, Frank Bosmans

**559-Pos BOARD B339**

STRUCTURAL COMPARISONS OF IMMUNOGLOBULIN FOLDS OF HUMAN NAV $\beta$  SUBUNITS. **Samir Das**, John Gilchrist, Frank Bosmans, Filip Van Petegem

**560-Pos BOARD B340**

CALMODULIN AND FIBROBLAST GROWTH FACTOR HOMOLOGOUS FACTOR CO-REGULATION OF THE NAV1.5 CHANNEL IN LQT3 MUTATIONS. **Chaojian Wang**, Haidun Yan, Geoffrey S. Pitt

**561-Pos BOARD B341**

INTRACELLULAR CALCIUM DIFFERENTIALLY AFFECTS SCN5A MIXED SYNDROME MUTATIONS. **Mena Abdelsayed**, Peter C. Ruben

**562-Pos BOARD B342**

STRUCTURAL DIFFERENCES IN CALMODULIN BOUND TO VOLTAGE-GATED SODIUM CHANNEL IQ MOTIFS. **Ryan Mahling**, C. Andrew Fowler, Liam Hovey, Liping Yu, Lokesh Gakhar, Zesen Lin, Nisha Pandey, Toni Martins, Madeline A. Shea

**563-Pos BOARD B343**

FUNCTIONAL MODIFICATION OF BACTERIAL VOLTAGE-GATED SODIUM CHANNELS BY BATRACHOTOXIN. **Rocio K. Finol-Urdaneta**, Jeffrey R. McArthur, Rachele Gaudet, Robert J. French

**564-Pos BOARD B344**

MECHANOSENSITIVITY OF THE BACTERIAL VOLTAGE-GATED SODIUM CHANNEL NACHBAC. **Constanza A. Alcaino**, Peter R. Strege, Cheryl E. Bernard, Gianrico Farrugia, Arthur Beyder

**565-Pos BOARD B345**

EFFECTS OF LATE SODIUM CURRENT (I<sub>NAL</sub>) BLOCKADE DURING ACUTE MYOCARDIAL ISCHEMIA. **Carlotta Ronchi**, Marcella Rocchetti, Eleonora Torre, Riccardo Rizzetto, Joyce Bernardi, Gaspare Mostacciolo, Antonio Zaza

**566-Pos BOARD B346**

NOVEL STORM-BASED QUANTITATIVE ASSESSMENT OF RELATIVE PROTEIN LOCALIZATION REVEALS NEW ROLE FOR SODIUM CHANNEL  $\beta$ 1 SUBUNIT IN CARDIAC CONDUCTION. **Rengasayee Veeraraghavan**, Robert G. Gourdie

**567-Pos BOARD B347**

BIOPHYSICAL AND PHARMACOLOGICAL CHARACTERIZATION OF MULTIPLE NAV SUBTYPES ON QUBE. **Mads P. Korsgaard**, Anders Lindqvist, Søren Friis, Mette T. Christensen

**568-Pos BOARD B348**

CYSTEINE RESIDUES C489 AND C1135 OF NAV 1.5 PLAY A CRITICAL ROLE IN PRODUCING LATE SODIUM CURRENT THROUGH NNOS-DEPENDENT S-NITROSYLATION OF NAV 1.5. **Jianding Cheng**, John W. Kyle, Graham S. Adsit, Carmen R. Valdivia, Alyson K. Fisher, Jonathan C. Makielski

**569-Pos BOARD B349**

MODULATION OF A BACTERIAL VOLTAGE-GATED SODIUM CHANNEL BY THE ANTI-EPILEPTIC DRUG LACOSAMIDE. Celine Boiteux, **Chris French**, Toby W. Allen

**570-Pos BOARD B350**

PATIENT-SPECIFIC INDUCED PLURIPOTENT STEM CELL CARDIAC MYOCYTES AS PREDICTORS OF SUDEP RISK. **Chad R. Frasier**, Helen Zhang, James Offord, David S. Auerbach, Jack M. Paren, Lori L. Isom

**571-Pos BOARD B351**

BIOPHYSICAL, MOLECULAR AND PHARMACOLOGICAL CHARACTERIZATION OF NAV CHANNELS FROM INDUCED PLURIPOTENT STEM CELLS DERIVED CARDIOMYOCYTES. **Aurélie Mercier**, Adrien Moreau, Olivier Thériault, Mohamed Chahine

**572-Pos BOARD B352**

MICE WITH A NULL ALLELE FOR NAV1.4 EXHIBIT PSEUDO-MYASTHENIA, BUT ARE NOT SUSCEPTIBLE TO PERIODIC PARALYSIS. Fenfen Wu, Wentao Mi, Yu Fu, **Steve C. Cannon**

**573-Pos BOARD B353**

SCN4A PORE MUTATION PATHOGENETICALLY CONTRIBUTES TO AUTOSOMAL DOMINANT ESSENTIAL TREMOR AND MAY INCREASE SUSCEPTIBILITY TO EPILEPSY. Alberto Bergareche, **Marcin J. Bednarz**, Elena Sánchez, Catharine E. Krebs, Javier Ruiz-Martinez, Patricia De la Riva, Vladimir Makarov, Ana Gorostidi, Karin Jurkat-Rott, Jose Felix Marti-Masso, Coro Paisán-Ruiz

**574-Pos BOARD B354**

MAPPING RECEPTOR SITES FOR SODIUM CHANNEL BLOCKING INSECTICIDES DCJW AND METAFIUMIZONE IN AN INSECT SODIUM CHANNEL. Yuzhe Du, Yongqiang Zhang, Dingxin Jiang, Caitlyn Behnke, Yoshiko Nomura, Ke Dong, **Boris S. Zhorov**

**575-Pos BOARD B355**

MECHANISM OF SLOW INACTIVATION IN PROKARYOTIC VOLTAGE-GATED SODIUM CHANNEL. **Soumili Chatterjee**

**576-Pos BOARD B356**

DIFFERENTIAL ACTION OF PYRETHROIDS ON HONEY BEE AND BUMBLE BEE VOLTAGE-GATED SODIUM CHANNELS. **Claude Collet**, Aklesso Kadala, Bernard Vaissière, Matthieu Rousset, Thierry Cens, Yves Le Conte, Mohamed Chahine, Jean-Baptiste Thibaud, Pierre Charnet

**577-Pos BOARD B357**

IDENTIFICATION OF NOVEL PORE INTERACTIONS FOR SELECTIVE NAV1.8 INHIBITORS. **Matthew D. Fuller**, Sonia Santos, Mark L. Chapman

**578-Pos BOARD B358**

CHARACTERIZATION OF NAV1.8 ON A HIGHLY PARALLEL AUTOMATED PATCH CLAMP SYSTEM. **Markus Rapedius**, Andrea Bruggemann, Tom Goetze, Claudia Haarmann, Ilka Rinke, Atsushi Ohtsuki, Takayuki Oka, Marius Vogel, Timo Stengel, Johannes Stiehler, Michael George, Nils Fertig

**579-Pos BOARD B359**

THE EFFECTS OF AMIODARONE AND N-DESETHYLAMIODARONE ON CARDIAC VOLTAGE-GATED SODIUM CHANNELS. **Mohammad-Reza Ghovanloo**, Peter C. Ruben

**580-Pos BOARD B360**

HIGH AFFINITY NAV CHANNEL BINDER WITH SPECIFIC CONJUGATION SITE DERIVED FROM SCORPION TOXIN WITH ATTENUATED TOXICITY. **Tomoya Kubota**, Bobo Dang, Joao L. Carvalho-de-Souza, Stephen B.H. Kent, Ana M. Correa, Francisco Bezanilla

**581-Pos BOARD B361**

PROBING VOLTAGE-DEPENDENT STRUCTURAL CHANGES OF THE VSD IN MAMMALIAN NAV WITH LRET. **Tomoya Kubota**, Thomas Durek, Rocio K. Finol-Urdaneta, David J. Craik, Robert J. French, Francisco Bezanilla, Ana M. Correa

## Other Channels (Boards B362 - B390)

**582-Pos BOARD B362**

STRUCTURAL DETERMINANTS FOR SELECTIVITY OF THE POSITIVE KCA CHANNEL GATING MODULATOR, SKA-121. **Brandon M. Brown**, Heesung Shim, Vladimir Yarov-Yarovoy, Heike Wulff

**583-Pos BOARD B363**

BK-CA<sup>2+</sup> CHANNEL COUPLING IN THE MOUSE CIRCADIAN CLOCK. Joshua P. Whitt, **Andrea L. Meredith**

**584-Pos BOARD B364**

LOSS-OF-FUNCTIONAL KIR6.1 KATP CHANNEL MUTATIONS INDUCE CELL APOPTOSIS THROUGH ROS PRODUCTION AND MITOCHONDRIAL DYSFUNCTION. **Bi-Hua Tan**, Shengyi Xie, Tianyu Sun, Sinisa Dovat, Blaise Z. Peterson, Chunhua Song

**585-Pos BOARD B365**

HUMAN ERYTHROCYTE MECHANO-ACTIVATED K<sup>+</sup> CHANNEL A (HEM-KCA): EFFECT OF APPLIED PRESSURE ON OPEN PROBABILITY, A KINETIC STUDY. Alejandro Mata, **Jesus G. Romero**

**586-Pos BOARD B366**

CATSPER HAS A CALCIUM-PERMEABLE VOLTAGE SENSOR DOMAIN. **Hiroki Arima**, Hidekazu Tsutsui, Kohei Takeshita, Atsushi Nakagawa, Ayako Sakamoto, Manabu Yoshida, Yasushi Okamura

**587-Pos BOARD B367**

CSFV P7 VIROPORIN ION CHANNEL ACTIVITY IN LIPID BILAYERS MIMICKING THE ER MEMBRANE. **Vicente M. Aguilera**, Eneko Largo, Carmina Verdiá-Báguena, José L. Nieva, Antonio Alcaraz

**588-Pos BOARD B368**

ELECTRO-OSMOTIC DRIVEN KINETICS OF CYCLODEXTRIN THROUGH THE CYMA CHANNEL. **Satya Prathyusha Bhamidimarri**, Jigneshkumar Dahyabhai Prajapati, Bert van den Berg, Ulrich Kleinekathoefer, Mathias Winterhalter

**589-Pos BOARD B369**

INTERNAL ELECTRIC FIELD OF GRAM- UNSPECIFIC PORINS DIRECTS THE CHOREOGRAPHY OF ANTIBIOTIC TRANSLOCATION. **Mariano A. Scorciapino**, Tommaso D'Agostino, Silvia Acosta-Gutierrez, Igor Bodrenko, Matteo Ceccarelli

**590-Pos BOARD B370 INTERNATIONAL TRAVEL AWARDEE**  
WATER-BASED SCREENING OF ANTIBIOTICS PERMEABILITY. **Silvia Acosta-Gutierrez**, Andrea Mariano Scorciapino, Igor Bodrenko, Matteo Ceccarelli

**591-Pos BOARD B371**

GSMTX4 MUTAGENESIS REVEALS DYNAMIC MEMBRANE BINDING PROPERTIES THAT CONFER INHIBITION OF PIEZO1. **Radhakrishnan Gnanasambandam**, Chiranjib Ghatak, Anthony Yasman, Frederick Sachs, Alexey S. Ladokhin, Sergei I. Sukharev, Thomas M. Suchyna

**592-Pos BOARD B372 INTERNATIONAL TRAVEL AWARDEE**  
THE N-TERMINAL HELIX ACTS AS A DYNAMIC MEMBRANE COUPLER IN THE GATING CYCLE OF THE MECHANOSENSITIVE CHANNEL MSCL. **Navid Bavi**, Charles D. Cox, Paul R. Rohde, Adam P. Hill, Ben Corry, Boris Martinac

**593-Pos BOARD B373**  
ASSESSING CLC-2 CHLORIDE CHANNEL VOLTAGE GATING BY PORE OCCUPATION WITH ACETATE. **José J. De Jesús-Pérez**, Jorge Arreola

**594-Pos BOARD B374**

SPONTANEOUS OPENINGS OF CFTR ARE COUPLED TO DIMER FORMATION OF ITS NUCLEOTIDE BINDING DOMAINS. **Csaba Mihályi**, László Csanády

**595-Pos BOARD B375**

THE PROSTACYCLIN ANALOG TREPROSTINIL INHIBITS ANO1-ENCODED CA<sup>2+</sup>-ACTIVATED CL<sup>-</sup> CHANNELS AND MOUSE PULMONARY ARTERIAL TONE THROUGH STIMULATION OF CAMP-DEPENDENT SIGNALING PATHWAY. Fiona Cunningham, John Lilly, **Normand Leblanc**

**596-Pos BOARD B376**

FUNCTIONAL DIVERSITY WITHIN THE FNT SUPERFAMILY OF ANION CHANNELS: PHYLOGENETICS & MOLECULAR DYNAMICS STUDIES. **Mishtu Mukherjee**, Manu Vajpai, Ramasubbbu Sankaramakrishnan

**597-Pos BOARD B377**

BASIS OF NEGATIVE COOPERATIVITY IN TWO-SIDED MONOBODY BLOCK OF FLUC. **Daniel L. Turman**, Jake Nathanson, Randy Stockbridge, Chris Miller

**598-Pos BOARD B378**

A BACTERIAL HOMOLOG OF CHLORIDE INTRACELLULAR CHANNEL (CLIC) PROTEIN FAMILY, STRINGENT STARVATION PROTEIN A (SSPA), FORMS A NON-SELECTIVE ION CHANNEL. **Harpreet Singh**, Devasena Ponnalagu, Sowmya Sukur, Harkewal Singh, Yan Ning Zhou, Ding J. Jin, Shubha Gururaja Rao

**599-Pos BOARD B379**

NEAR-IR RESONANCE RAMAN CHARACTERIZATION OF AN ANION CHANNELRHODOPSIN FROM GUILLARDIA THETA. **Adrian Yi**, Natalia Mamaeva, Hai Li, John L. Spudich, Kenneth J. Rothschild

**600-Pos BOARD B380**  
HUMAN CONNEXIN 26 (CX26) N14K MUTANT ALTERS HEMICHANNEL CALCIUM AND VOLTAGE SENSITIVITY. **Juan M. Valdez Capuccino**, William Lopez, Andrew L. Harris, Jorge E. Contreras

**601-Pos BOARD B381**  
NITRIC OXIDE INCREASES ENDOTHELIAL CELL MEMBRANE PERMEABILITY VIA S-NITROSYLATION-MEDIATED OPENING OF CX43 HEMICHANNELS. **Mauricio A. Lillo**, Jorge E. Contreras, Xavier F. Figueroa

**602-Pos BOARD B382**  
A NOVEL E. COLI-BASED ASSAY FOR RAPID SCREENING OF HEMICHANNEL FUNCTION. **Srinivasan Krishnan**, D. Marien Cortés, Guillermo A. Altenberg, Luis G. Cuello

**603-Pos BOARD B383**  
ENGINEERED CX40 VARIANTS SHOWED HETEROTYPIC COLOCALIZATION AND INCREASED GAP JUNCTIONAL COUPLING WITH CX43. Arjewan Jassim, Hiroshi Aoyama, Willy G. Ye, Honghong Chen, **Donglin Bai**

**604-Pos BOARD B384**  
WATER DYNAMICS AND ION INTERACTION AT CHANNEL ENTRANCE OF AQUAPORIN 1. **Eiji Yamamoto**, Takuma Akimoto, Masato Yasui, Kenji Yasuoka

**605-Pos BOARD B385**  
EFFECT OF LIPID LAYER ON THE WATER PERMEABILITY OF AQUAPORIN: A MOLECULAR DYNAMICS STUDY. **Sangjae Seo**, Youngjin Kim, Hyunki Kim, Moon Ki Kim

**606-Pos BOARD B386**  
HIGHLY PERMEABLE ARTIFICIAL WATER CHANNELS THAT SELF-ASSEMBLE INTO TWO-DIMENSIONAL ARRAYS. **Karl Decker**

**607-Pos BOARD B387**  
AN INSECT PROTON CHANNEL. Gustavo Chaves, Christian Derst, Arne Franzen, Ryuichiro Machida, Yuta Mashimo, **Boris Musset**

**608-Pos BOARD B388**  
NOVEL PLAYERS IN THE CONTROL OF MITOCHONDRIAL ION HOMEOSTASIS. **Angela Paggio**, Vanessa Checchetto, Ildikò Szabò, Rosario Rizzuto, Diego De Stefani

**609-Pos BOARD B389**  
MEMBRANE-SPANNING DNA ION CHANNELS: CONDUCTANCE MECHANISM, ELECTRO-OSMOTIC TRANSPORT AND MECHANICAL GATING. Jejoong Yoo, **Chen-Yu Li**, Aleksei Aksimentiev

**610-Pos BOARD B390**  
OLIGOMERIZATION STATES OF LRRC8A AND LRRC8B, ESSENTIAL COMPONENTS OF THE VOLUME-REGULATED ANION CHANNEL VRAC. **Gunther Schmalzing**, Silvia Detro-Dassen, Christoph Fahlke, Fritz Markwardt

## Cardiac Muscle Regulation (Boards B391 - B413)

**611-Pos BOARD B391**  
MECHANICAL SIGNALING COORDINATES THE EMBRYONIC HEART-BEAT. **Kevin K. Chiou**, Jason W. Rocks, Sangkyun Cho, Koen E. Merkus, Patrick Robison, Manorama Tewari, Kenneth Vogel, Stephanie F. Majkut, Benjamin L. Prosser, Dennis E. Discher, Andrea J. Liu

**612-Pos BOARD B392**  
SIMULTANEOUS MEASUREMENT OF FORCE AND LATTICE SPACING IN SKINNED CARDIAC FIBERS. David Gonzalez-Martinez, Maicon Landim-Vieira, Olga A. Antipova, **Omar Awan**, P. Bryant Chase, Thomas Irving, Jose R. Pinto

**613-Pos BOARD B393**  
THE LOAD DEPENDENCE OF THE SIZE AND THE SPEED OF THE WORKING STROKE OF CARDIAC MYOSIN IN SITU. Marco Caremani, Francesca Pinzatti, Massimo Reconditi, Gabriella Piazzesi Piazzesi, Vincenzo Lombardi, **Ger J. Stienen**, Marco Linari

**614-Pos BOARD B394**  
EFFECT OF STIMULATION FREQUENCY MODULATION ON CROSS-BRIDGE CYCLING RATE OF EXPLANTED HUMAN MYOCARDIUM WITH NON-ISCHEMIC AND ISCHEMIC CARDIOMYOPATHY. **Jae-Hoon Chung**

**615-Pos BOARD B395**  
ASSESSMENT OF CARDIAC EFFECTS OF PROTEIN KINASE A AND PROTEIN KINASE C INHIBITORS ON MYOFILAMENT-BASED CONTRACTILE ACTIVATION IN FAILING HUMAN MYOCARDIUM. **Nancy S. Saad**

**616-Pos BOARD B396**  
THE BENEFITS OF VOLUNTARY EXERCISE ON CARDIAC FUNCTION IN DCM MODEL MICE. **Masami Sugihara**, Ryo Kakigi, Takashi Murayama, Takashi Sakurai, Takashi Miida, Sachio Morimoto, Nagomi Kurebayashi

**617-Pos BOARD B397**  
DAMP RESTORES THE CONTRACTILE FUNCTION OF CARDIAC MYOFIBRIL FROM ADULT DOGS WITH NATURALLY OCCURRING DILATED CARDIOMYOPATHY. **Yuanhua Cheng**, Kaley A Hogarth, M Lynne O'Sullivan, Michael Regnier, W Glen Pyle

**618-Pos BOARD B398**  
TIME-COURSE OF CARDIAC MYOFIBRILLAR CONTRACTILE PROPERTIES DURING THE PROGRESSION OF RAT HYPERTENSIVE HEART FAILURE. **Laurin M. Hanft**, Craig A. Emter, Kerry S. McDonald

**619-Pos BOARD B399**  
AMP KINASE MODULATES HEART RATE AND HEART RATE VARIABILITY THROUGH AUTONOMIC AND INTRINSIC MECHANISMS. **Jack M. Moen**, Ismayil Ahmet, Arash Yavari, Michael G. Matt, Max G. Beyman, Christopher Ramirez, Houman Ashrafian, Edward G. Lakatta

**620-Pos BOARD B400**  
UNIQUE LOCALIZATION OF PHOSPHOLAMBAN IN PERINUCLEAR MEMBRANES OF CARDIOMYOCYTES FROM SEVERAL SPECIES. Yu-An Chiou, Yen-Ling Sung, Peng-Sheng Chen, Shien-Fong Lin, **Zhenhui Chen**

**621-Pos BOARD B401**  
SPATIAL AND FUNCTIONAL INTERACTIONS BETWEEN SK CHANNELS AND L-TYPE CALCIUM CHANNELS IN CARDIOMYOCYTES. **Xiao-Dong Zhang**, Wei Chun Chen, Jeong-Han Lee, Zhong Jian, Gu Dai, Leighton Izu, Ye Chen-Izu, Nipavan Chiamvimonvat

**622-Pos BOARD B402**  
ZACOPRIDE, A NOVEL IK1 ACTIVATOR, IS A POTENTIAL EFFECTIVE TREATMENT FOR TRIGGERED ARRHYTHMIA IN SUSCEPTIBLE HUMAN HEARTS. **Mohammad T. Elnakish**, Benjamin D. Canan, Robert SD Higgins, Ahmet Kilic, Peter J. Mohler, Paul ML Janssen

**623-Pos BOARD B403**  
COMPUTATIONAL STUDY OF HUMAN-AMYLIN INDUCED CALCIUM DYSREGULATION IN CARDIAC MYOCYTES CHARACTERISTIC OF PRE-DIABETES. Caitlin Scott, Florin Despa, Sanda Despa, **Peter M. Kekenus-Huskey**

**624-Pos BOARD B404**  
SMALL OBSCURINS AT THE INTERCALATED DISC MEDIATE STRUCTURE, CELL SIZE, AND ADHESION. **Maegen Ackermann**, Brendan King, Nicole Perry, Michael Rudloff, Christopher Berndsen, Nathan Wright, Peter Hecker, Aikaterini Kontrogianni-Konstantopoulos

**625-Pos BOARD B405**  
MODELING THE RESPONSE OF CARDIAC TROPONIN C TO CALCIUM ON THE THIN FILAMENT: EFFECTS OF DISEASE-RELATED AND POST-TRANSLATIONAL MODIFICATIONS. **Jalal K. Siddiqui**, Bin Liu, Shane D. Walton, Vikram K. Shettigar, Andrew J. O'Neil, Grace A. Davis, Peeyush Shrivastava, Jianchao Zhang, Brandon Biesiadecki, Jonathan P. Davis



**626-Pos BOARD B406**  
STRUCTURE AND FUNCTION OF THE LEVOSIMENDAN ANALOG 19 COVALENTLY BOUND TO CARDIAC TROPONIN C. **Sandra Elizabeth Pineda-Sanabria**, Ian M. Robertson, Yin-Biao Sun, Malcolm Irving, Brian D. Sykes

**627-Pos BOARD B407**  
PRIMARY EFFECTS OF HCM MUTATIONS IN HUMANS AND CATS. **Andrew E. Messer**, Mary Papadaki, Petr G. Vikhorev, Yousef Sebzali, Mohammed El-Mezgueldi, Alex Daley, David J. Connolly, Steven B. Marston

**628-Pos BOARD B408**  
THERMODYNAMICS OF CALCIUM BINDING TO ZEBRAFISH TROPONIN C (TNC) VISUALIZED THROUGH ISOTHERMAL TITRATION CALORIMETRY (ITC) AND MOLECULAR DYNAMICS (MD). **Kaveh Rayani**, Charles M. Stevens, Bo Liang, Christine E. Genge, Glen F. Tibbits

**629-Pos BOARD B409**  
A8V MUTATION OF CARDIAC TROPONIN C ENHANCES TROPONIN I BINDING. **Javier E. Hasbun**, Henry G. Zot, Clara A. Michel, Maicon Landim-Vieira, Jose R. Pinto

**630-Pos BOARD B410**  
THE REGULATION OF ATP-BINDING, PI RELEASE AND ADP DISSOCIATION FROM MYOSIN II IN NATIVE CARDIAC MYOFIBRILS BY THE N-TERMINAL EXTENSION OF CARDIAC TROPONIN T. **Laura Gunther**, Han-Zhong Feng, Jian-Ping Jin, Takeshi Sakamoto

**631-Pos BOARD B411**  
A NOVEL TRYPTOPHAN ANALOG DESIGNED FOR STUDYING CALCIUM INDUCED CONFORMATIONAL CHANGE OF TROPONIN C. **Alison Y. Li**, Kaveh Rayani, Danielle Wilson, Neil Branda, Glen Tibbits

**632-Pos BOARD B412**  
CARDIOMYOPATHY LINKED MUTATIONS IN ALPHA TROPOMYOSIN INFLUENCE BLOCKED STATE STABILITY BUT NOT MYOSIN STRONG BINDING. **Gerrie P. Farman**, Michael Rynkiewicz, Marek Orzechowski, William Lehman, **Jeffrey Moore**

**633-Pos BOARD B413**  
NOVEL POTENTIAL TREATMENT OF FAMILIAL HYPERTROPHIC CARDIOMYOPATHY WITH ANALOGUES OF THE GREEN TEA POLYPHENOL EPIGALLO-CATECHIN-3-GALLATE. **Paul J. Robinson**, Suketu Patel, Xing Liu, Yin-Hua Zhang, Anuj Khandelwal, Brian Blagg, Barbara Casadei, Hugh Watkins, Charles Redwood

## Actin Structure, Dynamics, and Associated Proteins (Boards B414 - B429)

**634-Pos BOARD B414**  
SPECIFIC CATION BINDING STIFFENS ACTIN FILAMENTS BY ADHERING D-LOOPS TO ADJACENT MONOMERS. **Glen M. Hocky**, Joseph L. Baker, Michael J. Bradley, Anton V. Sinitzkiy, Enrique M. De La Cruz, Gregory A. Voth

**635-Pos BOARD B415**  
C0 AND C1 N-TERMINAL IG-DOMAINS OF MYOSIN BINDING PROTEIN-C EXERT DIFFERENT EFFECTS ON THIN FILAMENT ACTIVATION. **Samantha P. Harris**, Betty Belknap, Howard D. White, **Vitold E. Galkin**

**636-Pos BOARD B416** CID TRAVEL AWARDEE  
MOLECULAR MECHANISM OF  $\alpha$ -ACTININ BINDING TO F-ACTIN: EFFECT OF K255E MUTATION. **Hengameh Shams**, Kiavash Garakani, Javad Golji, Mohammad R. K. Mofrad

**637-Pos BOARD B417**  
3D MODEL OF FISSION YEAST CONTRACTILE RING ASSEMBLY: EFFECTS OF CYTOKINETIC NODE INTERACTION WITH THE CELL MEMBRANE AND MYOSIN MOTORS. **Tamara C. Bidone**, Dimitrios Vavylonis

**638-Pos BOARD B418**  
SIMULATION OF THE EFFECT OF CONFINEMENT IN ACTIN RING FORMATION. **Maral Adeli Koudehi**, Haosu Tang, Dimitrios Vavylonis

**639-Pos BOARD B419**  
ROLE OF CROSS-LINKERS IN YEAST BRANCHED ACTIN NETWORKS: LINKING BIOCHEMISTRY AND MECHANICS. **Jessica Planade**, Audrey Guillotin, Alphée Michelot, Olivia du Roure, Julien Heuvringh

**640-Pos BOARD B420**  
SELF-ORGANIZATION OF ACTOMYOSIN NETWORKS ATTACHED TO ARTIFICIAL MEMBRANES. **Markus Schön**, Corinna Kramer, Helen Noeding, Ingo Mey, Andreas Janshoff, Claudia Steinem

**641-Pos BOARD B421**  
DIFFERENCES IN THE SPATIAL DISTRIBUTION OF ACTIN IN THE LEFT AND RIGHT VENTRICLES OF HEALTHY HUMAN HEARTS. **Janhavi Nagwekar**, Divya Duggal, Ryan Rich, Sangram Raut, Zygmunt Gryczynski, Julian Borejdo

**642-Pos BOARD B422**  
NOVEL MECHANISMS OF FRNK INHIBITION OF FAK IN VASCULAR SMOOTH MUSCLE CELLS. **Taylor J. Zak**, Allen Samarel, Seth Robia

**643-Pos BOARD B423**  
ACTIN POLYMERIZATION AND BUNDLING: EXPLORING THEIR TEMPERATURE AND PRESSURE LIMITS. **Mimi Gao**, Melanie Berghaus, Julian von der Ecken, Stefan Raunser, Roland Winter

**644-Pos BOARD B424**  
REAL-TIME PROBING OF THE EGFR-MEDIATED CELL SIGNALING USING MICRO-SCALE SURFACE ENHANCED RAMAN SPECTROSCOPY SYSTEM. **Yi-Jie Lu**

**645-Pos BOARD B425**  
HOW SYNERGY OF ACTIN ASSEMBLY-DISASSEMBLY AND MYOSIN MOTORS DRIVES CELL SHAPE CHANGES. **Valentina Caorsi**, Wu Sangsong, Joël Lemiere, Clément Campillo, Timo Betz, Julie Plastino, Cécile Sykes

**646-Pos BOARD B426**  
LOCAL FORCES IN ACTIN NETWORKS WITH GRADIENTS. **Erin Rericha**, Austin N. Oleskie

**647-Pos BOARD B427**  
THE ACTIN F352S NEMALINE MYOPATHY MUTATION DISRUPTS INDIRECT FLIGHT MUSCLE STRUCTURE AND FUNCTION IN DROSOPHILA. **Manuela Lavorato**, William Schmidt, Meera C. Viswanathan, Julien Ochala, Clara Franzini-Armstrong, Anthony Cammarato

**648-Pos BOARD B428**  
SPECTROSCOPIC AND COMPUTATIONAL ANALYSIS OF DYSTROPHIN REGULATION OF ACTIN DYNAMICS. **Michael E. Fealey**, Benjamin Horn, Alessandro Cembran, Anne Hinderliter, David D. Thomas

**649-Pos BOARD B429**  
BETA-ADRENERGIC AGONIST REDUCES THE DEFORMABILITY OF HUMAN BREAST CANCER CELLS. **Tae-Hyung Kim**, Navjot Gill, Erica Sloan, Amy Rowat

## Microtubules, Structure, Dynamics, and Associated Proteins (Boards B430 - B445)

**650-Pos BOARD B430**  
EFFECTS OF SPERMINE ON MICROTUBULE STRUCTURES. **Chola K. Regmi**, Shengfeng Cheng

**651-Pos BOARD B431**  
DERIVING MECHANICAL PROPERTIES OF MICROTUBULES FROM MOLECULAR SIMULATIONS. **Soheil Fatehboroujeni**, Sachin Goyal

## Cell Mechanics, Mechanosensing, and Motility I (Boards B446 - B464)

- 652-Pos BOARD B432**  
INITIAL SEPARATION OF POLES TO FORM A BIPOLAR SPINDLE IS A RAPID AND IRREVERSIBLE PROCESS. **Allen Y. Leary**, Elena Nazarova, Shannon Sim, Eileen O'Toole, Paul Francois, Jackie Vogel
- 653-Pos BOARD B433 EDUCATION TRAVEL AWARDEE**  
OXIDATIVE STRESS IN MYOCARDIAL INFARCTION DISRUPTS MICROTUBULE TRAFFICKING, REDUCING TRANSIENT OUTWARD CURRENT DENSITY. **Benjamin Drum**, Can Yuan, Lei Li, Linda Wordeman, L. Fernando Santana
- 654-Pos BOARD B434**  
THREE-DIMENSIONAL STRUCTURES ASSOCIATED WITH PHOTORECEPTOR CILIA BY CRYO-ELECTRON TOMOGRAPHY. **Zhixian Zhang**, Feng He, Michael F. Schmid, Theodore G. Wensel
- 655-Pos BOARD B435**  
STUDYING THE EFFECTS OF MODIFIED TUBULIN C-TERMINAL TAILS ON KATANIN SEVERING ACTIVITY. **Corey E. Reed**
- 656-Pos BOARD B436**  
MOLECULAR DISSECTION OF THE TUBULIN C-TERMINAL TAILS BY NMR. Kathryn Wall, Maria Pagratis, Geoffrey Armstrong, Chad Pearson, **Loren Hough**
- 657-Pos BOARD B437**  
BRIDGING LENGTH SCALES TO STUDY POLYMER ASSEMBLY: UTILIZING BAYESIAN ANALYSIS OF FRET TO MEASURE MICROTUBULE NUCLEATION. **Bryan Kaye**, Daniel J. Needleman
- 658-Pos BOARD B438**  
STRUCTURAL BASIS OF MICROTUBULE POLYMERASES IN ACCELERATING TUBULIN POLYMERIZATION VIA MULTIPLE TOG DOMAINS. Stanley Nithianantham, Brian D. Cook, Fred Chang, **Jawdat Al-Bassam**
- 659-Pos BOARD B439**  
KINESIN-CARGO MOTILITY IN RANDOM MICROTUBULE NETWORKS. **Julianne Flowers**, Mehmet Kaplan
- 660-Pos BOARD B440**  
EFFECT OF ACTIVE KINESIN MOTOR DENSITY ON MICROTUBULES DURING SELF-ASSEMBLY OF SPOOLS. **Amanda Tan**, Dail Chapman, Linda Hirst, Jing Xu
- 661-Pos BOARD B441**  
POST-TRANSLATIONAL MODIFICATION IN MICROTUBULE ARRAYS EXHIBITS SPATIAL PATTERNS THAT CAN ACT AS A SIGNAL TO TIGHTLY LOCALIZE MOTOR-DRIVEN CARGO. **Abdon Iniguez**, Jun F. Allard
- 662-Pos BOARD B442**  
LABEL-FREE IMAGING OF MICROTUBULES WITH SUBNANOMETER PRECISION USING INTERFEROMETRIC SCATTERING MICROSCOPY. **Joanna Andrecka**, Jaime Ortega-Arroyo, Robert Cross, Philipp Kukura
- 663-Pos BOARD B443**  
DEFORMABILITY OF MICROTUBULES: AN ATOMISTIC COMPUTATIONAL STUDY. **Ondrej Kucera**, Daniel Havelka, Marco A. Deriu, Michal Cifra
- 664-Pos BOARD B444**  
EFFECTS OF LATTICE SEGMENTATION ON MICROTUBULE MECHANICS. **Scott A. Erickson**, Naoto Isozaki, Jennifer Ross, Taviare Hawkins
- 665-Pos BOARD B445**  
IS MICROTUBULE RIGIDITY PROPORTIONAL TO PROTOFILAMENT NUMBER? **Brandon J. Harris**

- 666-Pos BOARD B446**  
HIGH SPEED, HIGH RESOLUTION IMAGING OF FLUCTUATIONS AT THE LEADING EDGE OF MOTILE CELLS. **Rikki M. Garner**, Julie Theriot
- 667-Pos BOARD B447**  
SEPARATING CILIARY BEATING FORCE INTO DYNEIN-DRIVEN FORCE AND AXONEME-INTRINSIC BENDING FORCE BY 3-D TRACKING MICROSCOPY. **Takanobu A. Katoh**, Koji Ikegami, Nariya Uchida, Toshihito Iwase, Tomoko Masaie, Mitsutoshi Setou, Takayuki Nishizaka
- 668-Pos BOARD B448**  
VERTICAL NANOPILLARS AS PROBES FOR IN SITU NUCLEAR MECHANOTRANSDUCTION. **Hsin-Ya Lou**, Lindsey Hanson, Wenting Zhao, Yi Cui, Bianxiao Cui
- 669-Pos BOARD B449**  
HIGH FREQUENCY MICRORHEOLOGY OF LIVING CELLS. **Felix Rico**, Annafrancesca Rigato, Simon Scheuring
- 670-Pos BOARD B450**  
EXAMINING SPATIO-TEMPORAL DYNAMICS OF CELL-SUBSTRATE LINKERS DURING CELL MIGRATION USING POLYMER-TETHERED LIPID MULTILAYERS OF ADJUSTABLE STIFFNESS. Yifan Ge, Kent Shilts, Yu-Hung Lin, Lena Lautscham, Ben Fabry, Wolfgang Goldmann, **Christoph A. Naumann**
- 671-Pos BOARD B451**  
THE PHYSICAL ORIGINS OF CELL TRANSIT THROUGH MICROFLUIDIC CONstrictions. **Kendra Nyberg**, Amy Rowat
- 672-Pos BOARD B452**  
STUDY ON THE REGULATION OF CELL MORPHOLOGY BY MATRIX NANOTOPOGRAPHY IN 3D ENVIRONMENT. **Jingjing Han**, Kenghui Lin, Lock Yue Chew
- 673-Pos BOARD B453**  
FOCAL ADHESION FORMATION AND REORGANIZATION ON NANOPATTERNED SURFACES. **Emma J. Mah**, Elena I. Liang, Albert F. Yee, Michelle A. Digman
- 674-Pos BOARD B454**  
CELLULAR CONTRACTILE FORCES MEASURED A MULTI-WELL SILICONE DEVICE REVEAL PHYSICAL FORCES THAT CONTROL CELL MIGRATION IN PHYSIOLOGY AND DISEASE. **Haruka Yoshie**
- 675-Pos BOARD B455**  
MOLECULAR TENSION SENSORS FOR PROBING THE MECHANICAL AND CHEMICAL ROLES OF DISTINCT INTEGRIN CLASSES. **Steven J. Tan**, Armen H. Mekhdjian, Alice C. Chang, Masatoshi Morimatsu, Alexander R. Dunn
- 676-Pos BOARD B456**  
DYNAMIC MONITORING OF CELL MECHANICAL PROPERTIES USING PROFILE MICROINDENTATION. **Lionel Guillou**, Avin Babataheri, Pierre-Henri Puech, Abdul Barakat, Julien Husson
- 677-Pos BOARD B457**  
DISSECTING THE ROLE AND REGULATION OF MECHANICAL FORCE AT THE T-APC SYNAPSE USING ATOMIC FORCE MICROSCOPY. **Kenneth H. Hu**, Manish J. Butte
- 678-Pos BOARD B458**  
'OPTICAL SHAKING' OF RED BLOOD CELLS: A STRATEGY TO MEASURE CELL-FLUID COUPLING WITH OPTICAL TWEEZERS. **Carla Zensen**, Isis E. Fernandez Buelvas, Oliver Eickelberg, Theobald Lohmüller, Jochen Feldmann

**679-Pos BOARD B459**  
REGULATION OF CYTOSKELETON CONTRACTILITY AND OSTEOGENESIS OF HUMAN MESENCHYMAL STEM CELLS USING ACOUSTIC TWEEZING CYTOMETRY (ATC). **Xufeng Xue**, Xiaowei Hong, Jianping Fu, Cheri Deng

**680-Pos BOARD B460**  
PROBING THE DOSE-DEPENDENT EFFECT OF MIGRATION STIMULATING FACTOR-LIKE DRUG ON FIBROBLAST MIGRATION USING OPTICAL TWEEZERS. **Tung-Ju Tsai**

**681-Pos BOARD B461**  
EXTERNAL REGULATION OF EGFR-MEDIATED CELL LOCOMOTION USING OPTICAL TWEEZERS. **Hsin-Jui Wu**

**682-Pos BOARD B462**  
QUANTIFYING THE EFFECTS OF CELL DIVISION ON MASS REDISTRIBUTION DYNAMICS IN MULTICELLULAR CLUSTERS USING LIVE CELL INTERFEROMETRY. **Thang L. Nguyen**, Michael A. Teitell, Thomas A. Zangle

**683-Pos BOARD B463**  
MICROFLUIDIC PLATFORM FOR MECHANO-INVESTIGATION OF SINGLE PLANT CELLS. **Eric Thorand**, Teuta Pilizota, Naomi Nakayama

**684-Pos BOARD B464**  
CELL MECHANICAL PROPERTIES MEASURED WITH MICRON-SCALE CONSTRICTIONS: INFLUENCE OF PRESSURE, STRAIN AND CULTURE CONDITIONS. **Janina R. Lange**, Julian Steinwachs, Claus Metzner, Graeme Whyte, Ben Fabry

## Membrane Pumps, Transporters, and Exchangers I (Boards B465 - B490)

**685-Pos BOARD B465**  
STRUCTURAL DYNAMICS OF THE SMALL MULTIDRUG TRANSPORTER EMRE. **Reza Dastvan**, Axel W. Fischer, Smriti Mishra, Jens Meiler, Hassane S. Mchaourab

**686-Pos BOARD B466**  
PROBING THE SECONDARY ACTIVE TRANSPORT MECHANISM OF THE BACTERIAL EFFLUX PUMP EMRE. Maureen Leninger, Anindita Gayen, **Nathaniel Traaseth**

**687-Pos BOARD B467**  
INVESTIGATING THE BIOPHYSICAL BASIS OF MOSAIC SPREAD IN ALIGNED SAMPLES. **Maureen Lenigner**, James Banigan, Ampon Sae Her, Nate Traaseth

**688-Pos BOARD B468**  
WATER TRANSPORT BY THE SODIUM GLUCOSE COTRANSPORTER SGLT1. Liudmila Erokhova, Andreas Horner, Denis G. Knyazev, Sergey A. Akimov, **Peter Pohl**

**689-Pos BOARD B469**  
STRUCTURE-BASED DRUG DESIGN FOR SODIUM-DEPENDENT GLUCOSE TRANSPORTERS. **Paola Bisignano**, Chakrapani Kalyanaraman, Ernest Wright, Jeff Abramson, Matthew Jacobson, Michael Grabe

**690-Pos BOARD B470**  
HUMANIZATION OF THE SUBSTRATE BINDING SITE IN VSGLT. **Thorsten Althoff**, Nisha Gopal, Jeff Abramson

**691-Pos BOARD B471**  
STRUCTURE AND FUNCTION OF A SODIUM AND PROTON COUPLED NUCLEOBASE/ASCORBATE TRANSPORTER. Zhenning Ren, Jun Weng, Xiaoming Zhou, Vitali Stanevich, Pattama Wiriyasermkul, Elena Levin, Matthias Quick, **Ming Zhou**

**692-Pos BOARD B472**  
ELUCIDATING THE ANION CHANNEL GATING MECHANISM IN EXCITATORY AMINO ACID TRANSPORTERS. **Delany Torres Salazar**, Horacio Poblete, Aneysis Gonzalez, Ariela Vergara-Jaque, Jeffrey Comer, Susan G. Amara

**693-Pos BOARD B473**  
STRUCTURE AND MECHANISM OF THE MAMMALIAN FRUCTOSE TRANSPORTER GLUT5. **Gregory Verdon**, Norimichi Nomura, Hae Joo Kang, Tatsuro Shimamura, Yayoi Nomura, Saba Abdul Hussien, Aziz Abdul Qureshi, Mathieu Coincon, Yumi Sato, Yoshiko Nakada-Nakura, Takeshi Murata, Takuya Kobayashi, Michihiro Kasahara, So Iwata, David Drew

**694-Pos BOARD B474**  
THERMODYNAMIC INSIGHTS INTO CONFORMATIONAL DYNAMICS OF SUGAR TRANSPORTERS. **Hariharan Parameswaran**, Xiaoxu Jiang, Els Pardon, Jan Steyaert, H. Ronald Kaback, Lan Guan

**695-Pos BOARD B475**  
STRUCTURE OF THE BORATE TRANSPORTER BOR1P BY CRYO-EM. **Nicolas Coudray**, Zhening Zhang, Kathleen M. Clark, Iban Ubarretxena, Oliver Beckstein, Mark E. Dumont, David L. Stokes

**696-Pos BOARD B476**  
EXPRESSION, PURIFICATION AND FUNCTIONAL CHARACTERIZATION OF HUMAN PROTON-COUPLED FOLATE TRANSPORTER (SLC46A1). **Swapneeta Date**, Mariana Fiori, Narong Sok, Ina Urbatsch, Michaela Jansen

**697-Pos BOARD B477**  
MOLECULAR CLONING AND FUNCTIONAL CHARACTERIZATION OF A GLUCOSE TRANSPORTER (CSGLUT) IN CLONORCHIS SINENSIS. **Seong Kyu Ahn**, Ho-jong Jun, Bomun Seol, Seok Ho Cha

**698-Pos BOARD B478**  
AN OPTOGENETIC APPROACH TO DYNAMICALLY STUDY MEMBRANE CONFINEMENT OF PRESTIN. **Jing Guo**, Karl Gerhardt, Esther Lee, Jeffrey Tabor, Robert Raphael

**699-Pos BOARD B479**  
ROLE OF COUNTERIONS IN ACIDIFICATION IN MOUSE LIVER LYSO-SOMES. **Anowarul Amin**, Mary Weston, Joseph A. Mindell

**700-Pos BOARD B480**  
NA<sup>+</sup>-H<sup>+</sup> ANTIPTER IN THE SOMATA OF DORSAL ROOT GANGLION NEURONS. Érika Y. Taniguchi, **Antonio C. Cassola**

**701-Pos BOARD B481**  
RIBONUCLEOTIDE REDUCTASE OVEREXPRESSION DOES NOT ALTER CARDIOMYOCYTE MITOCHONDRIAL RESPIRATION. **Jason D. Murray**, Farid Moussavi-Harami, David Marcinek, Michael Regnier

**702-Pos BOARD B482**  
SLO2.1 POTASSIUM CHANNEL KNOCKOUT MICE HAVE AN ALTERED METABOLIC PHENOTYPE IN CARDIAC MITOCHONDRIA. **Charles O. Smith**

**703-Pos BOARD B483**  
IS SODIUM MONOCARBOXYLATE TRANSPORTER (SMCT1) A PROTEIN INVOLVED IN THE APICAL IODIDE TRANSPORT? **Ariela Vergara-Jaque**, Peking Fong, Jeffrey Comer

**704-Pos BOARD B484**  
A BIOPHYSICAL APPROACH TOWARDS UNDERSTANDING THE TRANSPORT MECHANISM OF AN ABC L-METHIONINE IMPORTER. **Qi W. Li**

**705-Pos BOARD B485**  
THE CONTRIBUTION OF METHIONINE TO THE STABILITY OF THE ESCHERICHIA COLI METNIQ ABC TRANSPORTER - SUBSTRATE BINDING PROTEIN COMPLEX. **Phong T. Nguyen**

**706-Pos BOARD B486**  
THE ALLOSTERIC REGULATORY MECHANISM OF THE E.COLI METNI ME-THIONINE ABC TRANSPORTER. **Janet G. Yang**, Douglas C. Rees

**707-Pos BOARD B487**  
THE LIPID BILAYER MODULATES THE STRUCTURE AND FUNCTION OF AN ATP-BINDING CASSETTE EXPORTER. **Maria E. Zoghbi**, Guillermo A. Altenberg

**708-Pos BOARD B488**

MECHANISMS OF BACTERIAL ABC IMPORTERS: LESSONS FROM STRUCTURAL AND FUNCTIONAL STUDIES OF THE RIBOSE TRANSPORTER.

**Satchal K. Erramilli**, Michael J. Simon, Matthew C. Clifton, Cynthia V. Stauffacher

**709-Pos BOARD B489**

REFINEMENT OF A RECENT CFTR HOMOLOGY MODEL GUIDED BY PORE FORMATION. Gorman Stock, Nael McCarty, **James C. Gumbart**

**710-Pos BOARD B490**

IN SILICO CHARACTERIZATION OF P-GLYCOPROTEIN SUBSTRATE ENTRANCE PATHWAYS. Laura Domiccica, Teresa Paramo, **Philip C. Biggin**

## Cellular Signaling and Metabolic Networks (Boards B491 - B517)

**711-Pos BOARD B491**

3D SIMULATIONS OF MORPHOGEN TRANSPORT IN AN EARLY FISH EMBRYO. **Ines Reinartz**, Claude Sinner, Eliana Stanganello, Benjamin Mattes, Steffen Scholpp, Alexander Schug

**712-Pos BOARD B492**

TRANSPLANTATION OF MESENCHYMAL STEM CELLS ENHANCES ANGIOGENESIS AFTER ISCHEMIC LIMB INJURY IN MICE. **Hua Zhu**, Nanzi Xie, Timothy Adesanya, Ahmet Kilic, Tao Tan, Xiaoyun Xie

**713-Pos BOARD B493**

QUANTIFICATION OF THE NUTRIENT DEPENDENCE OF FACTORS CONTROLLING START IN BUDDING YEAST BY 2-PHOTON SCANNING NUMBER AND BRIGHTNESS. **Savanna B. Dorsey**, Sylvain Tollis, Jing Cheng, Linnea Olofsson, Mike Tyers, Catherine A. Royer

**714-Pos BOARD B494**

TOWARDS PREDICTIVE MODELING OF INFORMATION PROCESSING IN MICROBIAL ECOSYSTEMS WITH QUORUM SENSING INTERACTIONS. **Tahir Yusufaly**, James Boedicker

**715-Pos BOARD B495**

BCL-2 OR BCL-XL OVEREXPRESSION STIMULATES BOTH OXIDATIVE AND FERMENTATIVE COMPONENTS OF CARBOHYDRATE METABOLISM. Bushra Mahmood, Jessica Wilson, Miriam Ahmad, Patricia Olino, Hooi Chong, Diana Lopez, Justin King, Rhaul Llanos, **Laurent M. Dejean**

**716-Pos BOARD B496**

KINETIC PROPERTIES AND REDOX REGULATION OF RECOMBINANT CALCIUM-INDEPENDENT PHOSPHOLIPASE A<sub>2</sub>γ RECONSTITUTED IN LIPOSOMES. **Martin Jaburek**, Petr Jezek

**717-Pos BOARD B497**

UNDERSTANDING DOPAMINE RECEPTOR MEDIATED REGULATION OF INSULIN SECRETION BY TWO-COLOR SPATIAL INTENSITY DISTRIBUTION ANALYSIS. **Daniel Foust**, Brittany Caldwell, Antoine Godin, Alessandro Ustione, Paul Wiseman, David Piston

**718-Pos BOARD B498**

SPATIO-TEMPORAL DYNAMICS OF QUORUM SENSING SIGNALS. **Pavan Silva**, James Boedicker

**719-Pos BOARD B499**

TUDCA RESCUES β-CELL METABOLIC OSCILLATIONS FROM ER STRESS, REVEALED BY NAD(P)H-FLIM AND FRET. **Chetan Poudel**, Brian A. Schmidt, Quincy E. Harenda, Fezza Engin, Kevin W. Eliceiri, Matthew J. Merrins

**720-Pos BOARD B500**

HIGH-ORDER INTERACTIONS BETWEEN SPECIES STRONGLY INFLUENCE THE ACTIVITY OF MICROBIAL COMMUNITIES. **Xiaokan Guo**, James Boedicker

**721-Pos BOARD B501**

NON-INVASIVE FLUORESCENCE LIFETIME IMAGING (FLIM) OF STEM CELL SIGNATURE METABOLIC STATES. **Ning Ma**, Michelle Digman, Peter Donovan

**722-Pos BOARD B502**

TEMPORAL MODULATION OF A GPCR PATHWAY ELUCIDATES BAND-PASS PROCESSING FOR THE DOWNSTREAM SIGNALING AND TRANSCRIPTION FACTOR ACTIVATION. **Madhuresh Sumit**, Richard R. Neubig, Shuichi Takayama, Jennifer J. Linderman

**723-Pos BOARD B503**

LIMITATIONS OF THE USE OF THE PI4-KINASE INHIBITOR WORTMANNIN IN EXPERIMENTS EMPLOYING FLUORESCENT PHOSPHOINOSITIDE PROBES. **Christian R. Halaszovich**, Dominik Oliver

**724-Pos BOARD B504**

SYSTEMS BIOLOGY APPROACH REVEALS THE IMPORTANCE OF SHC1-GRB2 INTERACTIONS IN EGFR PHOSPHORYLATION KINETICS. **Emanuel Salazar-Cavazos**, Luis G. Contreras-Vidal, Bridget S. Wilson, William S. Hlavacek, Diane S. Lidke

**725-Pos BOARD B505**

THE ACTIN CYTOSKELETON MEDIATES HYPEROXIA RESPONSE OF PATIENT-DERIVED PRIMARY ENDOTHELIAL PROGENITOR CELLS THROUGH THYMOSIN BETA-4 AND HYPOXIA-INDUCIBLE FACTOR SIGNALING. Jennifer Larmore, Claudine Black, Gregory Sedorf, Christopher Baker, **Douglas Shepherd**

**726-Pos BOARD B506**

LOCAL PHEROMONE RELEASE FROM DYNAMIC POLARITY SITES UNDERLIES CELL-CELL PAIRING DURING YEAST MATING. Laura Merlini, Felipe O. Bendezu, Bita Khalili, Daniel Hurwitz, Vincent Vincenzetti, **Dimitrios Vavylonis**, Sophie G. Martin

**727-Pos BOARD B507**

FROZEN PROTEIN CONCENTRATIONS AND SURVIVAL OF INFORMATION DURING SHIFTS IN BACTERIAL GROWTH. **Joe Christian J. Ray**, Arnab Bandyopadhyay

**728-Pos BOARD B508**

AGING OF INDIVIDUAL CELLS OVER TENS OF GENERATIONS. **Charles Wright**, Srividya Iyer-Biswas

**729-Pos BOARD B509**

QUANTITATIVE CHARACTERIZATION OF INTRACELLULAR COMPARTMENT-SPECIFIC REACTIVE OXYGEN SPECIES (ROS) DYNAMICS IN A HEART FAILURE MODEL OF ARRHYTHMIC SUDDEN CARDIAC DEATH (SCD). **Swati Dey**, Deepankar DeMazumder, Brian O'Rourke

**730-Pos BOARD B510**

2-HYDROXYGLUTARATE PRODUCTION BY MUTANT ISOCITRATE DEHYDROGENASE IS INDEPENDENT OF SUBSTRATE CHANNELING BUT SENSITIVE TO COMPARTMENT-SPECIFIC METABOLITE LEVELS. **Joseph P. Dexter**, Patrick S. Ward, Tathagata Dasgupta, Aaron M. Hosios, Jeremy Gunawardena, Matthew G. Vander Heiden

**731-Pos BOARD B511**

MULTISCALE GEONAVIGATIONAL APPROACH TO UNDERSTAND ORGAN BIOSYSTEMS AND THEIR CELLULAR INHABITANTS IN HEALTH AND DISEASE. Melissa Knothe Tate, **André F. Pereira**, Dirk Zeidler, Daniel Hageman, Ulf R. Knothe

**732-Pos BOARD B512**

REAL-TIME 3D IMAGING AT THE SINGLE MOLECULE LEVEL OF SIGNAL TRANSDUCTION IN SACCHAROMYCES CEREVISIAE RESPONDING TO ENVIRONMENTAL CHANGES. **Erik G. Hedlund**, Sviatlana Shashkova, Adam J. M. Wollman, Stefan Hohmann, Mark C. Leake

**733-Pos BOARD B513**  
MODELING POLYCYSTIC KIDNEY DISEASE CYSTOGENESIS WITH GENOME-MODIFIED HUMAN PLURIPOTENT STEM CELLS. **Benjamin S. Freedman**, Theodore I. Steinman, Jing Zhou, Joseph V. Bonventre

**734-Pos BOARD B514** CID TRAVEL AWARDEE  
TOWARD A COMPREHENSIVE MODEL OF FEEDBACK REGULATION IN A YEAST STRESS RESPONSE PATHWAY. **Patrick C. McCarter**

**735-Pos BOARD B515**  
DYNAMIC TEMPORAL CONTROL OF SIGNALING-ACTIVATED GENE REGULATION. **Gregor Neuert**, Guoliang Li

**736-Pos BOARD B516**  
RECONSTRUCTING MULTICELLULAR BEHAVIORS STEP-BY-STEP WITH ENGINEERED YEAST CELLS. **Hyun Youk**

**737-Pos BOARD B517** EDUCATION TRAVEL AWARDEE  
CD147 REGULATES CELL METABOLISM IN PANCREATIC CANCER VIA TARGETING OF MULTIPLE SMALL MOLECULE TRANSPORTERS TO THE CELL MEMBRANE. **Agnieszka A. Kendrick**, Johnathon Schafer, Monika Dzieciatkowska, Travis Nemkov, Joseph Guy, Angelo D'allesandro, Chad G. Pearson, Colin D. Weekes, Kirk C. Hansen, Elan Z. Eisenmesser

## Neuroscience: Experimental Approaches and Tools (Boards B518 - B533)

**738-Pos BOARD B518**  
SILICON MESOSTRUCTURES FOR PHOSPHOLIPID BASED BIOELECTRIC DEVICE AND DETERMINISTIC NEUROMODULATION. **Joao L. Carvalho-de-Souza**, Yuanwen Jiang, Raymond Wong, Bozhi Tian, Francisco Bezanilla

**739-Pos BOARD B519** EDUCATION TRAVEL AWARDEE  
MAPPING NEURONAL CONNECTIVITY USING LASER PHOTOSTIMULATION AND CALCIUM IMAGING. **Kelly O'Connor**, Krishna Sheth, Tuan Nguyen

**740-Pos BOARD B520**  
DETECTION OF THE SPONTANEOUS ACTION POTENTIALS OF HEK 293 CELLS BY PRUSSIAN BLUE THIN FILMS. **Felix Alfonso**, Allister McGuire, Thomas Li, Francesca Santoro, Luke Kaplan, Bianxiao Cui

**741-Pos BOARD B521**  
HIGH-RESOLUTION IMAGING OF GFP-TAGGED CARDIAC RYANODINE RECEPTOR IN INTACT HEART AND BRAIN. **Florian Hiess**, Ruiwu Wang, Jason de Mesa Miclat, S.R. Wayne Chen

**742-Pos BOARD B522**  
IMMUNOIMAGING WITH LIGHT SHEET MICROSCOPY: MICROGLIAL DYNAMICS IN THE DEVELOPING ZEBRAFISH BRAIN. **Daniel B. Holland**, Thai V. Truong, Jason A. Junge, Scott E. Fraser

**743-Pos BOARD B523**  
INFLUENCE OF NANOPARTICLE EXPOSURE ON NERVOUS SYSTEM DEVELOPMENT IN ZEBRAFISH STUDIED BY MEANS OF LIGHT SHEET FLUORESCENCE MICROSCOPY. **Marta d'Amora**, Giuseppe Sancataldo, Francesca Cella Zancacchi, Alberto Diaspro

**744-Pos BOARD B524**  
ROLE OF AL, FE, CU IN THE ALTERATIONS OF MECHANICAL PROPERTIES OF CORTICAL NEURONS PROBED BY ATOMIC FORCE MICROSCOPY. **Maria Carmela Lauriola**, Massimiliano Papi, Giuseppe Maulucci, Gabriele Ciasca, Valentina Palmieri, Salvatore Fusco, Claudio Grassi, Marco De Spirito

**745-Pos BOARD B525**  
NEW INSIGHTS INTO BIOPHYSICAL MECHANISMS OF THE NSPEF-INDUCED NEURONAL RESPONSE. **Gleb P. Tolstykh**, Melissa Tarango, Anna Sedelnikova, Bennett L. Ibey

**746-Pos BOARD B526**  
CLEANING PATCH CLAMP PIPETTES ENABLES THEIR REUSE. **Ilya Kolb**, William A. Stoy, Erin Rousseau, Olivia A. Moody, Andrew Jenkins, Craig R. Forest

**747-Pos BOARD B527**  
HIGH YIELD SUBCORTICAL PATCH CLAMPING IN VIVO. **William Stoy**, Bo Yang, Thomas Capocasale, Clarissa Whitmire, Yi Liew, Garrett Stanley, Craig Forest

**748-Pos BOARD B528**  
DEVELOPMENT OF AN IN VITRO MODEL OF MILD TRAUMATIC BRAIN INJURY. **Krishna P. Sheth**, Kelly D. O'Connor, Tuan Nguyen

**749-Pos BOARD B529**  
EXPERIMENTAL MULTI-PHYSICS MEASUREMENT OF NEURONAL RESPONSES UNDER TRAUMA. **Majid Malboubi**, Antoine Jerusalem

**750-Pos BOARD B530**  
MEASURING HYDRAULIC CONDUCTANCE AND HYDRATION POTENTIAL OF BRAIN EXTRACELLULAR MATRIX BY OSMOTIC STRESS. **Maria P. McGee**, Michael Morykwas, Louis Argenta

**751-Pos BOARD B531**  
SOLITARY ELECTROMECHANICAL PULSES IN LOBSTER NEURONS. **Rima Budvytyte**, Alfredo Gonzalez-Perez1, Lars D. Mosgaard, Edgar Villagran-Vargas, Andrew D. Jackson, Thomas Heimburg

**752-Pos BOARD B532**  
EFFECT OF ANESTHETICS ON ACTION POTENTIAL PROPAGATION. **Tian Wang**, Henrike Sasse-Middelhoff, Lars Mosgaard, Thomas Heimburg

**753-Pos BOARD B533**  
THE VALUE OF ENCRYPTING BIOPHYSICAL DATA. **Peter S. Pennefather**, West Suhanic

## Magnetic Resonance Spectroscopy: NMR and EPR (Boards B534 - B555)

**754-Pos BOARD B534**  
PROBING THE LOCAL SECONDARY STRUCTURE OF AMPHIPATHIC 3-10 HELICAL PEPTIDES USING ELECTRON SPIN ECHO ENVELOPE MODULATION. **Lauren M. Bottorf**, Sophia Rafferty, Indra D. Sahu, Robert M. McCarrick, Gary A. Lorigan

**755-Pos BOARD B535**  
PELDOR/DEER SPECTROSCOPY ON A BACTERIAL MEMBRANE TRANSPORTER IN NATIVE CELLULAR ENVIRONMENTS. **Benesh Joseph**, Arthur Sikora, David Cafiso, Thomas Prinsler

**756-Pos BOARD B536**  
PROBING THE PROTEIN-PROTEIN INTERACTIONS BETWEEN KCNQ1 AND KCNE1 USING ELECTRON PARAMAGNETIC RESONANCE (EPR) SPECTROSCOPY. **Andrew F. Craig**, Indra D. Sahu, Rongfu Zhang, Nick D. Frantz, Robert M. McCarrick, Gary A. Lorigan

**757-Pos BOARD B537**  
INVESTIGATION OF THE BINDING OF THE HUMAN KCNE1 PROTEIN WITH THE VOLTAGE GATED POTASSIUM CHANNEL KCNQ1 USING DEER EPR SPECTROSCOPY. **Indra D. Sahu**, Andrew F. Craig, Zhang Rongfu, Gunjan Dixit, Robert M. McCarrick, Gary A. Lorigan

**758-Pos BOARD B538**  
STRUCTURAL TOPOLOGY OF SERCA-PLB COMPLEX IN ORIENTED LIPID BICELLES DETECTED BY MULTIFREQUENCY EPR. **Jesse E. McCaffrey**, Zachary M. James, Christine B. Karim, Bengt Svensson, Peter D. Martin, David D. Thomas

**759-Pos BOARD B539**  
USING EPR SPECTROSCOPY TO CHARACTERIZE THE STRUCTURE OF LIPID MEMBRANE-POLYMER NANORING COMPLEXES. **Avnika Bali**, Andrew Craig, Indra D. Sahu, Dominik Konkolewicz, Carole Dabney-Smith, Gary A. Lorigan

**760-Pos BOARD B540**  
PROBING THE STRUCTURAL MECHANISM OF CARDIAC CALCIUM PUMP REGULATION BY PHOSPHOLAMBAN WITH SITE-DIRECTED SPIN LABELING. **Peter Martin**, Zach James, Jesse McCaffrey, David Thomas

**761-Pos BOARD B541**  
SITE-DIRECTED SPIN LABELING STUDIES OF NUCLEIC ACID DEPENDENT CONFORMATIONAL CHANGES IN CRISPR-CAS9. **Carolina Vazquez Reyes**, Peter Zhifeng Qin

**762-Pos BOARD B542**  
STRUCTURAL DYNAMICS OF CALMODULIN USING BIFUNCTIONAL SPIN LABELS AND DOUBLE ELECTRON-ELECTRON RESONANCE. **Cheng Her**, Christine B. Karim, David D. Thomas

**763-Pos BOARD B543 CPOW TRAVEL AWARDEE**  
DETECTING STRUCTURAL CHANGES IN MYOSIN USING BIFUNCTIONAL SPIN LABELS. Tatiana Soboleva, Benjamin P. Binder, Andrew R. Thompson, David D. Thomas, **Rebecca J. Moen**

**764-Pos BOARD B544**  
STRUCTURAL TRANSITIONS IN MYOSIN II DETECTED BY CONVENTIONAL AND PULSED EPR OF A BIFUNCTIONAL SPIN LABEL. **Benjamin P. Binder**, Andrew R. Thompson, Sinziana Cornea, David D. Thomas

**765-Pos BOARD B545**  
PREDICTION AND SELECTION OF SPIN LABEL ROTAMERS FOR HIGH-RESOLUTION INSIGHT INTO PROTEIN STRUCTURES BY DEER SPECTROSCOPY. **Aidin R. Balo**, Hannes Feyrer, Oliver P. Ernst

**766-Pos BOARD B546**  
BAYESIAN STATISTICAL METHODS IN THE ANALYSIS OF DEER DATA. **Thomas H. Edwards**, Stefan Stoll

**767-Pos BOARD B547**  
CALCULATION OF EPR SPECTRA OF SAMPLES WITH ANISOTROPIC LINE WIDTH: A NEW EFFICIENT ALGORITHM. **Yaroslav V. Tkachev**

**768-Pos BOARD B548**  
AUTOMATIC PROTEIN STRUCTURE DETERMINATION FROM SPARSE NMR SPECTROSCOPY DATA. **Justin L. MacCallum**, Yuefeng Tang, Y. Janet Huang, Gaetano T. Montelione

**769-Pos BOARD B549**  
DESIGN, SYNTHESIS, AND CHARACTERIZATION OF STABLE TETRABENZOFLUORENE RADICALS FOR DNP. **Kelsey Michenko**, Edward Fenlon

**770-Pos BOARD B550**  
MODELING MATRIX METALLOPROTEINASE INHIBITION WITH CARBONIC ANHYDRASE. **Whitney A. Richert**, Daniel DeGenova, Rahil Patel, Preet Patel, Ania Plonski, Rithvik Venna, Anthony Forchonie, Micah Morris, Zachary Higgins, Garrett Reed, M. Sameer Al-Abdul-Wahid, David Tierney

**771-Pos BOARD B551**  
ACQUISITION OF MULTIDIMENSIONAL NMR DATA ON GST-FUSED PROTEINS. **Beatrice Kachel**, Srinivas Jayanthi, Rory Henderson, TKS Kumar

**772-Pos BOARD B552**  
SOLID STATE NMR STRUCTURAL AND TOPOLOGICAL STUDIES OF ANTIMICROBIAL PEPTIDES LPCIN ANALOGS. **Yongae Kim**, Ji-Ho Jeong, Ji-Sun Kim

**773-Pos BOARD B553**  
DYNAMIC REGULATION OF THE 7TM RECEPTOR BACTERIORHODOPSIN FUNCTION UNDER ALKALINE PH CONDITIONS. Xiaoyan Ding, Haolin Cui, Honglei Wang, Yujiao Gao, Bo Peng, Anthony Watts, Guohui Li, **Xin Zhao**

**774-Pos BOARD B554**  
SITE-SPECIFIC PROTEIN INTERNAL MOTIONS REVEALED BY 2H SOLID-STATE NMR SPECTROSCOPY. **Xiangyan Shi**, Deborah A. Berthold, Chad M. Rienstra

**775-Pos BOARD B555**  
SOLID STATE NITROGEN 14 NMR METHODS FOR THE ANALYSIS OF HYDROGEN BOND NETWORKS IN BIOLOGICAL SYSTEMS. James A. Jarvis, Ibraheem Haies, Michael Jolly, Malcolm Levitt, Ilya Kuprov, Marina Carravetta, **Philip T.F. Williamson**

## Electron Microscopy (Boards B556 - B578)

**776-Pos BOARD B556**  
3D MICROSTRUCTURAL VISUALIZATION OF THE SIMPLEST OF EUKARYOTIC CELL (CYANIDIOSCHYZON MEROLAE) DURING MITOSIS PROCESS USING SEVERAL NEW MICROSCOPIC TECHNIQUES. **Atsuko H. Iwane**, Keisuke Ohta

**777-Pos BOARD B557**  
THREE DIMENSIONAL IMAGE ANALYSIS APPLYING VARIOUS SERIAL SECTION TECHNIQUES ON STUDY OF MELANIN TRANSFER IN HUMAN SKIN. Bo Ram Kim, Hyo Sun Choi, Il-Hwan Kim, **Ji Young Mun**

**778-Pos BOARD B558 EDUCATION TRAVEL AWARDEE**  
GRAPHENE-ENABLED ELECTRON MICROSCOPY AND CORRELATED SUPER-RESOLUTION MICROSCOPY OF WET CELLS. Michal Wojcik, **Margaret Hauser**, Wan Li, Seonah Moon, Ke Xu

**779-Pos BOARD B559**  
CRYO-ELECTRON TOMOGRAPHY AND NUCLEOCAPSID PROTEIN LABELING BY TOMO-BUBBLEGRAM IMAGING REVEAL A ROLE FOR HIV-1 INTEGRASE IN VIRAL MATURATION. **Juan Fontana**, Kellie A. Jurado, Naiqian Cheng, Alan N. Engelman, Alasdair C. Steven

**780-Pos BOARD B560**  
DETECTION OF ZN ATOMS ON FERRITIN BY ANNULAR DARK-FIELD CRYO-STEM. Nadav Elad, Giuliano Bellapadrona, Lothar Houben, Irit Sagi, **Michael Elbaum**

**781-Pos BOARD B561**  
STRUCTURE OF THE F-ACTIN-TROPOMYOSIN COMPLEX REVEALED BY ELECTRON CRYOMICROSCOPY. **Julian von der Ecken**, Mirco Müller, William Lehman, Dietmar Manstein, Pawel Penczek, Stefan Raunser

**782-Pos BOARD B562**  
USING ELECTRON CRYOTOMOGRAPHY AND COARSE-GRAINED MOLECULAR DYNAMICS TO STUDY CONTRACTILE MECHANISMS OF EUKARYOTIC CELL DIVISION MACHINERY. **Matthew T. Swulius**, Lam Nguyen, Mark Ladinsky, Mithilesh Mishra, Grant Jensen

**783-Pos BOARD B563**  
MITOCHONDRIAL NETWORKS IN BETA CELLS OF PANCREATIC ISLET OF LANGERHANS INVESTIGATED BY SERIAL BLOCK FACE SCANNING ELECTRON MICROSCOPY. Gina N. Calco, Bryan C. Kuo, Jake D. Hoyne, Maria A. Aronova, Guofeng Zhang, **Richard D. Leapman**

**784-Pos BOARD B564**  
FROM CRYO-EM DENSITIES TO ATOM COORDINATES AND ENSEMBLES WITH BAYES APPROACH. **Christian Blau**, Nicolas Lenner, Carsten Kutzner, Helmut Grubmuller, Erik Lindahl

**785-Pos BOARD B565**  
ORDERS OF MAGNITUDE FASTER CRYO-EM REFINEMENT WITH GPUS. **Dari Kimanius**, Bjoern Forsberg, Erik Lindahl

**786-Pos BOARD B566**  
HIGHER RESOLUTION WITH THE SAME DATA - TUNING CRYO-EM REFINEMENT IN RELION. **Björn O. Forsberg**, Dari Kimanius, Erik Lindahl

**787-Pos BOARD B567**

VISUALIZING THE MOLECULAR SOCIOLOGY AT THE HELA NUCLEUS IN SITU. **Julia Mahamid**

**788-Pos BOARD B568**

DEFINING MEMBRANE INTERACTIONS THAT DRIVE DYNAMIN RELATED PROTEIN 1 (DRP1) OLIGOMERIZATION USING CRYO-EM. **Christopher A. Francy**, Chris Frohlich, Oliver Daumke, Jason A. Mears

**789-Pos BOARD B569**

OMOKAGE SEARCH AND GMFIT : SHAPE SIMILARITY SEARCH AND SUPERPOSITION AMONG MODELS AND MAPS. **Takeshi Kawabata**, Hirofumi Suzuki, Haruki Nakamura

**790-Pos BOARD B570**

ULTRASTABLE GOLD SUBSTRATES IMPROVE THE RESOLUTION OF 3D RECONSTRUCTED DENSITY MAPS FROM ELECTRON MICROGRAPHS AND TOMOGRAMS. **Christopher Russo**

**791-Pos BOARD B571**

APPLICATION OF DEEP LEARNING TO CRYOEM HETEROGENEITY ANALYSIS. **Muyuan Chen**, Matthew L. Baker, Steven J. Ludtke

**792-Pos BOARD B572**

2.9-Å RESOLUTION STRUCTURE OF ANTHRAX PROTECTIVE ANTIGEN PORE DETERMINED BY CRYO ELECTRON MICROSCOPY. **Jiansen Jiang**, Bradley L. Pentelute, R. John Collier, Z. Hong Zhou

**793-Pos BOARD B573**

RESOLUTION AND PROBABILISTIC STRUCTURAL MODELS OF SUBCOMPONENTS DERIVED FROM CRYOEM MAPS OF MATURE P22 BACTERIOPHAGE. **Grigore Pintilie**, Dong-Hua Chen, Jonathan A. King, Wah Chiu

**794-Pos BOARD B574**

IN SITU STRUCTURES OF THE SEGMENTED GENOME AND RNA POLYMERASE COMPLEX INSIDE A DSRNA VIRUS. Xing Zhang, Ke Ding, Xuekui Yu, Winston Chang, Jingchen Sun, **Z. Hong Zhou**

**795-Pos BOARD B575**

SERIAL BLOCK FACE SEM OF BIOLOGICAL STRUCTURES AT NEAR ISOTROPIC SPATIAL RESOLUTION USING MULTIPLE BEAM ENERGIES AND MONTE CARLO SIMULATIONS. **Qianping He**, Maria A. Aronova, David C. Joy, Guofeng Zhang, Richard D. Leapman

**796-Pos BOARD B576**

STRUCTURES OF THE CARBON-PHOSPHORUS LYASE COMPLEX REVEAL THE BINDING MODE OF THE NBD-LIKE PHNK. **Kailu Yang**, Zhongjie Ren, Frank M. Raushel, Junjie Zhang

**797-Pos BOARD B577**

COMPUTATIONAL TOOLS TO IMPROVE VISUALIZATION BY CRYO-ELECTRON TOMOGRAPHY. **Jesus G. Galaz-Montoya**, Corey W. Hecksel, Jessica Chin, Rui Wang, Cannon W. Lewis, Monika Haemmerle, Michael F. Schmid, Steven J. Ludtke, Anil K. Sood, Wah Chiu

**798-Pos BOARD B578**

LIVE BACTERIAL PHYSIOLOGY VISUALIZED WITH 5 NM RESOLUTION USING SCANNING TRANSMISSION ELECTRON MICROSCOPY. **Eamonn Kennedy**, Edward M. Nelson, Tetsuya Tanaka, John Damiano, Gregory L. Timp

## Diffraction and Scattering Techniques (Boards B579 - B583)

**799-Pos BOARD B579**

DISTINGUISHING PROTEIN NANOCRYSTALS FROM AMORPHOUS PRECIPITATE BY DEPOLARIZED DYNAMIC LIGHT SCATTERING. **Robin Schubert**, Arne Meyer, Karsten Dierks, Svetlana Kapis, Rudolph Reimer, Markus Perbandt, Christian Betzel

**800-Pos BOARD B580**

DEVELOPMENT OF MICROFLUIDIC MIXER AT LIX BEAMLINE FOR STUDYING BIOMOLECULAR STRUCTURAL KINETICS. **Shirish N. Chodankar**, Aziz Md Tareque, Lu Ming, Vito Graziano, Jonathan DiFabio, Lin Yang

**801-Pos BOARD B581**

NEW STRUCTURAL ANALYSIS METHODS FOR HEMOGLOBIN CRYSTALS. TIME-RESOLVED CRYOGENIC X-RAY CRYSTALLOGRAPHY WITH EXTENDED PULSED-LASER PUMPING AND 3D IMAGING BY X-RAY FLUORESCENCE HOLOGRAPHY. **Ayana Sato-Tomita**, Shin-ichi Adachi, Sam-Yong Park, Yuji C. Sasaki, Koichi Hayashi, Naoya Shibayama

**802-Pos BOARD B582**

NONLINEAR LIGHT SCATTERING AS A GENERALLY APPLICABLE APPROACH FOR STUDYING MOLECULAR TRANSPORT ACROSS BIOLOGICAL MEMBRANES. **Mohammad Sharifian Gh.**, Michael J. Wilhelm, Hai-Lung Dai

**803-Pos BOARD B583**

CELL MEMBRANE INTEGRITY EXAMINED BY NONLINEAR LIGHT SCATTERING. **Mohammad Sharifian Gh.**, Charles D. Cox, Michael J. Wilhelm, Joel B. Sheffield, Hai-Lung Dai

## Optical Microscopy and Super-Resolution Imaging I (Boards B584 - B613)

**804-Pos BOARD B584**

DEEP AND HIGH-RESOLUTION THREE-DIMENSIONAL TRACKING OF SINGLE PARTICLES USING NONLINEAR AND MULTIPLEXED ILLUMINATION - TSUNAMI. Evan P. Perillo, Yen-Liang Liu, Cong Liu, Andrew K. Dunn, **Tim Yeh**

**805-Pos BOARD B585**

SUPER-RESOLUTION MOLECULAR IMAGING WITH PHOTOSTABLE NANOPROBES. **Maxim B. Prigozhin**, Peter C. Maurer, Nian Liu, Alexandra M. Courtis, Shaul Aloni, Frank D. Ogletree, Roger M. MacFarlane, Yi Cui, Paul A. Alivisatos, Steven Chu

**806-Pos BOARD B586**

HYBRID RANDOM WALK-LINEAR DISCRIMINANT ANALYSIS METHOD FOR UNWRAPPING QUANTITATIVE PHASE IMAGES OF BIOLOGICAL SAMPLES. **Diane N.H. Kim**, Michael A. Teitell, Jason Reed, Thomas A. Zangle

**807-Pos BOARD B587**

SUPERRESOLUTION MICROSCOPY AS A PERCOLATION PROBLEM: MAXIMUM ACHIEVABLE IMAGING DENSITY AND RESOLUTION COST. **Alexander Small**

**808-Pos BOARD B588**

SINGLE MOLECULE LOCALISATION MICROSCOPY WITH SCMOS CAMERAS. **Ruisheng Lin**, Alex Clowsley, David Baddeley, Isuru Jayasinghe, Christian Soeller

**809-Pos BOARD B589 INTERNATIONAL TRAVEL AWARDEE**

ADVANCES IN GATED CW STED MICROSCOPY: TOWARD A VERSATILE IMPLEMENTATION. **Iván Coto Hernández**, Marco Castello, Luca Lanzano, Alberto Diaspro, Giuseppe Vicidomini

**810-Pos BOARD B590**

ADVANCED PULSE PATTERN GENERATION AND FINE TUNING FOR STED MICROSCOPY. **Marcelle Koenig**, Olaf Schulz, Rhys Dowler, Paja Reisch, Alexander Glatz, Sebastian Tannert, Thomas Schönau, Romano Härtel, Tino Röhlicke, Marcus Sackrow, Christian Litwinski, Matthias Patting, Felix Koberling, Rainer Erdmann

**811-Pos BOARD B591**

FAST VOLUMETRIC IMAGING IN TWO-PHOTON MICROSCOPY AND ENHANCED BACKGROUND REJECTION USING AN ACOUSTIC LENS. **Simonluca Piazza**, Paolo Bianchini, Colin Sheppard, Alberto Diaspro, Marti Duocastella

**812-Pos BOARD B592**  
LOCAL DYNAMIC RANGE COMPRESSION FOR HIGH ORDER SUPER-RESOLUTION OPTICAL FLUCTUATION IMAGING (SOFI). **Xiyu Yi**, Xi Lin, Shimon Weiss

**813-Pos BOARD B593**  
EFFECTIVE PHOTON COUNT ESTIMATION FROM A SINGLE IMAGE ACQUISITION. **Peter K. Relich**, Robert P.J. Nieuwenhuizen, Keith A. Lidke, Rainer Heintzmann, Bernd Rieger

**814-Pos BOARD B594**  
MULTICHANNEL HYPERSPECTRAL IMAGING AND CHARACTERIZATION OF FAR-RED FLUOROPHORES USING A THIN-FILM TUNABLE FILTER. **Adriano Vissa**, Maximilano Giuliani, Christopher M. Yip

**815-Pos BOARD B595**  
ORGANIZATION OF INNER CELLULAR COMPONENTS AS REPORTED BY A VISCOSITY-SENSITIVE FLUORESCENT BODIPY PROBE SUITABLE FOR PHASOR APPROACH TO FLIM. Gianmarco Ferri, Luca Nucara, Tarita Biver, Antonella Battisti, Giovanni Signore, **Ranieri Bizzarri**

**816-Pos BOARD B596**  
MREB SENSES LOCAL GAUSSIAN CURVATURE TO PATTERN ROD-LIKE GROWTH OF THE BACTERIAL CELL WALL. **Benjamin P. Bratton**, Jeffrey P. Nguyen, Nikolay Ouzounov, Randy M. Morgenstein, Zemer Gitai, Joshua W. Shaevitz

**817-Pos BOARD B597**  
THREE-DIMENSIONAL SUPER-RESOLUTION IMAGING OF THE RNA DEGRADATION MACHINERY IN CAULOBACTER CRESCENTUS. **Camille A. Bayas**, Jared M. Schrader, Marissa K. Lee, Lucy Shapiro, W. E. Moerner

**818-Pos BOARD B598 INTERNATIONAL TRAVEL AWARDEE**  
DEVELOPING A SINGLE-MOLECULE FLUORESCENCE TOOL TO QUANTIFY DNA DAMAGE. **Helen L. Miller**, Adam J.M. Wollman, Katherine E. Dunn, Adam M. Hirst, Sonia Antoranz Contera, Steve Johnson, Deborah O'Connell, Peter O'Toole, Andy M. Tyrrell, Mark C. Leake

**819-Pos BOARD B599**  
CONFORMATIONAL CHANGE IN  $\beta_{120}$  AND  $\beta_{240}$  OF  $F_1$ -ATPASE FROM THE ASPECT OF DIFFERENCE OF NUCLEOTIDES BY ADVANCED TIRF MICROSCOPE. **Nagisa Mikami**, Yuko Ito, Kengo Adachi, Mitsunori Ikeguchi, Takayuki Nishizaka

**820-Pos BOARD B600**  
PROBING THE NANOSCALE ARCHITECTURE OF CADHERIN-BASED ADHESIONS BY SUPERRESOLUTION MICROSCOPY. Cristina Bertocchi, Yilin Wang, Andrea Ravasio, Yao Wu, Talgat Sailov, Michelle Baird, Michael W. Davidson, Ronen Zaidel-Bar, Benoit Ladoux, Rene-Marc Mege, **Pakorn Kanchanawong**

**821-Pos BOARD B601**  
THE MOLECULAR ATLAS PROJECT. **Jesse L. Silverberg**, Peng Yin

**822-Pos BOARD B602**  
OPTIMIZED VOLUMETRIC LIVE IMAGING WITH LIGHT FIELD MICROSCOPY AND SELECTIVE VOLUME ILLUMINATION. **Thai Truong**, Daniel B. Holland, Sara Madaan, Andrey Andreev, Scott E. Fraser

**823-Pos BOARD B603**  
AUTOMATIC FIVE-DIMENSIONAL SINGLE PARTICLE TRACKING IN LIVE CELLS. **Ning Fang**

**824-Pos BOARD B604**  
A MULTIFOCAL MULTIPHOTON VOLUMETRIC IMAGING TECHNIQUE FOR HIGH SPEED TIME-RESOLVED FRET IMAGING IN VIVO. Simon P. Poland, James A. Levitt, Nikola Krstajić, Ahmet Erdogan, Richard J. Walker, Viviane Devauges, Tony Ng, Robert K. Henderson, **Simon M. Ameer-Beg**

**825-Pos BOARD B605**  
INTRINSIC BIOMARKER FOR OXIDATIVE STRESS BY FLIM. **Rupsa Datta**, Enrico Gratton

**826-Pos BOARD B606**  
DIFFUSIONAL MOBILITY AND NANOSCALE MOLECULAR ORGANIZATION OF THE MUSCULAR DYSTROPHY RELATED NUCLEAR MEMBRANE PROTEIN EMERIN. **Anthony M. Fernandez**, Fabien F. Pinaud

**827-Pos BOARD B607**  
SUPERRESOLUTION MICROSCOPY REVEALS STAGGERED ARRANGEMENT OF MAMMALIAN DISTAL APPENDAGES. Tony Yang, Weng Man Chong, Won-Jing Wang, Yi-De Chen, Meng-Fu Bryan Tsou, **Jung-Chi Liao**

**828-Pos BOARD B608**  
MULTI-PARAMETRIC MICROFLUIDIC SCREENING AND SORTING FOR SIMULTANEOUS EVOLUTION OF PHOTOPHYSICAL PARAMETERS OF FLUORESCENT PROTEINS. **Felix Vietmeyer**, Premashis Manna, Pia Friis, Amy E. Palmer, Ralph Jimenez

**829-Pos BOARD B609**  
STRETCHED ORIENTED DNA ARRAYS (SODA) AS A TOOL FOR STUDYING PROTEIN-DNA INTERACTIONS. **Eugeniu Ostrofet**, Seungkyu Ha, Richard Janissen, Theo van Laar, Nynke Dekker

**830-Pos BOARD B610**  
USE OF SECOND HARMONIC IMAGING AND FOURIER TRANSFORMATION TO ANALYZE CARTILAGE REPAIR IN MICE INJECTED WITH A NOVEL PEP-TIDE CK2.1. **Hemanth Akkiraju**, Michael T. Moore, Padma P. Srinivasan, Catherin Kirn Safran, Anja Nohe

**831-Pos BOARD B611**  
CHARACTERIZATION OF TERNARY PROTEIN SYSTEMS IN LIVING CELLS WITH TRICOLOR HETEROSPECIES PARTITION ANALYSIS. Kwang-Ho Hur, Yan Chen, **Joachim D. Mueller**

**832-Pos BOARD B612 EDUCATION TRAVEL AWARDEE**  
SINGLE-MOLECULE FLUORESCENCE IMAGING REVEALS THE DYNAMICS OF STARCH CATABOLISM PROTEINS IN THE HUMAN MICROBIOME BACTERIUM BACTEROIDES THETAIOAOMICRON. **Hannah H. Tuson**, Matthew H. Foley, Eric C. Martens, Nicole M. Koropatkin, Julie S. Biteen

**833-Pos BOARD B613**  
METABOLIC PROFILING IN METASTATIC CANCER CELLS USING FREQUENCY DOMAIN FLUORESCENCE LIFETIME MICROSCOPY. **Jenu V. Chacko**, Sailesh Gopalakrishna-Pillai, Michelle A. Digman

## Bioengineering (Boards B614 - B639)

**834-Pos BOARD B614**  
QUANTIFICATION OF MULTI-SCALE MECHANICS AND FAILURE OF HUMAN STRATUM CORNEUM. **Xue Liu**, Guy German

**835-Pos BOARD B615**  
QUANTIFYING CELLULAR ELASTICITY USING QUANTITATIVE PHASE MICROSCOPY MEASUREMENTS OF ELECTROMAGNETICALLY ACTUATED MAGNETIC MICROSPHERE INDENTATION. **Edward R. Polanco**, Thang Nguyen, Michael A. Teitell, Thomas A. Zangle

**836-Pos BOARD B616**  
PLASMA PROTEIN CORONA REDUCES THE HAEMOLYTIC ACTIVITY OF THE GRAPHENE OXIDE NANO AND MICRO FLAKES. **Marco De Spirito**, Massimiliano Papi, Giuseppe Maolucci, Gabriele Ciasca, Valentina Palmieri, Maria Carmela C. Lauriola

**837-Pos BOARD B617**  
THE IRREVERSIBLE ASSEMBLY OF SMALL SYMMETRIC NANOSHELLS. **Jef Wagner**, Roya Zandi

**838-Pos BOARD B618**  
STRUCTURING HUMAN INTESTINAL ORGANOID. **Barkan Sidar**, Jonathan N. V. Martinson, Jason R. Spence, Seth T. Walk, James N. Wilking

**839-Pos BOARD B619**  
SYNTHESIZING LOVINC, A LIGHT-ACTIVATED DNAE INTEIN, FOR SEVERAL TARGET PROTEINS. Stanley Wong, Abdullah Mosabbir, **Anam Qudrat**, Kevin Truong



**840-Pos BOARD B620**  
QUANTITATIVELY MEASURING THE INTERACTIONS BETWEEN BRIDGING CELLS USING OPTICAL TWEEZERS. **Di Li**, Yue Yuan, Gaolin Liang, Haowei Wang, Yinmei Li

**841-Pos BOARD B621**  
PHOTOCONTROL OF SMALL G-PROTEIN H-RAS MULTIMER FORMATION USING CAGED COMPOUNDS. **Seigo Iwata**, Takashi Hashimoto, Nobuhisa Umeki, Yasunobu Sugimoto, Kazunori Kondo, Shinsaku Maruta

**842-Pos BOARD B622**  
CONTRIBUTION OF DEPLETION EFFECT FOR SIZE-SELECTIVE TARGET CELL ACQUISITION IN CUP-SHAPED MICROSTRUCTURES. **Hyonchol Kim**, Hideyuki Terazono, Hiroyuki Takei, Kenji Yasuda

**843-Pos BOARD B623**  
METHODS FOR QUANTIFYING HETEROGENEITY IN THE FLUID PHASE OF PATIENTS WITH PROSTATE CANCER. **Kevin K. Dizon**, Anders Carlsson, Madelyn Luttgren, Paymaneh Malihi, Erik Gerdtsson, Amado J. Zurita, Christopher J. Logothetis, James Hicks, Peter Kuhn

**844-Pos BOARD B624**  
DEVELOPMENT OF SINGLE CARDIOMYOCYTE MEASUREMENT OF EXTRACELLULAR POTENTIAL. Jyunpei Shimada, **Tomoyuki Kaneko**

**845-Pos BOARD B625**  
MICROCHAMBER ARRAY TECHNOLOGY AND MICRODOSIMETRY FOR NANOSECOND PULSED ELECTRIC FIELDS CELL EXPOSURE. **Delia Arnaud-Cormos**, Rodney P. O'Connor, Philippe Leveque

**846-Pos BOARD B626**  
SYNCHRONIZATION OF LARGE CLUSTERS OF CARDIOMYOCYTES CONNECTED BY FIBROBLASTS. **Shota Miyakoshi**, Toshiyuki Mitsui, Tomoyuki Kaneko

**847-Pos BOARD B627**  
MANIPULATION OF CELL PROLIFERATION AND MIGRATION EMPLOYING SURFACE ACOUSTIC WAVES AND HYDROPHOBIC/HYDROPHILIC STRUCTURED SUBSTRATES. **Melanie E.M. Stamp**, Manuel Brugger, Achim Wixforth, Christoph Westerhausen

**848-Pos BOARD B628**  
FAST TWO DIMENSIONAL SUPERRESOLUTION IMAGE RECONSTRUCTION ALGORITHM FOR ULTRAHIGH EMITTER DENSITY. **Mingzhai Sun**, Jiaqing Huang, Kristyn Gumpfer, Yuejie Chi, Jianjie Ma

**849-Pos BOARD B629**  
MICROWAVE DIELECTRIC PROPERTIES OF STANDARD LIQUIDS: NUMERICAL AND EXPERIMENTAL DATA. **Christopher E. Bassey**, Madeson K. Claiborne

**850-Pos BOARD B630**  
RHODOPSIN ENGINEERING THROUGH STRUCTURE-GUIDED RECOMBINATION. **Austin J. Rice**, Claire N. Bedbrook, Kevin K. Yang, Viviana Gradinaru, Frances H. Arnold

**851-Pos BOARD B631**  
HEAT-ON-A-CHIP: A MICROFLUIDIC DEVICE FOR HIGHLY EFFICIENT ADENO VIRAL TRANSDUCTION OF EX VIVO PANCREATIC ISLETS. Pamuditha N. Silva, Romario Regeenes, Zaid Atto, Uilki Tufa, Yih Yang Chen, Allen Volchuk, Dawn M. Kilkenny, **Jonathan V. Rocheleau**

**852-Pos BOARD B632**  
REVEALING THE SELF-ASSEMBLY PATHWAYS AND NANOMECHANICS OF ENZYME-TRIGGERED NANOFIBERS FROM PEPTIDE AMPHIPHILES FOR CANCER THERANOSTICS. **Hsien-Shun Liao**, Peng Huang, Yuan Gao, Edward Cai, Ferenc Horkay, Xiaoyuan Chen, Albert J. Jin

**853-Pos BOARD B633**  
QUANTIFYING NANOSCALE PROPERTIES OF ENGINEERED VIRUS CAPSIDS FOR MALARIA VACCINES. **Albert J. Jin**, David Mertz, Hsien-Shun Liao, Aanchal Johri, Luis Torres, Yimin Wu, David Narum

**854-Pos BOARD B634 EDUCATION TRAVEL AWARDEE**  
BIO-AFM OF CANCER CELLS AND MULTIFUNCTIONAL THERANOSTICS. **Xiao Fu**, Zhe Wang, Ashwin Bhirde, Jenny Zhu, Hsien-Shun Liao, Nicole Carvajal, Gang Niu, Henry Eden, Xiaoyuan Chen, Albert J. Jin

**855-Pos BOARD B635**  
HEALING OF HUMAN INTESTINAL ORGANOID. **Emily A. Berglund**, Jonathan N.V. Martinson, Jason R. Spence, Seth T. Walk, James N. Wilking

**856-Pos BOARD B636**  
DEVELOPING HIGH-SPEED AFM AND NANOMECHANICAL CHARACTERIZATIONS FOR BIOMEDICAL INVESTIGATIONS. Hsien-Shun Liao, Nicole Carvajal, Xiao Fu, Maryam Raftari, **Albert J. Jin**

**857-Pos BOARD B637**  
FLUIDIC-RESISTANCE CONTROL IN ARTERIAL PULSATION SIMULATORS. **Yuma Shiraishi**, Yun Jung Heo, Atsushi Sakuma

**858-Pos BOARD B638**  
RAPID PURIFICATION OF BISPECIFIC MOUSE ANTIBODIES BY DIFFERENTIAL PROTEIN A BINDING. **Adam Zwolak**, Anthony A. Armstrong, Jose R. Pardin, Susan H. Tam, Dennis R. Goulet, Kerry Brosnan, Eva Emmell, Mark Chiu

**859-Pos BOARD B639 EDUCATION TRAVEL AWARDEE**  
CHARACTERIZING BIOFILM EXTRACELLULAR MATRICES WITH MECHANICAL MEASUREMENT TECHNIQUES. **Michael P. Vigers**, James N. Wilking

## Biophysics Education (Boards B640 - B647)

**860-Pos BOARD B640**  
LEARNING PHYSICAL BIOLOGY VIA MODELING AND SIMULATION: A NEW COURSE AND TEXTBOOK FOR SCIENCE AND ENGINEERING UNDERGRADUATES. **Philip Nelson**

**861-Pos BOARD B641**  
INTRODUCTORY PHYSICS FOR THE LIFE SCIENCES (IPLS). **Peter H. Nelson**

**862-Pos BOARD B642**  
DELICIOUS BIOPHYSICS. **Christophe Lavelle**

**863-Pos BOARD B643**  
NADH CONFORMATION ASSESSED USING SPECTRAL PHASOR ANALYSIS: ILLUSTRATING CONCEPTS FROM MOLECULAR FOLDING TO METABOLIC MONITORING. Paul Urayama, **Dylan Palo**, Symeon Stefan, Madhu Gaire, James O'Connor

**864-Pos BOARD B644**  
INTEGRATING DIY AND TRADITIONAL BIOCHEMICAL LABORATORY EXPERIENCES INTO AN UNDERGRADUATE BIOPHYSICS COURSE. **Kayla M. Washenberger**, Benjamin L. Stottrup

**865-Pos BOARD B645**  
AN IMAGING FLOW CYTOMETER FOR INTRODUCTORY PHYSICS. Jason Puchalla, **Angela Li**

**866-Pos BOARD B646**  
OPEN PLANS OF A LOW COST FLUORESCENCE AND IMAGING ELLIPSOMETRY MICROSCOPE FOR TEACHING AND RESEARCH. **Victoria Nguyen**, John Rizzo, Jacquelyn Zehner, Walter Cook, Babak Sanii

**867-Pos BOARD B647**  
THE LUMINESCENT LUNCHBOX: TRANSLATING RESEARCH ON EDIBLE GRAS PROBES INTO AN EDUCATIONAL KIT IN PHOTOPHYSICS. **Alexia Ciarfella**, Maria G. Corradini, Richard D. Ludescher

# Student Research Achievement Award (SRAA) Poster Competition

These posters will be displayed for judging on Sunday, February 28, 6:00 PM–9:00 PM, in the SRAA poster board area marked S1–S82, in the Exhibit Hall. S board numbers before each title indicate where the posters will be assigned during the Sunday evening competition.

The posters will also be presented during the regular daily sessions as programmed below. Note that only the competitor's name is listed. Please refer to the full abstract for all authors.

## Bioenergetics

### Board S1

TO UNFOLD OR NOT TO UNFOLD? STRUCTURAL INSIGHTS OF PEROXIDASE-ACTIVE CARDIOLIPIN-BOUND CYTOCHROME C BY SOLID-STATE NMR.

**Abhishek Mandal** (2853-Pos, B230)

### Board S2

ASSESSING CLC-2 CHLORIDE CHANNEL VOLTAGE GATING BY PORE OCCUPATION WITH ACETATE.

**José De Jesús-Pérez** (593-Pos, B373)

### Board S3

PROTEOMIC MAPPING AND OPTOGENETIC CONTROL OF ER-PM JUNCTIONS IN LIVING CELLS.

**Ji Jing** (1282-Pos, B259)

### Board S4

USING NETWORK MODELS OF PROTEINS TO PREDICT FUNCTIONALLY LINKED INTERFACES OF PROTEINS (FLIPS) AT THE RESIDUE LEVEL.

**Isha Mehta** (2440-Pos, B584)

### Board S5

CHARACTERIZATIONS OF SUBSTRATE DELIVERY PATHWAYS IN THE NITRIC OXIDE REDUCTASE.

**Paween Mahinthichaichan** (1541-Pos, B518)

## Biological Fluorescence

### Board S6

RESOLVING THE HETEROGENEITY OF THE ENSEMBLE OF UNFOLDED STATES BY A COMBINATION OF FLUORESCENCE SPECTROSCOPIC METHODS.

**Katherina Hemmen** (1927-Pos, B71)

### Board S7

SINGLE-POINT FRAP DISTINGUISHES INNER AND OUTER NUCLEAR MEMBRANE PROTEIN DISTRIBUTION.

**Krishna Mudumbi** (2942-Pos, B319)

### Board S8

IMAGING AND TRACING MULTIPLE GENETIC ELEMENTS VIA MULTIPLEXED CRISPR IMAGING.

**Narendra Chaudhary** (1996-Pos, B140)

### Board S9

KINETIC COMPENSATION BETWEEN ESTER-BOND CLEAVAGE, FOLDING AND RELEASE FROM THE RIBOSOME IN PROTEIN BIOGENESIS.

**Rayna Addabbo** (1936-Pos, B80)

## Biopolymers in vivo

### Board S10

COARSE-GRAINED MODELING OF MEMBRANE PROTEIN INTEGRATION VIA THE SEC TRANSLOCON.

**Michiel Niesen** (297-Pos, B77)

### Board S11

DIFFUSION AND BIOCHEMICAL REACTIONS IN INHOMOGENEOUS CROWDED FLUIDS.

**Olivia Stiehl** (3152-Pos, B529)

### Board S12

THERMODYNAMIC MECHANISM OF PROTEIN STABILIZATION: CROWDERS VS. OSMOLYTES.

**Liel Sapir** (1058-Pos, B35)

### Board S13

DISULFIDE BRIDGES: BRINGING TOGETHER FRUSTRATED STRUCTURE IN A BIOACTIVE PEPTIDE.

**Yi Zhang** (1046-Pos, B23)

### Exocytosis & Endocytosis

### Board S14

ALCOHOL SIGNIFICANTLY ALTERS FUSIGENICITY OF VESICLES IN A MODEL MEMBRANE SYSTEM.

**Jason Paxman** (1232-Pos, B209)

### Board S15

DYNAMICS OF EGFR TRAFFICKING FROM MEMBRANE INTO DEEP CYTOSOL REVEALED BY A SPATIOTEMPORALLY MULTIPLEXED 3D TRACKING MICROSCOPE.

**Yen-Liang Liu** (3149-Pos, B526)

## Intrinsically Disordered Proteins

### Board S16

A MINIMALISTIC KINETIC MODEL FOR AMYLOID SELF-ASSEMBLY.

**Srivastav Ranganathan** (1094-Pos, B71)

### Board S17

PROTEIN AGGREGATION AND PORE-FORMATION OF A NEURODEGENERATIVE PROTEIN FRAGMENT.

**Charles Chen** (1974-Pos, B118)

### Board S18

DYNAMICS OF CONTACT FORMATION IN DISORDERED POLYPEPTIDES.

**Gül Zerze** (2748-Pos, B125)

### Board S19

STRUCTURAL BASIS OF MEMBRANE TARGETING BY THE INNATE IMMUNITY ADAPTOR TIRAP.

**Xiaolin Zhao** (2676-Pos, B53)

**Board S20**

FIBRILS ACT AS AQUEOUS PORES: A MOLECULAR DYNAMICS STUDY.  
**Sachin Natesh** (2729-Pos, B106)

**Board S21**

UNIVERSAL METRICS OF INTERSTRUCTURE DISTANCE FOR FLEXIBLE AND INTRINSICALLY DISORDERED PROTEINS.  
**Timothy Connolly** (3177-Pos, B554)

## Mechanobiology

**Board S22**

DYNAMIC INSTABILITY EMERGES FROM MICROMECHANICS AND CHEMICAL KINETICS OF MICROTUBULE PROTOFILAMENTS.  
**Ishutesh Jain** (3045-Pos, B422)

**Board S23**

SYMMETRY-CONSTRAINED NORMAL MODE ANALYSIS OF THE BACTERIAL FLAGELLAR MOTOR.  
**Moon Ki Choi** (242-Pos, B22)

**Board S24**

DERIVING MECHANICAL PROPERTIES OF MICROTUBULES FROM MOLECULAR SIMULATIONS.  
**Soheil Fatehiboroujeni** (651-Pos, B431)

## Membrane Biophysics

**Board S25**

A NON-CANONICAL VOLTAGE SENSOR CONTROLS GATING IN K2P K<sup>+</sup> CHANNELS.  
**Marcus Schewe** (1365-Pos, B342)

**Board S26**

THE PATHOGENIC A116V MUTATION ENHANCES THE SELECTIVE ION-CHANNEL ACTIVITY AND TOXICITY OF THE PRION PROTEIN IN LIVING CELLS.  
**Sabareesan Ambadi Thody** (2199-Pos, B343)

**Board S27**

MECHANISM OF TIM1, TIM3, AND TIM4 BINDING TO LIPID MEMBRANES.  
**Zhiliang Gong** (2921-Pos, B298)

**Board S28**

OXIDATIVE STRESS IN MYOCARDIAL INFARCTION DISRUPTS MICROTUBULE TRAFFICKING, REDUCING TRANSIENT OUTWARD CURRENT DENSITY.  
**Benjamin Drum** (653-Pos, B433)

**Board S29**

INTRA AND INTERDOMAIN MOTIONS OF THE NMDA RECEPTOR USING SINGLE MOLECULE FRET.  
**Drew Dolino** (1421-Pos, B398)

**Board S30**

INHIBITION OF A VOLTAGE-GATED SODIUM CHANNEL BY PROPOFOL INVOLVES MODULATION OF SLOW INACTIVATION.  
**Elaine Yang** (2162-Pos, B306)

**Board S31**

STRUCTURAL EFFECTS OF PHOSPHORYLATION ON C-TERMINAL SEGMENT OF AMPA RECEPTOR.  
**Caitlin Nurik** (1431-Pos, B408)

**Board S32**

STRUCTURAL AND MECHANISTIC STUDIES OF ANDROPIN, A MEMBRANE-SELECTIVE ANTIMICROBIAL PEPTIDE.  
**Meghan McCaskey** (2052-Pos, B196)

**Board S33**

1H NMR SPECTROSCOPY OF DOPAMINE INTERACTING WITH LIPID VESICLES.  
**Yashasvi Matam** (452-Pos, B232)

**Board S34**

SELECTIVE PRESSURE FOR RAPID MEMBRANE INTEGRATION CONSTRAINS THE SEQUENCE OF BACTERIAL OUTER MEMBRANE PROTEINS.  
**Ashlee Plummer** (1949-Pos, B93)

**Board S35**

FUNCTIONAL RESCUE OF CALMODULINOPATHY IPSC-DERIVED CARDIOMYOCYTES -- A FORAY INTO PERSONALIZED MEDICINE.  
**Worawan Limpitikul** (2173-Pos, B317)

**Board S36**

RADIAL TILTING OF THE EXTRACELLULAR DOMAIN OF GLIC REVEALED BY EPR SPECTROSCOPY.  
**Varun Tiwari** (2251-Pos, B395)

## Membrane Structure & Assembly

**Board S37**

THE INTERACTION OF PROTEINS WITH ASYMMETRIC LIPID BILAYERS.  
**Milka Doktorova** (2076-Pos, B220)

**Board S38**

CONTROL OF INFLUENZA VIRUS BINDING BY TARGET MEMBRANE COMPOSITION.  
**Isabel Goronzy** (1236-Pos, B213)

**Board S39**

INVESTIGATING LARGE SCALE LIQUID-LIQUID PHASE SEPARATION IN A BIOLOGICAL MEMBRANE.  
**Scott Rayermann** (386-Pos, B166)

**Board S40**

MECHANISTIC INSIGHTS INTO MEMBRANE BENDING BY PROTEIN CROWDING: UNDERSTANDING THE ROLE OF MEMBRANE COMPOSITION, PHASE SEPARATION AND FREE ENERGY OF PROTEIN BINDING.  
**Gokul Raghunath** (2862-Pos, B239)

**Board S41**

GENERAL ANESTHETICS RAISE THE MISCIBILITY TRANSITION TEMPERATURE OF MODEL MEMBRANES.  
**Caitlin Cornell** (2036-Pos, B180)

**Board S42**

DESIGN OF PH TRIGGERED, MACROMOLECULAR PORE FORMING PEPTIDES FOR ENDOSOMAL ESCAPE.  
**Sarah Kim** (2054-Pos, B198)

**Board S43**

HETERODIMERIZATION OF WILD-TYPE AND MUTANT FIBROBLAST GROWTH FACTOR RECEPTORS IN CELL-DERIVED VESICLES.  
**Nuala Del Piccolo** (1118-Pos, B95)

**Board S44**

THE SIZE OF A REVERSE MICELLE.  
**Gozde Eskici** (2822-Pos, B199)

**Board S45**

MOLECULAR BASIS FOR LIPID SPECIFICITY OF THE COAGULATION FACTOR X MEMBRANE-BINDING DOMAIN.

**Melanie Muller** (2102-Pos, B246)

**Board S46**

DOES LIPID COMPOSITION REGULATE ANTHRAX TOXIN UPTAKE?

**Nnanya Kalu** (2094-Pos, B238)

**Board S47**

LIPID-DEPENDENT MODULATION OF MEMBRANE RECRUITMENT AND PROTEIN-PROTEIN INTERACTIONS IN BCL-2 FAMILY OF APOPTOTIC REGULATORS.

**Victor Vasquez-Montes** (1267-Pos, B244)

**Board S48**

A COMPUTATIONAL MODEL FOR MEMBRANE PROTEIN FLUX ACROSS THE BACTERIAL PERIPLASM.

**Shawn Costello** (305-Pos, B85)

**Board S49**

GPCR HANDSHAKE IN THE SPOTLIGHT: EXPLORING THE DIMERIZATION INTERFACE OF DOPAMINE D2 RECEPTORS BY SIMULATIONS AT MULTIPLE RESOLUTIONS.

**Manu Vajpai** (2115-Pos, B259)

## Molecular Biophysics

**Board S50**

AN IN VITRO INVESTIGATION OF GLOBIN FOLDING AND EXPRESSION.

**Premila Samuel** (1043-Pos, B20)

**Board S51**

EXPLORING THE BINDING OF GABA TO THE INSECT RDL RECEPTOR WITH METADYNAMICS.

**Federico Comitani** (2239-Pos, B383)

**Board S52**

ILLUMINATING DYNAMIC PROCESSES IN THE EMBRYOGENESIS OF CAENORHABDITIS ELEGANS WITH LIGHTSHEET MICROSCOPY.

**Philipp Struntz** (2402-Pos, B546)

**Board S53**

LOCAL  $Ca^{2+}$  NANODOMAINS INITIATE  $Ca^{2+}$ /CALMODULIN-DEPENDENT INACTIVATION OF NMDA RECEPTORS.

**Gary Iacobucci** (1424-Pos, B401)

**Board S54**

THERMODYNAMIC FINGERPRINTS OF THE HOFMEISTER SERIES - PROTEIN INTERACTIONS WITH IONIC LIQUIDS.

**Michael Senske** (1057-Pos, B34)

**Board S55**

A CYTOKINE RECEPTOR REVOLUTION: ACTIVATION OF THE TYPE-I CYTOKINE RECEPTORS VIA PROTOMER ROTATION.

**Michael Corbett** (2923-Pos, B300)

**Board S56**

STRUCTURAL EFFECTS OF HIGH HYDROSTATIC PRESSURE ON HUMAN LOW DENSITY LIPOPROTEIN REVEALED BY SMALL ANGLE X-RAY AND NEUTRON SCATTERING.

**Bernhard Lehofer** (1271-Pos, B248)

**Board S57**

CHARACTERIZATION OF THE PYRUVATE OXIDASE CIDC FROM S. AUREUS.

**Xinyan Zhang** (2707-Pos, B84)

**Board S58**

KINETIC MODEL OF  $Mg^{2+}$  INDUCED RNA TERTIARY FOLDING FROM STOPPED FLOW FLUORESCENCE DATA.

**Robb Welty** (2029-Pos, B173)

**Board S59**

MULTISCALE MODELING OF DENDRIMERS FOR BIOLOGICAL APPLICATIONS.

**Bo Wang** (2691-Pos, B68)

**Board S60**

METHODS FOR QUANTIFYING HETEROGENEITY IN THE FLUID PHASE OF PATIENTS WITH PROSTATE CANCER.

**Kevin Dizon** (843-Pos, B623)

**Board S61**

MULTIMERIZATION OF SOLUTION-STATE PROTEINS BY WATER SOLUBLE PORPHYRINS.

**Daniel Marzolf** (254-Pos, B34)

**Board S62**

DYNAMICS OF AGGREGATING MUTANTS OF THE P53 DNA BINDING DOMAIN REVEAL A NOVEL "DRUGGABLE" POCKET.

**Mohan Pradhan** (288-Pos, B68)

**Board S63**

ELECTROSTATICS OF ACTOMYOSIN INTERFACE AND THE RATE OF RIGOR BINDING.

**Jinghua Ge** (3036-Pos, B413)

**Board S64**

PROTONATION AND DEPROTONATION REACTION OF ASPARTIC ACID SIDE CHAIN MODULATED BY THE SURROUNDING DIELECTRIC MEDIUM - AB INITIO QUANTUM CHEMICAL STUDIES ON ASPARTIC ACID IN SIXTEEN DIFFERENT SOLVENTS AND TWO PROTEIN STRUCTURES.

**AKSHAY BHATNAGAR** (1877-Pos, B21)

**Board S65**

STRUCTURAL AND MECHANISTIC INSIGHTS DERIVED FROM SATURATION MUTAGENESIS OF CCDB.

**Pankaj Jain** (221-Pos, B1)

**Board S66**

SIMULATIONS OF ENDPLATE ACHRS: AGONIST SITE  $\beta$ -SHEET AND M1  $\pi$ -HELIX.

**Srirupa Chakraborty** (2980-Pos, B357)

**Board S67**

INHIBITION OF KIR2.1 BY INTRACELLULAR ACIDIFICATION CONTRIBUTES TO SOUR TASTE TRANSDUCTION.

**Wenlei Ye** (2104-Pos, B248)

## Motility

**Board S68**

NEW INSIGHT INTO THE CATALYTIC AND INHIBITION MECHANISM OF THE HUMAN ACYL PROTEIN THIOESTERASE.

**Martina Audagnotto** (2700-Pos, B77)

**Board S69**

EXPRESSION AND CONTRIBUTIONS OF THE KIR2.1 INWARD-RECTIFIER  $K^+$  CHANNEL TO PROLIFERATION, MIGRATION AND CHEMOTAXIS OF MICROGLIA IN UNSTIMULATED AND ANTI-INFLAMMATORY STATES.

**Doris Lam** (1564-Pos, B541)

**Board S70**

MYOSIN VA MOTOR TEAMS NAVIGATE VESICLE CARGOS THROUGH 3D ACTIN FILAMENT INTERSECTIONS.

**Andrew Lombardo** (2298-Pos, B442)

## Nanoscale Biophysics

**Board S71**

PRECISE CONTROL AND MEASUREMENT OF TEMPERATURE WITH FEMTOSECOND OPTICAL TWEEZERS.

**Dipankar Mondal** (2466-Pos, B610)

**Board S72**

ELECTRON-CONFORMATIONAL TRANSFORMATIONS GOVERN THE TEMPERATURE DEPENDENCE OF THE RYR2 GATING.

**Bogdan Iaparov** (1303-Pos, B280)

**Board S73**

BIO-AFM OF CANCER CELLS AND MULTIFUNCTIONAL THERANOSTICS.

**Xiao Fu** (854-Pos, B634)

**Board S74**

HU PROTEIN AND DNA SUPERCOILING DRAMATICALLY ENHANCE LAC-REPRESSOR-MEDIATED DNA LOOPING.

**Yan Yan** (1173-Pos, B150)

## Permeation & Transport

**Board S75**

ELUCIDATION OF MOLECULAR MECHANISM UNDERLYING KCSA'S HYSTERETIC GATING BEHAVIOR.

**Cholpon Tilegenova** (1370-Pos, B347)

**Board S76**

A NOVEL E. COLI-BASED ASSAY FOR RAPID SCREENING OF HEMICHANNEL FUNCTION.

**Srinivasan Krishnan** (602-Pos, B382)

**Board S77**

CATSPER HAS A CALCIUM-PERMEABLE VOLTAGE SENSOR DOMAIN.

**Hiroki Arima** (586-Pos, B366)

**Board S78**

THE ROLE OF MULTIVALENCY IN INHIBITION OF BACILLUS ANTHRACIS AND CLOSTRIDIUM BOTULINUM BINARY TOXINS BY CATIONIC PAMAM DENDRIMERS.

**Goli Yamini** (2072-Pos, B216)

**Board S79**

ENZYMATIC REQUIREMENTS FOR NON-CANONICAL PROTON IMPORT BY NA/K PUMPS.

**Kevin Stanley** (3102-Pos, B479)

**Board S80**

RECEPTOR-LOCALIZED  $Ca^{2+}$  SIGNALING ACTIVATES P2X2 RECEPTOR CHANGING CYTOSKELETAL MORPHOLOGY.

**Anam Qudrat** (1286-Pos, B263)

**Board S81**

EXPRESSION, PURIFICATION AND FUNCTIONAL CHARACTERIZATION OF HUMAN PROTON-COUPLED FOLATE TRANSPORTER (SLC46A1).

**Swapneeta Date** (696-Pos, B476)

**Board S82**

FUNCTIONAL DIVERSITY WITHIN THE FNT SUPERFAMILY OF ANION CHANNELS: PHYLOGENETICS & MOLECULAR DYNAMICS STUDIES.

**Mishtu Mukherjee** (596-Pos, B376)

# Monday, February 29, 2016

## Daily Program Summary

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

7:30 AM–8:30 AM	Graduate Student Breakfast	Room 404AB
7:30 AM–5:00 PM	Registration/Exhibitor Registration	West Lobby
8:00 AM–10:00 PM	Poster Viewing	West Hall
8:15 AM–10:15 AM	<p><b>Symposium: Lipid Flippases</b>  <b>Chair:</b> <i>Raimund Dutzler, University of Zurich, Switzerland</i></p> <p>THE STRUCTURE AND FUNCTION OF CALCIUM ACTIVATED TMEM16 CHANNELS AND SCRAMBLASES. <i>Raimund Dutzler</i>            MECHANISMS OF ION AND LIPID TRANSPORT BY TMEM16 SCRAMBLASES. <i>Alessio Accardi</i>            STRUCTURE AND MECHANISM OF AN ATP-DRIVEN FLIPPASE OF LIPID-LINKED OLIGOSACCHARIDES. <i>Kaspar Locher</i>            PHOSPHOLIPID FLIP MEDIATED BY MODEL FLIPPASES. <i>Dieter Langosch</i></p>	Petree Hall C
8:15 AM–10:15 AM	<p><b>Symposium: Biomimetic Models for Study of Cytoskeletal Organization</b>  <b>Chair:</b> <i>Kinneret Keren, Technion, Israel Institute of Technology, Israel</i></p> <p>NON EQUILIBRIUM STEADY STATE DYNAMICS OF CONTRACTILE ACTIN NETWORKS. <i>Keren Kinneret</i>            SHAPE REMODELING OF ACTIVE CYTOSKELETAL VESICLES. <i>Andreas R. Bausch</i>            TOWARDS THE RECONSTITUTION OF MINIMAL CELL DIVISION. <i>Petra Schwille</i>            CARGO TRANSPORT BY MYOSIN VA MOLECULAR MOTORS: WHAT A MESH! <i>David Warshaw</i></p>	Petree Hall D
8:15 AM–10:15 AM	Platform: Optical Microscopy and Super-Resolution Imaging II	Room 502A
8:15 AM–10:15 AM	Platform: Molecular Dynamics I	Room 502B
8:15 AM–10:15 AM	Platform: Membrane Pumps, Transporters, and Exchangers	Room 515A
8:15 AM–10:15 AM	Platform: Protein Stability, Folding, and Chaperones I	Room 515B
8:15 AM–10:15 AM	Platform: Excitation-Contraction Coupling	Room 501ABC
8:15 AM–10:15 AM	Platform: DNA Structure and Dynamics	Room 511ABC
8:30 AM–10:30 AM	CPOW Committee Meeting	Room 506
9:30 AM–11:00 AM	Exhibitor Presentation: Sophion together with Biolin Scientific Pioneering Ion Channels - Expanding the Boundaries of Automated Patch Clamp	Room 505
10:00 AM–11:00 AM	Career Center Workshop Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)	Room 518
10:00 AM–5:00 PM	Exhibits	West Hall
10:15 AM–11:00 AM	Coffee Break	West Hall
10:15 AM–11:15 AM	New Member Welcome Coffee	Room 404AB
10:30 AM–12:00 PM	Exhibitor Presentation: Wyatt Technology Corporation Get it Right the First Time – Enhancing Protein Binding and Structural Studies with the Light-Scattering Toolkit	Room 513
10:45 AM–12:45 PM	<p><b>Symposium: Mechanosensing and Mechanosignaling in Muscle</b>  <b>Chair:</b> <i>Olga Mayans, University of Konstanz, Germany</i></p> <p>MECHANOSENSITIVE STRUCTURAL STATES OF TITIN. <i>Miklós S. Kellermayer</i>            TITIN(S): TOWARDS AN ATOMIC UNDERSTANDING OF MECHANOSENSORY EVENTS IN THE ELASTIC SCAFFOLDS OF THE MUSCLE SARCOMERE. <i>Olga Mayans</i>            MECHANO-CHEMO-TRANSDUCTION IN CARDIOMYOCYTES DURING BEAT-TO BEAT CONTRACTION UNDER MECHANICAL LOAD. <i>Ye Chen-Izu</i>            DETYROSINATED MICROTUBULES BEAR LOAD AND TRANSMIT MECHANICAL FORCE IN CARDIOMYOCYTES. <i>Benjamin Prosser</i></p>	Petree Hall C

	<p><b>Symposium: Future of Biophysics</b> <span style="float: right;"><b>Petree Hall D</b></span>  <b>Co-Chairs:</b> <i>Vasanthi Jayaraman, University of Texas Health Science Center, and E. Michael Ostap, University of Pennsylvania</i></p> <p>ENGINEERING BIOMIMETIC MATRICES TO UNDERSTAND BRAIN/TUMOR INTERACTIONS DURING METASTASIS. <i>Kimberly Stroka</i>  COMBINATORIAL REGULATION OF BAR DOMAIN PROTEINS AT THE INTERFACE BETWEEN THE CYTOSKELETON AND MEMBRANES. <i>David Kast</i>  NASCENT AND ANTIMICROBIAL PEPTIDES THAT TARGET THE RIBOSOMAL EXIT TUNNEL TO BLOCK PROTEIN SYNTHESIS IN BACTERIA. <i>Axel Innis</i>  MECHANISM OF GATING AND ION SELECTIVITY IN ASIC/ENAC/DEG CHANNELS. <i>Isabelle Baconguis</i></p>	
10:45 AM–12:45 PM	<b>Platform: Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating I</b>	Room 502A
10:45 AM–12:45 PM	<b>Platform: Computational Methods and Bioinformatics</b>	Room 502B
10:45 AM–12:45 PM	<b>Platform: Membrane Physical Chemistry II</b>	Room 515A
10:45 AM–12:45 PM	<b>Platform: Membrane Protein Structure and Folding II</b>	Room 515B
10:45 AM–12:45 PM	<b>Platform: Cytoskeletal Motor Proteins</b>	Room 501ABC
10:45 AM–12:45 PM	<b>Platform: Single-Molecule Spectroscopy</b>	Room 511ABC
11:30 AM–12:30 PM	<b>Career Center Workshop</b> Leveraging Social Media for Networking and Career Advancement	Room 518
11:30 AM–1:00 PM	<b>Exhibitor Presentation: Asylum Research, an Oxford Instrument Company</b> Soft, Sticky, and Viscous: Practical Considerations for Measuring Cell Mechanics with AFM	Room 505
12:30 PM–2:00 PM	<b>Exhibitor Presentation: Nanion Technologies GmbH</b> Ion Channel Drug Discovery - Beyond the Bottlenecks and Ready for CiPA	Room 513
1:00 PM–3:00 PM	<b>NSF Grant Writing Workshop</b>	Room 403B
1:30 PM–3:00 PM	<b>Industry Panel</b>	Room 411
1:30 PM–3:00 PM	<b>Exhibitor Presentation: KinTek Corp</b> Why You Should Fit Kinetic and Equilibrium Binding Data Using KinTeck Explorer Software	Room 505
1:30 PM–3:00 PM	<b>Biophysics 101: Forster Resonance Energy Transfer</b>	Room 409AB
1:45 PM–3:00 PM	<b>Snack Break</b>	West Hall
1:45 PM–3:45 PM	<b>Poster Presentations and Late Posters</b>	West Hall
2:15 PM–3:45 PM	<b>How to Get Your Scientific Paper Published</b>	Room 408B
2:30 PM–3:30 PM	<b>Speed Networking</b>	Room 407
2:30 PM–3:30 PM	<b>Career Center Workshop</b> Selling Yourself to the Life Sciences Industry	Room 518
2:30 PM–4:00 PM	<b>Hiring, Firing, and Beyond: How to Be an Effective Supervisor</b>	Room 408A
2:30 PM–4:00 PM	<b>The Science of Hollywood</b>	Room 403A
2:30 PM–4:00 PM	<b>Exhibitor Presentation: Renishaw Inc</b> Innovative Raman Imaging in the Life Sciences	Room 513
3:00 PM–5:00 PM	<b>Membership Committee Meeting</b>	Room 506
3:30 PM–5:00 PM	<b>Exhibitor Presentation: Bruker Nano Surfaces</b> Advances in Live-Super-Resolution Imaging Using the Vutara 352 Microscope	Room 505
4:00 PM–5:00 PM	<b>Career Center Workshop</b> Successfully Navigating the International Job Search	Room 518

4:00 PM–6:00 PM	<p><b>Symposium: Molecular Mechanisms of Mechanosensation</b>  <b>Chair:</b> <i>Robert Fettiplace, University of Wisconsin-Madison</i></p> <p>GLOBAL AND SPECIFIC INTERACTIONS BETWEEN MECHANOSENSITIVE ION CHANNELS AND THE LIPID BILAYER. <i>Boris Martinac</i>          SINGLE MOLECULE FORCE SPECTROSCOPY OF HAIR-CELL TIP-LINK PROTEINS. <i>David P. Corey</i>          LOCALIZATION OF ANOMALOUS MECHANO-SENSITIVE ION CHANNELS IN COCHLEAR HAIR CELLS. <i>Robert Fettiplace</i>          STRUCTURE AND CHEMICAL BIOLOGY OF MECHANOSENSITIVE K2P CHANNELS. <i>Daniel L. Minor</i></p>	Petree Hall C
4:00 PM–6:00 PM	<p><b>Symposium: Folding Rates and Routes</b>  <b>Chair:</b> <i>Jane Clarke, University of Cambridge, United Kingdom</i></p> <p>ASSESSING AND MANIPULATING PROTEIN FOLDING DYNAMICS. <i>Feng Gai</i>          COUPLED PROTEIN FOLDING AND BINDING REACTIONS: MECHANISMS AND SPEED LIMITS. <i>Thomas Kiefhaber</i>          IMPACTS OF CHARGE PATTERNING ON INTRINSICALLY DISORDERED PROTEINS AND MECHANISMS OF DISORDER-TO-ORDER TRANSITIONS. <i>Rohit V. Pappu</i>          THE ROLE OF DISORDER IN PROTEIN FOLDING. <i>Jane Clarke</i></p>	Petree Hall D
4:00 PM–6:00 PM	<p><b>Symposium: Expanding Horizons in Biophysics and Medical Physics</b>  <b>Chair:</b> <i>Robert Jeraj, University of Wisconsin-Madison</i></p> <p>INTERPLAY BETWEEN MOLECULAR IMAGING AND TUMOR MODELING OF ANTI-ANGIOGENIC THERAPIES. <i>Robert Jeraj</i>          CHERENKOV IMAGING OF RADIATION DOSE AND MOLECULAR SIGNALING IN VIVO. <i>Brian Pogue</i>          THE ROLE OF PHYSICS IN DRIVING PRECISION IN CANCER MEDICINE. <i>David Jaffray</i>          CELL ADHESION STRENGTH IS REDUCED BY THE PRESENCE OF PERICELLULAR MATRIX PATCHES. <i>Jennifer Curtis</i></p>	Room 502A
4:00 PM–6:00 PM	<b>Platform: Cell Mechanics, Cytoskeleton, and Motility</b>	Room 502B
4:00 PM–6:00 PM	<b>Platform: Bioengineering and Biotechnology</b>	Room 515A
4:00 PM–6:00 PM	<b>Platform: Ligand-gated Channels</b>	Room 515B
4:00 PM–6:00 PM	<b>Platform: Protein-Small Molecule Interactions</b>	Room 501ABC
4:00 PM–6:00 PM	<b>Platform: Protein-Lipid Interactions I</b>	Room 511ABC
4:30 PM–6:00 PM	<p><b>Exhibitor Presentation: Molecular Devices</b>  <b>Pushing the Performane Envelope: Evaluation of the NMDA Receptor Using Automated Electrophysiology and Fast Fluidics</b></p>	Room 513
5:30 PM–7:00 PM	<p><b>Exhibitor Presentation: Sutter Instrument</b>  <b>Scientists Empowering Scientists</b></p>	Room 505
8:00 PM–9:30 PM	<b>Awards and National Lecture</b>	Concourse Hall
9:30 PM–12:00 AM	<b>Reception and Dance</b>	J.W. Marriott - Diamond Ballroom
9:30 PM–12:00 AM	<b>Reception and Quiet Room</b>	J.W. Marriott - Gold Ballroom



# Monday, February 29

## Graduate Student Breakfast

7:30 AM - 8:30 AM, ROOM 404AB

Supported by the Burroughs Wellcome Fund

This breakfast presents an opportunity for graduate student members of the Society to meet and discuss the issues they face in their current career stage. Members of the Early Careers Committee will be available to answer questions about how the Committee serves graduate students in the biophysical community. Limited to the first 100 attendees.

## Registration/Exhibitor Registration

7:30 AM - 5:00 PM, WEST LOBBY

## Poster Viewing

8:00 AM - 10:00 PM, WEST HALL

## Symposium Lipid Flippases

8:15 AM - 10:15 AM, PETREE HALL C

### Chair

Raimund Dutzler, University of Zurich, Switzerland

### 868-SYMP 8:15 AM

THE STRUCTURE AND FUNCTION OF CALCIUM ACTIVATED TMEM16 CHANNELS AND SCRAMBLASES. Janine D. Brunner, Novandy K. Lim, Stephan Schenck, **Raimund Dutzler**

### 869-SYMP 8:45 AM

MECHANISMS OF ION AND LIPID TRANSPORT BY TMEM16 SCRAMBLASES. **Alessio Accardi**

### 870-SYMP 9:15 AM

STRUCTURE AND MECHANISM OF AN ATP-DRIVEN FLIPPASE OF LIPID-LINKED OLIGOSACCHARIDES. **Kaspar Locher**

### 871-SYMP 9:45 AM

PHOSPHOLIPID FLIP MEDIATED BY MODEL FLIPPASES. **Dieter Langosch**

## Symposium

## Biomimetic Models for Study of Cytoskeletal Organization

8:15 AM - 10:15 AM, PETREE HALL D

### Chair

Kinneret Keren, Technion, Israel Institute of Technology

### 872-SYMP 8:15 AM

NON-EQUILIBRIUM STEADY STATE DYNAMICS OF CONTRACTILE ACTIN NETWORKS. **Keren Kinneret**

### 873-SYMP 8:45 AM

SHAPE REMODELING OF ACTIVE CYTOSKELETAL VESICLES. **Andreas R. Bausch**

### 874-SYMP 9:15 AM

TOWARDS THE RECONSTITUTION OF MINIMAL CELL DIVISION. **Petra Schwille**

### NO ABSTRACT 9:45 AM

CARGO TRANSPORT BY MYOSIN VIA MOLECULAR MOTORS: WHAT A MESH! **David Warshaw**

## Platform

## Optical Microscopy and Super-Resolution Imaging II

8:15 AM - 10:15 AM, ROOM 502A

### Co-Chairs

Viviane Devauges, King's College London, United Kingdom  
MinKwan Kim, Korea Advanced Institute of Science and Technology, Korea

### 875-PLAT 8:15 AM

TOWARDS SINGLE MOLECULE IMAGING OF FLUORESCENCE ANISOTROPY. **Viviane Devauges**, Simon P. Poland, James Monypenny, Anthony H. Keeble, Andrew J. Beavil, Simon M. Ameer-Beg

### 876-PLAT 8:30 AM

A METHOD FOR ESTIMATING UNKNOWN PARAMETERS FROM PARTICLE TRACKING EXPERIMENTS. Trevor T. Ashley, **Sean B. Andersson**

### 877-PLAT 8:45 AM

SUPER RESOLUTION MICROSCOPY WITH INDUCED OPTICAL FLUCTUATION. **MinKwan Kim**, Chung-Hyun Park, Yong-Hoon Cho, YongKeun Park

### 878-PLAT 9:00 AM

ULTRA-HIGH RESOLUTION THREE DIMENSIONAL IMAGING USING 4PI-SMSN THROUGHOUT WHOLE CELLS. **Fang Huang**, George Sirinakis, Edward S. Allgeyer, Lena Schroeder, Whitney C. Duim, Joerg Bewersdorf

### 879-PLAT 9:15 AM

3D SINGLE-MOLECULE SUPER-RESOLUTION FLUORESCENCE MICROSCOPY WITH THE CORKSCREW POINT SPREAD FUNCTION. **Maurice Lee**, Matthew Lew, Alex von Diezmann, Lucien Weiss, Yoav Shechtman, W. E. Moerner

### 880-PLAT 9:30 AM

SPECTRALLY RESOLVED SUPER-RESOLUTION MICROSCOPY. **Ke Xu**, Zhengyang Zhang, Samuel Kenny, Margaret Hauser, Wan Li

### 881-PLAT 9:45 AM

SIMPLE, LOW-COST BAYESIAN SUPER RESOLUTION MICROSCOPY. **Jorge Madrid-Wolff**, Joel I. Klahr, John Mario Gonzalez, Manu Forero-Shelton

### 882-PLAT 10:00 AM

ARBITRARY-REGION IMAGE CORRELATION SPECTROSCOPY. **Jelle Hendrix**, Tomas Dekens, Don C. Lamb

## Platform

## Molecular Dynamics I

8:15 AM - 10:15 AM, ROOM 502B

### Co-Chairs

Arthur Palmer, Columbia University  
Francis Starr, Wesleyan University

### 883-PLAT 8:15 AM

LIPASE DYNAMICS AND ACTIVATION: THE CASE OF M37. **Nathalie Willemis**, Mickael Lelimosin, Mark S.P. Sansom

### 884-PLAT 8:30 AM

A COMPREHENSIVE DESCRIPTION OF THE HOMO AND HETERODIMERIZATION MECHANISM OF THE CHEMOKINE RECEPTORS CCR5 AND CXCR4. **Daniele Di Marino**, Vittorio Limongelli

### 885-PLAT 8:45 AM

SIMULATIONS OF FGFR2 KINASE ACTIVATION LOOP DYNAMICS AND THEIR EFFECTS ON CATALYTIC ACTIVITY. **Jerome M. Karp**, David Cowburn

### 886-PLAT 9:00 AM

STEERED MOLECULAR DYNAMICS SIMULATIONS OF INNER-EAR CADHERINS USING THE DRUDE POLARIZABLE FORCE FIELD. Yoshie Narui, **Florencia Velez-Cortes**, Zachary Johnson, Marcos Sotomayor

**887-PLAT 9:15 AM**  
A TRIO OF CATIONS IN GRAMICIDIN A CHANNEL: IMPORTANCE OF QUANTUM EFFECTS TO DESCRIBE ION SELECTIVITY OF K<sup>+</sup> AND NA<sup>+</sup>, AND PROTON TRANSFER. **Van Ngo**, Sergei Yu Noskov

**888-PLAT 9:30 AM**  
REDUCING IAPP AGGREGATION WITH MITOCHONDRIAL HUMANIN PEPTIDES; RESULTS FROM SIMULATIONS AND EXPERIMENTS. **Zachary A. Levine**, Alan Okada, Kazuki Teranishi, Ralf Langen, Joan-Emma Shea

**889-PLAT 9:45 AM**  
RATIONAL DEVELOPMENT OF A NEW TYPE OF HBV CAPSID INHIBITORS BY A COMBINATION OF MICROSECOND-SCALE MOLECULAR DYNAMICS AND DOCKING. Maksym Korablyov, **Anna Pavlova**, James Gumbart

**890-PLAT 10:00 AM**  
HOLLIDAY JUNCTION THERMODYNAMICS AND STRUCTURE: COMPARISONS OF COARSE-GRAINED SIMULATIONS AND EXPERIMENTS. **Francis W. Starr**, Wujie Wang, Laura M. Nocka, Brienne Z. Wiemann, Daniel M. Hinckley, Ishita Mukerji

## Platform Membrane Pumps, Transporters, and Exchangers

8:15 AM - 10:15 AM, ROOM 515A

### Co-Chairs

*Merritt Maduke, Stanford University*  
*Pernilla Wittung-Stafshede, Umeå Univeristy, Sweden*

**891-PLAT 8:15 AM**  
AN OUTWARD-FACING OPEN CONFORMATIONAL STATE IN A CLC TRANSPORTER. Sherwin J. Abraham, Tanmay Chavan, Ricky C. Cheng, Cristina Fenollar-Ferrer, Wei Han, Shahidul M. Islam, Tao Jiang, Chandra M. Khantwal, Irimpan I. Mathews, Richard A. Stein, Benoit Roux, Lucy R. Forrest, Hassane S. Mchaourab, Emad Tajkhorshid, **Merritt Maduke**

**892-PLAT 8:30 AM**  
TRANSPORT MECHANISM OF THE EIIC GLUCOSE SUPERFAMILY OF TRANSPORTERS. **Zhenning Ren**, Jason G. McCoy, Vitali Stanevich, Jumin Lee, Sharmistha Mitra, Elena J. Levin, Sebastien Poget, Matthias Quick, Wonpil Im, Ming Zhou

**893-PLAT 8:45 AM**  
DIRECT VISUALIZATION OF GLUTAMATE TRANSPORTER TRANSPORT CYCLE. Yi Ruan, Atsushi Miyagi, Xiaoyu Wang, Mohamed Cham, Henning Stahlberg, Olga Boudker, **Simon Scheuring**

**894-PLAT 9:00 AM**  
RESOLVING ACTIVE ION TRANSPORT AT THE SINGLE MOLECULE LEVEL FOR THE FIRST TIME. **Salome Veshaguri**, Sune M. Christensen, Gerdi C. Kemmer, Mads P. Møller, Garima Ghale, Christina Lohr, Andreas L. Christensen, Bo H. Justesen, Ida L. Jørgensen, Jürgen Schiller, Nikos S. Hatzakis, Michael Grabe, Thomas Günther Pomorski, Dimitrios Stamou

**895-PLAT 9:15 AM**  
PROTEIN INTERACTIONS THAT ENABLE SAFE AND EFFICIENT COPPER ION TRANSPORT IN THE HUMAN CYTOPLASM. **Pernilla Wittung-Stafshede**

**896-PLAT 9:30 AM** INTERNATIONAL TRAVEL AWARDEE  
DISSECTING THE CATALYTIC CYCLE OF THE SEROTONIN TRANSPORTER. **Peter S. Hasenhuettl**, Michael Freissmuth, Harald H. Sitte, Klaus Schicker, Yang Li, Walter Sandtner

**897-PLAT 9:45 AM**  
TRANSLOCASE ACTIVITY AND ASYMMETRIC MODEL MEMBRANES PROBED BY NEUTRON SCATTERING. **Allison M. Whited**, Frederick A. Heberle, Robert F. Standaert, Jonathan David Nickels, Xiaolin Cheng, John Katsaras, Alexander Johs

**898-PLAT 10:00 AM**  
FUNCTIONAL CHARACTERIZATION OF CALCIUM-ACTIVATED PHOSPHOLIPID SCRAMBLASE ACTIVITY OF NHTMEM16. **Tao Jiang**, Sundar Thangapandian, Emad Tajkhorshid

## Platform Protein Stability, Folding, and Chaperones I

8:15 AM - 10:15 AM, ROOM 515B

### Co-Chairs

*Susan Marqusee, University of California, Berkeley*  
*Hugo Sanabria, Clemson University*

**899-PLAT 8:15 AM**  
MECHANICAL UNFOLDING OF E. COLI RNASE H REVEALS AN INTERMEDIATE WITH A FORCE-INDUCED SHIFT IN THE RATE-LIMITING BARRIER. **Diane M. Wiener**, Jesse W. Dill, Susan Marqusee

**900-PLAT 8:30 AM**  
IN-CELL PROTEIN FOLDING - PAPS SYNTHASES. Oliver Brylski, David Gnutt, **Simon Ebbinghaus**

**901-PLAT 8:45 AM**  
PROVING THE ROLE OF ENTROPIC ELASTICITY IN PROTEIN FOLDING. **Jessica Valle-Orero**, Edward C. Eckels, Ionel Popa, Jaime Andres Rivas-Pardo, Julio M. Fernandez

**902-PLAT 9:00 AM**  
SUB-MILLISECOND UNFOLDING KINETIC SPECTRA REVEALS INTERMEDIATE TRANSITIONS. **Hugo Sanabria**, Katherina Hemmen, Dmitro Rodnin, Daniel Rohrbeck, Soheila Rezai Adariani, Ralf Kühnemuth, Claus A. M. Seidel

**903-PLAT 9:15 AM**  
STUDYING THE FUNCTION OF BAP IN THE NUCLEOTIDE CYCLE OF BIP BY SPRET USING MFD-PIE. **Daniela Wengler**, Mathias Rosam, Jelle Hendrix, Johannes Buchner, Don C. Lamb

**904-PLAT 9:30 AM**  
THE EFFECT OF LOOP INSERTIONS ON THE FOLDING OF TANDEM-REPEAT PROTEINS. **Albert Perez-Riba**, Ewan R. Main, Laura S. Itzhaki

**905-PLAT 9:45 AM**  
LINKING MECHANOCHEMISTRY TO PROTEIN FOLDING AT THE SINGLE BOND LEVEL. **Amy EM Beedle**, Sergi Garcia-Manyes

**906-PLAT 10:00 AM**  
FOLDING DYNAMICS OF B1 DOMAIN OF PROTEIN G USING SINGLE MOLECULE FORCE SPECTROSCOPY. **Dena Izadi**

## Platform Excitation-Contraction Coupling

8:15 AM - 10:15 AM, ROOM 501ABC

### Co-Chairs

*Bradley Launikonis, University of Queensland, Australia*  
*Isabelle Marty, Grenoble Institut des Neurosciences, France*

**907-PLAT 8:15 AM**  
THE MICROTUBULE-ASSOCIATED PROTEIN CLIMP-63 IS A NEW MEMBER OF THE CALCIUM RELEASE COMPLEX. Alexis Osseni, Muriel Sebastien, Julien Fauré, Anne Fourest-Lieuvain, **Isabelle Marty**

**908-PLAT 8:30 AM**  
STRUCTURAL INSIGHTS INTO RYANODINE RECEPTOR-FKBP12 INTERACTIONS IN WILD-TYPE AND MUTATED STATES. **Zhiguang Yuchi**, Siobhan M Wong King Yuen, Kelvin Lau, Ainsley Underhill, Razvan Cornea, James Fessenden, Filip Van Petegem

**909-PLAT 8:45 AM**  
 CALSEQUESTRAIN DEPOLYMERIZES WHEN  $Ca^{2+}$  CONCENTRATION DECAYS IN THE SARCOPLASMIC RETICULUM OF SKELETAL MUSCLE. **Carlo Manno**, Lourdes Figueroa, Dirk Gillespie, Eduardo Rios

**910-PLAT 9:00 AM**  
 SHEET-LIKE REMODELING OF THE T-SYSTEM OF VENTRICULAR CARDIOMYOCYTES IN HEART FAILURE. **Thomas Seidel**, Martin Tristani-Firouzi, Craig H. Selzman, Frank B. Sachse

**911-PLAT 9:15 AM**  
 DIFFUSION PROPERTIES OF CARDIAC T-TUBULAR SYSTEM. Marina Scardigli, **Claudia Crocini**, Cecilia Ferrantini, Raffaele Coppini, Chiara Tesi, Elisabetta Cerbai, Corrado Poggesi, Francesco S. Pavone, Leonardo Sacconi

**912-PLAT 9:30 AM**  
 MICROTUBULE-DEPENDENT ALTERATIONS TO MECHANICAL PROPERTIES AND MECHANOTRANSDUCTION IN SKELETAL MUSCLE. **Jaclyn P. Kerr**, Guoli Shi, W Jonathan Lederer, Kelley M. Virgilio, Sylvia S. Blemker, Stuart S. Martin, Roberto Raiteri, Christopher W. Ward

**913-PLAT 9:45 AM**  
 CALCIUM ENTRY UNITS: EXERCISE-DEPENDENT FORMATION OF NEW SR-TT JUNCTIONS CONTAINING STIM1 AND ORAI1 IN MUSCLE. Simona Boncompagni, Antonio Michelucci, Laura Pietrangelo, Robert T. Dirksen, **Feliciano Protasi**

**914-PLAT 10:00 AM**  
 RYANODINE RECEPTOR ACTIVITY REGULATES THE LEVELS OF  $Ca^{2+}$  EXTRUSION AND STORE-OPERATED  $Ca^{2+}$  ENTRY IN SKELETAL MUSCLE. Tanya R. Cully, Rocky H. Choi, Thomas R. Shannon, **Bradley S. Launikonis**

## Platform DNA Structure and Dynamics

**8:15 AM - 10:15 AM, ROOM 511ABC**

### Co-Chairs

*Vincent Croquette, LPS-ENS Research University, France*  
*Catherine Tardin, Institute of Pharmacology and Structural Biology, France*

**915-PLAT 8:15 AM**  
 REVISITING SEQUENCING BY HYBRIDIZATION AT THE SINGLE MOLECULE LEVEL USING THE UNZIPPING ASSAY. **Vincent Croquette**, Saurabh Raj, Jean-François Allemand, David Bensimon, Jean-Baptiste Boulé

**916-PLAT 8:30 AM**  
 MODELING SECONDARY STRUCTURAL ELEMENTS IN PROGRAMMED DNA ASSEMBLIES. **Keyao Pan**, Mark Bathe

**917-PLAT 8:45 AM**  
 THE OVERSTRETCHING TRANSITION OF DIAMINOPURINE SUBSTITUTED TRIPLY HYDROGEN-BONDED DNA. **Daniel T. Kovari**, Matteo Cristofalo, David Dunlap, Laura Finzi

**918-PLAT 9:00 AM**  
 THREE DIMENSIONAL DYNAMICS AND FLUCTUATIONS OF DNA-NANO-GOLD DIMERS BY INDIVIDUAL-PARTICLE ELECTRON TOMOGRAPHY. **Lei Zhang**, Dongsheng Lei, Jessica M. Smith, Huimin Tong, Xing Zhang, Paul Alivisatos, Gang Ren

**919-PLAT 9:15 AM**  
 BRANCHPOINT STRUCTURE OF DNA THREWAY JUNCTIONS. Anita Toulmin, **Michael J. Morten**, Tara Sabir, Laura E. Baltierra-Jasso, Peter McGlynn, Gunnar F. Schröder, Brian Smith, Steven W. Magennis

**920-PLAT 9:30 AM**  
 DYNAMICS OF HUMAN TELOMERIC G-QUADRUPLEX PROBED BY SINGLE MOLECULE FLUORESCENCE-FORCE SPECTROSCOPY. **Jaba Mitra**, Thuy T.M. Ngo, Taekjip Ha

**921-PLAT 9:45 AM**  
 PROBING A LABEL-FREE LOCAL BEND IN DNA BY SINGLE MOLECULE TETHERED PARTICLE MOTION. Annaël Brunet, Sébastien Chevalier, Nicolas Destainville, Manoel Manghi, Philippe Rousseau, Maya Sahi, Laurence Salome, **Catherine Tardin**

**922-PLAT 10:00 AM**  
 QUANTIFYING THE ION ATMOSPHERE OF UNFOLDED, SINGLE-STRANDED NUCLEIC ACIDS. **David R. Jacobson**, Omar A. Saleh

## CPOW Committee Meeting

**8:30 AM - 10:30 AM, ROOM 408A**

## Exhibitor Presentation

### Sophion together with Biolin Scientific

**9:30 AM - 11:00 AM, ROOM 505**

### Pioneering Ion Channels - Expanding the Boundaries of Automated Patch Clamp

Recent advances in automated patch clamp for voltage and ligand gated ion channels with emphasis on NMDA, cardiac safety and induced pluripotent stem cells

#### Speakers

Timm Danker, NMI, Germany  
 Automated Patch Clamp on Cardiac Ion Channels and Multiwell MEA Recordings on Human iPSC-derived Cardiomyocytes: a Complementary Approach for Predictable Proarrhythmia Assessments

Caterina Virginio, Aptuit

NMDA Receptors: Meaningful Biophysical and Pharmacological Studies to Redefine Ligands Properties

Denise Franz, University of Rostock, Germany

Electrophysiological Characterization of Human Induced Pluripotent Stem Cell-derived Dopaminergic Neurons on the QPatch

## Career Center Workshop

### Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)

**10:00 AM - 11:00 AM, ROOM 518**

You've been invited to interview with that drug development company that you've always wanted to work for. You've soaked up the details of the position description. You are confident in your ability to do the job, as well as answer any/all technical questions during the interview process. The day is yours...until...that first question catches you by surprise and your confidence begins to wilt. Be prepared for those non-technical questions that you will almost certainly hear at some point, know why they are asked, and learn what a good (if not great) response to each question might be by attending this workshop.

## Exhibits

**10:00 AM - 5:00 PM, WEST HALL**

## Coffee Break

**10:15 AM - 11:00 AM, WEST HALL**

## New Member Welcome Coffee

10:15 AM - 11:15 AM, ROOM 404AB

All new and prospective Biophysical Society members are invited to participate in an informal gathering to meet members of the Society's council and committees, find out about the Society's activities, get acquainted with other new members, and enjoy refreshments. Current members are encouraged to come meet the new members.

## Exhibitor Presentation Wyatt Technology Corporation

10:30 AM - 12:00 PM, ROOM 513

### Get it Right the First Time - Enhancing Protein Binding and Structural Studies with the Light-Scattering Toolkit

Biophysical binding studies utilizing surface plasmon resonance (SPR), biolayer interferometry (BLI), isothermal titration calorimetry (ITC), and related techniques are central to the study of protein-protein, protein-DNA and similar biomolecular interactions. Though these are well-established techniques, in a variety of circumstances, binding measurements may be ambiguous or even fail to provide useful data. Wasted measurements can end up being costly in terms of consumables and time.

Small-angle X-ray scattering (SAXS) and small-angle neutron scattering (SANS) are powerful techniques for studying biomolecular structure. SAXS and SANS usually require precious beam time at large facilities, leaving little room for error where the sample preparation is concerned. Poor samples provide poor SAXS/SANS data, but the opportunity to utilize the X-ray or neutron beam may never be recovered.

One thing that SAXS and SANS have in common with SPR, BLI and ITC, is the urgent need to verify sample quality and aggregation state in solution prior to carrying out structural or binding measurements. This seminar discusses a suite of complementary techniques, all based on light scattering, that are useful in assessing and troubleshooting many of the underlying characterization issues. Multi-angle light scattering (MALS) and dynamic light scattering (DLS) can help researchers assess solution quality prior to running binding or structural experiments, qualify aggregation behavior of analytes, and characterize complex interactions that may not be amenable to standard characterization methodology. Judicious use of the biophysical light-scattering toolkit is essential for robust and reliable interaction and structure studies.

#### Speaker

Sophia Kenrick, Application Scientist, Wyatt Technology Corporation

## Symposium Mechanosensing and Mechanosignaling in Muscle

10:45 AM - 12:45 PM, PETREE HALL C

#### Chair

*Olga Mayans, University of Konstanz, Germany*

#### 923-SYMP 10:45 AM

MECHANOSENSITIVE STRUCTURAL STATES OF TITIN. Zsolt Mártonfalvi, Pasquale Bianco, Katalin Naftz, Dorina Kószegi, György Ferenczy, **Miklós S. Kellermayer**

#### 924-SYMP 11:15 AM

TITIN(S): TOWARDS AN ATOMIC UNDERSTANDING OF MECHANOSENSORY EVENTS IN THE ELASTIC SCAFFOLDS OF THE MUSCLE SARCOMERE. **Olga Mayans**, Jennifer Fleming, Rhys Williams, Barbara Franke, Hang Lu, Guy Berrian

#### 925-SYMP 11:45 AM

MECHANO-CHEMO-TRANSDUCTION IN CARDIOMYOCYTES DURING BEAT-TO BEAT CONTRACTION UNDER MECHANICAL LOAD. **Ye Chen-Izu**

#### 926-SYMP 12:15 PM

DETYROSINATED MICROTUBULES BEAR LOAD AND TRANSMIT MECHANICAL FORCE IN CARDIOMYOCYTES. Patrick Robison, Matthew Caporizzo, Alexey Bogush, Kenneth Margulies, **Benjamin Prosser**

## Symposium Future of Biophysics

10:45 AM - 12:45 PM, PETREE HALL D

#### Co-Chairs

*Vasanthi Jayaraman, University of Texas Health Science Center  
E. Michael Ostap, University of Pennsylvania*

#### NO ABSTRACT 10:45 AM

ENGINEERING BIOMIMETIC MATRICES TO UNDERSTAND BRAIN/TUMOR INTERACTIONS DURING METASTASIS. **Kimberly Stroka**

#### NO ABSTRACT 11:15 AM

COMBINATORIAL REGULATION OF BAR DOMAIN PROTEINS AT THE INTERFACE BETWEEN THE CYTOSKELETON AND MEMBRANES. **David Kast**

#### NO ABSTRACT 11:45 AM

NASCENT AND ANTIMICROBIAL PEPTIDES THAT TARGET THE RIBOSOMAL EXIT TUNNEL TO BLOCK PROTEIN SYNTHESIS IN BACTERIA. **Axel Innis**

#### NO ABSTRACT 12:15 PM

MECHANISM OF GATING AND ION SELECTIVITY IN ASIC/ENAC/DEG CHANNELS. **Isabelle Baconguis**

## Platform

### Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating I

10:45 AM - 12:45 PM, ROOM 502A

#### Co-Chairs

*Peter Larsson, University of Miami  
Gail Robertson, University of Wisconsin-Madison*

#### 927-PLAT 10:45 AM

N-ARACHIDONOYL TAURINE RESCUES DIVERSE LONG QT SYNDROME-ASSOCIATED MUTATIONS IN THE CARDIAC IKS CHANNEL. **Sara I. Liin**, Johan E. Larsson, Rene Barro-Soria, Mark A. Skarsfeldt, Bo H. Bentzen, H Peter Larsson

#### 928-PLAT 11:00 AM

THE F-ACTIN BINDING PROTEIN TRIOBP-1 REGULATES HERG K<sup>+</sup> CHANNELS. **Ashley A. Johnson**, Dave Jones, Elon C. Roti Roti, Gail Robertson, Matthew Trudeau

#### 929-PLAT 11:15 AM

A NOVEL SITE OF COMPETITIVE PIP2 AND CALMODULIN INTERACTION TO KCNQ1 C-TERMINUS HELIX B IS CRUCIAL FOR IKS CHANNEL ACTIVITY. **William S. Tobelaim**, Meidan Dvir, Guy Lebel, Meng Cui, Tal Buki, Asher Peretz, Diomedes Logothetis, Joel Hirsch, Bernard Attali

#### 930-PLAT 11:30 AM

MOLECULAR DYNAMICS SIMULATIONS OF KIR2.2-CHOLESTEROL INTERACTIONS. **Nicolas Barbera**, Manuela A. Ayee, Belinda S. Akpa, Irena Levitan

#### 931-PLAT 11:45 AM

CRYO-EM STRUCTURE OF THE BK ION CHANNEL IN A LIPID MEMBRANE. **Liguo Wang**, Lige Tonggu, Xi Zhan

**932-PLAT 12:00 PM**  
 DELETION OF CYTOPLASMIC GATING RING ALTERS VOLTAGE DEPENDENT ACTIVATION OF BK CHANNELS. **Guohui Zhang**, Yanyan Geng, Jingyi Shi, Kelli McFarland, Karl L. Magleby, Lawrence Salkoff, Jianmin Cui

**933-PLAT 12:15 PM**  
 SELECTIVE CATION BINDING TO THE GATING-RING TRIGGERS INDEPENDENT RCK MOTIONS IN THE BK CHANNEL. **Pablo Miranda**, Teresa Giraldez, Miguel Holmgren

**934-PLAT 12:30 PM**  
 ROLE OF AN INTERSUBUNIT CA<sup>2+</sup> BRIDGE IN STRUCTURE AND FUNCTION OF BK CHANNELS. **Alexandre G. Vouga**, Eunan Hendron, Brad S. Rothberg

**Platform  
 Computational Methods and Bioinformatics**

**10:45 AM - 12:45 PM, ROOM 502B**

**Co-Chairs**  
*Lanyuan Lu, Nanyang Technological University, Singapore*  
*Liskin Swint-Kruse, University of Kansas*

**935-PLAT 10:45 AM**  
 PL-PATCHSURFER: A FAST, SURFACE-PATCH-BASED VIRTUAL SCREENING PROGRAM USING THREE-DIMENSIONAL ZERNIKE DESCRIPTORS.  
**Woong-Hee Shin**, Daisuke Kihara

**936-PLAT 11:00 AM**  
 BIASING THE SAMPLING OF LOCAL STATES TO DRIVE THE EXPLORATION OF GLOBAL CONFORMATIONS IN PROTEINS. **Alessandro Pandini**, Arianna Fornili

**937-PLAT 11:15 AM**  
 PROTEIN STRUCTURE DETERMINATION BY CONFORMATIONAL SPACE ANNEALING USING NMR GEOMETRIC RESTRAINTS. **Jooyoung Lee**, Keehyoung Joo, InSuk Joung, Jinhyuk Lee, Jinwoo Lee, Weontae Lee, Bernard Brooks, Sung Jong Lee

**938-PLAT 11:30 AM**  
 MODELING SOLUTION X-RAY SCATTERING WITH KNOWLEDGE-BASED COARSE-GRAINED FORM FACTORS. **Lanyuan Lu**, Dudu Tong

**939-PLAT 11:45 AM**  
 DECODING DYNAMIC DISORDER IN SINGLE MOLECULE DATA. **Wonseok Hwang**, Il-Buem Lee, Seok-Cheol Hong, Changbong Hyeon

**940-PLAT 12:00 PM**  
 A NEW PATTERN IN PROTEIN EVOLUTIONARY SEQUENCE INFORMATION ROBUSTLY IDENTIFIES FUNCTIONALLY-IMPORTANT AMINO ACID POSITIONS. **Liskin Swint-Kruse**

**941-PLAT 12:15 PM**  
 AUTOMATED IMAGE ANALYSIS REVEALS SPATIALLY-REGULATED CELL DIVISION DYNAMICS DURING DROSOPHILA AXIS ELONGATION. **Michael F.Z. Wang**, Rodrigo Fernandez-Gonzalez

**942-PLAT 12:30 PM**  
 AGENT-BASED MODELING OF BIOLOGICAL PATHWAYS - A CASE-STUDY ON MRNA EXPORT AND QUALITY CONTROL MECHANISM. **Mohammad Soheilypour**, Mohammad Mofrad

**Platform  
 Membrane Physical Chemistry II**

**10:45 AM - 12:45 PM, ROOM 515A**

**Co-Chairs**  
*Susanne Fenz, Wuerzburg University, Germany*  
*Tommy Nylander, Lund University, Sweden*

**943-PLAT 10:45 AM**  
 NANOPARTICLES INTERACTING WITH MEMBRANES: FROM ENGULFMENT PATTERNS TO ENDOCYTOSIS. **Jaime Agudo-Canalejo**, Reinhard Lipowsky

**944-PLAT 11:00 AM**  
 ON THE FORMATION OF LIPID NANO-SCALE STRUCTURES AT INTERFACES BEYOND PLANAR BILAYERS. Aleksandra Dabkowska, Cassandra Niman, Gaelle Offranc Piret, Henrik Persson, Hanna Wacklin, Heiner Linke, Christelle Prinz, **Tommy Nylander**

**945-PLAT 11:15 AM**  
 α-SYNUCLEIN BOUND TO MITOCHONDRIAL MEMBRANES— CHANGES IN LIPID BILAYER STRUCTURE AND MECHANICS. **Ana West**, Ben Brummel, Jonathan Sachs

**946-PLAT 11:30 AM**  
 MEMBRANE FLUCTUATIONS EFFECT PROTEIN DIFFUSION AND INDUCE PROTEIN AGGREGATION. **Kayla Sapp**, Lutz Maibaum

**947-PLAT 11:45 AM**  
 MEMBRANE PROTEIN CROWDING AT THE MESOSCALE: INSIGHTS FROM MD SIMULATIONS. **Mathieu G. Chavent**, Anna Duncan, Jean Helie, Patrice Rassam, Tyler Reddy, Joseph Goose, Colin Kleanthous, Mark S P Sansom

**948-PLAT 12:00 PM**  
 MEMBRANE MEDIATED COOPERATIVITY FACILITATES CADHERIN CLUSTERING IN MODEL MEMBRANES. **Susanne Fenz**, Timo Bihl, Daniel Schmidt, Rudolf Merkel, Khuya Sengupta, Udo Seifert, Ana-Suncana Smith

**949-PLAT 12:15 PM**  
 MEMBRANE HETEROGENEITY AND ITS ROLE IN IMMUNE SIGNALING ELUCIDATED BY SPECTRAL IMAGING. **Erdinc Sezgin**, Christian Eggeling

**950-PLAT 12:30 PM**  
 IONIZATION OF PHOSPHATIDYLINOSITOL (3,4,5)-TRISPHOSPHATE IN MIXED LIPID MEMBRANES. **Joseph Thomas**, Zachary Graber, Emily Johnson, Arne Gericke, Edgar E. Kooijman

**Platform  
 Membrane Protein Structure and Folding II**

**10:45 AM - 12:45 PM, ROOM 515B**

**Co-Chairs**  
*Timothy Cross, Florida State University*  
*Janice Robertson, University of Iowa*

**951-PLAT 10:45 AM**  
 MEASURING REVERSIBLE CLC-EC1 DIMERIZATION IN MEMBRANES BY SINGLE MOLECULE PHOTOBLEACHING. **Rahul Chadda**, Larry Friedman, Mike Rigney, Luci-Kolmakova Partensky, Jeff Gelles, Janice L. Robertson

**952-PLAT 11:00 AM**  
 MAPPING THE ENERGY LANDSCAPE FOR SECOND STAGE FOLDING OF A SINGLE MEMBRANE PROTEIN. **Duyoung Min**, Robert E. Jefferson, James U. Bowie, Tae-Young Yoon

**953-PLAT 11:15 AM**  
 SYNCHROTRON RADIATION CIRCULAR DICHROISM (SRCD) SPECTROSCOPY INVESTIGATIONS OF THE STRUCTURE AND ORIENTATION OF MEMBRANE PROTEINS IN ORIENTED LIPID BILAYERS. **Luke S. Evans**, Rohanah Hussain, Giuliano Siligardi, Philip T. F. Williamson

**954-PLAT 11:30 AM**  
 MECHANISMS OF ASSEMBLY AND COVALENT FLAVINYLYATION IN COMPLEX II. **Crystal Starbird**, Elena Maklashina, Sany Rajagukguk, Gary Cecchini, Tina Iverson

**955-PLAT 11:45 AM**  
 PROBING THE STRUCTURE AND BINDING OF KCNE1 TO THE VOLTAGE-GATED POTASSIUM CHANNEL KCNQ1 USING PULSED EPR SPECTROSCOPY. **Gary A. Lorigan**, Indra D. Sahu, Andrew Craig, Rongfu Zhang, Robert M. McCarrick

**956-PLAT 12:00 PM**  
 STRUCTURAL DETERMINANTS AND BINDING PROPERTIES OF THE NEURITE OUTGROWTH INHIBITOR (NOGO). **Melanie J. Cocco**, Ali Alhoshani, Verna Vu, D'Artagnan Greene

**957-PLAT 12:15 PM**  
 STRUCTURE AND DYNAMICS OF COMPLEXES OF INTERLEUKIN-8 AND ITS RECEPTOR CXCR1 IN PHOSPHOLIPID BILAYERS BY SOLID-STATE NMR. **Sang Ho Park**, Anna De Angelis, Jasmina Radoicic, Sabrina Berkamp, Zheng Long, Stanley J. Opella

**958-PLAT 12:30 PM**  
 FUNCTIONAL, DYNAMIC AND STRUCTURAL UNDERSTANDING OF M2 PROTON CHANNEL FROM INFLUENZA A AND ITS INHIBITION. **Timothy A. Cross**, Riqiang Fu, E. Vindana Ekanayake, Yimin Miao, Joana Paulino, Wright Anna, Jian Dai, Huan-Xiang Zhou

### Platform Cytoskeletal Motor Proteins 10:45 AM - 12:45 PM, ROOM 501ABC

**Co-Chairs**  
*Carolyn Moores, Birkbeck College, United Kingdom*  
*Jing Xu, University of California, Merced*

**959-PLAT 10:45 AM**  
 ON THE FORCE-GENERATING CAPACITY OF DISASSEMBLING MICROTUBULES. Jonathan W. Driver, Elisabeth Geyer, Luke M. Rice, **Charles L. Asbury**

**960-PLAT 11:00 AM**  
 A STRUCTURAL MODEL OF THE MITOTIC KINESIN-6 MECHANOCHEMICAL CYCLE. Joseph Atherton, I-Mei Yu, Steven S. Rosenfeld, Anne Houdusse, **Carolyn A. Moores**

**961-PLAT 11:15 AM** EDUCATION TRAVEL AWARDEE  
 KINETICS OF NUCLEOTIDE-DEPENDENT STRUCTURAL TRANSITIONS IN THE KINESIN-1 HYDROLYSIS CYCLE. **Keith J. Mickolajczyk**, Nathan C. Deffenbaugh, Jaime Ortega-Arroyo, Joanna Andrecka, Philipp Kukura, William O. Hancock

**962-PLAT 11:30 AM**  
 DIRECT OBSERVATION OF THE ALLOSTERIC CONFORMATIONAL CHANGE OF KINESIN-1 USING GOLD NANOROD AND ITS IMPLICATION FOR HEAD-HEAD COORDINATION. Yamato Niitani, Sawako Enoki, Hiroyuki Noji, Ryota Iino, **Michio Tomishige**

**963-PLAT 11:45 AM**  
 IMPACTS OF MICROTUBULE STRUCTURAL DEFECTS ON KINESIN-BASED TRANSPORT. Winnie H. Liang, Qiaochu Li, K Faysal, Stephen J. King, Ajay Gopinathan, **Jing Xu**

**964-PLAT 12:00 PM**  
 ENGINEERING NOVEL ACTIN-BASED MOLECULAR MOTORS FROM THE MICROTUBULE-BASED MOTOR DYNEIN. Akane Furuta, Kazuhiro Oiwa, Hiroaki Kojima, **Kenya Furuta**

**965-PLAT 12:15 PM**  
 TWO LEVELS OF MYOSIN-IIA DYNAMICS IN CELLS: TURNOVER OF FILAMENTS AND SELF-ORGANIZATION OF FILAMENT STACKS. **Shiqiong Hu**, Kinjal Dasbiswas, Zhenhuan Guo, Yee-Han Tee, Visalatchi Thiagarajan, Ronen Zaidel-Bar, Pascal Hersen, Samuel Safran, Alexander D. Bershadsky

**966-PLAT 12:30 PM**

AN OPTOGENETIC METHOD FOR CONTROLLING FULL-LENGTH MYOSIN VI THROUGH ITS CARGO BINDING DOMAIN. **Alexander R. French**, Ronald S. Rock, Tobin R. Sosnick

### Platform Single-Molecule Spectroscopy 10:45 AM - 12:45 PM, ROOM 511ABC

**Co-Chairs**  
*Victoria Birkedal, Aarhus University, Denmark*  
*Sonja Schmid, University of Freiburg, Germany*

**967-PLAT 10:45 AM**  
 TESTING THE PHYSICAL THEORY OF FOLDING AS DIFFUSIVE MOTION OVER AN ENERGY LANDSCAPE USING TRANSITION PATH ANALYSIS OF SINGLE-MOLECULE FOLDING TRAJECTORIES. **Krishna P. Npane**, Ajay P. Manuel, John Lambert, Michael Woodside

**968-PLAT 11:00 AM**  
 3D TRACKING SINGLE MOLECULE FLUORESCENCE ENERGY TRANSFER MEASUREMENTS. Aaron Keller, Matt DeVore, Dung Vu, Tim Causgrove, **James Werner**

**969-PLAT 11:15 AM**  
 QUANTITATIVE PROTEIN KINETICS FROM SM-FRET TIME TRACES. **Sonja Schmid**, Markus Goetz, Thorsten Hugel

**970-PLAT 11:30 AM**  
 INFLUENCE OF THE BACKGROUND IN SINGLE MOLECULE FRET TIRF MICROSCOPY. Søren Preus, Lasse Lava Hildebrandt, **Victoria Birkedal**

**971-PLAT 11:45 AM**  
 A MULTISPOT CONFOCAL PLATFORM FOR HIGH-THROUGHPUT FREELY DIFFUSING SINGLE-MOLECULE FRET STUDIES. Antonino Ingargiola, Eitan Lerner, SangYoon Chung, Angelo Gulinatti, Ivan Rech, Massimo Ghioni, Shimon Weiss, **Xavier Michalet**

**972-PLAT 12:00 PM** INTERNATIONAL TRAVEL AWARDEE  
 FARFRET: EXTENDING THE RANGE IN SINGLE-MOLECULE FRET EXPERIMENTS BEYOND 10 NM. **Georg Krainer**, Andreas Hartmann, Michael Schlierf

**973-PLAT 12:15 PM**  
 COMBINING SINGLE-MOLECULE TECHNIQUES WITH MICROFLUIDICS FOR PROTEIN ANALYSIS. **Christopher Taylor**, Tuomas Knowles, David Klenerman

**974-PLAT 12:30 PM** INTERNATIONAL TRAVEL AWARDEE  
 APPLICATION OF THE SPLIT-FLCS METHOD TO THE DETECTION OF NANOSCALE DIFFUSION IN 3D IN LIVE CELLS. **Luca Lanzano**, Lorenzo Scipioni, Melody Di Bona, Paolo Bianchini, Ranieri Bizzarri, Francesco Cardarelli, Giuseppe Vicidomini, Alberto Diaspro

### Career Center Workshop Leveraging Social Media for Networking and Career Advancement

11:30 AM - 12:30 PM, ROOM 518

More and more recruiters, job decision-makers and hiring managers are using the web to find and research potential candidates. How can you make sure that you are not only found, but are ahead of the pack? In this session, we will discuss how decision-makers use LinkedIn and Facebook, and how you can use LinkedIn to establish yourself as a leader in your field, enhance your research reputation, and seek out and take advantage of innovative opportunities. We will demonstrate how to create a winning LinkedIn profile, and how to use its multitude of features (such as joining and commenting in groups) to generate solid leads for your career.

## Exhibitor Presentation Asylum Research, an Oxford Instruments Company

11:30 AM - 1:00 PM, ROOM 505

### Soft, Sticky, and Viscous: Practical Considerations for Measuring Cell Mechanics with AFM

The atomic force microscope (AFM) has found broad use in the investigation of cell mechanics, with numerous studies of cell stiffness and modulus dating back over a decade. Because AFM can quantitatively measure the mechanical properties of individual live cells, novel insights to cell function and to cell-substrate interactions have been realized. This is pertinent for cell biology, as it has been demonstrated that the geometrical and mechanical properties of the extracellular microenvironment are important in such processes as cancer, cardiovascular disease, muscular dystrophy, and even the control of cell life and death. Indeed, the ability to control and quantify these external geometrical and mechanical parameters now arises as a key issue in the field and AFM seems poised to play a prominent role in building that understanding.

The use of AFM in this field presents unique challenges and opportunities. Some of the most important considerations are because many of the AFM techniques used here have largely been borrowed from those first developed for materials science. This is simultaneously a success of interdisciplinary research and an opportunity to further tailor measurements to cells and biological materials, which have some fundamentally different characteristics compared to polymers. Most dramatically, cells are far “softer” than polymers, usually at least 100× lower in modulus than even soft rubbers and easily 10,000× lower in modulus than some common plastics. Further, cells are usually quite “sticky,” leading to large adhesion to the AFM tip that can complicate measurements. Finally, cells are often strongly viscoelastic, exhibiting not just elastic deformation described by the elastic modulus but also a viscous response that depends on the velocity of the deformation- and this mechanical component can sometimes be lost or ignored in certain experimental setups and techniques. In fact, this viscous response may prove just as enlightening to cell mechanics as the elastic response more commonly measured alone until recently. This talk will discuss these important issues that must be considered when AFM techniques are applied to cells and other biological materials.

#### Speaker

Sophia Hohlblauch, Asylum Research, an Oxford Instruments Company

## Exhibitor Presentation Nanion Technologies GmbH

12:30 PM - 2:00 PM, ROOM 513

### Ion Channel Drug Discovery - Beyond the Bottlenecks and Ready for CiPA

Nanion Technologies is one of the leading providers of automated patch clamp systems, offering a diverse product portfolio ranging from single channel recordings to HTS-compatible ion channel drug discovery. During this workshop, we will show how to push the boundaries of patch clamp-based ion channel high throughput screening projects of various voltage- and ligand gated targets, and how to get ready for CiPA-compliant safety screening going well beyond hERG.

Cardiac arrhythmic risk assessment is a hot topic these days calling for new screening strategies. With the CiPA-initiative, the panel of cardiac ion channels to consider have drastically expanded, consequently requiring increased data throughput for early compound safety prediction.

The *SynroPatch 384/768PE*, an automated patch clamp platform recording from up to 768 cells simultaneously, allows the highest data throughput on the market supporting HTS of ion channel active compounds and early safety assessment on cardiac channels. Examples will be shown,

where six different cardiac channels were recorded using one single plate, in one single run.

*Patchliner*, a medium-throughput APC platform, supports automated current clamp recordings, experiments at physiological temperatures, and a minimal cell usage, making it the ideal partner for safety testing on stem cell derived cardiomyocytes. Additionally, the *CardioExcyte 96*, a hybrid system combining impedance-based and EFP recordings from beating cardiomyocyte networks from 96 recording wells in parallel, has proven a versatile tool for safety and toxicity screening applications serving as a powerful tool complementing APC.

The *SURFE2R* technology allows direct and functional measurements electrogenic transporter. Hands-on experiments on the *SURFE2R* will be shown. Also membrane fragments from Chantest, a Charles River company, will be used.

Join our workshop to learn more about new safety screening strategies and how to keep up with the increasing demands on cardiac safety and toxicity screening.

#### Speakers

Maria Barthmes, Nanion Technologies GmbH  
Andrea Brüggemann, Nanion Technologies GmbH  
Niels Fertig, Nanion Technologies GmbH  
Markus Rapedius, Nanion Technologies GmbH

## NSF Grant Writing Workshop

1:00 PM - 3:00 PM, ROOM 403B

Putting your best foot forward in your grant proposal is key to securing funding for research. Program officers past and present from the National Science Foundation will walk attendees through the process and provide tips on how to prepare the best possible proposal during this session, sponsored by the Public Affairs Committee.

#### Panelists

Gary Pielak, University of North Carolina at Chapel Hill  
Kamal Shukla, NSF

## Industry Panel

1:30 PM - 3:00 PM, ROOM 411

Are you interested in learning about science in industry? Stop by to hear from a panel of experts who work in bio-related industries. The panel will provide guidance on techniques and skill sets that are sought after in industry and discuss ideas on how to incorporate industry relevant techniques in academic research.

#### Panel Chair

Anita Niedziela-Majka, Gilead Sciences Inc  
Speakers to be announced

## Exhibitor Presentation KinTek Corp

1:30 PM - 3:00 PM, ROOM 505

### Why You Should Fit Kinetic and Equilibrium Binding Data Using KinTek Explorer Software

*KinTek Explorer* software offers the fastest, most dynamic and robust method of fitting kinetic or equilibrium binding data. Based on fast numerical integration of rate equations, data are fit without the often-inaccurate approximations needed to derive equations. Rather than fitting data to extract “observed rates” or Eigenvalues, which must be then interpreted in second step, *KinTek Explorer* yield rate and equilibrium constants directly while accounting for both the rate and amplitude of observable reactions. By modeling the experiments exactly as

performed, all details of the experimental setup are included, eliminating errors in interpretation. Moreover, multiple experiments can be fit simultaneously to a single unifying model. Fast dynamic simulation using proprietary methods for numerical integration allows you to explore parameter space and learn kinetics. Don't be fooled by other vendors pretending to do the same. Only *KinTek Explorer* offers such robust and dynamic data fitting.

In this presentation, Professor Johnson will introduce the theory and operation of the software to show you how easy it is to fit data to any model you care to input. Examples of experiments that can be fit include: transient and single turnover stopped-flow kinetics, steady state kinetics, slow onset inhibition, equilibrium titrations, rapid-quench-flow kinetics, temperature dependence, voltage-dependent rate constants. In addition time-resolved absorbance or fluorescence and pH-dependent spectra can be analyzed by singular value decomposition to yield spectra and time- or pH-dependence of each species. In addition to describing *KinTek Explorer's* basic features, Johnson will introduce new features and will be available to help you to fit your own data. Learn about what you are missing in your own data fitting.

#### Speaker

Kenneth A Johnson, President, KinTek Corporation; Professor of Biochemistry, University of Texas at Austin

## Biophysics 101 Forster Resonance Energy Transfer

1:30 PM - 3:00 PM, ROOM 409AB

Forster Resonance Energy Transfer (FRET) is widely used to study protein structure and protein in vitro and in vivo, in molecular ensembles and in single molecules. The utility of FRET comes from its ability to resolve distances that are smaller than the diffraction limit of light, in the 20 to 100 Angstrom range. This year's "Biophysics 101" session will include two lectures on FRET that highlight the power and the limitations of the technique.

#### Presenters

Kalina Hristova, Johns Hopkins University  
Steven Vogel, NIH

## Snack Break

1:45 PM - 3:00 PM, WEST HALL

## Poster Presentations and Late Posters

1:45 PM - 3:45 PM, WEST HALL

## How to Get Your Scientific Paper Published

2:15 PM - 3:45 PM, ROOM 408B

This panel discussion, sponsored by the Publications Committee, will focus on the practical issues involved in publishing a scientific paper. The panelists have extensive experience in writing, reviewing, and editing papers, and will provide information on the dos and don'ts of submitting research manuscripts. Discussions will focus on strategies to avoid common pitfalls, how to prevent and fix problems before submission, and how to respond to critiques and even rejection of a paper. Attendees are encouraged to ask questions during the session.

#### Panelists

William Hancock, Pennsylvania State University  
William Kobertz, University of Massachusetts  
Elizabeth Komives, University of California, San Diego  
Leslie Loew, University of Connecticut

#### Moderator

Catherine A. Royer, Rensselaer Polytechnic Institute

## Speed Networking

2:30 PM - 3:30 PM, ROOM 407

Career development and networking is important in science, but can be a big time commitment. Here we offer refreshments and the chance to speed network, an exciting way to connect with a large number of biophysicists in a short amount of time. Early career scientists can use the opportunity to discuss career goals and challenges, get advice on tenure or grant writing, find out how to gain recognition, or network for your next job. Mid-career and more experienced scientists can use the opportunity to find a postdoc, learn how to get more involved in the society, or network for possible reviewers for papers. We will introduce everyone, and then give time for short 3-5 minute meetings with a new contact. During this time you can exchange information and ask questions. Then when time is up, you select the next person to talk to. By the end of the event, each participant will have meaningful interactions with over half a dozen colleagues and the opportunity to meet many more. It's that simple!

## Career Center Workshop Selling Yourself to the Life Sciences Industry

2:30 PM - 3:30 PM, ROOM 518

The industrial employer is looking for a different set of skills and attitudes than either the academic or government employer. Learn what the pharmaceutical/biotechnology industries want to hear from potential employees and why. Learn how to develop and best position your marketing message in order to improve the chances of a successful industrial job search.

## Hiring, Firing, and Beyond How to Be an Effective Supervisor

2:30 PM - 4:00 PM, ROOM 408A

Do you find personnel and conflict management a formidable challenge as a supervisor? Come join us at this session, sponsored by the Committee for Professional Opportunities for Women, where a panel of new and seasoned PIs share their experiences in setting up and running a successful team in academia and industry.

#### Speakers

Dorothy Beckett, University of Maryland  
Kelly Knee, Pfizer  
Prithwish Pal, Illumina  
Rohit Pappu, Washington University in St. Louis  
Rajini Rao, Johns Hopkins University  
Joanna Swain, Bristol-Myers Squibb

## The Science of Hollywood

2:30 PM - 4:00 PM, ROOM 403A

The portrayal of scientists and science in popular media can play an important role in shaping the public's opinion about scientific issues. Whether a big box office feature like *Jurassic World*, an animated feature like *Inside Out*, or a sitcom like the *Big Bang Theory*, getting the science right requires experts in the pertinent field to weigh in. At this session, sponsored by the Public Affairs Committee, hear panelists discuss the role scientists play in the developing storylines involving scientists for movies and television, why sometimes even the best intentions do not result in an accurate representation, and what scientists can learn about communicating their work from Hollywood.

#### Moderator

Rick Loverd, Program Director, Science and Entertainment Exchange

#### Panelists

Amy Berg, Film/TV Writer and Executive Producer  
Jessica Cail, Professor of Psychopharmacology, Pepperdine University  
Mike Ireland, Senior Vice President, Production, 20th Century Fox  
Clifford Johnson, University of Southern California Department of Physics and Astronomy



## Exhibitor Presentation Renishaw Inc

2:30 PM - 4:00 PM, ROOM 513

### Innovative Raman Imaging in the Life Sciences

When light illuminates a sample, most of it scatters without changing. A tiny fraction of the light however is Raman scattered. The Raman scattered light excites the phonons in the samples and produces a spectrum. This spectrum tells us how the atoms are vibrating, providing a chemical fingerprint which allows identification of the sample. Raman spectroscopy produces chemical and structural information to help us understand more about the material being analyzed. The ability to probe the chemical and molecular structure of biological materials is obtained directly without the need for any dyes or markers. These systems can be utilized to generate chemical images of cells, tissue, bone and bio-compatible materials with very high spatial resolution. It has been employed for cancer diagnosis, stem cell differentiation, skin treatments, protein structure analysis, bio-diagnostics and bacterial identification.

Renishaw's inVia confocal Raman microscope can be integrated with other instruments, such as atomic force microscopy (AFM) and scanning electron microscopy (SEM), to provide Raman analysis from the same point on the sample. This talk will provide an introduction to Raman microscopy with biological materials, the instrumentation required for these techniques and will highlight some applications where Raman microscopy is making the biggest impact with biological materials.

### Speakers

Tim Prusnick, USA Sales Manager SPD, Renishaw Inc  
Andrew King, Regional Sales Manager - West Coast, Renishaw Inc  
Mark Canales, Field Applications Specialist (Life Science) Spectroscopy Products Division, Renishaw Inc

## Membership Committee Meeting

3:00 PM - 5:00 PM, ROOM 506

## Exhibitor Presentation Bruker Nano Surfaces

3:30 PM - 5:00 PM, ROOM 505

### Advances in Live Super-Resolution Imaging Using the Vutara 352 Microscope

Super-resolution microscopy has made a significant impact in the field of biological imaging by enabling a ten-fold improvement in spatial resolution over traditional light microscopy techniques. Most of the imaging has been so far targeted at fixed specimens with a few live cell applications. The Vutara 352 microscope has been engineered towards live-cell imaging by enhancing spatial and temporal resolution in single molecule localization super-resolution. The sCMOS detector in the Vutara 352 enables imaging at 800 fps at full ROI and at video frame rates at reduced ROI. Two color simultaneous imaging can be applied in both super-resolution live cell and 3D particle tracking experiments. The biplane based detection path enables imaging thicker samples such as whole mount *Drosophila* and offers deeper penetration into tissues. The Vutara 352 also includes real time localization along with several statistical and live cell analysis features for processing data. In summary, the Vutara 352 microscope is a powerful super-resolution imaging and analysis tool.

### Speaker

Manasa Gudheti, Applications Scientist at Bruker – Fluorescence Microscopy Business

## Career Center Workshop Successfully Navigating the International Job Search

4:00 PM - 5:00 PM, ROOM 518

Applying for a job in one country while finishing up your education and training in another can be challenging, but it can be done with success. In this workshop we will discuss specific strategies to finding jobs in another country while one is abroad and how to leverage your networks in-country to access opportunities, especially those that are hidden. Special emphasis will be placed on establishing your reputation as a leader in your field with professionals in the country or region in which you wish to work. Case studies will be shared.

## Symposium

### Molecular Mechanisms of Mechanosensation

4:00 PM - 6:00 PM, PETREE HALL C

#### Chair

*Robert Fettiplace, University of Wisconsin-Madison*

#### 975-SYMP 4:00 PM

GLOBAL AND SPECIFIC INTERACTIONS BETWEEN MECHANOSENSITIVE ION CHANNELS AND THE LIPID BILAYER. **Boris Martinac**

#### 976-SYMP 4:30 PM

SINGLE MOLECULE FORCE SPECTROSCOPY OF HAIR-CELL TIP-LINK PROTEINS. Mounir A. Koussa, Andrew Ward, Marcos Sotomayor, Wesley P. Wong, **David P. Corey**

#### 977-SYMP 5:00 PM

LOCALIZATION OF ANOMALOUS MECHANO-SENSITIVE ION CHANNELS IN COCHLEAR HAIR CELLS. Maryline Beurg, Adam Goldring, **Robert Fettiplace**

#### NO ABSTRACT 5:30 PM

STRUCTURE AND CHEMICAL BIOLOGY OF MECHANOSENSITIVE K2P CHANNELS. **Daniel L. Minor**

## Symposium

### Folding Rates and Routes

4:00 PM - 6:00 PM, PETREE HALL D

#### Chair

*Jane Clarke, University of Cambridge, United Kingdom*

#### 978-SYMP 4:00 PM

ASSESSING AND MANIPULATING PROTEIN FOLDING DYNAMICS. **Feng Gai**

#### NO ABSTRACT 4:30 PM

COUPLED PROTEIN FOLDING AND BINDING REACTIONS: MECHANISMS AND SPEED LIMITS. **Thomas Kiefhaber**

#### 979-SYMP 5:00 PM

IMPACTS OF CHARGE PATTERNING ON INTRINSICALLY DISORDERED PROTEINS AND MECHANISMS OF DISORDER-TO-ORDER TRANSITIONS. **Rohit V. Pappu**

#### 980-SYMP 5:30 PM

THE ROLE OF DISORDER IN PROTEIN FOLDING. **Jane Clarke**

## Symposium

### Expanding Horizons in Biophysics and Medical Physics

4:00 PM - 6:00 PM, ROOM 502A

#### Chair

*Robert Jeraj, University of Wisconsin- Madison*

**981-SYMP 4:00 PM**

INTERPLAY BETWEEN MOLECULAR IMAGING AND TUMOR MODELING OF ANTI-ANGIOGENIC THERAPIES. **Robert Jeraj**

**982-SYMP 4:30 PM**

CHERENKOV IMAGING OF RADIATION DOSE AND MOLECULAR SIGNALING IN VIVO. **Brian Pogue**

**NO ABSTRACT 5:00 PM**

THE ROLE OF PHYSICS IN DRIVING PRECISION IN CANCER MEDICINE. **David Jaffray**

**983-SYMP 5:30 PM**

CELL ADHESION STRENGTH IS REDUCED BY THE PRESENCE OF PERICELLULAR MATRIX PATCHES. **Jennifer Curtis**, Patrick Chang, Louis McLane, Jan Scrimgeour, Michelle Truong, Ruth Fogg, Dennis Zhou, Andres J. Garcia

### Platform

#### Cell Mechanics, Cytoskeleton, and Motility

4:00 PM - 6:00 PM, ROOM 502B

#### Co-Chairs

*Wylie Ahmed, Institut Curie, France*

*Jennifer Ross, California Pacific Medical Center*

**984-PLAT 4:00 PM**

FORCE SPECTROSCOPY OF EXTENSILE MICROTUBULE BUNDLES. **Feodor Hilitski**, Zvonimir Dogic

**985-PLAT 4:15 PM**

SINGLE-MOLECULE IMAGING TAU DYNAMICS ON THE MICROTUBULE SURFACE: EFFECTS OF PHOSPHOREGULATION. **Miranda Redmond**, Gregory Hoerprich, Jamie Stern, Lynn Chrin, Christopher L. Berger

**986-PLAT 4:30 PM**

COMPLEXES MADE BETWEEN MICROTUBULES, MOTOR PROTEINS, AND ANTIPARALLEL CROSSLINKERS PRODUCE DYNAMIC INTERACTIONS. **Kasimira T. Stanhope**, Vikrant Yadav, Jennifer Ross

**987-PLAT 4:45 PM**

ACTIVE MECHANICS IN LIVING OOCYTES REVEAL MOLECULAR-SCALE FORCE KINETICS. **Wylie Ahmed**, Etienne Fodor, Maria Almonacid, Matthias Bussonnier, Marie-Helene Verlhac, Nir Gov, Paolo Visco, Frederic van Wijland, Timo Betz

**988-PLAT 5:00 PM**

NANOSCALE ORGANIZATION OF THE ACTOMYOSIN CORTEX DURING THE CELL CYCLE. **Priyamvada Chugh**, Andrew G. Clark, Matthew B. Smith, Davide A. D. Cassani, Guillaume Charras, Guillaume Salbreux, Ewa K. Paluch

**989-PLAT 5:15 PM**

ROTATIONAL MEASUREMENTS AND MANIPULATIONS OF THE BACTERIAL FLAGELLAR MOTOR. **Ashley L. Nord**, Richard M. Berry, Francesco Pedaci

**990-PLAT 5:30 PM**

UNITARY STEPS OF SUPERMOLECULAR MOTILITY MACHINERIES IN GLIDING BACTERIA AND SWIMMING ARCAEA. Yoshiaki Kinosita, Nakane Daisuke, Nariya Uchida, Makoto Miyata, **Takayuki Nishizaka**

**991-PLAT 5:45 PM**

THE FLAGELLAR MOTOR OF CAULOBACTER CRESCENTUS GENERATES MORE TORQUE WHEN A CELL SWIMS BACKWARD. **Pushkar Lele**, Howard Berg

### Platform

#### Bioengineering and Biotechnology

4:00 PM - 6:00 PM, ROOM 515A

#### Co-Chairs

*Danielle France, NIST*

*Brigitte Papahadjopoulos-Sternberg, NanoAnalytical Laboratory*

**992-PLAT 4:00 PM**

LIGHT-ACTIVATED PHOTO PROTECTION IN AN ARTIFICIAL ANTENNA SYSTEM. **Alessio Andreoni**, Su Lin, Haijun Liu, Hao Yan, Robert E. Blankenship, Neal W. Woodbury

**993-PLAT 4:15 PM**

STEPS FOR CONSTRUCTING SYNTHETIC MEMBRANE CURVATURE-INDUCING DNA ORIGAMI SCAFFOLDS. **Alena Khmelinskaia**, Henri G. Franquelim, J. Philippe Sobczak, Hendrik Dietz, Petra Schwille

**994-PLAT 4:30 PM**

DISSECTION OF MELANOMA DRUG RESISTANCE AND HETEROGENEITY USING LIVE CELL INTERFEROMETRY. **Dian Huang**, Thomas A. Zangle, Michael A. Teitell

**995-PLAT 4:45 PM**

FREEZE-FRACTURE ELECTRON MICROSCOPY ON NANO- AND MICRO-DELIVERY VEHICLES FOR BIOLOGICAL ACTIVE COMPOUNDS. **Brigitte Papahadjopoulos-Sternberg**

**996-PLAT 5:00 PM**

COMPUTATIONAL AND EXPERIMENTAL CHARACTERIZATION OF NOVEL BOLAAMPHIPHILES AS RNA NANOSTRUCTURE DELIVERY AGENTS. **Wojciech K. Kasprzak**, Taejin Kim, Kirill A. Afonin, Kshitij Gupta, Mathias Viard, Anu Puri, Bruce A. Shapiro

**997-PLAT 5:15 PM**

X-RAY CONTROLLED DRUG RELEASE FROM LIPOSOMES. **Daniel Folegea**, Greg Salamo, Ralph Henry, Michael J. Borrelli, Peter Corry

**998-PLAT 5:30 PM**

RAPID ANTIMICROBIAL SUSCEPTIBILITY TESTING THROUGH PHASE NOISE MEASUREMENTS OF CELLULAR BIOPHYSICS. **Danielle France**, Ward Johnson, William Cordell, Fred Walls

**999-PLAT 5:45 PM**

LENGTH- AND SPECIES-SELECTIVE DETECTION OF SHORT OLIGONUCLEOTIDES USING A MICROELECTRODE CAVITY ARRAY OF BIOLOGICAL NANOPORES. Ibrahim Halimeh, Chan Cao, **Gerhard Baaken**, Yi-Tao Long, Jan C. Behrends

### Platform

#### Ligand-gated Channels

4:00 PM - 6:00 PM, ROOM 515B

#### Co-Chairs

*Derek Bowie, McGill University, Canada*

*Robert Oswald, Cornell University*

**1000-PLAT 4:00 PM**

FUNCTIONAL MECHANISMS OF DESENSITIZATION IN AMPA RECEPTORS. **Hector Salazar**, Andrew J. Plested

**1001-PLAT 4:15 PM**

INVESTIGATING IGLUR DESENSITISATION WITH STEERED MOLECULAR DYNAMICS SIMULATIONS. **Maria Musgaard**, Philip C. Biggin

**1002-PLAT 4:30 PM**  
MECHANISM OF AMPA RECEPTOR GATING RE-SHAPED BY AUXILIARY PROTEINS. **George B. Dawe**, Derek Bowie

**1003-PLAT 4:45 PM**  
SENSING ALLOSTERIC MODULATOR BINDING TO AMPA RECEPTORS AT THE GLUTAMATE-BINDING SITE. **Christopher P. Ptak**, Ahmed H. Ahmed, Robert E. Oswald

**1004-PLAT 5:00 PM**  
ACID SENSING ION CHANNELS ARE UNIQUELY TUNED TO FOLLOW HIGH FREQUENCY 'SYNAPTIC' STIMULI. **David M. MacLean**, Vasanthi Jayaraman

**1005-PLAT 5:15 PM**  
HUMAN  $\alpha 1$  GLYCINE RECEPTOR ALLOSTERY AS IDENTIFIED BY STATE-DEPENDENT CROSSLINKING STUDIES. **Michael Cascio**, Rathna J. Veeramachaneni, Jeffrey Madura

**1006-PLAT 5:30 PM**  
CRYSTAL STRUCTURE OF HUMAN GLYCINE RECEPTOR- $\alpha 3$  BOUND TO ANTAGONIST STRYCHNINE. **Xin Huang**

**1007-PLAT 5:45 PM**  
MOLECULAR DETERMINANTS OF PARTIAL AGONIST AFFINITY IN ADULT NEUROMUSCULAR ACETYLCHOLINE RECEPTORS. **Iva Bruhova**, Anthony Auerbach

## Platform Protein-Small Molecule Interactions

4:00 PM - 6:00 PM, ROOM 501ABC

### Co-Chairs

*Alex Dickson, Michigan State University*

*Giulia Palermo, École Polytechnique Fédérale de Lausanne, Switzerland*

**1008-PLAT 4:00 PM**  
2-DEOXY-ATP ENHANCES MULTIPLE KINETIC PARAMETERS TO IMPROVE CARDIAC FUNCTION. **Ivan B. Tomasic**, Marcus Henze, Ferdinand Evangelista, Anu R. Anto, Hector Rodriguez, Sadie R. Bartholomew

**1009-PLAT 4:15 PM**  
EXAMINATION OF CLPB QUATERNARY STRUCTURE AND LINKAGE TO NUCLEOTIDE BINDING. **JiaBei Lin**, Aaron L. Lucius

**1010-PLAT 4:30 PM**  
THUMB SITE 2 INHIBITORS OF HEPATITIS C VIRAL RNA-DEPENDENT RNA POLYMERASE ALLOSTERICALLY BLOCK THE TRANSITION FROM INITIATION TO ELONGATION. **Jiawen Li**, Daniel Deredge, Patrick L. Wintrobe, Kenneth A. Johnson

**1011-PLAT 4:45 PM**  
MOLECULAR SIMULATIONS INTEGRATED WITH EXPERIMENTS UNRAVEL THE KEY FACTORS OF LIPID SELECTION IN FATTY ACID AMIDE HYDROLASE AND SUGGEST A GENERAL MECHANISM OF LIPID-PROCESSING IN THE PARENT ENZYMES. **Giulia Palermo**, Inga Bauer, Pablo Campomanes, Andrea Cavalli, Andrea Armirotti, Stefania Giroto, Marco De Vivo, Ursula Rothlisberger

**1012-PLAT 5:00 PM**  
CURCUMIN-LIKE COMPOUNDS DESIGNED TO MODIFY AMYLOID BETA PEPTIDE AGGREGATION PATTERN. **Maria Grazia Ortore**, Antonella Battisti, Ranieri Bizzarri, Donatella Bulone, Claudio Ferrero, Francesco Ghetti, Valentina Giacalone, Antonino Lauria, Maria Rosalia Mangione, Antonella Marino Gammazza, Caterina Ricci, Antonella Sgarbossa, Francesco Spinazzi, Silvia Vilasi, Antonio Palumbo Piccionello

**1013-PLAT 5:15 PM**  
IN SILICO STUDY ON THE LIGAND-BINDING AND ACTIVATION MECHANISMS OF THE HUMAN DOPAMINE D3 RECEPTOR. **Wei-Hsiang Weng**, Hao-Jen Hsu

**1014-PLAT 5:30 PM**  
MIMICKING PROTEIN FUNCTIONS WITH ENTROPICALLY CONSTRAINED PEPTIDES. **Blake Farrow**, Andrew G. Wang, David N. Bunck, James R. Heath

**1015-PLAT 5:45 PM**  
LIGAND RESIDENCE TIMES AND EXIT PATHWAYS OBTAINED IN SILICO WITHOUT BIASING FORCES. **Alex Dickson**

## Platform Protein-Lipid Interactions I

4:00 PM - 6:00 PM, ROOM 511ABC

### Co-Chairs

*Oliver Soubias, NIH*

*Stephanie Tristram-Nagle, Carnegie Mellon University*

**1016-PLAT 4:00 PM**  
PENETRATION OF HIV-1 TAT47-57 INTO PC/PE BILAYERS ASSESSED BY MD SIMULATION AND X-RAY SCATTERING. Chris Neale, Kun Huang, Angel E. Garcia, **Stephanie Tristram-Nagle**

**1017-PLAT 4:15 PM**  
INVESTIGATING THE INTERACTIONS OF PERIPHERAL MEMBRANE PROTEINS WITH MODEL MEMBRANES USING HIGH THROUGHPUT MOLECULAR DYNAMICS SIMULATIONS. **Antreas C. Kalli**, Eiji Yamamoto, Fiona B. Naughton, Mark S.P. Sansom

**1018-PLAT 4:30 PM**  
ELUCIDATING THE MECHANISM FOR STEROL REGULATION OF CHLORIDE INTRACELLULAR ION CHANNEL PROTEIN INTERACTIONS WITH LIPID MEMBRANES. **Khondker R. Hossain**, Heba Al Khamici, Stephen A. Holt, Stella M. Valenzuela

**1019-PLAT 4:45 PM**  
TRANSIENT EFFECT OF CALCIUM INFLUX ON PIP2 CLUSTERS IN THE INNER PLASMA MEMBRANE LEAFLET OF INTACT CELLS. **Weixiang Jin**, Arnd Pralle

**1020-PLAT 5:00 PM**  
ELUCIDATING GPCR FUNCTIONAL DEPENDENCE ON PLASMA MEMBRANE COMPOSITION USING GIANT UNILAMELLAR PROTEIN-VESICLES. **Mary Gertrude L. Gutierrez**, Kylee Mansfield, Noah Malmstadt

**1021-PLAT 5:15 PM**  
CONTROLLING GPCR RHODOPSIN FUNCTION BY SMALL, PHYSIOLOGICALLY RELEVANT CHANGES IN BILAYER HYDROPHOBIC THICKNESS. **Olivier Soubias**, Alexander J. Sodt, Walter E. Teague, Kirk G. Hines, Klaus Gawrisch

**1022-PLAT 5:30 PM**  
CHARACTERIZATION OF CEACAM1 AND LIPID RAFT NANOCLUSTERING, ASSOCIATION AND STRUCTURE BY DSTORM AND HOMO-FRET IMAGING. **Amine Driouchi**, Maximilano Giuliani, Scott Gray-Owen, Christopher M. Yip

**1023-PLAT 5:45 PM**  
STRUCTURAL DETERMINANTS OF RAFT PARTITIONING FOR SINGLE-PASS TRANSMEMBRANE PROTEINS. **Joseph H. Lorent**, Barbara B. Diaz-Rohrer, Kandice R. Levental, Ilya Levental

## Exhibitor Presentation Molecular Devices

4:30 PM - 6:00 PM, ROOM 513

### Pushing the Performance Envelope: Evaluation of the NMDA Receptor Using Automated Electrophysiology and Fast Fluidics

Ligand gated ion channels (LGICs) mediate fast synaptic transmission in the nervous system and are highly attractive drug targets due to the pivotal role they play in many physiological functions. The N-Methyl-D-Aspartate (NMDA) receptor is a LGIC that is activated by glutamate, the primary excitatory neurotransmitter in the nervous system. Functional impairment or over-excitation of the NMDA receptor occurs in a variety of disease states, however efficient screening for compounds that target the NMDA receptor remains elusive.

Over the last decade, automated electrophysiology has become an indispensable tool for analyzing ion channel activities. Here data will be presented evaluating the fluidic performance of automated patch clamp and its impact on measurement of NMDA receptor activity. We examine channel biophysics both in the presence and absence of extracellular  $Mg^{2+}$ , calculate the  $EC_{50}$  of glutamate and the  $IC_{50}$ s of antagonists D-AP5 and Ifenprodil, and explore use-dependent blockage by MK801. We also examine differences between competitive and non-competitive inhibition models. Our studies demonstrate the robust fluidics performance of our automated electrophysiology system and its successful application to high-throughput screens and compound profiling assays targeting LGICs.

#### Speaker

Jeff Webber, Product Manager, Molecular Devices LLC

## Exhibitor Presentation Sutter Instrument

5:30 PM - 7:00 PM, ROOM 505

### Scientists Empowering Scientists

Patch clamp electrophysiology has matured from a highly specialized scientific technique to a recognized method used to address a variety of experimental questions. Sutter Instrument introduces a highly flexible, intuitive patch clamp instrumentation and software package that enables the experimenter to quickly set up and perform routine tasks, yet remains highly configurable to meet the demands of the experienced electrophysiologist.

We will demonstrate how the IPA™ Integrated Patch Amplifier and SutterPatch™ software can be used for a variety of commonly performed assays, including the characterization of an ionic current and the recording of synaptic events in tissue slices. We will also highlight how the IPA and SutterPatch software provide easy access and flexibility to perform and fine-tune the most challenging acquisition and analysis scenarios.

Building on the basic pipette pulling tutorials presented at the 2015 user meeting and a mid-year webinar, we will further teach advanced techniques that enable the user to create specialized pipette morphologies for unique applications.

There will be plenty of opportunity for discussion with hosts and speakers from the Sutter Instrument Tech Support Team.

#### Who should attend?

- Electrophysiologists who use amplifiers, micropipettes and micromanipulators for patch clamp, sharp electrode or extracellular recordings.
- Researchers who perform microinjections, including nuclear transfer, sperm injection and application of substances into cell cultures or intact organisms.

#### Speakers

Jan Dolzer, Tech Support and Product Development, Sutter Instrument  
Gregory Hjelmstad, Tech Support and Product Development, Sutter Instrument

Adair Oesterle, Tech Support Micropipette Fabrication and Microinjection, Sutter Instrument

## Awards and National Lecture

8:00 PM - 9:30 PM, CONCOURSE HALL

### Reception and Dance

9:30 PM - 12:00 AM, J.W. MARRIOTT - DIAMOND BALLROOM

Registrants are invited to attend the reception following the National Lecture. Badges will be required for admittance. Guest badges for this event are available for purchase during registration.

### Reception and Quiet Room

9:30 PM - 12:00 AM, J.W. MARRIOTT - GOLD BALLROOM

Registrants are invited to attend the reception in a more quiet atmosphere following the National Lecture. Badges will be required for admittance. Guest badges for this event are available for purchase during registration.

# MONDAY POSTER SESSIONS

1:45 PM–3:45 PM, WEST HALL

*Below is the list of poster presentations of abstracts submitted by October 1.*

*The list of late abstracts scheduled for Monday is available in the Program addendum and the posters can be viewed on boards beginning with L. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted beginning at 6:00 PM on Sunday and removed by 5:30 PM on Monday evening. Posters will be on view until 10:00 PM the night before presentation. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

<b>Board Numbers</b>	<b>Category</b>
<b>B1 – B18</b>	Protein Structure and Conformation II
<b>B19 – B47</b>	Protein Stability, Folding, and Chaperones I
<b>B48 – B72</b>	Protein Assemblies I
<b>B73 – B93</b>	Protein Dynamics and Allostery II
<b>B94 – B122</b>	Membrane Protein Structure and Folding II
<b>B123 – B137</b>	Transcription
<b>B138 – B147</b>	Ribosomes and Translation
<b>B148 – B178</b>	Protein-Nucleic Acid Interaction I
<b>B179 – B207</b>	Membrane Physical Chemistry and Membrane Dynamics
<b>B208 – B226</b>	Membrane Fusion and Non-Bilayer Structures
<b>B227 – B257</b>	Protein-Lipid Interactions I
<b>B258 – B292</b>	Calcium Signaling
<b>B293 – B313</b>	Intracellular Calcium Channels and Calcium Sparks and Waves I
<b>B314 – B335</b>	Cardiac Smooth and Skeletal Muscle Electrophysiology I
<b>B336 – B339</b>	Muscle Regulation
<b>B340 – B369</b>	Voltage-gated K Channels, Mechanisms of Voltage Sensing and Gating II
<b>B370 – B392</b>	TRP Channels I
<b>B393 – B416</b>	Ligand-gated Channels I
<b>B417 – B444</b>	Cardiac Muscle Mechanics and Structure I
<b>B445 – B469</b>	Skeletal Muscle Mechanics, Structure, and Regulation
<b>B470 – B494</b>	Cell Mechanics, Mechanosensing, and Motility II
<b>B495 – B508</b>	Mitochondrial Permeability
<b>B509 – B524</b>	Energy and Light Transducing Complexes
<b>B525 – B530</b>	Genetic Regulatory Systems
<b>B531 – B537</b>	Emerging Techniques and Synthetic Biology
<b>B538 – B555</b>	Molecular and Cellular Neuroscience
<b>B556 – B583</b>	Molecular Dynamics I
<b>B584 – B610</b>	Computational Methods and Bioinformatics I
<b>B611 – B640</b>	Biosensors I
<b>B641 – B661</b>	Biomaterials & Biosurfaces

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation II (Boards B1 - B18)

**1024-Pos BOARD B1**  
REVEALING ACTIVATION MECHANISM OF ALK2 KINASE MUTATIONS IN FIBRODYSPLASIA OSSIFICANS PROGRESSIVA (FOP). Abdelaziz Alsamarah, Jijun Hao, **Yun Luo**

**1025-Pos BOARD B2**  
A COMPARATIVE STUDY OF GAMMA SUBUNITS OF A.THALIANA AND O.SATIVA. **Bihter Avsar**, Ines Karmous, Ersoy Colak, Zehra Sayers

**1026-Pos BOARD B3**  
STRUCTURAL AND FUNCTIONAL BASIS OF ALTERNATIVE ESCRT-0 PROTEIN COMPLEXES. Shuyan Xiao, Xiaolin Zhao, Wen Xiong, Mary K. Brannon, Kristen Fread, Jeffrey Ellena, John Bushweller, Carla V. Finkielstein, Geoffrey Armstrong, **Daniel G. Capelluto**

**1027-Pos BOARD B4**  
INSIGHTS INTO THE AUTOINHIBITION MECHANISM OF THE TIAM1 GUANINE NUCLEOTIDE EXCHANGE FACTOR. **Zhen Xu**, Lokesh Gakhar, Elizabeth Boehm, Todd Washington, Maria Spies, Ernesto J. Fuentes

**1028-Pos BOARD B5**  
STRUCTURES OF HUMAN PHOSPHOFRUCTOKINASE-1 AND ATOMIC BASIS OF CANCER-ASSOCIATED MUTATIONS. **Bradley Webb**, Farhad Forouhar, Fu-En Szu, Jayaraman Seetharaman, Liang Tong, Diane Barber

**1029-Pos BOARD B6**  
COMPARISON OF THE ENERGETICS OF HISTONE PEPTIDE BINDING AMONG HISTONE READERS. **Suvobrata Chakravarty**, Francisca Essel, Tao Lin

**1030-Pos BOARD B7**  
SIMULATING MTOR HYPERACTIVATING MUTATIONS TO UNDERSTAND FUNCTIONALLY SIGNIFICANT STRUCTURAL REARRANGEMENTS. **Steven Albanese**, Jianing Xu, James Hsieh, John D. Chodera

**1031-Pos BOARD B8**  
PROMISCUITY AND POLYREACTIVITY OF ANTIBODIES AND THEIR BINDING MODES DURING B-CELL DIFFERENTIATION. **Franca Fraternali**, Julie Laffy, Deborah Dunn-Walters

**1032-Pos BOARD B9**  
IMPLICATION OF NATURAL POLYMORPHISM IN HINGE REGION OF HIV-1 PROTEASE ON PROTEIN CONFORMATIONS, LOCAL STRUCTURES AND BACKBONE DYNAMICS. **Zhanglong Liu**, Xi Huang, Lingna Hu, Linh Pham, Katy Poole, Yan Tang, Brian P. Mahon, Wenxing Tang, Kunhua Li, Nathan E. Goldfarb, Ben M. Dunn, Robert McKenna, Gail E. Fanucci

**1033-Pos BOARD B10**  
CATCHING EXCITED STATES IN THE ACT: FUNCTIONAL UNFOLDING IN E. COLI ADENYLATE KINASE. **Jeremy A. Anderson**, Ananya Majumdar, Vincent J. Hilser

**1034-Pos BOARD B11**  
STRUCTURAL INVESTIGATION INTO CALMODULIN'S ROLE IN ACTIVATING BORDETELLA PERTUSSIS ADENYLYL CYCLASE TOXIN CYAA. **Tzvia I. Springer**, Christian Johns, Natosha L. Finley

**1035-Pos BOARD B12**  
TROPONIN STRUCTURE AND EFFECTS OF PHOSPHORYLATION AND MUTATIONS STUDIED BY MOLECULAR DYNAMICS SIMULATIONS. **Juan Eiros Zamora**, Alice Sheehan, Maria Papadaki, Andrew E. Messer, Steven B. Marston, Ian R. Gould

**1036-Pos BOARD B13**  
CALCIUM ION SIGNALING CASCADES THROUGH THE MECHANISM OF MODULATED MUTUALLY INDUCED CONFORMATION IN DOWNSTREAM PROTEINS. **Jacob Ezerski**

**1037-Pos BOARD B14**  
CONFORMATIONAL EFFECTS OF THE C-TERMINAL TAIL ON THE HUMAN NEURONAL CALCIUM SENSOR-1 PROTEIN: AN ATOMISTIC SIMULATION STUDY. **Yuzhen Zhu**, Qingwen Zhang

**1038-Pos BOARD B15**  
NMR STRUCTURAL STUDIES OF THE C-DOMAIN OF TCB2, A CALCIUM BINDING PROTEIN FROM TETRAHYMENA THERMOPHILA. **Adina M. Kilpatrick**, C. Andrew Fowler, Theodore Gurrola, Jerry E. Honts

**1039-Pos BOARD B16** EDUCATION TRAVEL AWARDEE  
MOLECULAR DYNAMICS STUDY OF DIVALENT ION COORDINATION IN EF HAND PROTEINS. **Caitlin E. Scott**, Amir N. Kucharski Jr., Peter M. Kekenes-Huskey

**1040-Pos BOARD B17**  
STRUCTURE AND STABILITY OF TIP LINK CADHERIN-23 FRAGMENTS INVOLVED IN HEARING AND DEAFNESS. **Avinash Jaiganesh**, Deryanur Kilic, Aniket Patel, Domenic Termine, Florencia Velez-Cortes, Omer Irfan Kufrevioglu, Marcos Sotomayor

**1041-Pos BOARD B18**  
INTRACELLULAR/SURFACE MOONLIGHTING PROTEINS. **Constance Jeffery**, Wangfei Wang

## Protein Stability, Folding, and Chaperones I (Boards B19 - B47)

**1042-Pos BOARD B19**  
MODELING PEPTIDE VIBRATIONS LOCAL AND PERTURBATIVE CONTRIBUTIONS. **Timothy A. Keiderling**, Ahmed Lakhani, Yue Wei, Frank Vazquez, Jan Kubelka, Petr Bour

**1043-Pos BOARD B20** EDUCATION TRAVEL AWARDEE  
AN IN VITRO INVESTIGATION OF GLOBIN FOLDING AND EXPRESSION. **Premila P. Samuel**, William Ou, George N. Phillips Jr., John S. Olson

**1044-Pos BOARD B21**  
LOSS OF PROTEIN STABILITY DUE TO FORMATION OF INTERMOLECULAR DISULFIDE BONDS UNDER THE EFFECT OF OXIDATIVE STRESS: CASE STUDY OF THE RRM2 DOMAIN FROM NEUROPATHOLOGICAL PROTEIN TDP-43. **Sevastyan O. Rabdano**, Ivan S. Podkorytov, Sergei A. Izmailov, Yulia V. Pivovarova, Alexander P. Yakimov, Tairan Yuwen, Adam Groves, Nikolai R. Skrynnikov

**1045-Pos BOARD B22**  
DISULFIDE SELECTIVITY UNDER THE CONTROL OF SECONDARY STRUCTURE IN PROTEIN FOLDING. **Kosuke Toyama**, Masaki Okumura, Shigeru Shimamoto, Yuji Hidaka

**1046-Pos BOARD B23**  
DISULFIDE BRIDGES: BRINGING TOGETHER FRUSTRATED STRUCTURE IN A BIOACTIVE PEPTIDE. **Yi Zhang**, Paramjit Bansal, David Wilson, Klaus Schulten, Norelle Daly, Martin Gruebele

**1047-Pos BOARD B24**  
CHEMICAL ACCELERATION OF DISULFIDE-COUPLED PROTEIN FOLDING. **Yuji Hidaka**, Takeyosi Nakanishi, Shigeru Shimamoto

**1048-Pos BOARD B25**  
WHEN ENZYMES AND GREEN SURFACTANTS MEET. **Jens K. Madsen**, Jørn D. Kaspersen, Kell K. Andersen, Jan S. Pedersen, Daniel E. Otzen

**1049-Pos BOARD B26**  
EXPERIMENTAL MEASUREMENT OF THE THERMODYNAMICS UNDERLYING THE SURFACE-INDUCED STRUCTURAL CHANGES OF NUCLEIC ACIDS AND PROTEINS. **Martin Kurnik**, Netzahualcóyotl Arroyo, Hui Li, Di Kang, Kevin W. Plaxco

**1050-Pos BOARD B27**

THE ROLE OF HYDRODYNAMIC INTERACTIONS IN THE RATE OF PROTEIN FOLDING. **Mohammadmehdi Ezzatabadipour**, Fabio Zegarra, Margaret Cheung

**1051-Pos BOARD B28 EDUCATION TRAVEL AWARDEE**

THE COMBINED EFFECT OF MACROMOLECULAR CROWDING AND CHEMICAL INTERFERENCE ON THE DYNAMICS OF APOAZURIN FOLDING. **Fabio C. Zegarra**, Mohammadmehdi Ezzatabadipour, Dirar Homouz, Margaret S. Cheung

**1052-Pos BOARD B29**

THERMAL STABILITY OF HUMAN SERUM ALBUMIN: THE DEPENDENCE ON THE PROTEIN CONCENTRATION, SCAN RATE, AND THE PRESENCE OF FATTY ACIDS AND LOW-WEIGHT MOLECULAR LIGANDS. Dominik Belej, Erik Sedlak, Gabriela Fabriciova, **Daniel Jancura**

**1053-Pos BOARD B30**

MODULATION OF THE KINETIC STABILITY OF IMMUNOGLOBULIN G BY SOLVENT ADDITIVES. **Erik Sedlak**, Jonas V. Schaefer, Andreas Pluckthun

**1054-Pos BOARD B31**

GLUCOSE AND TEMPERATURE EFFECT ON HUMAN SERUM ALBUMIN STRUCTURE. **Minoo Shahani**

**1055-Pos BOARD B32**

PROTECTIVE EFFECT OF PYRUVATE AGAINST RADIATION-INDUCED DAMAGE IN COLLAGENIZED TISSUES. **Yuri V. Griko**, Xiaoli Yan

**1056-Pos BOARD B33**

THE EFFECT OF HOFMEISTER IONS ON THE FOLDING PATHWAY OF CYTOCHROME C DURING THERMAL OR CHEMICAL DENATURIZATION. **Eric S. Peterson**, Sean J. Steinke, Collin A. O'Leary, Mikayla J. Freese

**1057-Pos BOARD B34**

THERMODYNAMIC FINGERPRINTS OF THE HOFMEISTER SERIES - PROTEIN INTERACTIONS WITH IONIC LIQUIDS. **Michael Senske**, Diana Constantinescu Aruxandei, Martina Havenith, Hermann Weingärtner, Christian Herrmann, Simon Ebbinghaus

**1058-Pos BOARD B35**

THERMODYNAMIC MECHANISM OF PROTEIN STABILIZATION: CROWDERS VS. OSMOLYTES. **Liel Sapir**, Daniel Harries

**1059-Pos BOARD B36**

HIGH MOLECULAR MASS CROWDERS CHANGE THE FOLDING PATHWAY OF D-GLUCOSE/D-GALACTOSE-BINDING PROTEIN. **Alexander V. Fonin**, Serge A. Silonov, Asia K. Sitdikova, Irina M. Kuznetsova, Konstantin K. Turoverov

**1060-Pos BOARD B37**

PROBING THE THERMAL STABILITY OF LYSOZYME IN CROWDED ENVIRONMENTS: TRACKING LINDEMANN CRITERION. **Marina Katava**, Guillaume Stirnemann, Simone Capaccioli, Alessandro Paciaroni, Fabio Sterpone

**1061-Pos BOARD B38**

CROWDING AND PROTEIN DIMERIZATION. **Alex J. Guseman**, Stephen T. Lanier, Gary J. Pielak

**1062-Pos BOARD B39**

PROTEIN-PROTEIN INTERACTIONS AND SECONDARY STRUCTURE AFFECT HELIX STABILITY IN CROWDED ENVIRONMENTS. **Alan van Giessen**, Bryanne Macdonald, Pho Bui

**1063-Pos BOARD B40**

INVESTIGATION ON STRUCTURAL FEATURES AND ANTIAGGREGATION PROPERTIES OF CHAPERONINS AND CHAPERON LIKE MOLECULES. Maria Rosalia Mangione, Dario Spigolon, Rosa Passantino, Rita Carrotta, Fabio Librizzi, Caterina Ricci, Maria Grazia Ortore, Annalisa Vilasi, Vincenzo Martorana, Claudia Marino, Francesco Cappello, Pier Luigi San Biagio, Donatella Bulone, **Silvia Vilasi**

**1064-Pos BOARD B41**

THE UNIQUE ROLES OF UNC-45 DOMAINS IN CHAPERONING MYOSIN FOLDING AND MODULATING MYOSIN POWERSTROKE. Paul Nicholls, Paul Bujalowski, **Andres Oberhauser**

**1065-Pos BOARD B42**

REGULATION AND QUALITY CONTROL OF ADIPONECTIN ASSEMBLY BY ENDOPLASMIC RETICULUM CHAPERONE ERP44. **Lutz Hampe**, Alok Kumar Mitra, Mazdak Radjainia

**1066-Pos BOARD B43**

SIGNATURE NETWORKS UNDERLYING UNFOLDED INTERMEDIATE OF AN OBLIGATE GROEL SUBSTRATE. **Lipi Thukral**

**1067-Pos BOARD B44**

STUDIES ON DOMAIN SPECIFIC AGGREGATION BEHAVIOR OF HUNTINGTIN EXON1. **Nitin K. Pandey**, Jose Mario Isas, Ralf Langen

**1068-Pos BOARD B45**

CONTRASTING ROLES OF ASPARAGINE AND GLUTAMINE IN THE AGGREGATION OF PRION-LIKE PROTEINS. **Yuan Zhang**, Viet Hoang Man, Christopher Roland, Celeste Sagui

**1069-Pos BOARD B46**

STRUCTURAL DETERMINANTS OF POLYGLUTAMINE PROTOFIBRILS AND CRYSTALLITES. **Viet H. Man**, Christopher Roland, Celeste Sagui

**1070-Pos BOARD B47**

FOLDING PATHWAYS OF EVOLUTIONARILY RELATED PROTEINS PROBED BY HYDROGEN EXCHANGE MASS SPECTROMETRY. **Eric Bolin**, Susan Marqusee, Shion Lim

**Protein Assemblies I (Boards B48 - B72)****1071-Pos BOARD B48**

DETERMINING UNITARY WATER PERMEABILITY OF MEMBRANE PROTEINS RECONSTITUTED INTO GIANT UNILAMELLAR VESICLES. **Danila Boytsov**, Christof Hanneschlaeger, Andreas Horner, Peter Pohl

**1072-Pos BOARD B49 EDUCATION TRAVEL AWARDEE**

REGULATION OF ALIX DURING EXOCYTIC VESICLE RELEASE AND ASSEMBLY OF ESCRT PROTEINS ON THE PLASMA MEMBRANE. **Pei-I Ku**, Saveez Saffarian

**1073-Pos BOARD B50**

FUNCTIONAL COOPERATIVITY AMONG THE SUBUNITS OF THE HOMO-TETRAMERIC AQUAGLYCEROPROTEIN GLPF. **Andreas Horner**, Danila Boytsov, Christine Siligan, Johannes Preiner, Peter Pohl

**1074-Pos BOARD B51**

SINGLE-MOLECULE STUDY OF THE OLIGOMERIC STATES OF THE M2 MUSCARINIC RECEPTOR, THE GI1 PROTEIN AND THE M2-GI1 COMPLEX. **Dennis D. Fernandes**, Rabindra V. Shivnaraine, Yuchong Li, Ji Huiqiao, Zhenfu Zhang, Brendan Kelly, Nellie Han, Fei Huang, Krishana S. Sankar, Jonathon V. Rocheleau, James W. Wells, Claudiu C. Gradinaru

**1075-Pos BOARD B52**

LIPID MEDIATED OLIGOMERIC ASSEMBLY OF THE SEROTONIN TRANSPORTER AT THE PLASMA MEMBRANE. **Andreas Anderluh**, Tina Hofmaier, Enrico Klotzsch, Oliver Kudlacek, Thomas Stockner, Harald H. Sitte, Gerhard J. Schütz

**1076-Pos BOARD B53**

PROBING THE INTERMOLECULAR INTERFACES BETWEEN CLAUDIN PROTOMERS. **Jun Zhao**, Evan Krystofiak, Cristina Fenollar Ferrer, Angela Ballesteros Morcillo, Christina van Itallie, Runjia Cui, James Anderson, Lucy Forrest, Bechara Kachar

**1077-Pos BOARD B54**  
MITOCHONDRIAL RECRUITMENT OF DRP1 BY MFF IS OPPOSED BY THE VARIABLE DOMAIN. **Ryan W. Clinton**, Rajesh Ramachandran, Jason A. Mears

**1078-Pos BOARD B55**  
SIZE, ORGANIZATION AND DYNAMICS OF SOLUBLE SQSTM1 AND LC3/ SQSTM1 COMPLEXES IN LIVING CELLS. Lewis J. Kraft, Jacob Dowler, Pallavi Manral, **Anne K. Kenworthy**

**1079-Pos BOARD B56**  
CALIBRATING SICKLE CELL DISEASE. Donna A. Yosmanovich, Maria A. Rotter, Alexey Aprelev, **Frank A. Ferrone**

**1080-Pos BOARD B57**  
ENGINEERING AN ANTI-ARRHYTHMIC CALMODULIN. **Shane D. Walton**, Hsiang-Ting Ho, Norma M. Elizaga, Jalal K. Siddiqui, Andrew J. O'Neil, Nathan A. Neilson, Andriy Belevych, Bin Liu, Przemyslaw Radwanski, Sandor Gyorke, Jonathan P. Davis

**1081-Pos BOARD B58**  
DECIPHERING CAMKII MULTIMERIZATION USING HOLOENZYME ASSEMBLY MUTANTS, FCS, AND CONCURRENT HOMO- AND HETERO-FRET ANALYSIS. Pabak Sarkar, Jithesh V. Veetil, Kaitlin Davis, Henry L. Puhl III, **Tuan A. Nguyen**, Steven S. Vogel

**1082-Pos BOARD B59**  
USE OF 2-PHOTON FLUORESCENCE CORRELATION SPECTROSCOPY TO INVESTIGATE RAT LIVER PHOSPHOFRUCTOKINASE SELF-ASSOCIATION. **David A. Holland**, Gregory D. Reinhart

**1083-Pos BOARD B60**  
FROM SINGLE MOLECULES TO SINGLE CELLS: BIOPHYSICS OF INTERACTIONS BETWEEN SMALL REGULATORS AND PROTEASOME. **Pawel A. Osmulski**, Przemyslaw Karpowicz, Elzbieta Jankowska, Matt Giletto, Theresa Lansdell, Jetze Tepe, Tim H. Huang, Maria Gaczynska

**1084-Pos BOARD B61 CPOW TRAVEL AWARDEE**  
ACTIVATION OF TOLL-LIKE RECEPTOR 5 IMMUNE SIGNALING BY HMGB1. **Nabanita Das**, Varun Dewan, Hang Hubert Yin

**1085-Pos BOARD B62**  
DESTABILIZING EFFECT OF CASPASE-9 ASSOCIATION WITH APOPTOSOME. **Jamshid Davoodi**, Sanaz Naderi, Mahboobeh Kheikhah, Najmeh Ajili, Faezeh Attaran, Somaye Sadeghzadeh

**1086-Pos BOARD B63**  
PHOTOPHYSICAL PROPERTIES OF THIOFLAVIN T. DOES IT FORM EXCIMERS WHEN INTEGRATED INTO AMYLOID FIBRILS? **Anna I. Sulatskaya**, Irina M. Kuznetsova, Konstantin Turoverov

**1087-Pos BOARD B64**  
STRUCTURAL TRANSITIONS IN UNMODIFIED AND PYROGLUTAMYLATED AMYLOID  $\beta$  PEPTIDES UPON HYDRATION BY WATER VAPOR. **Greg Goldblatt**, Jason O. Matos, Suren A. Tatulian

**1088-Pos BOARD B65**  
UNDERSTANDING AMYLOID ASSEMBLY OF NATIVELY UNFOLDED POLYPEPTIDE BY MEANS OF CONFORMATIONALLY RESTRICTED PEPTIDES. Noé Quittot, De Carufel Carole Anne, Phuong Trang Nguyen, **Steve Bourgault**

**1089-Pos BOARD B66**  
ALZHEIMER'S DISEASE: INSIGHTS INTO AMYLOID FIBRIL FORMATION FROM LATTICE MONTE CARLO SIMULATIONS. **Thanh - Thuy Tran**, Phuong H. Nguyen, Philippe Derreumaux

**1090-Pos BOARD B67**  
AMYLOID BETA-PROTEIN FIBRILS FROM HUMAN ALZHEIMER'S BRAIN TISSUE AND FROM MOUSE MODELS OF ALZHEIMER'S DIFFER IN STRUCTURES. **Hiroaki Komatsu**, Paul H. Axelsen

**1091-Pos BOARD B68**  
HYDRODYNAMIC EFFECTS ON AMYLOID- $\beta$  AGGREGATION. **Mara Chiricotto**, Simone Melchionna, Philippe Derreumaux, Fabio Sterpone

**1092-Pos BOARD B69**  
RELATIONSHIP BETWEEN AGGREGATION OF AMYLOID- $\beta$  PROTEIN ON CELLS AND CYTOTOXICITY. Naoya Itoh, Eri Takada, Yoshiaki Yano, Masaru Hoshino, **Katsumi Matsuzaki**

**1093-Pos BOARD B70**  
CURCUMIN- $\beta$ -CYCLODEXTRIN ALLOY: SYNERGISTIC EFFECT ON AGGREGATION INHIBITION OF SILK FIBROIN. **Priyanka Dubey**, Sourabh Ghosh

**1094-Pos BOARD B71**  
A MINIMALISTIC KINETIC MODEL FOR AMYLOID SELF-ASSEMBLY. **Srivastav Ranganathan**, Samir K. Maji, Ranjith Padinhateeri

**1095-Pos BOARD B72 INTERNATIONAL TRAVEL AWARDEE**  
BIOPHYSICAL INSIGHT OF DNA INDUCED AGGREGATION OF STEM BROMELAIN. **Masihuz Zaman**, Rizwan Hasan Khan

## Protein Dynamics and Allostery II (Boards B73 - B93)

**1096-Pos BOARD B73**  
ANION BINDING EXOSITES AS A TARGET TO UNDERSTAND THE ACTIVATION OF THROMBIN. **Ramya Billur**, Muriel C. Maurer

**1097-Pos BOARD B74 EDUCATION TRAVEL AWARDEE**  
NMR EXPERIMENTS ON WILD-TYPE AND MUTANT FIBROBLAST GROWTH FACTOR RECEPTOR KINASES REVEAL CONFORMATIONAL DYNAMICS ASSOCIATED WITH ENZYME ACTIVATION. **William Marsiglia**, Huaibin Chen, Min-kyu Cho, Moosa Mohammadi, Nathaniel J. Traaseth

**1098-Pos BOARD B75**  
USING STRUCTURAL AND DYNAMIC NMR ANALYSES TO DISSECT THE PATHOLOGIC FUNCTION OF A NOVEL CHEMOKINE. **Monica A. Thomas**, Francis C. Peterson, Brian F. Volkman

**1099-Pos BOARD B76**  
GLOBAL STABILIZATION OF NFKB UPON IKBA BINDING. **Kristen M. Ramsey**, Holly E. Dembinski

**1100-Pos BOARD B77**  
LIGAND INDUCED ALLOSTERY IN PSEUDOMONAS AERUGINOSA CYTOPLASMIC HEME BINDING PROTEIN (PHUS) DRIVES THE PROTEIN-PROTEIN INTERACTION WITH HEME OXYGENASE. **Daniel J. Deredge**, Weiliang Huang, Colleen Hui, Pierre Moenne-Loccoz, Angela Wilks, Patrick Wintrode

**1101-Pos BOARD B78**  
ALLOSTERY THROUGH PROTEIN MOTION AT DIFFERENT LENGTH AND TIME SCALES. **Colin A. Smith**, Adam Mazur, David Ban, Stefan Becker, Christian Griesinger, Donghan Lee, Bert L. de Groot

**1102-Pos BOARD B79**  
NEISSERIAL OPA PROTEIN LOOP DYNAMICS AND MECHANISM OF INTERACTION WITH HOST CEACAM RECEPTORS. **Marissa K. Kieber**, Jennifer Hays, Tsega Solomon, Peter Kasson, Linda Columbus

**1103-Pos BOARD B80**  
REVEALING THE TRANSPORT CYCLE DYNAMICS OF THE SODIUM DEPENDENT SUGAR TRANSPORTER BY DOUBLE ELECTRON-ELECTRON RESONANCE AND WIDE-ANGLE X-RAY SCATTERING. **Aviv Paz**, Derek P. Claxton, Shruti Sharma, Kelli Kazmier, Jay Prakash Kumar, Shannon A. Nolte, Terrin M. Liwag, Hassane S. Mchaourab, Jeff Abramson



**1104-Pos BOARD B81**

THE EFFECT OF THE PROTEIN DYNAMICAL TRANSITION ON INTRAMOLECULAR VIBRATIONS. **Mengyang Xu**, Katherine A. Niessen, Yanting Deng, Nigel S. Michki, Edward H. Snell, Andrea G. Markelz

**1105-Pos BOARD B82**

REALTIME SINGLE MOLECULAR MOTION ANALYSIS OF NICOTINIC ACETYLCHOLINE RECEPTOR ALPHA 7 BY DIFFRACTED X-RAY TRACKING METHOD. **Tai Kubo**, Tomoyuki Baba, Keigo Ikezaki, Hiroshi Sekiguchi, Yuri Nishino, Atsuo Miyazawa, Yuji C. Sasaki

**1106-Pos BOARD B83**

STRUCTURAL DYNAMICS OF HSP90 RESOLVED BY A NOVEL MULTI-PAIR FRET APPROACH. **Bjoern Hellenkamp**, Philipp Wortmann, Florian Kandzia, Martin Zacharias, Thorsten Hugel

**1107-Pos BOARD B84**

REVEALING A HETERODIMERIC INTERFACE BETWEEN THE MEMBERS OF TWO UNRELATED FLUORESCENT PROTEIN LINEAGES. **Gary CH Mo**, Jin Zhang

**1108-Pos BOARD B85**

DYNAMIC DNA BINDING LICENSES A EUKARYOTIC REPAIR COMPLEX TO BYPASS PROTEIN ROADBLOCKS IN SEARCH OF DNA LESIONS. **Maxwell W. Brown**, Yoori Kim, Gregory M. Williams, John D. Huck, Jennifer A. Surtees, Ilya J. Finkelstein

**1109-Pos BOARD B86 INTERNATIONAL TRAVEL AWARDEE**

X-RAY OBSERVATION OF NOVEL NUCLEATION FACTOR IN PROTEIN SUPERSATURATED SOLUTION. **Yufuku Matsushita**, Hiroshi Sekiguchi, Noboru Ohta, Keigo Ikezaki, Yuji Goto, Yuji C. Sasaki

**1110-Pos BOARD B87**

BRIDGING IN VITRO WITH IN VIVO ENZYMOLOGY. Hasan Tükenmez, Helge M. Magnussen, Per Rogne, Anders Byström, **Magnus Wolf-Watz**

**1111-Pos BOARD B88**

DETERMINATION OF THERMODYNAMIC AND KINETIC PARAMETERS FOR CO MIGRATION WITHIN BACTERIAL FLAVOHEMOGLOBINS OF RALSTONIA EUTROPHA AND STAPHYLOCOCCUS AUREUS. **David Butcher**, Myriam Moussaoui, Laura Baciou, Jaroslava Mikovska

**1112-Pos BOARD B89**

EFFECTOR-LINKED HIGH-FREQUENCY THERMAL FLUCTUATIONS OF GLOBIN (CHANGES IN PROTEIN DYNAMICS) REGULATE THE OXYGEN-AFFINITY AND COOPERATIVITY OF HEMOGLOBIN. **Takashi Yonetani**, Kenji Kanaori

**1113-Pos BOARD B90**

ALLOSTERIC PATHWAYS IN THE MULTI-DOMAIN THYROID HORMONE RECEPTOR. **Vandna Gahlot**, Balananda D. Kumar Putcha, Quentin Johnson, Tongye Shen, Elias Fernandez

**1114-Pos BOARD B91**

CATALYZING OF IMMUNE PEPTIDE/MHC CLASS II COMPLEX WITH DM MOLECULE OBSERVED BY DIFFRACTED X-RAY TRACKING (DXT). **Toshihiro Miyabe**, Yuhuku Mastushita, Yuko Kozono, Hiroshi Sekiguchi, Keigo Ikezaki, Haruo Kozono, Yuji C. Sasaki

**1115-Pos BOARD B92**

PEPTIDE AND PROTON DRIVEN ALLOSTERIC CLAMPS CATALYZE ANTHRAX TOXIN TRANSLOCATION ACROSS MEMBRANES. **Debasis Das**

**1116-Pos BOARD B93**

INVESTIGATION AND COMPARISON OF THE FLEXIBILITY AND DYNAMICS OF TC1/MARINER TRANSPOSASES. **Diana Joy**, Christopher M. Singer, Daniel P. Godfrey, Donald J. Jacobs, Irina V. Nesmelova

**Membrane Protein Structure and Folding II (Boards B94 - B122)****1117-Pos BOARD B94**

UNCOUPLING PROTEINS OF THE CENTRAL NERVOUS SYSTEM: COMPARATIVE BIOPHYSICAL STUDIES. **Masoud Jelokhani-Niaraki**, Tuan Hoang, Marina V. Ivanova, Matthew D. Smith

**1118-Pos BOARD B95**

HETERODIMERIZATION OF WILD-TYPE AND MUTANT FIBROBLAST GROWTH FACTOR RECEPTORS IN CELL-DERIVED VESICLES. **Nuala Del Piccolo**, Sarvenaz Sarabipour, Kalina Hristova

**1119-Pos BOARD B96**

DIMERIC E. COLI YIDC FORMS A TRANSLOCATION PORE IN THE MEMBRANE. **Lukas Winter**, Andreas Vogt, Christine Siligan, Denis Knyazev, Roland Kuttner, Hans-Georg Koch, Peter Pohl

**1120-Pos BOARD B97**

STRUCTURAL DYNAMICS OF THE LIGAND-RECEPTOR INTERACTION OF THE NEUROPEPTIDE Y RECEPTOR TYPE 2. **Daniel Huster**, Anette Kaiser, Julian Kahr, Tristan Zellmann, Holger A. Scheidt, Rene Meier, Jens Meiler, Annette G. Beck-Sicking, Peter Schmidt

**1121-Pos BOARD B98 INTERNATIONAL TRAVEL AWARDEE**

MODULAR ASSEMBLY OF SYNTHETIC PROTEINS THAT SPAN THE PLASMA MEMBRANE IN MAMMALIAN CELLS. **Anam Qudrat**, Kevin Truong

**1122-Pos BOARD B99**

OPRG FACILITATES THE TRANSPORT OF SMALL AMINO ACIDS ACROSS THE OUTER MEMBRANE OF PSEUDOMONAS AERUGINOSA. **Patrick Seelheim**, Iga Kucharska, Lukas K. Tamm

**1123-Pos BOARD B100**

STRIPPING THE CLC-EC1 DIMERIZATION INTERFACE: AN INVESTIGATION INTO THE ROLE OF VAN DER WAALS INTERACTIONS IN MEMBRANE PROTEIN ASSEMBLY. Kacey Mersch, Venkatramanan Krishnamani, Marley Brimberry, John Tian, **Janice L. Robertson**

**1124-Pos BOARD B101**

HETERO-OLIGOMERIC COMPLEXES FORMED BY THE HOMO-OLIGOMERIC TRANSMEMBRANE DOMAINS OF HIV-1 VPU AND HUMAN TETHERIN. **Gregory Cole**, Simon Sharpe

**1125-Pos BOARD B102**

HETERODIMERIZATION OF NEUROFILIN-1 TRANSMEMBRANE HELICES AND PLEXIN SIGNALING. **Susmita Borthakur**, Liqun Zhang, Matthias Buck

**1126-Pos BOARD B103**

INVERSION OF SIGNAL SEQUENCE TOPOLOGY DURING MEMBRANE INTEGRATION. **Connie Wang**, Shuai Wang, Michiel Niesen, Shu-ou Shan, Thomas F. Miller III

**1127-Pos BOARD B104**

THE ATLASTIN C-TERMINAL TAIL IS AN AMPHIPATHIC HELIX THAT PERTURBS THE BILAYER STRUCTURE DURING ENDOPLASMIC RETICULUM HOMOTYPIC FUSION. **Joseph E. Faust**, Tanvi Desai, Avani Verma, Idil Ulengin, Tzu-Lin Sun, Tyler J. Moss, Miguel A. Betancourt-Solis, Huey W. Huang, Tina Lee, James A. McNew

**1128-Pos BOARD B105**

FUNCTIONAL STUDIES OF NUCLEOTIDE SUGAR TRANSPORTERS. **Lavanyaa Manjunatha**

**1129-Pos BOARD B106**

CONNECTING PIE-FCCS MEASUREMENTS TO DIMERIZATION AFFINITY TO RESOLVE THE ROLE OF GPCR DIMERIZATION IN LIVE CELLS. **Megan Kaliszewski**

- 1130-Pos BOARD B107**  
STRUCTURAL CHARACTERIZATION OF THE FULL LENGTH CRGA PROTEIN FOUND IN MYCOBACTERIUM TUBERCULOSIS. **Yiseul Shin**, Huajune Qin, Malini Rajagopalan, Timothy A. Cross
- 1131-Pos BOARD B108**  
INVESTIGATING THE ROLE OF TRANSMEMBRANE DOMAIN CYSTEINE RESIDUES IN THE ORGANIZATION OF TNF RECEPTORS. **Tiffany L. Senkow**, Andrew K. Lewis, Jonathan N. Sachs
- 1132-Pos BOARD B109**  
THE LIPOPROTEIN BAMB FACILITATES FOLDING AND INSERTION OF OUTER MEMBRANE PROTEIN A (OMPA) INTO LIPID MEMBRANES DEPENDING ON BILAYER THICKNESS. Lisa Gerlach, **Jörg H. Kleinschmidt**
- 1133-Pos BOARD B110**  
DETERMINATION OF THE INTERACTION OF  $\gamma$ -SECRETASE WITH ITS  $\beta$ CTF SUBSTRATE. **Ayse Julius**
- 1134-Pos BOARD B111**  
MEASURING LARGE MEMBRANE PROTEIN DIMERIZATION IN LIPID BILAYERS BY FORSTER RESONANCE ENERGY TRANSFER. **Venkatramanan Krishnamani**, Kacey Mersch, Rahul Chadda, Ankita Chadda, Janice L. Robertson
- 1135-Pos BOARD B112**  
PROBING STRUCTURE AND DYNAMICS OF TRANSMEMBRANE ALPHA HELICES OF THE S21 PINHOLIN PROTEIN USING ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY. **Daniel L. Drew**
- 1136-Pos BOARD B113**  
COMPLEX FOLDING PATHWAYS OF BACTERIORHODOPSIN REVEALED BY 1- $\mu$ S-RESOLUTION FORCE SPECTROSCOPY. **Matthew G. W. Siewny**, Hao Yu, Devin T. Edwards, Aric W. Sanders, Thomas T. Perkins
- 1137-Pos BOARD B114**  
NEUTRON SCATTERING REVEALS PROTEIN FLUCTUATIONS IN GPCR ACTIVATION. **Suchithranga M. D. C. Perera**, Utsab Shrestha, Debsindhu Bhowmik, Udeep Chawla, Andrey V. Struts, Xiang-qiang Chu, Michael F. Brown
- 1138-Pos BOARD B115**  
CONFORMATIONAL CHANGES OF THE MULTIDRUG TRANSPORTER P-GLYCOPROTEIN IN SOLUTION AND LIPID DISCS. Leo Mok, Maria-Elena Zoghbi, Douglas J. Swartz, Anukriti Singh, Greg Fendley, Guillermo A. Altenberg, **Ina Urbatsch**
- 1139-Pos BOARD B116**  
INSIGHTS INTO THE STABILITY OF GPCRS IN DETERGENT MICELLES. **Sangbae Lee**, Supriyo Bhattacharya, Allen Mao, Reinhard Grisshammer, Christopher Tate, Nagarajan Vaidehi
- 1140-Pos BOARD B117**  
MONITORING GPCR CONFORMATIONAL CHANGES DURING AGONIST RELEASE IN REAL-TIME: EVIDENCE THAT TRANSMEMBRANE HELIX 6 (TM6) MOVEMENT IN RHODOPSIN LAGS BEHIND RETINAL RELEASE. **Christopher T. Schafer**, David L. Farrens
- 1141-Pos BOARD B118**  
RETINAL CHROMOPHORE STRUCTURE IN META-II RHODOPSIN REVEALED BY SOLID-STATE  $^2$ H NMR AND MOLECULAR MODELING. **Andrey V. Struts**, Xiaolin Xu, Trivikram R. Molugu, Michael C. Pitman, Samira Faylough, Charitha Guruge, Carolina Nascimento, Nasri Nesnas, Michael F. Brown
- 1142-Pos BOARD B119 INTERNATIONAL TRAVEL AWARDEE**  
UNDERSTANDING STRUCTURAL AND FUNCTIONAL STABILITY OF TWO RHOMBOID PROTEASES: HIGLPG AND PSAARA. **Rashmi Panigrahi**, Elena Arutyunova, Pankaj Panwar, Katharina Gimpl, Sandro Keller, Joanne Lemieux

**1143-Pos BOARD B120 EDUCATION TRAVEL AWARDEE**  
INFLUENCE OF FAMILIAL PARKINSON'S DISEASE MUTATIONS ON MITOCHONDRIAL LOCALIZATION AND SECONDARY STRUCTURE OF PINK1. **Stephanie Irwin**, Rashmi Panigrahi, Elena Arutyunova, Nicolas Touret, M. Joanne Lemieux

**1144-Pos BOARD B121**  
STRUCTURAL BASIS FOR KCNQ1 LONG-QT SYNDROME DISEASE CAUSING MUTATIONS. **Keenan C. Taylor**, Hui Huang, Brett Kroncke, Charles Sanders

**1145-Pos BOARD B122**  
ENERGY COUPLING MECHANISMS AND LIPID-MEDIATED SUBUNIT INTERACTIONS OF THE MITOCHONDRIAL PROTEIN TRANSPORT MACHINERY. **Nathan N. Alder**, Ketan Malhotra, Murugappan Sathappa, Shivangi Nangia, Tyler Daman, Dejana Mokranjac, Eric May

## Transcription (Boards B123 - B137)

**1146-Pos BOARD B123**  
PAUSING IN ESCHERICHIA COLI TRANSCRIPTION INITIATION. **Eitan Lerner**, Sangyoon Chung, Benjamin Allen, Wang Shuang, Lee J. Jookyung, Lu Winson Shijia, Grimaud Wilson Logan, Antonino Ingargiola, Yazan Alhadid, Sergei Borukhov, Terence Strick, Dylan J. Taatjes, Shimon Weiss

**1147-Pos BOARD B124**  
WALK AND CHECK ALONG A VIRAL RNA POLYMERASE TRANSCRIPTION ELONGATION PATH. **Jin Yu**

**1148-Pos BOARD B125**  
TRANSCRIPTION FACTOR CLUSTERING IN LIVE YEAST CELLS. **Adam Wollman**, Sviatlana Shashkova, Erik Hedlund, Stefan Hohmann, Mark C. Leake

**1149-Pos BOARD B126**  
E.COLI RNA POLYMERASE ACTIVITY UNDER CROWDING. **SangYoon Chung**, Eitan Lerner, Yan Jin, Yazan Alhadid, Soohong Kim, Charles M. Knobler, William M. Gelbart, Shimon Weiss

**1150-Pos BOARD B127**  
LIVE CELL SINGLE MOLECULE BINDING OF TRANSCRIPTION FACTORS IN LIVING CELLS. CHARACTERIZING P53 LATENCY. Emanuela Jacchetti, Paolo Rainone, Tiziana Daniele, Tacchetti Carlo, **Davide Mazza**

**1151-Pos BOARD B128**  
NANOSCALE PROBING OF THE P53 TUMOR SUPPRESSION TRANSCRIPTION MACHINERY. Robert A. Coleman, Sameer K. Singh, Chunte S. Peng, Michael Cianfrocco, Zhengjian Zhang, William Rice, Edward Eng, **Wei-Li Liu**

**1152-Pos BOARD B129**  
RAPID LONG RANGE SLIDING OF RNA DEPENDENT RNA POLYMERASES ON VIRAL GENOME TEMPLATES VISUALIZED BY PHOTOACTIVATABLE LOCALIZATION MICROSCOPY. **Xiaolin Tang**, Mourad Bendjennat, Saveez Saffarian

**1153-Pos BOARD B130**  
PPI RELEASE FOLLOWED BY DNA TRANSLOCATION STUDIED FROM ATOMISTIC SIMULATIONS OF T7 RNA POLYMERASE TRANSCRIPTION. **Chao E**, Lin-Tai Da, Baogen Duan, Shaogui Wu, Jin Yu

**1154-Pos BOARD B131**  
REGULATION OF THE BDNF MRNA 3' UTR ON THE RNA LEVEL. **Brett A. DeMarco**, Mihaela-Rita Mihailescu, Snezana Stefanovic

**1155-Pos BOARD B132**  
SUBNUCLEAR SPATIAL STRUCTURING OF CHROMATIN AND POLYMERASE II DURING TRANSCRIPTION ACTIVATION OF THE ZEBRAFISH ZYGOTIC GENOME. **Lennart Hilbert**, Vasily Ziburdaev, Nadine Vastenhouw

**1156-Pos BOARD B133**  
KINETICS AND MECHANISM OF FORMATION AND STABILIZATION OF THE RNA POLYMERASE-PROMOTER OPEN COMPLEX. **Munish Chhabra**, Raashi Sreenivasan, Mikaela Poulos, Emily Ruff, Irina Artsimovitch, Tom Record

**1157-Pos BOARD B134**  
LARGE EFFECTS OF DISCRIMINATOR EXCHANGES ON THE RNA POLYMERASE-PROMOTER OPEN COMPLEX STRUCTURE, LIFETIME AND TRANSCRIPTION INITIATION PATTERNS. **Kate Henderson**, Lindsey Felth, Si Wang, Cristen Molzahn, Munish Chhabra, Mikaela Poulos, Emily Ruff, Lauren Bieter, M. Thomas Record Jr

**1158-Pos BOARD B135**  
EFFECT OF PRESSURE AND TEMPERATURE ON TRANSCRIPTION INITIATION IN BACTERIAL CELLS. **Khanh Nguyen**

**1159-Pos BOARD B136**  
MEASURING THE DYNAMICS OF TFIIF ON RNA POLYMERASE II BY SMFRET. **Wei-hau Chang**

**1160-Pos BOARD B137**  
EFFECT OF FIS ON TRANSCRIPTION-COUPLED DNA SUPERCOILING IN E. COLI. **Samantha Dages**, Xiaoduo Zhi, Fenfei Leng

## Ribosomes and Translation (Boards B138 - B147)

**1161-Pos BOARD B138**  
STRUCTURE AND FUNCTION OF YIDC, AN INSERTASE THAT CHANNELS NEWLY SYNTHESIZED PROTEINS INTO THE CELL MEMBRANE. **Rezvan Shahoei**, Noah Trebesch, Abhi Singharoy, Klaus Schulten

**1162-Pos BOARD B139**  
SIMULATING MRNA-TRNA TRANSLOCATION THROUGH THE RIBOSOME. **Kien Nguyen**, Paul C. Whitford

**1163-Pos BOARD B140**  
ERMBL TRANSLATION ON THE RIBOSOME IN THE PRESENCE OF ERYTHROMYCIN IS STALLED BY INHIBITION OF PEPTIDE BOND FORMATION. **Lars V. Bock**, Stefan Arenz, Daniel N. Wilson, Helmut Grubmüller, Andrea C. Vaiana

**1164-Pos BOARD B141**  
PROGRAMMED -1 FRAMESHIFT OF A RIBOSOME: NON-MONOTONIC VARIATION OF FRAMESHIFT EFFICIENCY WITH INCREASING STIFFNESS OF MRNA SECONDARY STRUCTURE. Bhavya Mishra, **Debashish Chowdhury**

**1165-Pos BOARD B142**  
CORRELATED MOVEMENT OF TRNA AND THE RIBOSOME DURING ELONGATION. **Huan Yang**, Paul Charles Whitford

**1166-Pos BOARD B143**  
IDENTIFYING EXPERIMENTAL MEASURES OF INTERSUBUNIT ROTATION IN THE RIBOSOME. **Mariana Levi**, Kien Nguyen, Liah Dukaye, Paul Charles Whitford

**1167-Pos BOARD B144**  
COAXING A VIRAL RNA OUT OF ITS SHELL: HOW DOES A VIRAL RNA GENOME INITIATE CONTACT WITH ITS HOST? **Richard Sportsman**, Christian Beren, Benjamin Kartub, Rees Garmann, William M. Gelbart, Charles M. Knobler

**1168-Pos BOARD B145 EDUCATION TRAVEL AWARDEE**  
NASCENT PROTEINS INTERACT WITH KEY REGIONS OF THE OUTER SURFACE OF THE RIBOSOME. **Andrew M. Fuchs**

**1169-Pos BOARD B146**  
UNDERSTANDING THE EFFECT OF POST TRANSCRIPTIONAL MODIFICATIONS IN THE ANTICODON STEM LOOP OF E.COLI TRNA ARGININE. **Sweta Vangaveti**, Srivathsan Ranganathan, Kathryn L. Sarachan, Paul F. Agris, Alan Chen, William Cantara

**1170-Pos BOARD B147**  
DYNAMICS OF STOP CODON DISCRIMINATION BY RELEASE FACTOR 1. **Colin D. Kinz-Thompson**, Ruben L. Gonzalez, Jr.

## Protein-Nucleic Acid Interaction I (Boards B148 - B178)

**1171-Pos BOARD B148**  
PROTEIN SEARCH FOR MULTIPLE TARGETS ON DNA. **Maria Kochugaeva**, Martin Lange, Anatoly Kolomeisky

**1172-Pos BOARD B149**  
CATALYTIC MECHANISM OF THE INO80 CHROMATIN REMODELER ACTING ON THE NUCLEOSOME. **Marianne Schwarz**, Jens Michaelis, Karl-Peter Hopfner

**1173-Pos BOARD B150 EDUCATION TRAVEL AWARDEE**  
HU PROTEIN AND DNA SUPERCOILING DRAMATICALLY ENHANCE LAC-REPRESSOR-MEDIATED DNA LOOPING. **Yan Yan**, Fenfei Leng, David D. Dunlap, Laura Finzi

**1174-Pos BOARD B151**  
EXPLORING THE MECHANICS AND DYNAMICS OF GENE SILENCING PROTEINS. **Haowei Wang**, William Wiley Navarre, Joshua N. Milstein

**1175-Pos BOARD B152**  
MOLECULAR SELF-TITRATION AS A MECHANISM OF GENE REGULATION. **Gregory M.K. Poon**, Suela Khani, Dominique Curtis Stephens

**1176-Pos BOARD B153**  
DNA-BINDING DYNAMICS OF GLUCOCORTICOID RECEPTOR REVEALED BY PARTICLE IMAGE CORRELATION SPECTROSCOPY. **Veer Keizer**, Rolf Harkes, Thomas Schmidt, Marcel Schaaaf

**1177-Pos BOARD B154**  
AUTONOMOUS SENSITIVITY TO EPIGENETICALLY MODIFIED DNA IS ENCODABLE IN A STRUCTURALLY CONSERVED DNA-BINDING DOMAIN. **Dominique C. Stephens**, Gregory M. K. Poon

**1178-Pos BOARD B155**  
INTEGRATIVE MODELING OF THE ISWI CHROMATIN REMODELING ENZYME FROM CROSS-LINKING/MASS SPECTROMETRY AND SAXS DATA. **Christina EM Schindler**, Nadine Harrer, Jan Lipfert, Felix Müller-Planitz, Martin Zacharias

**1179-Pos BOARD B156**  
QUANTITATIVE EXPERIMENTAL ANALYSIS OF THE INFLUENCE OF QUASI-SPECIFIC SITES ON KINETICS OF DNA SCANNING BY THE ZINC-FINGER PROTEIN EGR-1. **Catherine A. Kemme**, Alexandre Esadze, Junji Iwahara

**1180-Pos BOARD B157**  
SPATIAL DYNAMICS OF SIRT1 DICTATE METABOLIC TRANSITIONS IN THE CELL NUCLEUS. **Suman Ranjit**, Lorena Aguilar-Arnal, Chiara Stringari, Paolo Sassone-Corsi, Enrico Gratton

**1181-Pos BOARD B158**  
EXAMINING TALE PROTEIN BINDING KINETICS AND SITE COMPETITION USING SINGLE MOLECULE IMAGING. **Max Kushner**, Alexander Van Slyke, Fabio Rinaldi, Avtar Singh, John Lis, Adam Bogdanove, Warren Zipfel

**1182-Pos BOARD B159**  
A MOLECULE-SCALE VIEW OF THE STRUCTURE AND SPECIFICITY OF THE RNA-GUIDED ENDONUCLEASE CAS9. **Eric A. Josephs**, D. Dewran Kocak, Christopher J. Fitzgibbon, Joshua McMenemy, Charles A. Gersbach, Piotr E. Marszalek

**1183-Pos BOARD B160**  
DNA UNWINDING BY CRISPR-CAS9 STUDIED USING SITE-DIRECTED SPIN LABELING. **Narin S. Tangprasertchai**, Carolina Vazquez Reyes, Xiaojun Zhang, Peter Z. Qin

- 1184-Pos BOARD B161**  
INVESTIGATION OF THE CAS9 MEDIATED DNA CLEAVAGE USING TIME-LAPSE AFM IMAGING. **Suleyman Ucuncuoglu**, Ozgur Sahin
- 1185-Pos BOARD B162**  
DNA BINDING FLUORESCENT PROTEINS FOR THE DIRECT VISUALIZATION OF LARGE DNA MOLECULES. **Seonghyun Lee**, Kyubong Jo
- 1186-Pos BOARD B163**  
DIRECT OBSERVATION OF DNA OVERWINDING BY REVERSE GYRASE. **Taisaku Ogawa**, Katsunori Yogo, Shou Furuike, Kazuo Sutoh, Akihiko Kikuchi, Kazuhiko Kinosita, Jr.
- 1187-Pos BOARD B164**  
BINDING OF THE SINGLE-STRANDED DNA BINDING PROTEIN (GP32) OF T4 BACTERIOPHAGE INDUCES POSITION-SPECIFIC LOCAL CONFORMATIONAL CHANGES IN DNA LATTICES THAT CAN BE MONITORED BY FLUORESCENT PROBES. **Davis Jose**, Miya M. Michael, Pablo Romano, Benjamin R. Camel, Katarina H. Meze, Neil P. Johnson, Marina Guenza, Andrew H. Marcus, Peter H. von Hippel
- 1188-Pos BOARD B165**  
AN ISING MODEL DESCRIBES HYSTERESIS IN A NOVEL FORM OF COOPERATIVE BINDING. **Natalia N. Vtyurina**, David Dulin, Margreet W. Docter, Anne S. Meyer, Nynke H. Dekker, Elio A. Abbondanzieri
- 1189-Pos BOARD B166**  
CONFORMATIONAL CHANGES IN HIV-1 GAG REGULATE ITS ASSEMBLY AND GENOME SELECTION. **Ioulia Rouzina**
- 1190-Pos BOARD B167**  
RECOGNITION OF SPECIFIC URIDINES IN TRNA SUBSTRATES BY DIHYDROURIDINE SYNTHASES. Huw Jenkins, Fiona Whelan, Daniel Peters, Robert Byrne, Andrey Konevega, Eugene Koonin, **Fred Antson**
- 1191-Pos BOARD B168**  
A SINGLE-MOLECULE FRET STRATEGY THAT ENABLES THE ORDERING OF THE PROXIMITIES OF YEAST SPECIFIC U1 PROTEINS TO THE 5' SPLICED SITE. **Jheng-Syong Wu**, Tz-yun Chen, Sean Chang, Tien-Hsien Chang, Weihau Chang
- 1192-Pos BOARD B169**  
SINGLE STRANDED DNA TRANSLOCASES CAN PUSH SINGLE STRANDED DNA BINDING PROTEINS ALONG SINGLE STRANDED DNA. **Joshua E. Sokoloski**, Alexander Kozlov, Roberto Galletto, Timothy M. Lohman
- 1193-Pos BOARD B170**  
FUSED IN SARCOMA (FUS) TARGETS NEURONAL G QUADRUPLEX CONTAINING MRNAS. **Damian McAninch**, Mihaela-Rita Mihailescu
- 1194-Pos BOARD B171**  
PROTEIN PACKING CODE FOR DNA RECOGNITION BASED ON THE KNOB-SOCKET MODEL. **Hyun Joo**, Vivian Chen, Sruti Elson, Jerry Tsai
- 1195-Pos BOARD B172**  
E. COLI GYRASE FAILS TO NEGATIVELY SUPERCOIL DIAMINOPURINE-SUBSTITUTED DNA. Monica Fernandez-Sierra, Qing Shao, Chandler Fountain, Laura Finzi, **David D. Dunlap**
- 1196-Pos BOARD B173**  
SINGLE MOLECULE MEASUREMENTS OF DNA DECATENATION BY THE TOPOISOMERASE III-RECQ HELICASE COMPLEX. **K. Maria Mills**, Keir C. Neuman
- 1197-Pos BOARD B174**  
EXTRACTING ENZYME PROCESSIVITY FROM KINETIC ASSAYS. **Itay Barel**, Frank L.H. Brown
- 1198-Pos BOARD B175** CPOW TRAVEL AWARDEE  
MODELING PROTEIN-RNA COMPLEXES. **Adelene Sim**, Jinglin Chen, Julie Bernauer

- 1199-Pos BOARD B176**  
SIGNIFICANCE OF STERIC BULK IN DNA THREADING INTERCALATION REVEALED THROUGH FORCE-DEPENDENT KINETICS. **Andrew G. Clark**, Thayaparan Paramanathan, Fredrik Westerlund, Per Lincoln, Micah McCauley, Ioulia Rouzina, Mark Williams
- 1200-Pos BOARD B177**  
SINGLE-MOLECULE CONFORMATIONAL DYNAMICS OF E. COLI DNA POLYMERASE I. **Raymond Pauszek**, Rajan Lamichhane, Ingemar Pedron, David Millar
- 1201-Pos BOARD B178**  
SENSING THE BINDING SITES OF RNAP HOLOENZYME ON  $\lambda$  DNA ATTACHED TO A PROBE TIP WITH SOLID STATE NANOPORES. **Harpreet Kaur**, Santoshi Nandivada, Changbae Hyun, Tao Huang, Min Xiao, David S. McNabb, Jiali Li

## Membrane Physical Chemistry and Membrane Dynamics (Boards B179 - B207)

- 1202-Pos BOARD B179**  
POLYSTYRENE NANOPARTICLES ALTER THE STRUCTURE AND STABILITY OF MODEL CELL MEMBRANES. **David Van Doren**, Luke Cuculis, Shelli L. Frey
- 1203-Pos BOARD B180**  
NANOPARTICLE INTERACTIONS WITH GIANT VESICLES FABRICATED FROM INVERTED HEADGROUP LIPIDS. **Lu Wang**, Noah Malmstadt
- 1204-Pos BOARD B181**  
CARBON NANOSTRUCTURES INTERACTION WITH GIANT UNILAMELLAR VESICLES AS A CELLULAR MODEL. **Carlos A. Moreno Aguilar**, Verónica Pérez Luna, José Luis Arauz Lara, Said Eduardo Aranda Espinoza, Mildred Quintana Ruiz
- 1205-Pos BOARD B182**  
PLFE AS A LIPOSOMAL STABILIZING AGENT: A SHEAR STRESS STUDY. **Alexander Bonanno**, Allison Andrews, Umme Ayesa, Servio Ramirez, Parkson Lee-Gao Chong
- 1206-Pos BOARD B183**  
UNDERSTANDING LIPID BILAYER DYNAMICS: RELATING BENDING AND THICKNESS FLUCTUATIONS TO MEMBRANE ELASTICITY. **Michihiro Nagao**, Rana Ashkar, Elizabeth Kellery, Robert Bradbury, Paul Butler
- 1207-Pos BOARD B184**  
BENDING MODULI OF TERNARY MIXTURE MODELS OF THE CELL PLASMA MEMBRANE. **Rebecca Simpson**, Sanjula Wickramasinghe, David Ackerman, Gerald Feigenson
- 1208-Pos BOARD B185**  
THE EFFECT OF PROTEINS AND LIPIDS ON MEMBRANE STIFFNESS. Philip W. Fowler, Anna Duncan, Jean Helie, Matthieu Chavent, Heidi Koldsø, **Mark S.P. Sansom**
- 1209-Pos BOARD B186**  
USING MOLECULAR DYNAMICS SIMULATIONS AND ATOMIC FORCE MICROSCOPY TO DETERMINE HOW  $\alpha$ -SYNUCLEIN AFFECTS MEMBRANE MECHANICS. **Benjamin E. Brummel**, Jonathan Sachs
- 1210-Pos BOARD B187**  
LIPID-LIPID COUPLING TO MEMBRANE CURVATURE BY SIMULATION AND NMR. **Alexander J. Sodt**, Olivier Soubias, Klaus Gawrisch, Richard W. Pastor
- 1211-Pos BOARD B188**  
CURVED LIPID BILAYER MEMBRANES: PROTEIN MOTIONS AND HYDRODYNAMIC TRANSPORT. **Paul J. Atzberger**

**1212-Pos BOARD B189**

DYNAMICS OF MEMBRANE TUBES FORMED BY I-BARS. Younes F. Baroji, Andreas Rørvig-Lund, S. Nader S. Reihani, Szabolcs Semsey, **Poul M. Bendix**

**1213-Pos BOARD B190**

LACTOSE GLICOLIPIDS AND THEIR CAPABILITIES TO FORM GIANT VESICLES AND TUBULES. **German Gunther**, Catalina Sandoval, Susana Sanchez

**1214-Pos BOARD B191**

SPONTANEOUS TUBULATION IN GIANT VESICLES INDUCED BY GM1 OR PEG ADSORPTION. **Rumiana Dimova**, Raktim Dasgupta, Nico Fricke, Yong-gang Liu, Jaime Agudo-Canalejo, Andrea Grafmüller, Reinhard Lipowsky

**1215-Pos BOARD B192**

INTERNALIZATION OF CARBON NANOTUBES IN BIOLOGICAL MEMBRANES. **Verónica Pérez Luna**, Mildred Quintana Ruiz, Said Eduardo Aranda Espinoza, Carlos Alejandro Moreno Aguilar, José Luis Arauz Lara

**1216-Pos BOARD B193**

BIPOLAR NANOSECOND PULSES MITIGATE MEMBRANE NANOPORATION. **Erick K. Moen**, Bennett L. Ibey, Hope T. Beier, Andrea M. Armani

**1217-Pos BOARD B194**

THE NONLINEAR RESPONSE OF LIPID MEMBRANES TO VOLTAGE PERTURBATIONS AS AN ALTERNATIVE EXPLANATION OF ELECTROPHYSIOLOGICAL DATA. **Karis Amata Zecchi**, Lars Dalskov Mosgaard, Thomas Heimbürg, Rima Budvytyte

**1218-Pos BOARD B195**

BURIED CHARGES AND THEIR EFFECT ON ION CHANNEL SELECTIVITY. ANALYTICAL SOLUTIONS, NUMERICAL CALCULATIONS AND MD SIMULATIONS. **María Queralt-Martín**, Antonio Alcaraz, Marcel Aguilera-Arzo, Vicente M. Aguilera

**1219-Pos BOARD B196**

STRUCTURAL DETERMINANTS OF THE IF-OF TRANSITION IN HUMAN GLUCOSE TRANSPORTER GLUT1. **Mrinal Shekhar**, Javier Baylon, Emad Tajkhorshid

**1220-Pos BOARD B197**

BILAYER MODIFYING EFFECTS OF ANTIPSYCHOTICS OF DIFFERENT GENERATIONS. **R. Lea Sanford**, Olaf S. Andersen

**1221-Pos BOARD B198**

CHOLESTEROL INFLUENCE ON THE INTERACTION OF CELL PENETRATING PEPTIDES (CPPS) WITH MODEL MEMBRANES. **Viviana E. Silva**, Fanny Guzmán, Patricio Sotomayor, Luis F. Aguilar

**1222-Pos BOARD B199 INTERNATIONAL TRAVEL AWARDEE**

UNRAVELING THE OUTER MEMBRANE TRANSLOCATION MECHANISM OF A PROTEIN ANTIBIOTIC USING SINGLE-MOLECULE MICROBIOLOGY AND COMPUTATIONAL BIOPHYSICS. **Patrice Rassam**, Kathleen R. Long, David J. Williams, Matthieu Chavent, Anna Duncan, Mark Sansom, Colin Kleanthous, Christoph G. Baumann

**1223-Pos BOARD B200**

ANTIMICROBIAL PEPTIDE IMPACTS THE LATERAL DIFFUSION AND BENDING RIGIDITY OF PHOSPHOLIPID MEMBRANE. **Veerendrak K. Sharma**, E Mamontov, D. B. Anunciado, M. Ohl, H. O'Neill, V. S. Urban

**1224-Pos BOARD B201**

SOLID STATE NMR INVESTIGATIONS OF LIPID BILAYERS IN INTERACTION WITH AMPHIPHILIC TRIBLOCK COPOLYMERS. **Ruth Bärenwald**, Anja Achilles, Mark Jbeily, Jörg Kressler, Kay Saalwächter

**1225-Pos BOARD B202**

INTERACTION OF POLOXAMERS WITH LIPID BILAYER: MOLECULAR DYNAMICS SIMULATIONS USING UNITED ATOM AND COARSE-GRAINED FORCE FIELDS. **Upendra Adhikari**, Ardeshir Goliaei, Max L. Berkowitz

**1226-Pos BOARD B203**

INVESTIGATION OF ENCAPSULATED LIPOSOMAL ANTITUBERCULOTICS AND EFFECTS ON IN VITRO MODEL SYSTEMS. **Nikoletta Kosa**, Barnabas Bocskai-Antal, Kata Horváti, Szilvia Bosze, Levente Herenyi, Istvan Voszka

**1227-Pos BOARD B204**

A COMPUTATIONAL AND EXPERIMENTAL STUDY OF CATIONIC-ANIONIC LIPID INTERACTIONS: XTC2-DSPTS AS A CASE STUDY. **Mohsen Ramezani-pour**, Linda Wang, Jason Wang, Mohammad Ashtari, Sherry S.W. Leung, Karelia H. Delgado-Magnero, Bashe Bashe, Jenifer Thewalt, D. Peter Tieleman

**1228-Pos BOARD B205 CPOW TRAVEL AWARDEE**

DEVELOPMENT OF LIPID-BASED DRUG DELIVERY SYSTEMS FOR GENE THERAPY: PHYSICO-CHEMICAL CHARACTERIZATION OF CHARGED LIPID INTERACTIONS. Bashe Y. Bashe, **Sherry S. W. Leung**, Karelia H. Delgado-Magnero, Mohsen Ramezani-pour, Pieter R. Cullis, D. Peter Tieleman, Jenifer Thewalt

**1229-Pos BOARD B206**

PREFERENTIAL DELIVERY OF BPM 31510 INTO TUMORIGENIC CELLS BASED ON BIOPHYSICAL INTERACTIONS. **Sumit Garg**, Vandana Swaminathan, Sirisha Dhavala, Rangaprasad Sarangarajan, Michael Kiebish, Niven Narain

**1230-Pos BOARD B207**

EFFECT OF MICRO-STIRRING ON ENZYMATIC REACTION KINETICS INSIDE A BIOMIMETIC CONTAINER. **Irep Gözen**, Viva Horowitz, Zachary Chambers, Vinathan N. Manoharan

## Membrane Fusion and Non-Bilayer Structures (Boards B208 - B226)

**1231-Pos BOARD B208**

LIPID MODULATION OF LC3/GABARAP-MEDIATED AUTOPHAGOSOMAL ELONGATION. **Alicia Alonso**, Ane Landajueta, Javier H. Hervas, Zurline Anton, L. Ruth Montes, David Gil, Mikel Valle, J. Francisco Rodriguez, Felix M. Goni

**1232-Pos BOARD B209**

ALCOHOL SIGNIFICANTLY ALTERS FUSIGENICITY OF VESICLES IN A MODEL MEMBRANE SYSTEM. **Jason R. Paxman**, Sam Zarbock, Brady Hunt, Dixon J. Woodbury

**1233-Pos BOARD B210**

SYNAPSE ON A CHIP: SNARE-MEDIATED MEMBRANE FUSION IN PLANAR PORE-SPANNING MEMBRANES. **Raphael Hubrich**, Lando L. G. Schwenen, Dragomir Milovanovic, Reinhard Jahn, Claudia Steinem

**1234-Pos BOARD B211**

FLIC MICROSCOPY REVEALS DIFFERENT CONFORMATIONAL STATES OF SYNTAXIN 1A IN SUPPORTED LIPID BILAYERS. **Volker Kiessling**, Binyong Liang, Lukas K. Tamm

**1235-Pos BOARD B212**

UNCOVERING THE MECHANISM OF MITOFUSIN 1 THROUGH STRUCTURAL STUDIES. **Marisa A. Rubio**, Jeanne Morin-Leisk, Jenny E. Hinshaw

**1236-Pos BOARD B213**

CONTROL OF INFLUENZA VIRUS BINDING BY TARGET MEMBRANE COMPOSITION. **Isabel Goronzy**, Robert Rawle, Steven Boxer, Peter Kasson

**1237-Pos BOARD B214**

NEW IN VITRO HEMAGGLUTININ INHIBITOR SCREENING SYSTEM BASED ON SINGLE VESICLE FUSION ASSAY. **Hanki Lee**

**1238-Pos BOARD B215**

FORMATION AND MECHANICAL PROPERTIES OF CALCIUM-STABILIZED MEMBRANE ROLLS. **Tamas Bozo**, Imre Derényi, Richard Breckska, Miklos Kellermayer

**1239-Pos BOARD B216**  
SINGLE-PARTICLE TRACKING OF HIV-1 VIRIONS BEARING AN EXTRA-VIRAL FLUORESCENT PH SENSOR REVEALS VIRAL ENTRY OCCURS AFTER TRAF-FICKING TO AN ACIDIC CELLULAR COMPARTMENT. **Chetan Sood**, Mariana Marin, Caleb S. Mason, Gregory B. Melikyan

**1240-Pos BOARD B217**  
DYNAMICS AND ENERGETICS OF SNARE ZIPPERING IN MEMBRANE FUSION. **Zhe Wu**, Klaus Schulten

**1241-Pos BOARD B218**  
EFFECTS OF STEROL SUBSTITUTION ON INFLUENZA VIRAL MEMBRANE FUSION. **Katarzyna E. Zawada**, Dominik Wrona, Peter M. Kasson

**1242-Pos BOARD B219**  
MEMBRANE FUSION VIA SNARE MIMETICS SPATIALLY CONFINED TO INTRAMEMBRANE DOMAINS. **Tom Robinson**, Bastian Kubsch, Philippe Bastiaens, Reinhard Lipowsky, Rumiana Dimova

**1243-Pos BOARD B220**  
SNARE-MEDIATED TRANSIENT FUSION OF LIPOSOMES TO SUPPORTED BILAYERS PROBED BY TWO-COLOR PTIRFM. **Joerg Nikolaus**, Benjamin S. Stratton, Jason M. Warner, Zhenyong Wu, George Wei, Emma Wagnon, David Baddeley, Ben O'Shaughnessy, Erdem Karatekin

**1244-Pos BOARD B221**  
USING SINGLE-VIRION FUSION ASSAY TO STUDY HEMIFUSION KINETICS OF INFLUENZA A VIRUSES AND INFLUENZA PSEUDOTYPES. **Hung-Lun Hsu**, Jean k. Millet, Costello A. Deirdre, Susan Daniel, Gary R. Whittaker

**1245-Pos BOARD B222**  
USING GIANT PLASMA MEMBRANE VESICLES FROM CELLS TO FORM SUPPORTED LIPID BILAYERS. **PoChieh Chiang**

**1246-Pos BOARD B223**  
STRUCTURAL ANALYSIS OF HEMAGGLUTININ-INDUCED HEMIFUSION BY VOLTA PHASE-PLATE CRYO-ELECTRON TOMOGRAPHY. **Petr Chlanda**, Elena Mekhedov, Hang Waters, Cindi L. Schwartz, Elizabeth R. Fischer, Rolf J. Ryham, Fredric S. Cohen, Paul S. Blank, Joshua Zimmerberg

**1247-Pos BOARD B224**  
ASSEMBLY AND COMPARISON OF PLASMA MEMBRANE SNARE ACCEPTOR COMPLEXES. **Alex J. B. Kreuzberger**, Binyong Liang, Volker Kiessling, Lukas K. Tamm

**1248-Pos BOARD B225**  
DISENTANGLING VIRAL MEMBRANE FUSION FROM RECEPTOR BINDING BY USING SYNTHETIC DNA-LIPID CONJUGATES TO TETHER INFLUENZA VIRUS TO MODEL LIPID MEMBRANES. **Robert Rawle**, Peter Kasson, Steven Boxer

**1249-Pos BOARD B226**  
DRUG DELIVERY VIA CELL MEMBRANE FUSION USING LIPOPEPTIDE MODIFIED LIPOSOMES. **Alexander Kros**

## Protein-Lipid Interactions I (Boards B227 - B257)

**1250-Pos BOARD B227**  
SOLID-STATE NMR INVESTIGATIONS OF A TRANSMEMBRANE PEPTIDE HAVING INTERFACIAL HISTIDINE RESIDUES. **Fahmida Afrose**, Denise V. Greathouse, Roger E. Koeppe II

**1251-Pos BOARD B228**  
CHOLESTEROL INFLUENCE ON ARGININE-CONTAINING TRANSMEMBRANE PEPTIDES. **Jordana K. Thibado**, Ashley N. Martfeld, Denise V. Greathouse, Roger E. Koeppe II

**1252-Pos BOARD B229**  
USE OF TRANSMEMBRANE PEPTIDES TO UNDERSTAND IONIZATION PROPERTIES OF HISTIDINE RESIDUES IN LIPID BILAYERS. **Ashley N. Martfeld**, Denise V. Greathouse, Roger E. Koeppe II

**1253-Pos BOARD B230**  
VARIED APPROACHES TO THE IONIZATION BEHAVIOR OF SPECIFIC GLU RESIDUES THAT FACE THE LIPIDS IN TRANSMEMBRANE HELICES. **Venkatesan Rajagopalan**, Denise V. Greathouse, Roger E. Koeppe

**1254-Pos BOARD B231**  
EFFECTS OF LIPID MEMBRANE CURVATURES ON BINDING, SECONDARY STRUCTURE, AND AGGREGATION OF AMYLOID-BETA PROTEIN. Yuuki Sugiura, **Keisuke Ikeda**, Minoru Nakano

**1255-Pos BOARD B232**  
LACTOFERRICIN PEPTIDES: THE IMPORTANCE OF METHYL-TRYPTOPHAN AND GLUTAMINE FOR STRUCTURE AND ACTIVITY. **Alexandrea H. Kim**, Denise V. Greathouse

**1256-Pos BOARD B233** CID TRAVEL AWARDEE  
A NOVEL SOLUBLE PEPTIDE WITH PH-RESPONSIVE MEMBRANE INSERTION. **Vanessa P. Nguyen**, Daiane S. Alves, Haden L. Scott, Forrest L. Davis, Francisco N. Barrera

**1257-Pos BOARD B234**  
LIPID ENVIRONMENT OF AQUAPORIN Z. **Victoria Schmidt**, Marlon Sidore, Frédéric Carrière, Jean-Pierre Duneau, James N. Sturgis

**1258-Pos BOARD B235** EDUCATION TRAVEL AWARDEE  
MECHANISM OF STRONG MEMBRANE BINDING BY SYNAPTOTAGMIN 7 C2A DOMAIN: INSIGHT FROM MUTATION AND LIPID COMPOSITION DEPENDENCE. **Favinn A. Maynard**, Beatriz Salazar, Jefferson D. Knight

**1259-Pos BOARD B236**  
HELIX FRAYING MAY STABILIZE TRANSMEMBRANE ALPHA HELICES. **Armin Mortazavi**, Venkatesan Rajagopalan, Denise V. Greathouse, Roger E. Koeppe II

**1260-Pos BOARD B237**  
INVESTIGATING POSSIBLE INTERACTIONS BETWEEN IONIZABLE RESIDUES IN MODEL TRANSMEMBRANE PEPTIDES. **Ryan M. Wendt**, Venkatesan Rajagopalan, Denise V. Greathouse, Roger E. Koeppe II

**1261-Pos BOARD B238**  
DIFFERENCES IN MEMBRANE BINDING COOPERATIVITY BETWEEN THE TANDEM C2 DOMAINS OF SYNAPTOTAGMIN 1 AND SYNAPTOTAGMIN 7. **Hai T. Tran**, Daniel T. Giardina, Kan Chantranuvatana, Matthew D. Coffman, Joseph K. Vasquez, Jefferson Knight

**1262-Pos BOARD B239**  
COMPUTER SIMULATIONS ON INTERACTIONS BETWEEN CYTOSKELETON-ANCHORED PEPTIDES AND PLASMA MEMBRANES. **Qing Liang**

**1263-Pos BOARD B240**  
GANGLIOSIDE AND PROTEIN-GANGLIOSIDE INTERACTIONS IN MARTINI AND ATOMISTIC MOLECULAR DYNAMICS SIMULATIONS. **Ruo-Xu Gu**, Helgi I. Ingolfsson, Alex H. de Vries, Siewert J. Marrink, D. Peter Tieleman

**1264-Pos BOARD B241**  
STRUCTURAL ANALYSIS OF TIM PROTEINS AS MODEL PROTEIN-MEMBRANE SYSTEM USING X-RAY SCATTERING. **Daniel Kerr**, Greg T. Tietjen, Simon Kit Sang Chu, Zhiliang Gong, J. Michael Henderson, Charles Heffern, Binhua Lin, Mati Meron, Mark Schlossman, Erin J. Adams, Ka Yee C. Lee

**1265-Pos BOARD B242**  
PMD-MEMBRANE: A TOOL TO DETERMINE ALLOSTERIC BINDING POCKETS IN MEMBRANE-BOUND BIOMOLECULES. **Priyanka Prakash**, Abdallah Sayyed-Ahmad, Alemayehu A. Gorfe

**1266-Pos BOARD B243**

INFLUENZA M2 TRANSMEMBRANE DOMAIN INTERACTING WITH LIPID MEMBRANES: AN ATOMIC FORCE MICROSCOPY AND FLUORESCENCE MICROSCOPY STUDY. Chian Sing Ho, Nawal K. Khakda, Fengyu She, Jianfeng Cai, **Jianjun Pan**

**1267-Pos BOARD B244**

LIPID-DEPENDENT MODULATION OF MEMBRANE RECRUITMENT AND PROTEIN-PROTEIN INTERACTIONS IN BCL-2 FAMILY OF APOPTOTIC REGULATORS. **Victor Vasquez-Montes**, Mauricio Vargas-Urube, Mykola V. Rodnin, Alexey Ladokhin

**1268-Pos BOARD B245**

IONIC INTERACTIONS OF THE C-TERMINAL DOMAIN OF APOLIPOPROTEIN A-I ARE RESPONSIBLE FOR OLIGOMERIZATION. **Lukas A. Fuentes**, Kan Cong, Paul M.M. Weers

**1269-Pos BOARD B246**

EXAMINING PROPERTIES OF THE C-TERMINAL DOMAIN OF HUMAN APOLIPOPROTEIN A-I UTILIZING A CHIMERIC APOLIPOPROTEIN. **Rachel A. Ellena**, James V. C. Horn, Jesse Tran, Vasanthi Narayanaswami, Paul M. Weers

**1270-Pos BOARD B247**

CONTRIBUTION OF LOW-AFFINITY SITES TO STRONG MULTIVALENT PROTEIN-MEMBRANE BINDING: DETECTION USING SINGLE-MOLECULE TIRF MICROSCOPY. **Marissa DeLima**, Daniel T. Giardina, Jefferson Knight

**1271-Pos BOARD B248 INTERNATIONAL TRAVEL AWARDEE**

STRUCTURAL EFFECTS OF HIGH HYDROSTATIC PRESSURE ON HUMAN LOW DENSITY LIPOPROTEIN REVEALED BY SMALL ANGLE X-RAY AND NEUTRON SCATTERING. **Bernhard Lehofer**, Maksym Golub, Karin Kornmueller, Manfred Kriechbaum, Nicolas Martinez, Heinz Amenitsch, Judith Peters, Ruth Prassl

**1272-Pos BOARD B249**

MD SIMULATIONS AND FREE ENERGY CALCULATION OF SYNTHETIC COILED-COIL PEPTIDES WITH LIPID BILAYERS. **Sun Young Woo**, Hwankyoo Lee

**1273-Pos BOARD B250**

EFFECT OF RESVERATROL AND DERIVATIVES ON INTERACTIONS BETWEEN ALZHEIMER'S DISEASE ASSOCIATED A $\beta$  PROTEIN OLIGOMERS AND LIPID MEMBRANES: A QUARTZ CRYSTAL MICROBALANCE ANALYSIS. **Yiyang Wang**, Melissa A. Moss

**1274-Pos BOARD B251**

INTERACTION OF PKC $\alpha$ -C2 DOMAIN WITH LIPID BILAYER: A MOLECULAR DYNAMICS STUDY. **Mohammad Alwarawrah**, Jeff Wereszczynski

**1275-Pos BOARD B252**

FREE ENERGIES OF INTERACTION OF LIPIDS WITH REGULATORY BINDING SITES ON THE TRANSMEMBRANE DOMAIN OF THE EGF RECEPTOR. **George Hedger**, Heidi Koldsoe, Mark S. P. Sansom

**1276-Pos BOARD B253**

INTERACTION OF THE LPS-BINDING PROTEIN WITH HOST CELL MEMBRANES: SPECIFICITY AND BIOLOGICAL IMPLICATIONS. Franziska Kopp, Sarah Kupsch, Laura Paulowski, Uwe Mamat, Manfred Rössle, Thomas Gutschmann, **Andra B. Schromm**

**1277-Pos BOARD B254**

GENERAL STERIC TRAPPING STRATEGY REVEALS AN INTRICATE COOPERATIVITY NETWORK IN THE INTRAMEMBRANE PROTEASE GLPG UNDER NATIVE CONDITIONS. Ruiqiong Guo, Kristen Gaffney, Zhongyu Yang, Miyeon Kim, Suttipun Sungsuwan, Xuefei Huang, Wayne L. Hubbell, **Heedeok Hong**

**1278-Pos BOARD B255**

IN CELL FOOTPRINTING COUPLED WITH MASS SPECTROMETRY FOR THE STRUCTURAL CHARACTERIZATION OF A MEMBRANE PROTEIN. Emily Hart, Clark Wells, **Lisa M. Jones**

**1279-Pos BOARD B256 EDUCATION TRAVEL AWARDEE**

COMPUTATIONAL AND EXPERIMENTAL STUDIES OF LIPID-PROTEIN INTERACTIONS IN BIOMEMBRANE FUNCTION. **Rami Musharrafieh**, Udeep Chawla, Wan Zheng, Liangju Kaung, Suchithranga M. D. C. Perera, Thomas Knowles, Annie Huang, Michael C. Pitman, Jun Wang, Hongjun Liang, Michael F. Brown

**1280-Pos BOARD B257**

ANALYSIS OF UNFOLDING OF APOLIPOPROTEIN E OFFERS INSIGHTS INTO LIPID BINDING MECHANISM. **Alexandra Donovan**, Roy V. Hernandez, Charina Fabilane, Patricia Nguyen, Tuyen N. Tran, Vasanthi Narayanaswami

**Calcium Signaling (Boards B258 - B292)****1281-Pos BOARD B258**

BIOELECTRIC SIGNALS AND CALCIUM WAVES COORDINATE SKIN PROGENITOR CELL MOVEMENT PATTERNS DURING THE POLARIZATION OF FEATHER BUDS. **Ang Li**, Jung-Hwa Cho, Brian Reid, Min Zhao, Robert H. Chow, Cheng-Ming Chuong

**1282-Pos BOARD B259**

PROTEOMIC MAPPING AND OPTOGENETIC CONTROL OF ER-PM JUNCTIONS IN LIVING CELLS. **Ji Jing**, Lian He, Aomin Sun, Ariel Quintana, Yuehe Ding, Guolin Ma, Peng Tan, Liangyi Chen, Shenyuan Zhang, Yun Huang, Meng-Qiu Dong, Cheryl Walker, Patrick Hogan, Youjun Wang, Yubin Zhou

**1283-Pos BOARD B260**

COLLECTIVE CALCIUM DYNAMICS IN NETWORKS OF COMMUNICATING CELLS. **Tommy A. Byrd**, Garrett D. Potter, Bo Sun, Andrew Mugler

**1284-Pos BOARD B261**

THE C. ELEGANS SPERMATHECA AS A MODEL SYSTEM FOR CALCIUM SIGNALING IN A CONTRACTILE TUBE. **Jeff Bouffard**, Anand R. Asthagiri, Erin J. Cram

**1285-Pos BOARD B262**

ER CALCIUM LEVELS HELP REGULATE K(ATP) CHANNEL TRAFFICKING TO THE PLASMA MEMBRANE OF PANCREATIC BETA CELLS. **Suryakiran Vadrevu**, Leslie S. Satin

**1286-Pos BOARD B263**

RECEPTOR-LOCALIZED CA<sup>2+</sup> SIGNALING ACTIVATES P2X2 RECEPTOR CHANGING CYTOSKELETAL MORPHOLOGY. **Anam Qudrat**, Kevin Truong

**1287-Pos BOARD B264**

A NOVEL RATIO-METRIC FLUORESCENCE CALCIUM INDICATOR FOR FUNCTIONAL ANALYSIS OF GPCRS AND CALCIUM CHANNEL TARGETS. **Zhenjun Diwu**, Qin Zhao, Zhen Luo, Qinglin Meng, Jixiang Liu, Jinfang Liao

**1288-Pos BOARD B265**

CHARACTERIZATION OF MITOCHONDRIAL CALCIUM UPTAKE IN SKELETAL MUSCLE. **Valentina Debattisti**, Melanie Paillard, Gyorgy Csordas, Erin Seifert, Gyorgy Hajnoczky

**1289-Pos BOARD B266**

INTERPLAY OF MEMBRANE AND CALCIUM OSCILLATORS IN CARDIAC PACEMAKER CELLS. Nikolay Zorin, Alexander Ryvkin, **Alexander Moskvina**, Olga Solovyova

**1290-Pos BOARD B267**

SPONTANEOUS, LOCAL DIASTOLIC SUBSARCOLEMMA CA<sup>2+</sup> RELEASES (LCRS) IN SINGLE ISOLATED GUINEA-PIG SINOATRIAL NODAL CELLS (SANC) ARE LINKED TO THEIR SPONTANEOUS AP FIRING. **Syevda Sirenko**, Dongmei Yang, Edward G. Lakatta

**1291-Pos BOARD B268 CPOW TRAVEL AWARDEE**  
NEW TARGETED  $Ca^{2+}$  PROBES REVEAL MITOCHONDRIAL  $Ca^{2+}$  SIGNALING PLAYS A CRITICAL ROLE IN RAT SINOATRIAL (SA) NODAL PACING. **Xiaohua Zhang**, Christine Couch, Katalin Torok, Martin Morad

**1292-Pos BOARD B269**  
PREVELEGED  $Ca^{2+}$  SIGNALING PATHWAY BETWEEN MEMBRANE NCX AND MITOCHONDRIA IN CARDIAC MYOCYTES. **Xiaohua Zhang**, Naohiro Yamaguchi, Lars Cleemann, Martin Morad

**1293-Pos BOARD B270**  
BINDING SITES OF THE CA/NA EXCHANGER NCX ANALYZED WITH POISSON FERMI THEORY. Jinn-Liang Liu, **Robert S. Eisenberg**

**1294-Pos BOARD B271**  
NEURONAL INTRACELLULAR  $Ca^{2+}$  AND  $Na^+$  DYSHOMEOSTASIS IN THE MDX MOUSE. **Jose R. Lopez**, Juan Kolster, Jose Adams

**1295-Pos BOARD B272**  
ROLE OF INORGANIC POLYPHOSPHATE (POLYP) IN PHYSIOLOGICAL AND PATHOPHYSIOLOGICAL RESPONSE TO GLUTAMATE IN MAMMALIAN NEURONS. **Plamena R. Angelova**, Andrey Y. Abramov

**1296-Pos BOARD B273**  
CORTEX PHELLODENDRI EXTRACT RELAXES MOUSE AIRWAY SMOOTH MUSCLE. Weiwei Chen, Qui-Ju Jiang, Meng-Fei Yu, **Qing-Hua Liu**

**1297-Pos BOARD B274**  
R-CEPIA1ER AS A NEW TOOL TO DIRECTLY MEASURE  $[Ca]$  IN THE SARCOPLASMIC RETICULUM OF VENTRICULAR MYOCYTES. **Elisa Bovo**, Aleksey V. Zima, Jody L. Martin, Pieter P. de Tombe

**1298-Pos BOARD B275**  
SIMULATIONS OF SUBCELLULAR HETEROGENEITY IN CALCIUM BLINK KINETICS. **Elisa Nunez Acosta**, Eva Polakova, Eric A. Sobie

**1299-Pos BOARD B276**  
DYADIC REMODELING AS A CAUSE OF IMPAIRED E-C COUPLING IN EARLY STAGES OF MYOCARDIAL INJURY. **Alexandra jr. Zahradnikova**, Marta Novotova, Katarina Mackova, Ivan Zahradnik, Alexandra Zahradnikova

**1300-Pos BOARD B277**  
VENTRICULAR  $Na^+$ - $HCO_3^-$  COTRANSPORTER ACTIVITY AND INTRACELLULAR  $H^+$  MOBILITY ARE REMODELED IN CARDIAC HYPERTROPHY AND HEART FAILURE. **Kerrie L. Ford**, Carolina D. Garciarena, Yanwen Wang, Yatong Li, Michael Lawless, Ming Lei, Andrew Trafford, Pawel Swietach, Richard D. Vaughan-Jones

**1301-Pos BOARD B278**  
INTRACELLULAR CD38 MEDIATES CARDIAC SYNTHESIS OF NAADP AND CADPR. **Wee Khang Lin**, Emma Bolton, Matylda Maciejewska, Yanwen Wang, Wilian Cortopassi, Fiona O'Brien, Margarida Ruas, Ming Lei, Rebecca Sitsapesan, Antony Galione, Derek Terrar

**1302-Pos BOARD B279**  
THE ROLE OF MITOPHAGY IN CARDIOMYOCYTE ARRHYTHMOGENESIS. **Kevin R. Murphy**, Yichun Lu, Dmitry Terentyev, Gideon Koren

**1303-Pos BOARD B280**  
ELECTRON-CONFORMATIONAL TRANSFORMATIONS GOVERN THE TEMPERATURE DEPENDENCE OF THE RYR2 GATING. **Bogdan Iaparov**, Alexander Moskvina, Alexander Rytkin, Olga Solovyova

**1304-Pos BOARD B281**  
CORRELATION OF MOLECULAR DYNAMICS ANALYSIS AND CALCIUM SIGNALING IN MUTANT RYANODINE RECEPTORS. **Toshiko Yamazawa**, Takashi Murayama, Hideto Oyamada, Junji Suzuki, Nagomi Kurebayashi, Kazunori Kanemaru, Maki Yamaguchi, Chikara Sato, Masamitsu Iino

**1305-Pos BOARD B282**  
HUMAN INDUCED PLURIPOTENT STEM CELLS-DERIVED CARDIOMYOCYTES CARRYING CALM1-F142L MUTATION RECAPITULATE LQTS PHENOTYPE IN VITRO. **Marcella Rocchetti**, Luca Sala, Lisa Dreizehnter, Manuela Mura, Claudia Altomare, Joyce Bernardi, Carlotta Ronchi, Stefano Severi, Alfred L. George, Peter J. Schwartz, Daniel Sinnecker, Massimiliano Gneschi, Lia Crotti, Alessandra Moretti, Antonio Zaza

**1306-Pos BOARD B283 INTERNATIONAL TRAVEL AWARDEE**  
LOCAL CHARACTER OF RELEASE-DEPENDENT INACTIVATION OF L-TYPE CALCIUM CURRENT. **Barbora Hoffmannova**, Eva Polakova, Alexandra jr. Zahradnikova, Alexandra Zahradnikova, Ivan Zahradnik

**1307-Pos BOARD B284**  
SUPPRESSION OF CARDIAC ICA AND  $Ca^{2+}$  RELEASE BY ACUTE HYPOXIA AND ACIDIFICATION. **Jose Carlos Fernandez-Morales**, Xiao Hua Zhang, Lars Cleemann, Martin Morad

**1308-Pos BOARD B285**  
STIM-ORAI INTERACTION IN SCHISTOSOMA MANSONI INDICATES THE EXISTENCE OF FUNCTIONAL STORE-OPERATED CALCIUM ENTRY IN THE PARASITE. **Ana Eliza Zeraik**, Marina Gabriel Fontes, Jose Luiz Souza Lopes, Ana Paula Ulian Araujo, Ricardo DeMarco

**1309-Pos BOARD B286**  
INHIBITOR OF STORE-OPERATED CALCIUM ENTRY YM58483 SHOWS SIMILAR PHARMACOLOGICAL PROFILE TO NON-STEROIDAL ANTI-INFLAMMATORY DRUG CELECOXIB. **Alexandra S. Gherghina**, Aurelien Boillat, Shihab Shah, Nikita Gamper

**1310-Pos BOARD B287**  
ZINC INHIBITS ORAI1-MEDIATED CALCIUM SIGNALS IN ESOPHAGEAL CANCER CELLS. Sangyong Choi, Chaochu Cui, Yanhong Luo, Sun Hee Kim, Jae-Kyun Ko, Jianjie Ma, Irina Korichneva, **Zui Pan**

**1311-Pos BOARD B288**  
ORAI1 CONCATEMERS REVEAL A HEXAMERIC ORAI1 CHANNEL ASSEMBLY. **Xiangyu Cai**, Yandong Zhou, Xianming Wang, Natalia Loktionova, Robert Nwokonko, Mohamed Trebak, Donald Gill

**1312-Pos BOARD B289**  
STIM1-INDUCED CLUSTERING OF ORAI1 CHANNELS. **Robert Nwokonko**, Yandong Zhou, Xiangyu Cai, Natalia Loktionova, Xianming Wang, Donald Gill

**1313-Pos BOARD B290**  
ACTIVATION MECHANISM OF THE CALCIUM RELEASE-ACTIVATED CALCIUM CHANNEL REVEALED BY THE GATING COMPETENCE OF CONSTITUTIVELY OPEN ORAI MUTANTS. **Hao Dong**

**1314-Pos BOARD B291**  
MOLECULAR MECHANISMS OF STIM1-MEDIATED ORAI-1 CHANNEL ACTIVATION. **Zainab Haydari**, Hengameh Shams, Mohammad R K Mofrad

**1315-Pos BOARD B292**  
IMPACT OF STIM1 R304W MUTANT ON INTRA- AND INTERMOLECULAR CYTOSOLIC COILED-COIL INTERACTIONS. **Marc Fahrner**, Michael Stadlbauer, Martin Muik, Christoph Romanin

## Intracellular Calcium Channels and Calcium Sparks and Waves I (Boards B293 - B313)

**1316-Pos BOARD B293**  
DIFFERENTIAL EFFECTS OF TEMPERATURE AND LIPIDS ON THE GATING OF RYR AND SR  $K^+$  CHANNELS. **Sam El-Ajouz**, Elisa Venturi, Rebecca Sitsapesan



**1317-Pos BOARD B294**

DAMPENED ACTIVITY OF SINGLE RYANODINE RECEPTOR CHANNELS IN MICE DEVOID OF TRIC-A. **Katja Witschas**, Fiona O'Brien, Elisa Venturi, Sam El-Ajouz, Matthew Beech, David Eberhardt, Tsunaki Iida, Miyuki Nishi, Hiroshi Takeshima, Rebecca Sitsapesan

**1318-Pos BOARD B295**

SIMVASTATIN ACTIVATES SINGLE SKELETAL RYR1 CHANNELS BUT EXERTS MORE COMPLEX REGULATION OF THE CARDIAC ISOFORM, RYR2. **Elisa Venturi**, Katja Witschas, Sabine J. Lotteau, Emma Steer, Derek S. Steele, Sarah C. Calaghan, Rebecca Sitsapesan

**1319-Pos BOARD B296 CPOW TRAVEL AWARDEE**

SIMVASTATIN HAS PROFOUND EFFECTS ON SARCOPLASMIC RETICULUM  $Ca^{2+}$  LEAK IN SKELETAL BUT NOT CARDIAC MUSCLE: A MECHANISM FOR MYOPATHY. **Sabine Lotteau**, Zhaokang Yang, Elisa Venturi, Emma Steer, Katja Witschas, Rebecca Sitsapesan, Derek Steele, Sarah Calaghan

**1320-Pos BOARD B297**

AXIAL MEMBRANE TUBULES IN ATRIAL CARDIOMYOCYTES CONFINE ULTRARAPID INTRACELLULAR CALCIUM SIGNALS THROUGH A NEW SUPERHUB MECHANISM. Sören Brandenburg, Tobias Kohl, George S.B. Williams, Konstantin Gusev, Eva Wagner, Elke Hebisch, Christopher W. Ward, W. J. Lederer, **Stephan E. Lehnart**

**1321-Pos BOARD B298**

CARDIAC PACEMAKER CELL FUNCTION AT A SUPER-RESOLUTION SCALE OF SIM: DISTRIBUTION OF RYRS, CALCIUM DYNAMICS, AND NUMERICAL MODELING. **Victor A. Maltsev**, Alexander V. Maltsev, Magdalena Juhaszova, Syevda Sirenko, Oliver Monfredi, Hari Shroff, Andrew York, Steven J. Sollott, Edward G. Lakatta, Michael D. Stern

**1322-Pos BOARD B299**

RELATIVE CONTRIBUTION OF LOCAL  $Ca^{2+}$  RELEASES (LCRS) AND AP-INDUCED  $Ca^{2+}$  TRANSIENT DECAY TO DIASTOLIC DEPOLARIZATION IN RABBIT SA NODE CELLS. **Oliver J. Monfredi**, Alexander Maltsev, Sean Parsons, Bruce Ziman, Edward Lakatta, Michael D. Stern, Victor A. Maltsev

**1323-Pos BOARD B300**

ENHANCED RYR2 CHANNEL ACTIVITY BUT REDUCED  $Ca^{2+}$  SPARK OCCURRENCE IN FAILING MICE CARDIOMYOCYTES. **Linwei Li**, Gema Ruiz-Hurtado, Maria Fernandez-Velasco, Angelica Rueda, Florence Lefebvre, Yue Yi Wang, Philippe Mateo, Cecile Cassan, Barnabas Gellen, Jean Pierre Benitah, Ana M. Gomez

**1324-Pos BOARD B301**

CHARACTERIZATION OF  $Ca^{2+}$ -INDUCED  $Ca^{2+}$  RELEASE VIA RYR2 CARRYING ARRHYTHMOGENIC MUTATIONS. **Nagomi Kurebayashi**, Takashi Murayama, Junji Suzuki, Kazunori Kanemaru, Masamitsu Iino, Takashi Sakurai

**1325-Pos BOARD B302**

INHIBITION OF RYR2 ACTIVITY BY INTRACELLULAR FLECAINIDE EFFECTIVELY SUPPRESSES ARRHYTHMOGENIC CA WAVES IN INTACT VENTRICULAR MYOCYTES FROM CASQ2  $-/-$  MICE. **Dmytro Kryshtal**, Björn C. Knollmann

**1326-Pos BOARD B303**

MANIPULATION OF RYANODINE RECEPTOR ACTIVITY MODULATES AUTOIMMUNE RESPONSES IN MICE. Natalia C. Osipchuk, Paul D. Allen, Lillian Cruz-Orengo, Athena Soulika, **Alla Fomina**

**1327-Pos BOARD B304**

HIGH-THROUGHPUT SCREENS TO DISCOVER INHIBITORS OF LEAKY RYANODINE RECEPTOR CALCIUM CHANNELS. Robyn T. Rebbeck, Florentin R. Nitu, David D. Thomas, Donald M. Bers, **Razvan L. Cornea**

**1328-Pos BOARD B305**

FLUORESCENCE-LABELED IMPERACALCIN BINDS TO OPEN RYR2 CHANNELS IN MOUSE VENTRICULAR MYOCYTES. **Liang Xiao**, Yi Yang, Geogina B. Gurrola, Florentin R. Nitu, José Luis Puglisi, Liming Zhang, Razvan L. Cornea, Donald M. Bers, Héctor H. Valdivia

**1329-Pos BOARD B306**

STRUCTURAL DYNAMICS OF CALMODULIN IN REGULATION OF CARDIAC CALCIUM RELEASE IN HEALTH AND DISEASE. **Megan R. McCarthy**, Robyn T. Rebbeck, Razvan L. Cornea, David D. Thomas

**1330-Pos BOARD B307**

CARDIAC RYANODINE RECEPTOR CHANNEL GATING IS MODIFIED DURING BLOCKER-INDUCED CHANGES IN ION PERMEATION. **Saptarshi Mukherjee**, Nia L. Thomas, Alan J. Williams

**1331-Pos BOARD B308**

FRET-BASED MAPPING OF CALMODULIN WITHIN THE RYANODINE RECEPTOR. **Robyn T. Rebbeck**, Bengt Svensson, Florentin R. Nitu, Montserrat Samsó, Donald M. Bers, David D. Thomas, Razvan L. Cornea

**1332-Pos BOARD B309**

CALMODULIN REGULATION OF RYANODINE RECEPTORS (RYR2) DIFFERS IN FAILING AND NON-FAILING HUMAN HEARTS DUE TO DIFFERENCES IN RYR2 PHOSPHORYLATION. **Derek R. Laver**, Kafa Walweel, Ye Win Oo, Dirk van Helden, Cris dos Remedios, Peter Molenaar

**1333-Pos BOARD B310**

PROTEIN PHOSPHATASE-1 INCREASES CALCIUM SPARK FREQUENCY IN MURINE CARDIOMYOCYTES VIA MODULATION OF RYR2 PHOSPHORYLATION. **Duilio Michele Potenza**, Miguel Fernandez-Tenorio, Ernst Niggli

**1334-Pos BOARD B311**

ABLATION OF TWO MAJOR PHOSPHORYLATION SITES IN RYR2 ALTER SARCOPLASMIC RETICULUM CALCIUM HANDLING AND INCREASES THE PROPENSITY TO ATRIAL FIBRILLATION. **Roberto Ramos Mondragon**, Emmanuel M. Camors, Yangyang Bao, Cicero B. Willis, Carmen Valdivia, Lori Isom, Jose Jalife, Hector H. Valdivia

**1335-Pos BOARD B312**

NITROSYLATION OF RYR2 PREVENTS ACTIVATION OF CA WAVES INDUCED BY REDOX-MEDIATED INTERSUBUNIT CROSS-LINKING. Elisa Bovo, Stefan R. Mazurek, Jody L. Martin, Pieter P. de Tombe, **Aleksey V. Zima**

**1336-Pos BOARD B313**

ZINC MODULATES SKELETAL RYANODINE RECEPTOR FUNCTION RESULTING IN ALTERED SARCOPLASMIC RETICULUM CALCIUM RELEASE. **Gavin B. Robertson**, Benedict Reilly-O'Donnell, Craig Balmforth, Samantha J. Pitt

## Cardiac Smooth and Skeletal Muscle Electrophysiology I (Boards B314 - B335)

**1337-Pos BOARD B314**

ELECTROPHYSIOLOGICAL PROPERTIES OF HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES CULTURED ON A FLEXIBLE MATRIGEL SUBSTRATE. **Lili Wang**, Tromondae K. Feaster, Dmytro O. Kryshtal, Charles C. Hong, Bjorn C. Knollmann

**1338-Pos BOARD B315**

VARIABILITY OF THE FIELD POTENTIAL DURATION OF STEM CELL-DERIVED CARDIOMYOCYTES IS A PROARRHYTHMIC INDICATOR. **Andrew Bruening-Wright**, Carlos A. Obejero-Paz, James Kramer, Arthur M. Brown

**1339-Pos BOARD B316**

IMPEDANCE AND COMBINED EXTRACELLULAR FIELD POTENTIAL RECORDINGS OF CIPA REFERENCE COMPOUNDS ON IPS CARDIOMYOCYTES. **Corina Bot**, Sonja Stoelzle-Feix, Nadine Becker, Krisztina Juhasz, Ulrich Thomas, Leo Doerr, Rodolfo Haedo, Matthias Beckler, Joerg Oestreich, Michael George, Andrea Brüggemann, Niels Fertig

**1340-Pos BOARD B317 EDUCATION TRAVEL AWARDEE**

MODELING ELECTROPHYSIOLOGICAL INTERACTIONS BETWEEN MESCENCHYMAL STEM CELLS AND CARDIOMYOCYTES FOR IMPROVED CELL DELIVERY CARDIOTHERAPEUTICS. **Joshua Mayourian**, Ruben M. Savizky, Eric A. Sobie, Kevin D. Costa

**1341-Pos BOARD B318**

L-TYPE CALCIUM AND NCX CURRENTS DURING ISCHEMIA AND REPERFUSION IN INTACT MOUSE HEARTS. Yuriana Aguilar-Sanchez, Myrian Zavalza, Victoria To, Alicia R. Mattiazzi, **Josefina Ramos-Franco**, Ariel L. Escobar

**1342-Pos BOARD B319**

DOWN REGULATION OF L-TYPE CALCIUM CURRENT IN RAT ATRIAL MYOCYTES DURING HEART FAILURE. **Andrew F. James**, Richard C. Bond, Simon M. Bryant, Judy J. Watson, Jules C. Hancox, Clive H. Orchard

**1343-Pos BOARD B320**

ROSCOVITINE AS THE ARCHETYPAL MEMBER OF A NOVEL CLASS OF ANTI-ARRHYTHMICS TARGETING LATE  $I_{CaL}$ . **Marina Angelini**, Arash Pezhouman, Nicoletta Savalli, Antonios Pantazis, Araz Melkonian, James N. Weiss, Hrayr S. Karagueuzian, Riccardo Olcese

**1344-Pos BOARD B321**

TRANSIENT OUTWARD POTASSIUM CURRENT AND ITS ARRHYTHMOGENIC DYNAMICS IN CARDIAC MYOCYTES. **Julian W. Landaw**, Alan Garfinkel, James N. Weiss, Zhilin Qu

**1345-Pos BOARD B322**

AN INVESTIGATION ON ELECTRICAL ACTIVITY AND SARCOLEMMA  $K^+$  CHANNELS IN CARDIOMYOCYTES FROM INSULIN-RESISTANT RAT HEART. **Aysegul Toy**, YUSUF OLGAR, Sinan Degirmenci, Erkan Tuncay, BELMA TURAN

**1346-Pos BOARD B323**

BOTH HYPERGLYCEMIA AND HYPERINSULINEMIA INDUCE CHANGES IN VOLTAGE-DEPENDENT  $K^+$  CHANNEL CURRENTS IN H9C2 VENTRICULAR CELLS. **Sinan Degirmenci**, Yusuf Olgar, Aysegul Toy, Belman Turan

**1347-Pos BOARD B324 EDUCATION TRAVEL AWARDEE**

CAMKII INHIBITOR KN-93 DIRECTLY BLOCKS IKR IN CARDIAC MYOCYTES. **Bence Hegyi**, Ye Chen-Izu, Zhong Jian, Rafael Shimkunias, Leighton T. Izu, Tamas Banyasz

**1348-Pos BOARD B325**

MODULATION OF HERG 1A TRAFFICKING BY HERG 1B SUBUNITS IN HEART. Kelly A. Aromolaran, Donald D. Chang, R. Suzanne Zukin, Henry M. Colecraft, Mohamed Chahine, Mohamed Boutjdir, **Ademuyiwa Aromolaran**

**1349-Pos BOARD B326**

BLOCKADE OF CALCIUM/CALMODULIN-DEPENDENT KINASE II (CAMKII) INDUCES HETEROGENEOUS DEPRESSION OF CONDUCTION AND PROMOTES ISCHEMIC VENTRICULAR FIBRILLATION (VF). **Mark Warren**, Katie J. Sciuto, Junko Shibayama, Alexey V. Zaitsev

**1350-Pos BOARD B327**

CONCURRENT PDE3 AND PDE4 ACTIVATION SUPPRESSES LOCAL  $Ca^{2+}$  RELEASES (LCR) TO REGULATE NORMAL SPONTANEOUS FIRING OF SINOATRIAL NODE CELLS (SANC). **Tatiana M. Vinogradova**, Yevgeniya Lukyanenko, Kirill V. Tarasov, Syevda Sirenko, Alexey E. Lyashkov, Yue Li, Edward G. Lakatta

**1351-Pos BOARD B328**

HETEROGENEITY IN BEATING AND RESPONSE TO BETA ADRENERGIC RECEPTOR STIMULATION IN ISOLATED SINGLE SINOATRIAL NODAL CELLS (SANC). **Kenta Tsutsui**, Oliver J. Monfredi, Ashley N. Wirth, Mary S. Kim, Rostislav Bychkov, Victor A. Maltsev, Edward G. Lakatta

**1352-Pos BOARD B329**

SMALL-CONDUCTANCE  $Ca^{2+}$ -ACTIVATED  $K^+$  CURRENT IN ATRIAL FIBRILLATION: BOTH FRIEND AND FOE. **Stefano Morotti**, Jussi T. Koivumäki, Mary M. Maleckar, Nipavan Chiamvimonvat, Eleonora Grandi

**1353-Pos BOARD B330**

ARRHYTHMIA TRIGGERS IN 1D STRANDS OF VENTRICULAR MYOCYTES. **Shankar Iyer**, Minu Madhvani, Brian Nguyen, Nicole Nguyen, Beshoy Iskander, Jie Li, Thao P. Nguyen

**1354-Pos BOARD B331**

ATRIAL EARLY AFTERDEPOLARIZATION: AN EMERGING PROPERTY OF THE FIBROTIC ATRIA? **Neha Singh**, Binh Nguyen, Himani Madnawat, Mojdeh Dooraghi, Shankar Iyer, Thao P. Nguyen

**1355-Pos BOARD B332**

DOWN REGULATION OF ATRIAL GAP JUNCTION IN METABOLIC SYNDROME IS ASSOCIATED WITH VLDL-INDUCED O-LINKED GLYCOSYLATION. **Hsiang-Chun Lee**, Hsin-Ting Lin, Yi-Lin Hsiao, Sheng-Hsiung Sheu, Chu-Huang Chen, Wen-Ter Lai, Bin-Nan Wu

**1356-Pos BOARD B333**

VENTRICULAR MYOCYTES ELECTRICALLY COUPLE WITH NONMYOCYTES IN THE INFARCTED MOUSE HEART. **Michael Rubart**, Wen Tao, Xiao-long Lu, Shien-Fong Lin, Mark Soonpaa

**1357-Pos BOARD B334**

EPHAPTIC SELF-ATTENUATION CONCEALS EARLY AFTERDEPOLARIZATIONS ASSOCIATED WITH LONG QT-3 SYNDROME. Steven Poelzing, Amara Greer-Short, Donald K. Jessup, **Seth H. Weinberg**

**1358-Pos BOARD B335**

A NOVEL TARGET FOR ANTIARRHYTHMIC THERAPY: ENHANCEMENT OF CARDIAC CONDUCTION BY IONIC MODULATION OF EPHAPTIC COUPLING. **Sharon George**, Morten Nielsen, Steven Poelzing

**Muscle Regulation (Boards B336 - B339)****1359-Pos BOARD B336**

MAGNESIUM INFLUX IN PRIMARY CULTURED VENTRICULAR MYOCYTES OF ADULT RATS. **Michiko Tashiro**, Hana Inoue, Shinobu Tai, Masato Konishi

**1360-Pos BOARD B337**

MICE WITH DOUBLE KNOCKOUT OF CALPONIN 1 AND CALPONIN 2 GENES DEMONSTRATE CONTRACTILITY MODIFICATIONS IN VASCULAR SMOOTH MUSCLE. **Han-Zhong Feng**, Katsuhito Takahashi, Jian-Ping Jing

**1361-Pos BOARD B338**

BIOCHEMICAL COMPARISON OF RABBIT SKELETAL MUSCLE ALPHA AND BETA TROPOMYOSIN ISOFORMS. **David H. Heeley**, Elke M. Lohmeier-Vogel

**1362-Pos BOARD B339**

CONSEQUENCES OF REDUCED TROPONIN-C CALCIUM BINDING AFFINITY ON SLOW SKELETAL MUSCLE. **Peter J. Reiser**, Natalya Belevych, Svetlana Tikunova

**Voltage-gated K Channels, Mechanisms of Voltage Sensing and Gating II (Boards B340 - B369)****1363-Pos BOARD B340**

CHARACTERIZATION OF THE  $\sigma$ -PORE IN MUTANT HKV1.3 POTASSIUM CHANNELS. **Pavel Yurievitch Tyutyayev**, Stephan Grissmer

**1364-Pos BOARD B341**

A NEAR-IR FLUORESCENT SENSOR FOR DETECTING CELLULAR POTASSIUM EFFLUX. **Dharmika Bandara**, Zhengmao Hua, Steven Pauff, Stephen Miller, Elizabeth Colby Davie, William Kobertz

**1365-Pos BOARD B342**

A NON-CANONICAL VOLTAGE SENSOR CONTROLS GATING IN K2P K<sup>+</sup> CHANNELS. **Marcus Schewe**, Ehsan Nematian-Ardestani, Han Sun, Marianne Musinszki, Sönke Cordeiro, Giovanna Bucci, Bert L. de Groot, Stephen J. Tucker, Markus Rapedius, Thomas Baukowitz

**1366-Pos BOARD B343**

VARIABLE ELECTROSTATIC REPULSION MODEL OF ION-CHANNEL ACTIVATION VS. GATED PORE WITH "NEUTRALIZED" S4 SEGMENTS. **H. Richard Leuchtag**

**1367-Pos BOARD B344**

IDENTIFICATION OF RESIDUES IMPORTANT FOR THE PUFA SENSITIVITY OF IKS. **Johan E. Larsson**, H Peter Larsson, Sara I. Liin

**1368-Pos BOARD B345**

RELAXATION OF THE VOLTAGE SENSING MODULES OF EXCITATION-CONTRACTION (EC) COUPLING IN MAMMALIAN SKELETAL MUSCLE. **Juan Ferreira**, German Pequera, Carlo Manno, Eduardo Rios, Gustavo Brum

**1369-Pos BOARD B346**

EFFECT OF 2-AMINOETHYLMETHANETHIOSULPHONATE (MTSEA) ON THE HKV1.3\_L346C AND THE HKV1.3\_L346C\_L418C MUTANT CHANNELS. **Ann-Kathrin Diesch**, Stephan Grisser

**1370-Pos BOARD B347 EDUCATION TRAVEL AWARDEE**  
ELUCIDATION OF MOLECULAR MECHANISM UNDERLYING KCSA'S HYS-TERETIC GATING BEHAVIOR. **Cholpon Tilegenova**, D. Marien Cortes, Luis G. Cuello

**1371-Pos BOARD B348**

GINSENOSE R3 ACTIVATES HUMAN EAG FAMILY OF K<sup>+</sup> CHANNELS VIA ALLOSTERIC MODIFICATION OF GATING. **Wei Wu**, Alison Gardner, Michael Sanguinetti

**1372-Pos BOARD B349**

HERG S4-S5 ACTS AS A VOLTAGE-DEPENDENT LIGAND BINDING THE ACTIVATION GATE AND LOCKING IT IN A CLOSED STATE. **Olfat Malak**, Gildas Loussouarn, Zeineb Es-Salah-Lamoureux

**1373-Pos BOARD B350**

7-DEHYDROCHOLESTEROL MODIFIES THE OPERATION OF KV1.3 CHANNELS IN T CELLS ISOLATED FROM SMITH-LEMLI-OPITZ SYNDROME PATIENTS. **Andras Balajthy**, Zoltan Petho, Sandor Somodi, Zoltan Varga, Maria Peter, Laszlo Vigh, Gabriella P. Szabó, Gyorgy Paragh, Gyorgy Panyi, Peter Hajdu

**1374-Pos BOARD B351**

KV 7.4 CHANNEL ACTIVITY IS DEPENDENT UPON PIP2 AND G $\beta$  $\gamma$  SUB-UNITS. **Oleksandr Povstyan**, Jennifer Stott, Vincenzo Barrese, Iain Greenwood

**1375-Pos BOARD B352**

MOUSE CARDIAC MITO $BK_{Ca}$  ASSOCIATES WITH  $\beta$ 1 SUBUNIT FAVORING CHANNEL EXPRESSION AND ACTIVITY. **Enrique Balderas Angeles**, Riccardo Olcese, Ligia Toro, Enrico Stefani

**1376-Pos BOARD B353**

BK CHANNEL SUBPROTEOME INCLUDES NOVEL MITOCHONDRIAL PARTNERS: ADP/ATP CARRIER AND TOM 22 IMPORT RECEPTOR. **Jin Zhang**, Zhu Zhang, Ronghui Zhu, Min Li, Rong Lu, Yong Wu, Riccardo Olcese, Enrico Stefani, Ligia Toro

**1377-Pos BOARD B354**

DIFFERENTIAL EXPRESSION OF BK CHANNEL ALPHA AND BETA1 SUB-UNITS IN RAT CEREBRAL ARTERIES. **Guruprasad Kuntamallappanavar**, Shivantika Bisen, Anna N. Bukiya, Alex M. Dopico

**1378-Pos BOARD B355**

BK AND CAV1.3 CHANNELS ORGANIZE IN CLUSTERS THAT CONTROL EX-CITABILITY IN NEURONS. **Oscar Vivas**, Claudia M. Moreno, Luis F. Santana, Bertil Hille

**1379-Pos BOARD B356**

FUNCTIONAL IMPACT OF P320 IN HSLO1 BK CHANNEL GATING. **Guido Gessner**, Toshinori Hoshi, Stefan H. Heinemann

**1380-Pos BOARD B357**

BK CHANNEL C-LINKER AND AC REGION ARE CRUCIAL FOR AUXILIARY  $\beta$ 2 SUBUNIT REGULATIONS. Zhenzhen Yan, Bin Hu, Xiyang Guo, Anxi Weng, Ling Zhong, Feng Xiao, Jiuping Ding, **Panpan Hou**

**1381-Pos BOARD B358**

EFFECTS OF SINGLE NUCLEOTIDE POLYMORPHISMS (SNPS) ON BK K<sup>+</sup> CHANNEL PROPERTIES. **Amber E. Plante**, Michael H. Lai, Andrea L. Meredith

**1382-Pos BOARD B359**

17 $\beta$ -ESTRADIOL BINDS AND MODULATES BK CHANNEL THROUGH ITS B1 AUXILIARY SUBUNIT. **Sara T. Granados**, Felipe Bravo, Romina Sepúlveda, Danilo González-Nilo, Janneth Gonzalez, Ramón Latorre, Yolima Torres

**1383-Pos BOARD B360**

REGULATION OF KV11.1 C-TERMINAL ISOFORM EXPRESSION BY HU PRO-TEINS. Qiuming Gong, Matthew R. Stump, **Zhengfeng Zhou**

**1384-Pos BOARD B361**

CALCIUM MODULATES HERG FUNCTION BY ACTING AT TWO DISTINCT BINDING SITES. Davindeep Brar, Seth Ching, Kristoffer Chin, Andrew Nguyen, **Alan Miller**

**1385-Pos BOARD B362**

ENERGETIC CONTRIBUTIONS OF AROMATIC RESIDUES IN HV1 BLOCK BY 2-GUANIDINOIMIDAZOLES AND IN HV1 VOLTAGE-DEPENDENT ACTIVATION. **Liang Hong**, Jason D. Galpin, Christopher A. Ahern, Francesco Tombola

**1386-Pos BOARD B363**

EXPLORATION OF THE LAST, CHANNEL OPENING TRANSITION OF THE VOLTAGE SENSOR S4 IN A POTASSIUM CHANNEL. **Jakob Renhorn**, Luca Conti, Fredrik Elinder

**1387-Pos BOARD B364**

LIPOsome-BASED IN VITRO BIOSYNTHESIS OF TWO-PORE DOMAIN PO-TASSIUM CHANNELS FOR FUNCTIONAL STUDIES. **Marianne A. Musinszki**, Thomas Baukowitz

**1388-Pos BOARD B365**

A CHARGED RESIDUE IN THE HCN CHANNEL C-LINKER STABILIZES THE OPEN STATE. **Dana A. Page**, Edgar C. Young

**1389-Pos BOARD B366**

CRYSTAL STRUCTURE OF THE UNLIGANDED FORM OF CYCLIC NUCLEO-TIDE BINDING DOMAIN (CNBD) FROM HCN2 CHANNEL. **Vadim A. Klenschin**, Claudia P. Alvarez-Baron, John Cowgill, Qiang Cui, Baron Chanda

**1390-Pos BOARD B367**

HYDRATION OF CRITICAL RESIDUES IN THE SHAKER KV CHANNEL GOV-ERNS THE ENERGY LANDSCAPE AND TEMPERATURE DEPENDENCE OF CHANNEL GATING. **Sandipan Chowdhury**, Brian W. Jarecki, Baron Chanda

**1391-Pos BOARD B368**

THE ROLE OF ION BINDING SITES IN C-TYPE INACTIVATION OF A K CHAN-NEL. Kim Matulef, **Francis Valiyaveetil**

**1392-Pos BOARD B369**

MULTI-MICROSECOND MOLECULAR DYNAMICS SIMULATIONS OF THE HV1 PROTON CHANNEL. **Andrew Geragotelis**, Mona L. Wood, Hendrik Goeddeke, Saleh Riahi, Scott A. Hollingsworth, J. Alfredo Freitas, Francesco Tombola, Douglas J. Tobias

## TRP Channels I (Boards B370 - B392)

**1393-Pos BOARD B370**  
INFLUX-OPERATED CA<sup>2+</sup> ENTRY VIA PKD2-L1/PKD1-L3 CHANNELS FACILITATES SENSORY RESPONSES TO POLYMODAL TRANSIENT STIMULI. Yuxia Liu, **Xiaodong Liu**

**1394-Pos BOARD B371**  
TEMPERATURE SENSITIVITY OF FRUIT FLY GUSTATORY RECEPTORS. **Kayla Miguel**, Autoosa Salari, Benjamin Zars, Troy Zars, Lorin S. Milesco, Mirela Milesco

**1395-Pos BOARD B372**  
ROLES OF THE N- AND C-TERMINI IN THE FUNCTION OF THE YVC1P SACCHAROMYCES CEREVISIAE TRP CHANNEL. Samantha Ho, **Lise Thomas**

**1396-Pos BOARD B373**  
MODULATION OF THERMO-TRP CHANNELS BY TEMPERATURE IN PLANAR LIPID BILAYERS. **Mohamed Kreir**, Matthias Beckler, Alison Obergrussberger, Ilka Rinke, Sonja Stoelze-Feix, Michael George, Andrea Brüggemann, Niels Fertig

**1397-Pos BOARD B374**  
BROAD SENSITIVITY OF DROSOPHILA MELANOGASTER TRPA1 TO NOXIOUS CHEMICALS. **Brett Boonen**, Yeranddy Alpizar, Alessia Soldano, Alejandro Lopez Requena, Bassem Hassan, Thomas Voets, Karel Talavera

**1398-Pos BOARD B375**  
PUNGENT AND NON-PUNGENT GENERAL ANESTHETICS INTERACT WITH TRPA1 VIA DISTINCT BINDING POCKET IN THE PORE DOMAIN REGION. **Hoai T. Ton**, Jacqueline Smith, Thieu X. Phan, Milton Brown, Gerard P. Ahern

**1399-Pos BOARD B376**  
STRUCTURAL CHARACTERIZATION OF LIGAND-SPECIFIC INTERACTIONS IN TRPV1 CHANNEL: GATING MECHANISM BY CAPSAICIN AND CAPSAZEPINE. **Fernando D. Gonzalez-Nilo**, Javier Caceres-Molina, Felipe Bravo-Moraga, Romina Sepulveda, Ignacio Diaz-Franulic

**1400-Pos BOARD B377**  
EXTRACELLULAR SODIUM IS REQUIRED FOR TEMPERATURE-DEPENDENT GATING IN TRPV1 CHANNELS. **Andres Jara-Oseguera**, Chanhyung Bae, Kenton J. Swartz

**1401-Pos BOARD B378**  
A PAIN-INDUCING CENTIPEDE TOXIN TARGETS THE HEAT ACTIVATION MACHINERY OF NOCICEPTOR TRPV1. Shilong Yang, **Fan Yang**, Ningning Wei, Jing Hong, Bowen Li, Lei Luo, Mingqiang Rong, Vladimir Yarov-Yarovoy, Jie Zheng, KeWei Wang, Ren Lai

**1402-Pos BOARD B379**  
CYSTEINE-FREE MINITRPV1 IS A PLATFORM FOR STRUCTURE-FUNCTION ANALYSIS OF TRPV1. **Mario G. Rosasco**, Gilbert Q. Martinez, Erin M. Williams, Luke D. Cody, Sharona E. Gordon

**1403-Pos BOARD B380**  
INHIBITION OF TRPV1 BY AN UNSATURATED FATTY ACID. **Sara L. Morales-Lázaro**, Itzel Llorente, Félix Sierra, Ana E. López-Romero, León D. Islas, Sidney A. Simon, Tamara Rosenbaum

**1404-Pos BOARD B381**  
LIGHT-CONTROLLED PI3K ACTIVATION MIMICS TRPV1 POTENTIATION BY NGF. **Anastasiia Stratiievska**, Sharona E. Gordon

**1405-Pos BOARD B382**  
SELECTIVE ACTIVATION OF NOCICEPTOR TRPV1 CHANNEL AND REVERSAL OF INFLAMMATORY PAIN IN MICE BY A NOVEL COUMARIN DERIVATIVE MURALATIN L FROM MURRAYA ALATA. **Ningning Wei**, Haining Lv, Yang Wu, Shilong Yang

**1406-Pos BOARD B383**  
STRUCTURE OF A DOUBLE-KNOT TARANTULA TOXIN BOUND TO THE TRPV1 CHANNEL AT THE PROTEIN-LIPID INTERFACE. **Chanhyung Bae**, Claudio Anselmi, Jeet Kalia, Andres Jara-Oseguera, Charles D. Schwieters, Dmitriy Krepkiy, Chul Won Lee, Jae Il Kim, José D. Faraldo-Gómez, Kenton J. Swartz

**1407-Pos BOARD B384**  
CELL UNROOFING ENHANCES TRPV1 MOBILITY IN THE PLASMA MEMBRANE. **Eric N. Senning**, Sharona E. Gordon

**1408-Pos BOARD B385**  
TRPV1 EXPRESSED IN HEK293T/17 CELLS IS NOT REGULATED BY PLASMA MEMBRANE CHOLESTEROL CONTENT. **Sharona E. Gordon**, Marcus D. Collins, Moshe T. Gordon

**1409-Pos BOARD B386**  
SEQUENTIAL EVENTS DURING CAPSAICIN-INDUCED TRPV1 ACTIVATION. **Xian Xiao**, Fan Yang, Jie Zheng

**1410-Pos BOARD B387**  
TOLL-LIKE RECEPTOR 4 ACTIVATION BY LPS STIMULATES TRPV2 CHANNEL ACTIVITY IN MICROGLIA. **Tuoxin Cao**, Ian S. Ramsey

**1411-Pos BOARD B388**  
ENGINEERING VANILLOID-SENSITIVITY INTO THE TRPV2 CHANNEL. **Feng Zhang**, Sonya M. Hanson, Larry Pearce, Dmitriy Krepkiy, Andres Jara-Oseguera, Peter M. Blumberg, Simon Newstead, Kenton J Swartz

**1412-Pos BOARD B389**  
THE ROLE OF INTERACTING PROTEINS IN TRPV4 CHANNELOPATHIES. **Laura Vangeel**, Sam Lievens, Jan Tavernier, Thomas Voets

**1413-Pos BOARD B390 CPOW TRAVEL AWARDEE**  
A LIPID-EXPOSED RESIDUE AT THE START OF S4-S5 LINKER CONTROLS TRPV4 GATING. **Jinfeng Teng**, Stephen H. Loukin, Andriy Anishkin, Paul Blount, Ching Kung

**1414-Pos BOARD B391**  
STUDYING THE EFFECTS OF BIOACTIVE LIPIDS ON TRPV4 ACTIVATION. **Valeria Vasquez**, Phanindra Velisetty, Julio F. Cordero-Morales

**1415-Pos BOARD B392**  
CONVERSION OF THE PIP2 DEPENDENT TRPV6 CHANNEL FROM LOW TO HIGH PHOSPHOINOSITIDE AFFINITY BY A CHARGE REINTRODUCTION MUTATION. Phanindra Velisetty, Istvan Borbiri, Marina Kasimova, Luyu Liu, Vincenzo Carnevale, **Tibor Rohacs**

## Ligand-gated Channels I (Boards B393 - B416)

**1416-Pos BOARD B393**  
EXPRESSION LEVEL DEPENDENCE OF THE GATING AND PERMEATION PROPERTIES OF P2X RECEPTOR CHANNELS. **Mufeng Li**, Shai D. Silberberg, Kenton J. Swartz

**1417-Pos BOARD B394**  
MOLECULAR DETERMINANTS FOR LIGAND RECOGNITION IN P2X RECEPTORS. **Federica Gasparri**, Stephan A. Pless

**1418-Pos BOARD B395**  
ROLE OF G338 OF THE SECOND TRANSMEMBRANE DOMAIN IN GATING OF THE HUMAN P2X7 RECEPTOR. Nancy Zipfel, Achim Kless, Anja Pippel, Michaela Stolz, Guenther Schmalzing, **Fritz Markwardt**

**1419-Pos BOARD B396**  
PLANT GLUTAMATE RECEPTORS: ELECTROPHYSIOLOGICAL CHARACTERIZATION AND EVOLUTIONARY PERSPECTIVES. **Erwan Michard**, Michael M. Wudick, Michael A. Lizzio, Carlos Ortiz Ramirez, Cláudia Campos, José A. Feijó

**1420-Pos BOARD B397**  
FUNCTIONAL ROLES OF A CONSERVED TRYPTOPHAN AT SUBUNIT-SUBUNIT INTERFACES IN NMDA RECEPTOR MEMBRANE REGIONS. **Madeleine R. Wilcox**, Nathan G. Glasgow, Jon W. Johnson

**1421-Pos BOARD B398**  
INTRA AND INTERDOMAIN MOTIONS OF THE NMDA RECEPTOR USING SINGLE MOLECULE FRET. **Drew Dolino**, Sudeshna Chatterjee, David Cooper, Henriette Jaurich, Swarna Ramaswamy, Soheila Rezaei Adariani, Hugo Sanabria, Christy Landes, Vasanthi Jayaraman

**1422-Pos BOARD B399**  
MPX-004: A NEW PHARMACOLOGICAL TOOL TO STUDY THE PHYSIOLOGY OF NMDA RECEPTORS CONTAINING THE GLUN2A SUBUNIT. Robert A. Volkmann, **Christopher Fanger**, David R. Anderson, Frank S. Menniti

**1423-Pos BOARD B400**  
STRUCTURAL AND FUNCTIONAL COUPLING BETWEEN BK CHANNELS AND NMDA RECEPTORS. **Jiyuan Zhang**, Qin Li, Xin Guan, Hui-Lin Pan, Jiusheng Yan

**1424-Pos BOARD B401**  
LOCAL  $Ca^{2+}$  NANODOMAINS INITIATE  $Ca^{2+}$ /CALMODULIN-DEPENDENT INACTIVATION OF NMDA RECEPTORS. **Gary Iacobucci**

**1425-Pos BOARD B402**  
MODULATION OF GLUTAMATE RECEPTORS BY AUXILIARY PROTEINS A STRUCTURAL INVESTIGATION. **Douglas B. Litwin**, Garam Lee, David Maclean, Vasanthi Jayaraman

**1426-Pos BOARD B403**  
FUNCTIONAL AND STRUCTURAL CHARACTERIZATION OF THE GLUK2/GLUKS HETEROTETRAMER GATING MECHANISM. **Teresa Paramo**, Patricia M.G.E. Brown, Mark R. P. Arousseau, Maria Musgaard, Derek Bowie, Philip C. Biggin

**1427-Pos BOARD B404**  
CONFORMATIONAL DYNAMICS OF THE GLUK2 LIGAND-BINDING DOMAIN. **Tyler J. Wied**, Albert Y. Lau

**1428-Pos BOARD B405** CID TRAVEL AWARDEE  
IDENTIFICATION OF FUNCTIONAL DETERMINANTS OF KAINATE RECEPTOR MODULATION BY AUXILIARY PROTEIN NETO2. **Theanne N. Griffith**, Geoffrey T. Swanson

**1429-Pos BOARD B406**  
MECHANISMS OF GLUTAMATE CAPTURE BY A CLAMSHELL BINDING DOMAIN. **Alvin Yu**, Héctor Salazar, Andrew J. R. Plested, Albert Y. Lau

**1430-Pos BOARD B407**  
COMPUTATIONAL STUDY OF THE IMPACT OF THE L483Y MUTATION ON THE DESENSITIZATION OF THE AMPA RECEPTOR. **Rémi Cuchillo**, Philip C. Biggin

**1431-Pos BOARD B408**  
STRUCTURAL EFFECTS OF PHOSPHORYLATION ON C-TERMINAL SEGMENT OF AMPA RECEPTOR. **Caitlin E. Nurik**, Sudeshna Chatterjee, Suma Devi, David R. Cooper, Swarna S. Ramaswamy, Christy Landes, James Howe, Vasanthi Jayaraman

**1432-Pos BOARD B409**  
ACTIVATING INDIVIDUAL SUBUNITS OF TMEM16A CALCIUM-ACTIVATED CHLORIDE CHANNELS. Grace Jeng, Muskaan Aggarwal, Wei-Ping Yu, **Tsung-Yu Chen**

**1433-Pos BOARD B410**  
MOLECULAR MECHANISMS OF PERMEATION IN TMEM16B  $Ca^{2+}$ -ACTIVATED  $Cl^{-}$  CHANNEL. **Simone Pifferi**

**1434-Pos BOARD B411**  
SIZING UP THE LIPID PATHWAY IN A TMEM16 PHOSPHOLIPID SCRAMBLASE. **Mattia Malvezzi**, Rabia Iqbal, Ashley Brown, Anant Menon, Alessio Accardi

**1435-Pos BOARD B412**  
STRUCTURES OF THE  $Mg^{2+}$  CHANNEL CORA IN THE OPEN STATE BY CRYO ELECTRON MICROSCOPY. Doreen Matthies, Olivier Dalmas, Mario Borgnia, Pawel Dominik, Alan Merk, Prashant Rao, Bharat Reddy, Shahidul Islam, Alberto Bartesaghi, **Eduardo Perozo**, Sriram Subramaniam

**1436-Pos BOARD B413**  
CRYSTAL STRUCTURE AND ASYMMETRIC CONFORMATION OF A  $K^{+}$  CHANNEL RCK DOMAIN. Victor P. Pau, Karin Abarca-Heidemann, Eunan Hendron, Marc Stezzi, Gino Cingolani, **Brad S. Rothberg**

**1437-Pos BOARD B414**  
CONFORMATIONAL DYNAMICS OF THE CLOSED STATE OF KCSA IN LIPID BICELLES. **Dorothy M. Kim**, Igor Dikiy, Vikrant Upadhyay, David Posson, David Eliezer, Crina Nimigeau

**1438-Pos BOARD B415**  
REGULATION OF CNGA1 CHANNEL GATING BY INTERACTIONS WITH THE MEMBRANE. **Teresa K. Aman**, Sharon E. Gordon, William N. Zagotta

**1439-Pos BOARD B416**  
DOES BIMODAL AGONISM IN CYCLIC NUCLEOTIDE-GATED (CNG) CHANNELS PRESERVE THE CLASSICAL BINDING SITE AND PORE STRUCTURE? Robynn Lester, **Edgar C. Young**

## Cardiac Muscle Mechanics and Structure I (Boards B417 - B444)

**1440-Pos BOARD B417**  
DEVELOPMENT OF HIGH AFFINITY ANTI-S2 PEPTIDES FOR STABILIZING THE MYOSIN COILED COIL. Negar Aboonashirshiraz, Ashley Huang, Cynthia Y. Ma, **Douglas D. Root**

**1441-Pos BOARD B418**  
COMPETITIVE BINDING TO MYOSIN S2 BY C-PROTEIN, ANTI-S2 PEPTIDES, AND ANTIBODIES MODULATE MYOSIN COILED COIL STABILITY AND MYOFIBRIL CONTRACTILITY. **Rohit Singh**, Veronica J. Zheng, Cynthia Y. Ma, Douglas D. Root

**1442-Pos BOARD B419**  
THE N-TERMINAL DOMAINS OF MYBPC3 RESTRICT ACTIN DYNAMICS AND INCREASE RESILIENCE IN A PHOSPHORYLATION-DEPENDENT MANNER. Brett A. Colson, **Alfred Gallegos**, Brian Lin, Sakthivel Sadayappan, David D. Thomas

**1443-Pos BOARD B420**  
PHOSPHORYLATION AND CALCIUM ANTAGONISTICALLY TUNE MYOSIN-BINDING PROTEIN C'S MOLECULAR STRUCTURE AND FUNCTION. **Michael J. Previs**, Ji Young Mun, Arthur J. Michalek, Samantha Beck Previs, James Gulick, Jeffrey Robbins, David M. Warshaw, Roger Craig

**1444-Pos BOARD B421**  
STRUCTURAL MEASUREMENTS WITHIN THE M-DOMAIN REVEAL UNIQUE DETAILS OF CARDIAC MYOSIN BINDING PROTEIN-C PHOSPHORYLATION. **Brett A. Colson**, L. Michel Espinoza-Fonseca, David D. Thomas

**1445-Pos BOARD B422**  
REGULATION OF THE SUPER-RELAXED STATE OF MYOSIN BY CARDIAC MYOSIN BINDING PROTEIN-C. **James W. McNamara**, Amy Li, Sean Lal, Johan M. Bos, Michael J. Ackerman, Cristobal G. dos Remedios, Samantha P. Harris, Roger Cooke

**1446-Pos BOARD B423**  
MATURATION TOWARDS PURE  $\beta$ -MYOSIN PROTEIN EXPRESSION AND CORRESPONDING FUNCTIONAL PROPERTIES OF INDIVIDUAL HESC-CARDIOMYOCYTES. **Natalie Weber**, Meike Wendland, Stephan Greten, Kristin Schwanke, Bogdan Iorga, Martin Fischer, Cornelia Geers-Knörr, Jan Hegermann, Christoph Wrede, Ulrich Martin, Bernhard Brenner, Robert Zweigerdt, Theresia Kraft

**1447-Pos BOARD B424**  
A TUNED TENSION REGULATES THE CONTRACTILITY OF CARDIOMYOCYTES DIFFERENTIATED FROM INDUCED PLURIPOTENT STEM CELLS. **Alexandre J. Ribeiro**, Yen-Sin Ang, Robin E. Wilson, Renee N. Rivas, Deepak Srivastava, Beth L. Pruitt

**1448-Pos BOARD B425**  
CONTRACTILE FUNCTION OF PERMEABILIZED HUMAN EMBRYONIC STEM CELL-DERIVED CARDIOMYOCYTES WITH DEFINED MYOSIN PROTEIN ISOFORM EXPRESSION. Bogdan Iorga, Meike Wendland, Natalie Weber, Stephan Greten, Kristin Schwanke, Ulrich Martin, Robert Zweigerdt, Theresia Kraft, **Bernhard Brenner**

**1449-Pos BOARD B426**  
CROSS-BRIDGE KINETICS IN RAT PAPILLARY MUSCLE FIBERS THAT CARRY  $\alpha$ -MHC AND  $\beta$ -MHC BY SINUSOIDAL ANALYSIS. Tarek S. Karam, John J. Michael, Chandra Murali, **Masataka Kawai**

**1450-Pos BOARD B427**  
CROSSBRIDGE RECRUITMENT DYNAMICS ARE DIVERGENTLY AFFECTED BY  $\alpha/\beta$ -MYOSIN HEAVY CHAIN ISOFORMS IN CARDIAC MUSCLE FIBERS CONTAINING THE HYPERTROPHIC CARDIOMYOPATHY MUTATION (A30V) AND PROTEIN KINASE C PHOSPHOMIMETIC (T203E) IN MOUSE CARDIAC TROPONIN T. **Alexis Mickelson**, Sampath Gollapudi, Murali Chandra

**1451-Pos BOARD B428**  
INTERPLAY BETWEEN THE EFFECTS OF DILATED CARDIOMYOPATHY MUTATION (R206L) AND THE PROTEIN KINASE C PHOSPHOMIMIC (T204E) OF RAT CARDIAC TROPONIN T ARE DIFFERENTLY MODULATED BY  $\alpha$ - AND  $\beta$ -MYOSIN HEAVY CHAIN ISOFORMS. **John J. Michael**, Murali Chandra

**1452-Pos BOARD B429**  
THE EFFECT OF PEDIATRIC SPECIFIC HYPERTROPHIC CARDIOMYOPATHY MUTATIONS ON THE BIOMECHANICS OF BETA CARDIAC MYOSIN. **Arjun S. Adhikari**, Kristina Bezold Kooiker, Shirley Sutton, Daniel Bernstein, Leslie A. Leinwand, Kathleen M. Ruppel, James A. Spudich

**1453-Pos BOARD B430**  
ADP-STIMULATED CONTRACTION: A PREDICTOR OF THIN-FILAMENT ACTIVATION IN CARDIAC DISEASE. **Vasco Sequeira**, Aref Najafi, Paul J. M. Wijnker, Cris dos Remedios, Michelle Michels, Diederik W.D. Kuster, Jolanda van der Velden

**1454-Pos BOARD B431**  
CARDIAC FIBROSIS ALTERS CALCIUM SENSITIVITY AND MYOFILAMENT RELAXATION. **Farid Moussavi-Harami**, Maria V. Razumova, Stephen Farris, Galina V. Flint, Soley Olafsson, Sonette Steczina, Yuanhua Cheng Cheng, Alice W. Racca, April Stempien-Otero, Michael Regnier

**1455-Pos BOARD B432**  
PRELOAD-INDUCED CHANGES IN SYSTOLIC AND DIASTOLIC PERFORMANCE IN THE YOUNG AND AGED MURINE HEART. **Adam B. Veteto**, Kerry S. McDonald, Timothy L. Domeier

**1456-Pos BOARD B433** CID TRAVEL AWARDEE  
MYOCARDIUM FROM THE LEFT AND RIGHT VENTRICLES OF HUMAN HEARTS HAVE SIMILAR MECHANICAL PROPERTIES. **Cheavar A. Blair**, Maya E. Guglin, Arnold Stromberg, Kenneth S. Campbell

**1457-Pos BOARD B434** EDUCATION TRAVEL AWARDEE  
CONTRACTILE DIFFERENCES IN LEFT AND RIGHT VENTRICLES OF HEALTHY HUMAN HEARTS. **Divya Duggal**, Janhavi Nagwekar, Sangram Raut, Ryan Rich, Hriday Das, Zygmunt Gryczynski, Ignacy Gryczynski, Julian Borejdo

**1458-Pos BOARD B435**  
STRUCTURAL AND BIOCHEMICAL KINETICS OF CARDIAC MYOSIN AND ITS PERTURBATION BY A KNOWN HEART FAILURE DRUG INVESTIGATED WITH TRANSIENT TIME-RESOLVED FRET. **John A. Rohde**, David D. Thomas, Joseph M. Muretta

**1459-Pos BOARD B436**  
OMECAMTIV MECARBIL ENHANCES ACTIN AFFINITY AND SLOWS FORCE PRODUCTION IN HUMAN  $\beta$ -CARDIAC MYOSIN. Anja M. Swenson, Cheavar Blair, Christopher Fetrow, William C. Unrath, Wanjian Tian, Maya Guglin, Kenneth S. Campbell, **Christopher M. Yengo**

**1460-Pos BOARD B437**  
EFFECT OF RLC N-TERMINAL TAILS ON THE STRUCTURE AND DYNAMICS OF CARDIAC MYOSIN. **Arianna Fornili**, Elena Rostkova, Franca Fraternali, Mark Pfuhl

**1461-Pos BOARD B438**  
CARDIOMYOPATHY MUTATION IN VENTRICULAR ESSENTIAL LIGHT CHAIN OF CARDIAC MYOSIN ALTERS STRUCTURAL AND FUNCTIONAL INTERACTION WITH ACTIN. **Piyali Guhathakurta**, Ewa Prochniewicz, David D. Thomas

**1462-Pos BOARD B439**  
EFFECTS OF MYOSIN LIGHT CHAIN PHOSPHORYLATION ON LENGTH-DEPENDENT MYOSIN KINETICS IN RAT CARDIAC VENTRICLES. **Bertrand CW Tanner**, Hannah C. Pulcastro, Peter O. Awinda, Jason J. Breithaupt

**1463-Pos BOARD B440**  
EFFECTS OF IVS6-1 MUTATION IN MYL2 ASSOCIATED WITH CARDIOSKELETAL MYOPATHY AND EARLY CARDIAC DEATH OF INFANTS. **Zhiqun Zhou**, Wenrui Huang, Jingsheng liang, Danuta Szczesna-Cordary

**1464-Pos BOARD B441**  
RARE CARDIOMYOPATHY PHENOTYPES ASSOCIATED WITH MUTATIONS IN MYOSIN LIGHT CHAINS. **Chen-Ching Yuan**, Jingsheng Liang, Katarzyna Kazmierczak, Zhiqun Zhou, Rosemeire Kanashiro-Takeuch, Joshua M. Hare, Thomas C. Irving, Danuta Szczesna-Cordary

**1465-Pos BOARD B442**  
UPREGULATING COMPLIANT TITIN IN THE HEART ATTENUATES LEFT VENTRICULAR STIFFNESS IN A MOUSE MODEL WITH DIASTOLIC DYSFUNCTION. **Mei Methawasini**, Joshua G. Strom, Vanessa Fernandez, Chandra Saripalli, John E. Smith III, Henk L. Granzier

**1466-Pos BOARD B443**  
EXERCISE MITIGATES INCREASED DIASTOLIC STIFFNESS IN THE TITIN IA KO MOUSE. **Rebecca E. Slater**, Mei Methawasini, Josh Strom, Chandra Saripalli, Henk L. Granzier

**1467-Pos BOARD B444**  
A NOVEL ROLE FOR PP5 IN REGULATING TITIN PHOSPHORYLATION AND FUNCTION IN THE HEART. Judith Krysiak, Andreas Unger, Nazha Hamdani, Peter Boknik, **Wolfgang A. Linke**

## Skeletal Muscle Mechanics, Structure, and Regulation (Boards B445 - B469)

**1468-Pos BOARD B445**  
COMPLIANCE ACCELERATES RELAXATION IN STRIATED MUSCLE BY ALLOWING MYOSIN HEADS TO MOVE RELATIVE TO ACTIN. **Kenneth S. Campbell**

**1469-Pos BOARD B446**  
MYOSIN BINDING TO ACTIN IN THE 3D SARCOMERE LATTICE. **Srboljub M. Mijailovich**, Boban Stojanovic, Djordje Nedic, Michael A. Geeves

**1470-Pos BOARD B447**

DYNAMIC TRANSIENT RESPONSES OF MUSCLE FIBERS WITH A HETEROGENEOUS POPULATIONS OF ISOFORMS AND MUTATION. Srbojjub M. Mijailovich, Djordje Nedic, Marina Svicevic, Boban Stojanovic, Michael Regnier, **Michael A. Geeves**

**1471-Pos BOARD B448**

DIRECT MEASUREMENTS OF LOCAL COUPLING BETWEEN MYOSIN MOLECULES ARE CONSISTENT WITH A MODEL OF MUSCLE ACTIVATION. **Sam Walcott**, Neil M. Kad

**1472-Pos BOARD B449**

ASSUMING THAT MYOSIN-BINDING PROTEIN C INTERACTS WITH BOTH MYOSIN AND ACTIN CAN EXPLAIN ITS ROLE IN SKINNED FIBER MECHANICS. **Jonas Schwan**, Clinton Wang, Stuart G. Campbell

**1473-Pos BOARD B450**

ESSENTIAL ROLES OF WATER IN ACTIN-MYOSIN BINDING. **Hiraku Oshima**, Tomohiko Hayashi, Masahiro Kinoshita

**1474-Pos BOARD B451**

REGENERATION OF ACTIN FILAMENTS IN ACTIN-EXTRACTED BUMBLEBEE FLIGHT MUSCLE FIBERS AS PROBED BY X-RAY DIFFRACTION. **Hiroyuki Iwamoto**

**1475-Pos BOARD B452**

THE STRUCTURE OF THE RELAXED THICK FILAMENTS FROM LETHOCERUS ASYNCHRONOUS FLIGHT MUSCLE. **Zhongjun Hu**, Dianne W. Taylor, Michael K. Reedy, Robert J. Perz-Edwards, Kenneth A. Taylor

**1476-Pos BOARD B453**

THE STRUCTURE OF THE RELAXED THICK FILAMENTS FROM LETHOCERUS ASYNCHRONOUS FLIGHT MUSCLE - IMPLICATIONS FOR STRETCH ACTIVATION. **Kenneth A. Taylor**, Zhongjun Hu, Dianne W. Taylor, Michael K. Reedy, Robert J. Perz-Edwards

**1477-Pos BOARD B454**

THE AGE ASSOCIATED ALTERATION IN ECCENTRIC CONTRACTION PROPERTIES DURING A STRETCH SHORTENING CYCLE IN FAST AND SLOW TWITCH MOUSE MUSCLES. **Anthony L. Hessel**, Kiisa C. Nishikawa

**1478-Pos BOARD B455**

EFFECT OF ACTIVE SHORTENING AND STRETCHING ON LATTICE SPACING AND CROSS-BRIDGE BINDING IN SKINNED MUSCLE FIBRES. **Venus Joumaa**, Ian C. Smith, Tim R. Leonard, Olga Antipova, Thomas C. Irving, Walter Herzog

**1479-Pos BOARD B456**

MYOSIN MGADP RELEASE RATE DECREASES WITH GREATER SARCOMERE LENGTH AND REDUCED THICK-TO-THIN FILAMENT SPACING IN SKINNED SOLEUS MUSCLE FIBERS FROM RATS. **Axel J. Fenwick**, Shelby R. Leighton, Bertrand C.W. Tanner

**1480-Pos BOARD B457**

SARCOMERE LENGTH AND PASSIVE SARCOMERE LENGTHENING ARE LOCATION-DEPENDENT IN LIVE MOUSE TIBIALIS ANTERIOR MUSCLE. **Eng Kuan Moo**, Rafael Fortuna, Ziad Abusara, Walter Herzog

**1481-Pos BOARD B458**

DYNAMICS OF TRANSITIONS THROUGH THE MOLTEN-GLOBULE STATE ENHANCE CONTRACTILITY OF TITIN. **Zsolt Martonfalvi**, Pasquale Bianco, Gyorgy Ferenczy, Katalin Naftz, Miklos Kellermayer

**1482-Pos BOARD B459**

THE PEVK REGION OF TITIN: DECIPHERING THE MOLECULAR INTERACTIONS OF ELASTICITY. **Sudarshi Premawardhana**, Matthew J. Gage

**1483-Pos BOARD B460**

ASSESSING THE FUNCTIONAL ROLE OF TITIN N2A-PEVK REGION IN ACTIVE MUSCLE CONTRACTION. **Humra Athar**, Matthew J. Gage

**1484-Pos BOARD B461**

I-BAND TITIN INTERACTION WITH MYOSIN IN THE MUSCLE SARCOMERE DURING ECCENTRIC CONTRACTION: THE TITIN ENTANGLEMENT HYPOTHESIS. **Mike DuVall**, Azim Jinha, Gudrun Schappacher-Tilp, Tim Leonard, Walter Herzog

**1485-Pos BOARD B462**

USING SINGLE MYOSIN AND SMALL MYOSIN ENSEMBLES TO EXAMINE THIN FILAMENT ACTIVATION IN A LASER TRAP ASSAY. **Thomas Longyear**, Matt Unger, Ling Xin, Sam Walcott, Edward P. Debold

**1486-Pos BOARD B463**

THE RELATIVE INFLUENCE OF ACTIN-MYOSIN ATTACHMENT AND DETACHMENT KINETICS ON ACTIN SLIDING VELOCITIES IS MODULATED BY MYOSIN DENSITY. **Josh E. Baker**, Travis J. Stewart, Samuel P. Dugan, Christine R. Cremona

**1487-Pos BOARD B464**

THE ACIDOSIS-INDUCED SLOWING OF REGULATED THIN FILAMENT VELOCITY IN A MOTILITY ASSAY DISAPPEARS AT LOW ATP. **Edward Debold**, Matthew Unger, Thomas Longyear

**1488-Pos BOARD B465**

DESR349P MUTATION RESULTS IN ULTRASTRUCTURAL DISRUPTIONS AND COMPROMISE OF SKELETAL MUSCLE BIOMECHANICS ALREADY AT PRECLINICAL STAGES IN YOUNG MICE BEFORE THE ONSET OF PROTEIN AGGREGATION. S Diermeier, M. Haug, B. Reischl, A Buttgerit, S Schürmann, M Spörrer, **W H. Goldmann**, B Fabry, F Elhimine, R Stehle, G. Pfitzer, L. Winter, C Clemen, R Schröder, O Friedrich

**1489-Pos BOARD B466**

NEBULIN DEFICIENCY IN ADULT MUSCLE CAUSES SARCOMERIC DEFECTS AND MUSCLE-TYPE DEPENDENT CHANGES IN TROPHICITY - NOVEL INSIGHTS IN NEMALINE MYOPATHY. **Frank W. Li**

**1490-Pos BOARD B467**

EFFECTS OF ACE INHIBITORS AND ANTI-MINERALOCORTICOIDS ON KINETIC PARAMETERS OF STRIATED MUSCLE CONTRACTION AND RELAXATION AS WELL AS MEASUREMENTS OF FATIGABILITY IN MURINE MODELS OF DUCHENNE MUSCULAR DYSTROPHY. **Eric Schultz**

**1491-Pos BOARD B468**

THE SUPER-RELAXED STATE OF MYOSIN IS ALTERED BY ESTRADIOL IN SKELETAL MUSCLE OF AGED FEMALE MICE. Brett A. Colson, Karl J. Petersen, **Thomas A. Bunch**, Brittany C. Collins, David D. Thomas, Dawn A. Lowe

**1492-Pos BOARD B469**

DESTABILIZING THE SUPER RELAXED STATE OF SKELETAL MUSCLE MYOSIN TO TREAT OBESITY AND TYPE 2 DIABETES. Leonardo Nogara, Nariman Naber, Marcella Canton, Carlo Reggiani, Edward Pate, **Roger Cooke**

## Cell Mechanics, Mechanosensing, and Motility II (Boards B470 - B494)

**1493-Pos BOARD B470**

SPACE AND TIME IN LEUKOCYTE MIGRATION. **Donald M. Guu**, Thomas Quast, Luis Alvarez, U. Benjamin Kaupp, Waldemar Kolanus

**1494-Pos BOARD B471**

BAYESIAN PARAMETER ESTIMATION AND MODEL SELECTION FOR BIOPHYSICAL MODELS OF LEUKOCYTE ROLLING. **Mats L. Moskopp**, Andreas Deussen, Triantafyllos Chavakis, Peter Dieterich

**1495-Pos BOARD B472**

FORWARD AND INVERSE APPROACHES TO CHARACTERIZING CELLULAR TRACTION FORCES. **Ankur H. Kulkarni**, Prasenjit Ghosh, Nagaraj Balasubramanian, Namrata Gundiah

**1496-Pos BOARD B473**

BALANCE OF ISOTROPIC AND DIRECTED FORCES DETERMINES CELL SHAPE. **Wim Pomp**, Koen K. Schakenraad, Hedde van Hoorn, Hayri E. Balcioglu, Erik H J Danen, Luca Giomi, Thomas Schmidt

**1497-Pos BOARD B474**

A COMPUTATIONAL MODEL OF CELL-GENERATED TRACTION FORCES AND FIBRONECTIN ASSEMBLY. **Devin B. Mair**, Thomas J. Petet, Lewis E. Scott, Seth H. Weinberg, Christopher A. Lemmon

**1498-Pos BOARD B475**

DELETION OF CALPONIN 2 IN MACROPHAGES IS ANTI-INFLAMMATORY AND ATTENUATES THE DEVELOPMENT OF ATHEROSCLEROSIS. **Rong Liu**, Jian-Ping Jin

**1499-Pos BOARD B476**

PROVISIONAL MATRIX CITRULLINATION CONTRIBUTES TO ENHANCED FIBROBLAST MIGRATION. **Victoria L. Stefanelli**, Thomas H. Barker

**1500-Pos BOARD B477**

ACTIVE DYNAMIC MECHANICS OF BLOOD CLOT CONTRACTION. **Valerie Tutwiler**, Hailong Wang, Rustem I. Litvinov, John W. Weisel, Vivek Shenoy

**1501-Pos BOARD B478**

ON THE INFLUENCE OF THE LOCAL CELL WALL ELASTICITY ON THE CELL SHAPE DURING YEAST MATING MORPHOGENESIS. **Björn Goldenbogen**, Wolfgang Giese, Andreas Herrmann, Edda Klipp

**1502-Pos BOARD B479**

FRACTAL HETEROGENEITY IN MINIMAL MATRIX MODELS OF SCARS MODULATES STIFF-NICHE STEM-CELL RESPONSES VIA NUCLEAR EXIT OF A MECHANOREPRESSOR. P. C. Dave P. Dingal, Yuntao Xia, **Dennis E. Discher**

**1503-Pos BOARD B480**

EMERGENT COLLECTIVE CHEMOTAXIS WITHOUT SINGLE-CELL GRADIENT SENSING. **Brian Camley**, Juliane Zimmermann, Herbert Levine, Wouter-Jan Rappel

**1504-Pos BOARD B481**

COMPLEX MECHANICS OF COLLAGEN MATRICES AND THEIR IMPACT ON REMOTE INTERCELLULAR COMMUNICATION. **Hamid Mohammadi**, Anton Zilman, Christopher McCulloch

**1505-Pos BOARD B482**

IN FISSION YEAST THE CONSTRICTION RATE IS NOT SET BY THE CYTOKINETIC RING, BUT BY THE SEPTUM GROWTH MACHINERY. **Sathish Thiagarajan**, Emilia Laura Munteanu, Rajesh Arasada, Thomas Dean Pollard, Ben O'Shaughnessy

**1506-Pos BOARD B483**

MULTI-SCALE COMPUTATIONAL MODEL OF EPITHELIAL CELL PROLIFERATION AND MECHANICS. Ali Nematbakhsh, Pavel Brodskiy, Zhiliang Xu, Jeremiah J. Zartman, **Mark Alber**

**1507-Pos BOARD B484**

INTACT IMMUNOTAXIS COMPRISES AN INTRICATE SPATIOTEMPORAL HIERARCHY OF DISTINCT CHEMOTACTIC PROCESSES - A NEW PARADIGM. **Volkmar Heinrich**

**1508-Pos BOARD B485**

MODELING THE EFFECTS OF FOCAL ADHESION SIZE RESTRICTION ON CELL SHAPE DURING SPREADING. **Magdalena Stolarska**, Kara Huyett, Aravind Rammohan

**1509-Pos BOARD B486**

ROTATION TRACKING AND ADHESION FOOTPRINTING REVEAL ASYMMETRIC ROLLING ADHESION MECHANISM. **Isaac T.S. Li**, Taekjip Ha, Yann R. Chelma

**1510-Pos BOARD B487**

CELL-SUBSTRATE INTERACTION DETERMINES CELLULAR VOLUME AND SHAPE. **Jiaxiang Tao**, Sean Sun

**1511-Pos BOARD B488 INTERNATIONAL TRAVEL AWARDEE**

MODELING IMMUNE CELL MIGRATION. **Hélène Lyrmann**, Marc Neef, Christian Backes, Markus Hoth, Karsten Kruse, Carsten Kummerow

**1512-Pos BOARD B489**

THREE-DIMENSIONAL VERTEX SIMULATION ON SMOOTH SURFACE MAINTENANCE OF GROWING EPITHELIAL TISSUE BASED ON INTERCELLULAR MECHANO-FEEDBACK. **Yoshihide Enomoto**, Yasuhiro Inoue, Shigenobu Yonemura, Taiji Adachi

**1513-Pos BOARD B490**

NANOSCALE MAPPING OF THE BIOMECHANICAL BEHAVIOR IN HEALTHY AND PATHOLOGICAL ERYTHROCYTES. **Massimiliano Papi**, Gabriele Ciasca, Giuseppe Maulucci, Valentina Palmieri, Marco De Spirito

**1514-Pos BOARD B491**

A STATISTICAL MECHANICAL BASIS OF CELLULAR MOTILITY. **Henry G. Zot**, Javier E. Hasbun, Nguyen Van Minh

**1515-Pos BOARD B492**

DECIPHERING THE EFFECT OF SUBSTRATE VISCOELASTICITY ON HEPATIC STELLATE CELL FUNCTION AND DIFFERENTIATION IN THE CONTEXT OF LIVER FIBROSIS. **Elisabeth E. Charrier**, Rebecca G. Wells, Paul A. Janmey

**1516-Pos BOARD B493**

CELL SURFACE MECHANOCHEMISTRY AND THE DETERMINANTS OF BLEB FORMATION, HEALING AND TRAVEL VELOCITY. **Kathryn Manakova**, Jun Allard

**1517-Pos BOARD B494**

VALIDATION OF A NOVEL EXPERIMENTAL AND COMPUTATIONAL METHODOLOGY TO MEASURE INTERCELLULAR FORCES DURING TISSUE MORPHOGENESIS. **Ernesto Criado-Hidalgo**, Ricardo Serrano, Marta Garcia-Diez, Yi-Ting Yeh, Javier Rodriguez-Rodriguez, Juan Carlos del Alamo, Juan Lasheras

## Mitochondrial Permeability (Boards B495 - B508)

**1518-Pos BOARD B495 EDUCATION TRAVEL AWARDEE**

PERMEABILITY TRANSITION PORE CLOSURE INCREASES MITOCHONDRIAL MATURATION AND MYOCYTE DIFFERENTIATION IN THE NEONATAL HEART. **Jayson V. Lingan**, George A. Porter, Jr

**1519-Pos BOARD B496**

CYCLOPHILIN D REGULATES THE FORMATION OF SUPERCOMPLEXES IN HEART MITOCHONDRIA. Gisela Beutner, **George A. Porter, Jr.**

**1520-Pos BOARD B497**

SPG7 IS AN ESSENTIAL AND CONSERVED COMPONENT OF THE MITOCHONDRIAL PERMEABILITY TRANSITION PORE. **Santhanam Shanmughapriya**, Sudarsan Rajan, Nicholas E. Hoffman, Dhanendra Tomar, Neeharika Nemani, Muniswamy Madesh

**1521-Pos BOARD B498**

A NOVEL ION CHANNEL IN ATP SYNTHASE C-SUBUNIT RING: GATEKEEPER OF LIFE AND DEATH. **Nelli Mnatsakanyan**, Han-A Park, Jing Wu, Paige Miranda, Elizabeth A. Jonas

**1522-Pos BOARD B499**

IS THE C-SUBUNIT RING OF THE F1FO ATP SYNTHASE THE ELUSIVE MITOCHONDRIAL PERMEABILITY TRANSITION PORE? **Wenchang Zhou**, Corrine Nief, José D. Faraldo-Gómez



**1523-Pos BOARD B500**

MITOCHONDRIAL PERMEABILITY TRANSITION PORE (MPTP) FORMATION REQUIRES THE PARTICIPATION OF C-SUBUNIT OF ATP-SYNTHASE, POLYHYDROXYBUTYRATE (PHB) AND INORGANIC POLYPHOSPHATE (POLYP). **Pia A. Elustondo**, Nelli Mnatsakanyan, Zakharian Eleonora, Elizabeth A. Jonas, Evgeny Pavlov

**1524-Pos BOARD B501 EDUCATION TRAVEL AWARDEE**  
CONTRIBUTION OF INORGANIC POLYPHOSPHATE TOWARDS REGULATION OF MITOCHONDRIAL FREE CALCIUM. **M. de la Encarnacion Solesio Torregrosa**, Lusine Demirkhanyan, Eleonora Zakharian, Evgeny Pavlov

**1525-Pos BOARD B502**  
FORMATION OF POLYPHOSPHATE-POLY-BETA-HYDROXYBUTYRATE GRANULE-LIKE COMPLEXES IN HEART FAILURE MYOCYTES. Lusine Demirkhanyan, Ian P. Palmer, Walter Boyd, Claus S. Sondergaard, Kristin Grimsrud, Leigh G. Griffiths, Julie Bossuyt, Donald M. Bers, Eleonora Zakharian, **Elena N. Dedkova**

**1526-Pos BOARD B503**  
ABSENCE OF PHYSIOLOGICAL CALCIUM TRANSIENTS TRIGGERS MITOCHONDRIAL ROS PRODUCTION IN SKELETAL MUSCLE FOLLOWING DENERVATION. Chehade Karam, Jianxun Yi, Carlos Manno, Heping Cheng, Jianjie Ma, **Jingsong Zhou**

**1527-Pos BOARD B504**  
IMPAIRED MITOCHONDRIAL FUNCTION DUE TO FAMILIAL ALZHEIMERS DISEASE-CAUSING PRESENILINS MUTANTS VIA CALCIUM DISRUPTIONS. **Patrick T. Toglia**, Ghanim Ullah

**1528-Pos BOARD B505**  
MICU1, THE CA<sup>2+</sup> SENSING REGULATOR OF THE MITOCHONDRIAL CA<sup>2+</sup> UNIporter IS REQUIRED FOR ADAPTATION TO POSTNATAL LIFE. **Melanie Paillard**, Anil N. Antony, Cynthia Moffat, Egle Juskeviciute, Brad Bolon, Emanuel Rubin, György Csordás, Erin L. Seifert, Jan B. Hoek, György Hajnóczky

**1529-Pos BOARD B506**  
MICU1 REGULATION OF MITOCHONDRIAL CALCIUM UPTAKE IS CRUCIAL FOR LIVER REGENERATION. **Anil N. Antony**, Melanie Paillard, Cynthia Moffat, Egle Juskeviciute, Emanuel Rubin, Gyorgy Csordas, Erin Seifert, Gyorgy Hajnoczky, Jan B. Hoek

**1530-Pos BOARD B507**  
STRATEGIC COMPOSITION AND ENRICHMENT OF THE MITOCHONDRIAL CA<sup>2+</sup> UNIporter AT MITOCHONDRIA-SR ASSOCIATIONS CREATES HOTSPOTS FOR MITOCHONDRIAL CA<sup>2+</sup> UPTAKE IN THE CARDIAC MUSCLE. **Sergio De la Fuente**, Caitlin Vail, Elorm J. Agra, Kira Holmstrom, Junhui Sun, Jyotsna Mishra, Toren Finkel, Elisabeth Murphy, Suresh K. Joseph, Shey-Shing Sheu, Gyorgy Csordas

**1531-Pos BOARD B508**  
STUDY OF THE CAPACITY OF EACH IP3 RECEPTOR ISOFORM TO SUPPORT ER-MITOCHONDRIAL CALCIUM TRANSFER. **Adam Bartok**, Tünde Golenár, Száva Bánsághi, David Weaver, Kamil J. Alzayady, Suresh K. Joseph, David I. Yule, György Csordás, György Hajnóczky

## Energy and Light Transducing Complexes (Boards B509 - B524)

**1532-Pos BOARD B509**  
A POTENTIAL ROTATIONAL MECHANISM OF THE  $\gamma$ - SUBUNIT OF F1 – ATPASE - TORQUE GENERATION THROUGH THE RANDOM MOVEMENT OF AN ASYMMETRIC ROTOR. **Ya-chang Chou**, Yi-Feng Hsiao

**1533-Pos BOARD B510**  
MECHANISM OF ENERGY CONVERSION DURING THE ROTARY CATALYTIC CYCLE OF F1-ATPASE. **Jacek Czub**, Milosz Wieczor, Mateusz Dutkiewicz, Helmut Grubmueller

**1534-Pos BOARD B511**  
ATP SYNTHASE: ADVANTAGES OF THE ROTARY MECHANISM UNDER DIVERSE CONDITIONS. Zining Zhang, **Ramu Anandakrishnan**, Rory Donovan, Daniel Zuckerman

**1535-Pos BOARD B512**  
A NEW GROUP OF EUBACTERIAL LIGHT-DRIVEN PROTON PUMPS LACKING THE CARBOXYLIC PROTON DONOR. Andrew Harris, Milena Ljumovic, Ana-Nicoleta Bondar, Yohei Shibata, Yuto Suzuki, Shota Ito, Keiichi Inoue, Hideki Kandori, **Leonid Brown**

**1536-Pos BOARD B513**  
PHOTO-CURRENT AND TEM IMAGING CHARACTERIZATION OF LIGHT-GATED ION PUMP PROTEINS IN LIPID MEMBRANES. **Joel Kamwa**, Surendra Singh, Jiali Li

**1537-Pos BOARD B514**  
A DNA-BASED BUILDING BLOCK FOR DESIGNER EXCITONIC CIRCUITS. Etienne Boulais, Nicolas Sawaya, **Rémi Veneziano**, Alessio Andreoni, Su Lin, Neal Woodbury, Hao Yan, Alan Aspuru-Guzik, Mark Bathe

**1538-Pos BOARD B515**  
PHOTOINDUCED ELECTRON TRANSFER FROM PORPHYRINS TO QUINONES RANDOMLY DISPERSED IN A POLYMERIC MEDIUM. **Marcelo K. K. Nakaema**, Rosemary Sanches

**1539-Pos BOARD B516**  
THE ROLE OF PROTEIN CONFORMATIONAL CHANGES IN TUNING THE FLUORESCENCE STATE OF LIGHT-HARVESTING COMPLEXES. **Nicoletta Liguori**, Xavier Periole, Laura M. Roy, Yarah Bot, Siewert J. Marrink, Roberta Croce

**1540-Pos BOARD B517**  
PHOTO-INDUCED CHARGE AND ENERGY IN COMPLEXES OF C-TYPE CYTOCHROMES WITH WATER-SOLUBLE PORPHYRINS. **Oleksandr Kokhan**, C. Alexander Hudson, Daniel R. Marzolf, Aidan M. McKenzie

**1541-Pos BOARD B518**  
CHARACTERIZATIONS OF SUBSTRATE DELIVERY PATHWAYS IN THE NITRIC OXIDE REDUCTASE. **Paween Mahinthichaichan**, Robert B. Gennis, Emad Tajkhorshid

**1542-Pos BOARD B519**  
MULTIHEME CYTOCHROMES AND THE BACTERIAL NANOWIRES OF SHEWANELLA ONEIDENSIS MR-1: REGULATION, STRUCTURE, AND EXTRACELLULAR ELECTRON TRANSPORT MECHANISMS. **Sahand Pirbadian**, Sarah E. Barchinger, Poorna Subramanian, Christine M. Sambles, Carol S. Baker, Nigel J. Burroughs, Grant J. Jensen, John H. Golbeck, Mohamed Y. El-Naggar

**1543-Pos BOARD B520**  
DIVIDE-CONQUER-RECOMBINE KINETIC MONTE CARLO SIMULATIONS OF ELECTRON TRANSFER IN THE EXTRACELLULAR REDOX NETWORK OF SHEWANELLA ONEIDENSIS MR-1. **Hye Suk Byun**, C. Masato Nakano, Heng Ma, Sahand Pirbadian, Aiichiro Nakano, Tao Wei, Mohamed Y. El-Naggar

**1544-Pos BOARD B521**  
EFFECT OF DIFFERENT SUBSTRATES ON GROWTH AND REDOX POTENTIAL KINETICS OF ESCHERICHIA COLI WILD TYPE AND HYDROGENASES LACKING MUTANT. **Anna Poladyan**, Satenik Mirzoyan, Armen Trchounian

**1545-Pos BOARD B522**  
COMPARISON OF DICYCLOHEXYLCARBODIIMIDE (DCCD)-INDUCED EFFECTS ON STRUCTURE AND ACTIVITY IN CYTOCHROME C OXIDASE (COX) FROM BOVINE HEART AND RHODOBACTER SPHAEROIDES. **Lawrence J. Prochaska**, Kelli N. Fisher, Christine N. Pokalsky

**1546-Pos BOARD B523**  
 DEBARYOMYCES HANSENI: ADAPTATION MECHANISMS TO DIFFERENT CARBON SOURCES AND OXYGEN CONCENTRATIONS. Alfredo Cabrera Orefice, Rocío Maldonado-Guzmán, Natalia Chiquete-Félix, **Salvador Uribe-Carvajal**

**1547-Pos BOARD B524**  
 REGULATION OF THE REACTION BETWEEN CYTOCHROME C AND CYTOCHROME OXIDASE. **Jennifer Silva-Nash**, Francis Millett, Martha Scharlau

## Genetic Regulatory Systems (Boards B525 - B530)

**1548-Pos BOARD B525**  
 THE COMPUTATIONAL DETERMINATION OF SMALL RNA BINDING CONSTANT TO CLARIFY THE SYNTHETIC REGULATORY CIRCUIT IN ESCHERICHIA COLI. Cheng-Ping Jheng, Shih-Wei Wang, Kuan-Ling Chen, Tzu-Han Chen, Shang-Yu Chou, Wan-Sheng Su, **Po-Han Lee**, Cheng-I Lee

**1549-Pos BOARD B526**  
 HIGH PRESSURE INDUCED DNA DAMAGE IN ESCHERICHIA COLI INVOLVES PRESSURE-MEDIATED DISSOCIATION OF THE TETRAMERIC MRR RESTRICTION ENDONUCLEASE. **Anais Bourges**, Anirban Ghosh, Nathalie Declerck, Abram Aertsen, Catherine Royer

**1550-Pos BOARD B527**  
 STOCHASTIC FOCUSING AND DEFOCUSING IN BIOLOGICAL REACTION NETWORKS: LESSONS LEARNED FROM ACCURATE CHEMICAL MASTER EQUATION (ACME) SOLUTIONS. **Gamze Gürsoy**, Anna Terebus, Youfang Cao, Jie Liang

**1551-Pos BOARD B528**  
 SHARED TRANSCRIPTION FACTORS HELP ENCODE THE TIMING OF GENE ACTIVATION. **Prithviraj Chellamuthu**, Shane Jackson, James Boedicker

**1552-Pos BOARD B529**  
 EXACT COMPUTATION OF VELOCITY FIELD AND PROBABILITY FLUX OF TIME-EVOLVING PROBABILITY LANDSCAPE OF STOCHASTIC NETWORKS. **Anna Terebus**, Chun Liu, Jie Liang

**1553-Pos BOARD B530**  
 THE ENERGY LANDSCAPE OF THE MOUSE CARGOME: A MECHANICALLY SENSITIVE FAMILY OF GENES. **Dwight M. Chambers**, Thomas H. Barker

## Emerging Techniques and Synthetic Biology (Boards B531 - B537)

**1554-Pos BOARD B531**  
 OPTOGENETIC CONTROL OF MOLECULAR MOTORS AND ORGANELLE DISTRIBUTIONS IN CELLS. **Liting Duan**

**1555-Pos BOARD B532**  
 RATIONAL DESIGN OF A PHOTOACTIVATABLE COFILIN ANALOG USING A NOVEL LOV-BINDING PROTEIN. **Orrin J. Stone**, Hui Wang, Ved P. Sharma, Robert J. Eddy, Rihe Liu, John S. Condeelis, Klaus M. Hahn

**1556-Pos BOARD B533**  
 DEVELOPMENT OF SYNTHETIC GENE CIRCUITS TO AMPLIFY THE PRODUCTION OF BIOMATERIALS, CELLULASES, AND LENTIVIRUS. **Toru Matsu-ura**, Andrey Dovzhenok, Sookyung Lim, Christian I. Hong

**1557-Pos BOARD B534**  
 AUTOMATED HIGH-THROUGHPUT QUANTIFICATION REVEALS MORPHOLOGICAL HETEROGENEITY IN MAMMALIAN CELL POPULATIONS. **Amy Y. Chang**, Steven C. Chen, Morgan L. Truitt, Davide Ruggero, Wallace F. Marshall

**1558-Pos BOARD B535**  
 DYNAMICS OF EPIGENETIC REGULATION AT THE SINGLE-CELL LEVEL. **Lacramioara Bintu**

**1559-Pos BOARD B536**  
 ATOMISTIC AND REACTION-KINETIC MODELLING FOR ENGINEERING OF FATTY ACID SYNTHASE. **Floris Buelens**, Helmut Grubmüller

**1560-Pos BOARD B537**  
 ENGINEERING BACTERIAL MICROCOMPARTMENTS: ASSEMBLY, PERMEABILITY, AND CARGO TARGETING. **Cheryl Kerfeld**

## Molecular and Cellular Neuroscience (Boards B538 - B555)

**1561-Pos BOARD B538 EDUCATION TRAVEL AWARDEE**  
 MOLECULAR MECHANISM OF THE SYNAPTOTAGMIN-SNARE COMPLEX THAT IS ESSENTIAL FOR SYNCHRONOUS SYNAPTIC NEUROTRANSMITTER RELEASE. **Qiangjun Zhou**, Axel T. Brunger

**1562-Pos BOARD B539**  
 LATENCY OF QUANTAL DA RELEASE FROM SOMA OF DOPAMINE NEURONS IN MIDBRAIN SLICES. **Zhuan Zhou**, Li Wang, Ruiying Jiao, Feipeng Zhu, Xiaoxuan Sun, Quanfeng Zhang, Li Zhou, Mingli Li, Bing Liu, Qinglong Wang, Suhua Sun, Yang Lu, Xuanyang Chen, Bin Liu, Changhe Wang

**1563-Pos BOARD B540**  
 PROBING THE CONTRIBUTION OF NAV1.7 AND NAV1.8 TO COLD TOLERANCE IN HIBERNATORS. **Lydia J. Hoffstaetter**, Karen J. Tonsfeldt, Vanessa Matos-Cruz, Slav N. Bagriantsev, Elena O. Gracheva

**1564-Pos BOARD B541**  
 EXPRESSION AND CONTRIBUTIONS OF THE KIR2.1 INWARD-RECTIFIER K<sup>+</sup> CHANNEL TO PROLIFERATION, MIGRATION AND CHEMOTAXIS OF MICROGLIA IN UNSTIMULATED AND ANTI-INFLAMMATORY STATES. **Doris Lam**, Lyanne Schlichter

**1565-Pos BOARD B542**  
 FLUORESCENCE MICRO-SPECTROSCOPY ASSESSMENT OF THE IN VITRO DIMERIZATION OF BACE1-GFP FUSION PROTEIN IN CULTURED CELLS. Spencer Gardeen, Joseph L. Johnson, **Ahmed Heikal**

**1566-Pos BOARD B543 INTERNATIONAL TRAVEL AWARDEE**  
 STRUCTURAL STUDY OF WHIRLIN, A CRUCIAL PDZ CONTAINING PROTEIN INVOLVED IN THE MECHANOTRANSDUCTION OF AUDITORY HAIR CELLS. **Florent Delhomme**, Florence Cordier, Bertrand Raynal, Amel El Bahloul-Jaziri, Christine Petit, Muriel Delepierre, Nicolas Wolff

**1567-Pos BOARD B544**  
 RESOLVING THE MOLECULAR MECHANISMS OF INHERITED DEAFNESS CAUSED BY MISSENSE MUTATIONS IN CADHERIN-23. **Adrienne Thornburg**, Marcos Sotomayor

**1568-Pos BOARD B545 CPOW TRAVEL AWARDEE**  
 FRAGILE X<sup>+</sup>-ASSOCIATED TREMOR~ATAXIA SYNDROME: LINKING CA<sup>2+</sup> DYSREGULATION AND DNA DAMAGE RESPONSES. **Gaëlle Robin**, José R. López, Susan Hulsizer, Paul J. Hagerman, Isaac N. Pessah

**1569-Pos BOARD B546**  
 ALTERED ER HOMEOSTASIS AND MITOCHONDRIA ER NETWORK IN PINK1 DEFICIENT PARKINSON'S DISEASE MODELS. **Zhi Yao**, Fernando Bartolome, Andrey Abramov, Sonia Gandhi

**1570-Pos BOARD B547**  
 MICROCAVITATION AS A NEURONAL DAMAGE MECHANISM IN BLAST TRAUMATIC BRAIN INJURY. **Jonathan B. Estrada**, Mark T. Scimone, Alexander K. Landauer, Christian Franck

**1571-Pos BOARD B548**  
STRAIN AND RATE-DEPENDENT DIFFUSE AXONAL INJURY OF 3D NEURON CULTURES UNDER COMPRESSION. Eyal Bar-Kochba, Mark Scimone, Jonathan Estrada, **Christian Franck**

**1572-Pos BOARD B549**  
MECHANISM OF AXONAL CONTRACTILITY IN EMBRYONIC DROSOPHILA MOTOR NEURONS IN VIVO. **Anthony Fan**, Alireza Tofangchi, Taher Saif

**1573-Pos BOARD B550**  
CALIBRATION OF SUB-THRESHOLD EVOKED EPSPS IN DENDRITIC SPINES USING VOLTAGE-SENSITIVE DYES. **Corey D. Acker**, Erika Hoyos, Leslie Loew

**1574-Pos BOARD B551**  
CAGED NEUROACTIVE AMINO ACIDS FOR TWO-PHOTON PHOTOLYSIS OR TP-PHOTOSTIMULATION/INHIBITION. **David Ogden**, Christine Tran, Peter I. Dalko

**1575-Pos BOARD B552**  
APPLICATION OF FLUORESCENCE CORRELATION SPECTROSCOPY TO STUDY DYNAMICS OF PROTEINS INVOLVED IN NEURONAL SYNAPSE-TO-NUCLEUS SIGNALING. **Kevin C. Crosby**, William A. Sather, Mark L. Dell'Acqua

**1576-Pos BOARD B553**  
CELLULAR TAXONOMY OF THE MOUSE STRIATUM AS REVEALED BY SINGLE CELL RNA SEQUENCING. **Geoffrey Stanley**, Ozgun Gokce, Barbara Treutlein, Thomas C. Sudhof, Stephen Quake

**1577-Pos BOARD B554**  
SINGLE-CELL RNA-SEQ OF NEURONS IN THE HUMAN NERVOUS SYSTEM. **Ming-Yi Lin**, Reymundo Dominguez, Jae M. Kim, Tade Souaiaia, Christopher Walker, Camarena Adrian, Joseph Nguyen, Jennifer Herstein, Maite Christi Francois, William J. Mack, Charles Liu, Oleg V. Evgrafov, James A. Knowles, Robert H. Chow

**1578-Pos BOARD B555**  
THE EMERGENCE OF Y-JUNCTIONS IN THE ZEBRAFISH CONE MOSAIC. **Kamirah Demouchet**, Mikiko Nagashima, Jeremy Hadidjojo, Alicides Gonzalez, Linda Barthel, David Lubensky, Pamela Raymond

## Molecular Dynamics I (Boards B556 - B583)

**1579-Pos BOARD B556**  
INNER AND OUTER COORDINATION SHELLS OF  $Mg^{2+}$  IN CORA SELECTIVITY FILTER FROM MOLECULAR DYNAMICS SIMULATIONS. Sunan Kitjaruwankul, Panisak Boonamaj, **Pornthep Sompornpisut**

**1580-Pos BOARD B557**  
BASES OF SODIUM CHANNEL SELECTIVITY AMONG ORGANIC CATIONS. **Yibo Wang**, Rocio K. Finol-Urdaneta, Sergei Yu Noskov, Robert J. French

**1581-Pos BOARD B558**  
PROBING CONFORMATIONAL CHANGES OF SECONDARY ACTIVE TRANSPORT PROTEINS. **Xiaohong Zhuang**, Jeffery B. Klauda

**1582-Pos BOARD B559**  
ROLE OF INFLUENZA M2 PROTEIN CLUSTERING ON THE INDUCED CURVATURE OF MODEL MEMBRANES. **Eduardo Mendez-Villuendas**, D. Peter Tieleman

**1583-Pos BOARD B560**  
IS THERE A LO+LD COEXISTENCE PHASE IN THE POPC-CHOL MIXTURE? AN INSIGHT THROUGH MOLECULAR DYNAMICS SIMULATIONS. **Fernando Favela-Rosales**, César Millan-Pacheco, Jorge Hernández-Cobos, Mauricio D. Carvajal-Tinoco, Iván Ortega-Blake

**1584-Pos BOARD B561**  
MOLECULAR DYNAMICS SIMULATIONS OF 41 TYPES OF GANGLIOSIDE IN MEMBRANE BILAYERS. **Steve Kim**, Wonpil Im

**1585-Pos BOARD B562**  
MOLECULAR DYNAMICS STUDY OF GANGLIOSIDE GM3/DPPC MEMBRANE BY USING COARSE-GRAINED MODEL. **Kento Inoue**, Eiji Ymamoto, Daisuke Takaiwa, Kenji Yasuoka, Masuhiro Mikami

**1586-Pos BOARD B563**  
MOLECULAR DYNAMICS SIMULATION STUDIES OF LIPOPOLYSACCHARIDE MICELLES. **Pushpa Itagi**, Wonpil Im

**1587-Pos BOARD B564**  
MOLECULAR DYNAMICS SIMULATION STUDIES OF MEMBRANE BILAYERS OF LIPID A FROM VARIOUS GRAM-NEGATIVE BACTERIA. **Seonghoon Kim**, Wonpil Im

**1588-Pos BOARD B565**  
SELF ASSEMBLY OF DISORDERED FOLDED MULTIPHASE PROTEINS BY COMPUTER SIMULATIONS. **Eduardo R. Cruz-Chu**, Konstantinos Gkagkas, Frauke Graeter

**1589-Pos BOARD B566 EDUCATION TRAVEL AWARDEE**  
RATIONAL METHODS TO PHARMACOLOGICALLY TARGET IDPS: DEVELOPING MODULATORS OF TAU AGGREGATION. **David W. Baggett**

**1590-Pos BOARD B567**  
STRUCTURAL STUDIES OF FIBRIL FORMATIONS OF TETRAPEPTIDES USING REPLICA EXCHANGE MOLECULAR DYNAMICS SIMULATIONS. **Yoshitake Sakae**, Yuko Okamoto

**1591-Pos BOARD B568**  
PROBING THE DYNAMICS OF THE HEXAMERIC PILUS RETRACTION MOTOR PILT WITH MOLECULAR DYNAMICS SIMULATION. **Joseph L. Baker**

**1592-Pos BOARD B569 EDUCATION TRAVEL AWARDEE**  
A GATED SUBSTRATE CHANNEL REVEALED IN NITROGENASE THROUGH A COMBINED IR AND MOLECULAR DYNAMICS STUDY. **Leland B. Gee**, Igor Leontyev, Alexei Stuchebrukhov, Aubrey D. Scott, Stephen P. Cramer

**1593-Pos BOARD B570**  
PLEXINA3 TRANS- AND JUXTAMEMBRANE DIMER HELIX ASSOCIATION. In-drani Bera, Pouyan Khakbaz, **Jeffery B. Klauda**

**1594-Pos BOARD B571**  
IN SILICO CHARACTERIZATION OF DOUBLE KNOT TOXIN BINDING TO TRPV1 CHANNEL. **Romina Sepúlveda**, Melissa Alegría-Arcos, Ignacio Diaz-Franulic, Fernando D. González-Nilo

**1595-Pos BOARD B572**  
BRIDGING THE GAP BETWEEN COMPUTATION AND EXPERIMENTS IN GPCRS. **Chaya D. Stern**, Jose M. Perez-Aguilar, Scott C. Blanchard, Harel Weinstein, John D. Chodera

**1596-Pos BOARD B573**  
POTENTIAL OF MEAN FORCE CALCULATIONS AND ISOTHERMAL TITRATION CALORIMETRY MEASUREMENTS OF THE HUMAN CARDIAC TROPONIN C / CALCIUM INTERACTION REVEAL AFFINITY CHANGES AS A FUNCTION OF FAMILIAL HYPERTROPHIC CARDIOMYOPATHY ASSOCIATED MUTATIONS. **Charles M. Stevens**, Kaveh Rayani, Gurpreet Singh, D. Peter Tieleman, Glen F. Tibbitts

**1597-Pos BOARD B574**  
COMPUTATIONAL EVALUATION OF MUTATIONAL EFFECTS ON KINASE DYNAMICS. **Mohammad M. Sultan**, Vijay Pande

**1598-Pos BOARD B575**  
DYNAMICS OF C-TERMINUS MOTION OF NORWALK VIRUS CAPSID BY MOLECULAR DYNAMICS (ALL-ATOM & COARSE GRAINED) SIMULATION. **Mahendra B. Thapa**, Jarek Meller, Mark Rance

**1599-Pos BOARD B576**  
CONFORMATIONAL CHANGES IN ANTIGEN-ANTIBODY BINDING: MOLECULAR DYNAMICS STUDY. **Keiko Shinoda**, Hideaki Fujitani

**1600-Pos BOARD B577**  
NON-EQUILIBRIUM MOLECULAR DYNAMICS TO SIMULATE SHEAR STRESS ON ANGIOTENSIN II TYPE 1 (AT1) RECEPTOR. **Matheus Malta de Sa**, Silvestre Massimo Modestia, Carlota Oliveira Rangel-Yagui, José Eduardo Krieger

**1601-Pos BOARD B578**  
COMPUTATIONAL STUDY ON FLEXIBLE DYNAMICS OF HISTONE TAILS. **Sotaro Fuchigami**

**1602-Pos BOARD B579**  
VISUALIZING THE DYNAMICS OF NEURONAL SIGNALING. **Katrine K. Skeby**, Gaël McGill

**1603-Pos BOARD B580**  
A SIMPLE METHOD FOR PREDICTING CANCER SPECIFIC CELL SURFACE EPITOPES. **Xubiao Peng**, Will C. Guest, Neil R. Cashman, Steven S. Plotkin

**1604-Pos BOARD B581**  
DIPOLE MOMENT AND BINDING ENERGY OF WATER IN PROTEINS FROM CRYSTALLOGRAPHY ANALYSIS. **Aleksandr Morozenko**

**1605-Pos BOARD B582**  
CARBON NANOPARTICLES AND THEIR DIFFERENTIAL ASSOCIATION WITH THE MEMBRANES OF E. COLI: A COARSE-GRAINED MOLECULAR DYNAMICS SIMULATION STUDY. **Pin-Chia Hsu**, Damien Jefferies, Benjamin A. Hall, Syma Khalid

**1606-Pos BOARD B583**  
GRAPHENE NANOPORES FOR PROTEIN SEQUENCING. **James Wilson**, Leila Sloman, Zhiren He, Aleksei Aksimentiev

## Computational Methods and Bioinformatics I (Boards B584 - B610)

**1607-Pos BOARD B584**  
ESTIMATION OF ENTROPY CHANGES DUE TO CONFORMATIONAL CHANGES IN MOLECULAR BINDING. **Yuly E. Sanchez**, Julian A. Aguilar

**1608-Pos BOARD B585**  
RIGID DOCKING BASED PROTEIN-PROTEIN INTERACTION PREDICTION USING HIGH SCORING DOCKING MODELS. **Yuri Matsuzaki**, Jaak Simm

**1609-Pos BOARD B586**  
MEGADOCK 4.0. AN ULTRA-HIGH-PERFORMANCE PROTEIN-PROTEIN DOCKING SOFTWARE FOR HETEROGENEOUS SUPERCOMPUTERS. **Masahito Ohue**, Yuri Matsuzaki, Nobuyuki Uchikoga, Takashi Ishida, Yutaka Akiyama

**1610-Pos BOARD B587**  
ANALYSIS OF PHYSICO-CHEMICAL PROPERTIES OF PROTEIN DOCKING DECOYS GENERATED BY RIGID-BODY DOCKING. **Nobuyuki Uchikoga**, Yuri Matsuzaki, Masahito Ohue, Yutaka Akiyama

**1611-Pos BOARD B588**  
DRUDE POLARIZABLE FORCE FIELD FOR MODELING DIVALENT CATIONS IN BIOLOGICAL SYSTEMS. **Hui Li**, Abhi Singharoy, Benoit Roux, Alexander MacKerell

**1612-Pos BOARD B589**  
CALCIUM PARAMETERS IN CHARMM FORCE FIELD REVISITED. **Mohsen Pourmousa**, Richard M. Venable, Richard W. Pastor

**1613-Pos BOARD B590**  
CHARMM-GUI MOLECULAR DYNAMICS SIMULATIONS OF THE NEO-LACTO SERIES IN A POPC BILAYER. **Venkata Malladi**, Wonpil Im

**1614-Pos BOARD B591**  
CHARMM MOLECULAR DYNAMICS OF THE BLOOD GROUP GLYCOLIPIDS IN POPC LIPID BILAYER. **Jaeki Shin**, Wonpil Im

**1615-Pos BOARD B592**  
CHARMM-GUI 10 YEARS FOR BIOMOLECULAR MODELING AND SIMULATION. **Wonpil Im**

**1616-Pos BOARD B593**  
THE BROMOCEA CODE: AN IMPROVED GRAND CANONICAL MONTE CARLO/BROWNIAN DYNAMICS ALGORITHM INCLUDING EXPLICIT ATOMS. **Carlos J. Fernandez Solano**

**1617-Pos BOARD B594**  
ACCURATE ATOM-BY-ATOM PREDICTIONS OF SOLVATION ELECTROSTATICS USING A HYDRATION-SHELL POISSON-BOLTZMANN MODEL. **Jaydeep P. Bardhan**, Matthew G. Knepley

**1618-Pos BOARD B595**  
AN ACCURATE AND EFFICIENT, COMPUTATIONAL METHOD FOR THE HYDRATION FREE ENERGY OF LARGE AND COMPLEX MOLECULES. **Takashi Yoshidome**, **Toru Ekimoto**, Nobuyuki Matubayasi, Yuichi Harano, Masahiro Kinoshita, Mitsunori Ikeguchi

**1619-Pos BOARD B596**  
THE INTERNAL FRICTION AND ANOMALOUS CONFORMATIONAL DIFFUSION OF PROTEINS. **Robert Deak**, Imre Derenyi

**1620-Pos BOARD B597**  
UNIVERSAL SCALING OF CAVITY VOLUME PATHWAYS IN GLOBULAR PROTEINS. **Sheridan B. Green**, **Jenny Farmer**, Donald J. Jacobs

**1621-Pos BOARD B598**  
A RIGOROUS APPROACH TO DERIVE ANALYTICAL EXPRESSIONS IN COARSE-GRAINED FORCE FIELDS. **Adam K. Sieradzan**, **Agnieszka G. Lipska**, **Robert Ganzynkiewicz**, **Michał Głuski**, **Jozef A. Liwo**

**1622-Pos BOARD B599**  
FLUCTUATING FINITE ELEMENT ANALYSIS: DEVELOPMENT AND APPLICATIONS TO CYTOPLASMIC DYNEIN. **Ben Hanson**, Sarah Harris, Daniel Read, Oliver Harlen

**1623-Pos BOARD B600**  
RNA CONFORMATIONAL FLUCTUATIONS FROM ELASTIC NETWORK MODELS: A COMPARISON WITH MOLECULAR DYNAMICS AND SHAPE EXPERIMENTS. **Giovanni Pinamonti**, Sandro Bottaro, Cristian Micheletti, Giovanni Bussi

**1624-Pos BOARD B601**  
PREDICTING A DRUG'S MEMBRANE PERMEABILITY: EVOLUTION OF A COMPUTATIONAL MODEL VALIDATED WITH IN VITRO PERMEABILITY ASSAY DATA. **Timothy S. Carpenter**, M. Windy Mc Nerney, Nicholas A. Be, Victoria Lao, Emma M. Carlson, Brian J. Bennion, Felice C. Lightstone, Carlos A. Valdez

**1625-Pos BOARD B602**  
TRAVELLING WAVE SOLUTIONS FOR A REACTION-DIFFUSION MODELS OF CELL GROWTH. **Brian W. Williams**

**1626-Pos BOARD B603**  
QUANTITATIVE ANALYSIS OF CORTICAL ACTIN-MEMBRANE MICROCLUSTER INTERACTIONS. **Anthony R. Vega**, Jonathon A. Ditlev, Michael K. Rosen, Khuloud Jaqaman

**1627-Pos BOARD B604**  
THREE-DIMENSIONAL MONOLAYER STRESS MICROSCOPY. **Ricardo Serrano**, Aereas Aung, Shyni Varghese, Juan C. del Álamo

**1628-Pos BOARD B605**  
IMPLICATIONS OF KIR/NAV1.5 RECIPROCITY FOR PROPAGATING ACTION POTENTIALS IN CARDIAC CELLS. **Anthony Varghese**

**1629-Pos BOARD B606**  
ACCESSIBLE, FEATURE-RICH SOFTWARE FOR RIGOROUS MODEL FITTING USING MAXIMUM LIKELIHOOD ESTIMATION. **Michael S. Woody**, John H. Lewis, Michael J. Greenberg, Yale E. Goldman, E. Michael Ostap

**1630-Pos BOARD B607**  
IMPROVING FAR-UV CD PREDICTION WITH THE DIPOLE INTERACTION MODEL. **Akongwi Jungong**, Rahul Nori, Igor Uporov, Felix N. Ngassa, Ethan Austhof, Emily Holt, Kathryn A. Thomasson

**1631-Pos BOARD B608**  
A NEW ITERATIVE DEEP NEURAL NETWORK ALGORITHM TO SIGNIFICANTLY IMPROVE IMAGE SEGMENTATION. **Xundong Wu**, Yong Wu, Riccardo Olcese, Ligia Toro, Enrico Stefani

**1632-Pos BOARD B609**  
EFFECT OF DATA PRE-PROCESSING ON SUPER-RESOLUTION RECONSTRUCTION AND PATTERN RECOGNITION. **Maximilano Giuliani**, Adriano Vissa, Amine Driouchi, Christopher M. Yip

**1633-Pos BOARD B610**  
ACCELERATING ANALYSIS OF BIOLOGICAL TARGETS FROM RAW SOLID-STATE MICROPORE DATA. MADIHA HANIF, Yusuf Suleman, Abdul Hafeez, M. Mustafa Rafique, Ali R. Butt, **Samir M. Iqbal**

## Biosensors I (Boards B611 - B640)

**1634-Pos BOARD B611**  
BIOAFFINITY DETECTION OF BIOMOLECULES IN COMPLEX MATRICES: REAL TIME DETECTION OF DNA/RNA-HYBRIDIZATION IN CELL EXTRACT VIA ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY MEASUREMENTS. **Loredana Casalis**, Pietro Capaldo, Pietro Parisse, Alessandro Bosco

**1635-Pos BOARD B612**  
SELECTIVE DETECTION OF PROTEIN HOMOLOGUES IN SERUM USING AN OMPG NANOPORE. Monifa A. Fahie, **Min Chen**

**1636-Pos BOARD B613**  
A PIXEL CHARGE SENSOR FOR BIOLOGICAL PROCESSES. **Mikyung Han**, Yuan Mei

**1637-Pos BOARD B614**  
PH SENSING WITH SILICON NANORIBBON DEVICES MODIFIED WITH CARBON NANOTUBE PORINS. **Huanan Zhang**, Scott Dhuey, Ramya Tunuguntla, Aleksandr Noy

**1638-Pos BOARD B615**  
CREATING ROBUST AND REVERSIBLE CELL-GEL NETWORKS USING BORONIC ACID CHEMISTRY. **Adrienne C. Greene**, David R. Wheeler, Erik D. Spoerke, George D. Bachand, Brad H. Jones

**1639-Pos BOARD B616**  
NANOPORE SUBANGSTROM-RESOLUTION SINGLE-MOLECULE TOOL. Ian M. Derrington, Jonathan M. Craig, Eric Stava, Andrew H. Laszlo, Brian C. Ross, Henry Brinkerhoff, Ian C. Nova, Kenji Doering, Benjamin I. Tickman, Jeff G. Mandell, Kevin L. Gunderson, **Jens H. Gundlach**

**1640-Pos BOARD B617** EDUCATION TRAVEL AWARDEE  
MONITORING LESION DEVELOPMENT DURING IRREVERSIBLE ELECTROPORATION TREATMENT USING ELECTRICAL IMPEDANCE SPECTROSCOPY. **Mohammad Bonakdar**, Eduardo Latouche, rafael V. Davalos

**1641-Pos BOARD B618**  
SIMULTANEOUS IMAGING OF RHO GTPASE AND RHOGEF ACTIVATION USING NOVEL GEF BIOSENSORS REVEALS RELATIONSHIPS BETWEEN GEF AND GTPASE ACTIVATION IN CELL MOTILITY. **Daniel J. Marston**, Marco Vilela, George Glekas, Gaudenz Danuser, John Sondek, Klaus M. Hahn

**1642-Pos BOARD B619**  
STRUCTURE PREDICTION AND 3D MODELING OF SINGLE STRANDED DNA FROM SEQUENCE FOR APTAMER-BASED BIOSENSORS. Iman Jeddi, **Leonor Saiz**

**1643-Pos BOARD B620**  
SINGLE MOLECULE MEASUREMENTS OF SMALL MOLECULE INTERACTIONS WITH METALLIC NANOCCLUSERS. **Arvind Balijepalli**, John Kasianowicz, Jessica Ettetdgui

**1644-Pos BOARD B621**  
SOLID-STATE NANOPORE DETECTION OF DIVERSE NUCLEIC ACID BIOMARKERS WITH DRAG-REGULATED NANOPORE TRANSLOCATION. **Osama K. Zahid**, Fanny Wang, Jan A. Ruzicka, Ethan W. Taylor, Adam R. Hall

**1645-Pos BOARD B622**  
CRITICAL TEST OF NANOPORE-BASED SEQUENCING-BY-SYNTHESIS: CAPTURE OF NUCLEIC ACID TAGS. **Jacob Forstater**, Jessica Ettetdgui, Minchian Chen, Shiv Kumar, Sergey Kalachikov, James Russo, Jingyue Ju, John Kasianowicz

**1646-Pos BOARD B623**  
QUANTIFYING PROTEIN CONCENTRATION USING DESIGNED DNA CARRIERS AND SOLID-STATE NANOPORES. **Jinglin Kong**, Nicholas Bell, Ulrich Keyser

**1647-Pos BOARD B624**  
A MICROFLUIDIC-CHANNEL REGULATED, ELECTROLYTE-GATED GRAPHENE FET BIOSENSOR ARRAY FOR REPEATABLE AND RECALIBRATED DETECTION OF THROMBIN. **Jaebin Choi**, Chaehyun Lim, Youngmo Jung, Dong Heon Shin, Sukang Bae, Sang Kyung Kim, Chulki Kim

**1648-Pos BOARD B625**  
SPONTANEOUS AND RESPONSE STOCHASTIC DYNAMICS OF SACULAR HAIR CELLS. **Rami M. Amro**, Dolores Bozovic, Alexander B. Neiman

**1649-Pos BOARD B626**  
HOW TO MAKE A SWEET SENSOR. **Lily S. Cheung**, Taylor M. Chavez, Wolf B. Frommer

**1650-Pos BOARD B627**  
NANO-DOSING AND DETECTION TO PROBE NEURODEGENERATIVE DISEASE INDUCED BY OLIGOMERS OF BETA AMYLOID. **Wei-Hsin Chen**

**1651-Pos BOARD B628**  
LIVE CELL IMAGING OF CYTOSOLIC NADH/NAD<sup>+</sup> RATIO IN HEPATOCYTES USING THE FLUORESCENT SENSOR PEREDOX. **Ricard Masia**, William J. McCarty, Carolina Lahmann, Jay Luther, Raymond T. Chung, Martin L. Yarmush, Gary Yellen

**1652-Pos BOARD B629**  
SYNONYMOUS MODIFICATION ENABLES HIGH FIDELITY EXPRESSION OF BIOSENSORS AND PROBES WITH REPETITIVE PROTEIN AND NUCLEOTIDE SEQUENCES. **Bin Wu**, Veronika Miskolci, Louis Hodgson, Robert H. Singer

**1653-Pos BOARD B630**  
BIOMIMETIC NANOPORES FOR STUDYING YEAST NUCLEAR PORE TRANSPORT. **Adithya N. Ananth**, Roderick Versloot, Aravind Dwarkasing, Steffen Frey, Dirk Goerlich, Cees Dekker

**1654-Pos BOARD B631**  
THEORETICAL SIMULATION AND EXPERIMENTAL INVESTIGATION FOR THE IDENTIFICATION AND ANALYSIS OF BIPHASIC SURFACE PLASMON RESONANCE DATA. **Purushottam Tiwari**, Yesim Darici, Jin He, Xuewen Wang, Aykut Uren

**1655-Pos BOARD B632**  
OPTICAL DETECTION OF BIOLOGICAL ACTIVITY, ONE MOLECULE AT A TIME. **Markita P. Landry**, Jingqing Zhang, Paul W. Barone, Jong-Ho Kim, Michael S. Strano

**1656-Pos BOARD B633**  
THE SECRETORY PATHWAY  $Ca^{2+}/MN^{2+}$ -ATPASE SPCA2 REGULATES  $MN^{2+}$ -DEPENDENT CELL CYCLE PROGRESSION IN 3D CULTURE OF COLON CANCER CELLS. **James Jenkins**, Ruslan Dmitriev, Dmitri Papkovsky

**1657-Pos BOARD B634**  
DETECTION OF E2 ACTIVITY AS A TUMOR MARKER USING AN ARTIFICIAL RING FINGER. **Kazuhide Miyamoto**

**1658-Pos BOARD B635**  
PROBING SURFACE HYDROPHOBICITY OF INDIVIDUAL PROTEIN AT SINGLE-MOLECULE RESOLUTION USING SOLID-STATE NANOPORES. **Ji Li**

**1659-Pos BOARD B636**  
A NEW CLASS OF TARGETABLE, GENETICALLY ENCODED SINGLE-COLOR BIOSENSORS FOR MULTIPLEXED MONITORING OF PHOSPHOINOSITIDES. **Fabian Hertel**, Jin Zhang

**1660-Pos BOARD B637**  
OPTIMIZATION OF PARAMETERS FOR NANOPORE RESISTIVE PULSE SENSING OF MICRORNA. **Josip Ivica**, Philip T.F. Williamson, Maurits R.R. de Planque

**1661-Pos BOARD B638**  
NANOPORE AS A SENSOR BASED ON AVIDIN-BIOTIN SYSTEM. **Mathilde Lepoitevin**, Mikhael Bechelany, Emmanuel Balanzat, Jean-Marc Janot, Sebastien Balme

**1662-Pos BOARD B639**  
FLUORESCENT BIOSENSOR FOR HYALURONIDASE: INTENSITY BASED RATIOMETRIC SENSING AND TIME-GATED DETECTION USING A LONG LIFETIME AZADIOXATRIANGULENIUM (ADOTA) FLUOROPHORE. **Rahul Chib**, Mark Mummert, Ilkay Bora, Sunil Shah, Bo Wegge Laursen, Thomas Just Sorensen, Ignacy Gryczynski, Julian Borejdo, Zygmunt Gryczynski, Rafal Fudala

**1663-Pos BOARD B640**  
THE ROLE OF CONSERVED POLAR AMINO ACIDS AT THE TRANSMEMBRANE LOOP REGIONS OF A GENETICALLY ENCODED VOLTAGE SENSOR. **Masoud Sepehri Rad**

## Biomaterials & Biosurfaces (Boards B6411 - B661)

**1664-Pos BOARD B641**  
A FACILE NOVEL METHOD TO CONTROL SURFACE TOPOGRAPHY OF CONDUCTING POLYMER FOR IMPROVED CORONARY STENT PERFORMANCE. **Sahebzadeh Mohammed Nabeeluddin**

**1665-Pos BOARD B642**  
DESIGN OF AN AMYLOID-LIKE NANOSHEET WITH TUNABLE FUNCTIONALITY AS BIO-NANOMATERIALS. **Cong Liu**

**1666-Pos BOARD B643**  
ULTRA-FAST PROTON TRANSPORT IN SUB-1-NM DIAMETER CARBON NANOTUBE PORINS. **Ramya Tunuguntla**, Frances Allen, Kyunghoon Kim, Allison Belliveau, Aleksandr Noy

**1667-Pos BOARD B644**  
ELECTROSTATIC DEPENDENT ELASTIC BEHAVIOR OF HYALURONIC ACID. **John P. Berezney**, Omar A. Saleh

**1668-Pos BOARD B645**  
MECHANICALLY-TUNABLE, PROTEIN-BASED MATERIALS CAN BE FUNCTIONALIZED WITH OTHER PROTEINS AND WITH DNA. David Howell, Shang-Pu Tsai, Kelly Churion, Jan Patterson, Kayla Bayless, **Sarah E. Bondos**

**1669-Pos BOARD B646**  
COMPRESSIVE MECHANICS OF COLLAGEN-FIBRIN COMPOSITES AND THEIR STRUCTURAL ALTERATIONS. **Oleg V. Kim**, Rustem I. Litvinov, John W. Weisel, Mark S. Alber

**1670-Pos BOARD B647**  
POLYMERSOME MEMBRANE PERMEABILITY AND IONIC TRANSPORT PROPERTIES IN THE PRESENCE OF SUB-2NM CARBON NANOTUBE PORINS. **Jeremy Sanborn**, Ramya Tunuguntla, Atul Parikh, Aleksandr Noy

**1671-Pos BOARD B648**  
IMPACT OF PENDANT FUNCTIONAL GROUPS AND METHOD OF PREPARATION ON AGGREGATION BEHAVIOUR OF PEGYLATED COPOLYMERS. **Amy Won**, Frantz Le Devedec, Christine Allen, Christopher M. Yip

**1672-Pos BOARD B649**  
WETTABILITY SWITCH OF ANODIC TITANIUM DIOXIDE NANOTUBES WITH VARIOUS DIAMETERS. **Mukta Kulkarni**, Ita Junkar, Harinarayanan Puliyalil, Ales Iglic

**1673-Pos BOARD B650**  
A MINIMALISTIC IN VITRO 3D MODEL TO STUDY F98 RAT BRAIN TUMOR GROWTH. **Emilie Gontran**, Marjorie Juchaux, Christophe Deroulers, Mathilde Badoual, Olivier Seksek

**1674-Pos BOARD B651**  
CAF1 OF YERSINIA PESTIS FORMS COMPLEX HIGHLY STABLE PROTEIN POLYMERS AND HYDROGEL SCAFFOLDS. **Helen Waller**, Yakup Ulusu, Jeremy H. Lakey

**1675-Pos BOARD B652**  
ADSORPTION OF DNA AND RECA TO CONJUGATES OF SINGLE-WALLED CARBON NANOTUBES AND POLY(N-ISOPROPYLACRYLAMIDE) MOLECULES. **Katsuki Izumi**, Yoshikazu Kumashiro, Kazuo Umemura

**1676-Pos BOARD B653**  
CELLULAR SEMICONDUCTOR FACTORIES: CONTROLLED BACTERIAL SYNTHESIS OF CHALCOGENIDE NANOMATERIALS. **Lindsay Bassman**, Francis Tran, Mohamed El-Naggar, James Boedicker

**1677-Pos BOARD B654**  
ALIGNMENT AND DIAMETER OF ELECTROSPUN PEO FIBERS. Killian McGiboney, Thyra Tanos, **Christine Helms**

**1678-Pos BOARD B655**  
BRAIN-MIMETIC MICROENVIRONMENTS FOR CULTURE OF PRIMARY GLIOBLASTOMA MULTIFORME CELLS. **Weikun Xiao**, Stephanie K. Seidlits, Lisa Ta, David Nathanson

**1679-Pos BOARD B656**  
ADHESION PROPERTIES OF DEFORMABLE ULTRA-LOW CROSSLINKED MICROGEL PARTICLES ON SURFACES. **Michelle Gaines**, Thomas Barker, Alberto Fernandez-Nieves

**1680-Pos BOARD B657**  
BEHAVIOR OF WATER IN 3-D CONFINEMENT: IMPLICATIONS FOR MACROMOLECULAR FUNCTION. Amir Barati-Farimani, Emad Tajkhorshid, Naryana Aluru, **Eric Jakobsson**

**1681-Pos BOARD B658**  
UNDERSTANDING THE INTERACTION BETWEEN BIOMOLECULES AND SILVER NANOPARTICLES. **Horacio Poblete**, Anirudh Agarwal, Suma S. Thomas, Cornelia Bohne, R. Ranjithkumar, Jaywant Phospase, Emilio I. Alarcon, Jeffrey Comer

**1682-Pos BOARD B659**  
DYNAMIC STABILIZATION OF EXPRESSED PROTEINS IN ENGINEERED DIATOM BIOSILICA. Yijia Xiong, Nicole R. Ford, Karen A. Hecht, Guritno Roesijadi, **Thomas C. Squier**

**1683-Pos BOARD B660**

SECONDARY STRUCTURE AND FOLDING STABILITY OF PROTEINS ADSORBED ON SILICA - PRESSURE VERSUS TEMPERATURE DENATURATION. **Claus Czeslik**, Süleyman Cinar

**1684-Pos BOARD B661**

SQUID'S SUCKERIN PROTEINS IN BITS & BYTES. **Akshita Kumar**, Srinivasaraghavan Kannan, Julien Lescar, Chandra Verma, Ali Miserez

# Tuesday, March 1, 2016

## Daily Program Summary

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

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7:30 AM–5:00 PM	Registration/Information	West Lobby
8:00 AM–9:00 AM	Biophysical Society Business Meeting	Room 404AB
8:00 AM–4:30 PM	Poster Viewing	West Hall
8:15 AM–10:15 AM	<p><b>Symposium: Emerging Techniques for Study of Cell Mechanics</b>  <b>Chair:</b> <i>Amy Rowat, University of California, Los Angeles</i></p> <p>THE PHYSICS OF SELF-ASSEMBLING CYTOSKELETAL NETWORKS. <i>R. Dyche Mullins</i>            FEELING FOR CELL FUNCTION - MECHANICAL PHENOTYPING AT 1,000 CELLS/SEC. <i>Jochen Guck</i>            BIOMECHANICAL IDENTIFICATION AND SORTING OF SINGLE CELLS. <i>Todd Sulchek</i>            CANCER CELL MECHANOTYPING: FROM SCREENING TO DISEASE BIOPHYSICS. <i>Amy Rowat</i></p>	Petree Hall C
8:15 AM–10:15 AM	<p><b>Symposium: Multiscale Biophysics of Membranes</b>  <b>Chair:</b> <i>L. Felix Goñi, Basque Country University, Spain</i></p> <p>INTERACTIONS AT THE MEMBRANE-FLUID INTERFACE. <i>Suzanne P. Jarvis</i>            CERAMIDE STUDIES FROM THE NANO TO THE MICROSCALE. <i>Felix M Goñi</i>            LIPID STRUCTURE AND CONTROL OF MEMBRANE ORDERED DOMAIN FORMATION AND SIZE BY LIPID COMPOSITION AND ASYMMETRY IN VITRO AND IN VIVO. <i>Erwin London</i>            THE BIOPHYSICS OF LIVING MEMBRANES: PROTEIN PARTITIONING AND FUNCTIONAL DIFFERENTIATION IN ORDERED PLASMA MEMBRANE DOMAINS. <i>Ilya Levental</i></p>	Petree Hall D
8:15 AM–10:15 AM	Platform: Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating II	Room 502A
8:15 AM–10:15 AM	Platform: Protein Structure, Prediction, and Design	Room 502B
8:15 AM–10:15 AM	Platform: Protein Assemblies	Room 515A
8:15 AM–10:15 AM	Platform: Mechanosensation	Room 515B
8:15 AM–10:15 AM	Platform: Networks and Synthetic Biology	Room 501ABC
8:15 AM–10:15 AM	Platform: Ribosomes and Translation	Room 511ABC
9:00 AM–10:30 AM	Subgroup Chairs Meeting	Room 510
9:30 AM–10:30 AM	<p>Career Center Workshop            Career Planning and Job Searching for Science Professionals: Academic Opportunities</p>	Room 518
10:00 AM–4:30 PM	Exhibits	West Hall
10:15 AM–11:00 AM	Coffee Break	West Hall
10:45 AM–12:45 PM	<p><b>Symposium: Awards</b>  <b>Chair:</b> <i>Edward Egelman, University of Virginia, Society President</i></p> <p>TWENTY-EIGHT YEARS, AND STILL (OPTICALLY) TRAPPED! SINGLE MOLECULE BIOPHYSICS COMES OF AGE. <i>Steven M. Block</i>            ELEVATOR MECHANISM OF GLUTAMATE TRANSPORTERS. <i>Olga Boudker</i>            MECHANICAL ARCHITECTURE OF CELL DIVISION. <i>Sophie Dumont</i>            HOW A TAIL WAGS ITS SPERM: REGULATION OF FLAGELLAR MOTILITY BY BIOACTIVE LIPID SIGNALING. <i>Polina V. Lishko</i>            X-RAYS AND ELECTRONS ILLUMINATE NEUROTRANSMITTER RECEPTOR STRUCTURE AND MECHANISM. <i>Eric Gouaux</i>            CHOLESTEROL, THE MOLECULE YOU THOUGHT YOU KNEW. <i>Philip Yeagle</i></p>	Petree Hall C
10:45 AM–12:45 PM	Platform: Other Channels	Petree Hall D
10:45 AM–12:45 PM	Platform: Actin and Microtubules: Structure and Dynamics	Room 502A
10:45 AM–12:45 PM	Platform: Protein-Lipid Interactions II	Room 502B



10:45 AM–12:45 PM	Platform: Intrinsically Disordered Proteins (IDP) and Aggregates II	Room 515A
10:45 AM–12:45 PM	Platform: Calcium Signaling	Room 515B
10:45 AM–12:45 PM	Platform: Protein-Dynamics and Allostery I	Room 501ABC
10:45 AM–12:45 PM	Platform: RNA Structure and Dynamics	Room 511ABC
11:30 AM–1:00 PM	Exhibitor Presentation: Bruker Nano Surfaces Bioscope Resolve BioFM- Unrivalled AFM Biomechanics and Resolution	Room 505
12:00 PM–1:30 PM	Research Programs at PUIs: Founding, Establishing, and Maintaining a Research Laboratory	Room 408A
12:00 PM–2:00 PM	Postdoc to Faculty Q&A: Transitions Forum and Luncheon	Room 510/512
12:30 PM–2:00 PM	Exhibitor Presentation: Nanion Technologies GmbH Measure More Membrane: Cells, Bilayers and Transporter Activity	Room 513
1:00 PM–3:00 PM	Industry and Agency Opportunities Fair	West Hall
1:30 PM–3:00 PM	GMOs, Severe Weather, and Public Opinion	Room 403A
1:45 PM–3:00 PM	Snack Break	West Hall
1:45 PM–3:45 PM	Poster Presentations and Late Posters	West Hall
2:30 PM–3:30 PM	Career Center Workshop Creating and Using an Effective CV/Résumé	Room 518
2:30 PM–4:00 PM	Postdoc to Faculty: Setting Up a Lab	Room 403B
3:00 PM–4:00 PM	Committee on Inclusion and Diversity Networking Event: Resources and Opportunities	Room 404AB
3:00 PM–5:00 PM	Education Committee Meeting	Room 506
4:00 PM–6:00 PM	<b>Symposium: Optogenetics in Neuroscience</b> Chair: <i>Edward Boyden, MIT</i>  TOOLS FOR ANALYZING AND REPAIRING COMPLEX BIOLOGICAL SYSTEMS. <i>Edward S. Boyden</i> CONTROLLING BIOLOGICAL PATHWAYS WITH PHOTOPHARMACOLOGY. <i>Dirk Trauner</i> TOOLS FOR ANATOMICAL AND FUNCTIONAL ANALYSIS OF WIDELY DISTRIBUTED BRAIN NETWORKS. <i>Viviana Gradinaru</i> NATURAL ANION CHANNEL RHODOPSINS: A NEW FAMILY OF TOOLS FOR OPTOGENETIC NEURAL INHIBITION. <i>John L. Spudich</i>	Petree Hall C
4:00 PM–6:00 PM	<b>Symposium: p-ATPases: Structure, Mechanism, and Disease</b> Chair: <i>David Gadsby, Rockefeller University</i>  HYBRID FUNCTION OF THE NA/K-ATPASE: PROTON IMPORT ACCOMPANYING NA/K EXCHANGE. <i>David Gadsby</i> SNAPSHOTS OF P-TYPE ATPASES - FROM CRYSTAL STRUCTURES TO SINGLE-MOLECULE STUDIES. <i>Poul Nissen</i> THE NEW KIDS IN THE BLOCK: $Fe^{2+}$ TRANSPORT P-ATPASES. <i>José M. Argüello</i> SECRETORY PATHWAY CALCIUM ATPASES IN BREAST CANCER. <i>Rajini Rao</i>	Petree Hall D
4:00 PM–6:00 PM	Platform: Cardiac Muscle Mechanics and Structure	Room 502A
4:00 PM–6:00 PM	Platform: Protein Stability, Folding, and Chaperones II	Room 502B
4:00 PM–6:00 PM	Platform: Membrane Physical Chemistry III	Room 515A
4:00 PM–6:00 PM	Platform: Molecular, Cellular, and Experimental Neuroscience: Reception, Plasticity, and New Approaches	Room 515B
4:00 PM–6:00 PM	Platform: Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence	Room 501ABC
7:30 PM–9:30 PM	<b>Workshop: Time-resolved Crystallography</b> Chair: <i>Philip Anfinrud, NIH</i>  TIME-RESOLVED CRYSTALLOGRAPHY WITH SYNCHROTRON AND FREE ELECTRON LASER SOURCES. <i>Keith Moffat</i> STRUCTURAL DYNAMICS OF PHOTOACTIVE YELLOW PROTEIN INVESTIGATED BY TIME RESOLVED SERIAL FEMTOSECOND CRYSTALLOGRAPHY. <i>Marius Schmidt</i> TIME-RESOLVED FEMTOSECOND CRYSTALLOGRAPHY: TOWARDS MOLECULAR MOVIES OF MOLECULES IN ACTION. <i>Petra Fromme</i> WATCHING PROTEINS FUNCTION WITH TIME-RESOLVED X-RAY DIFFRACTION. <i>Philip Anfinrud</i>	Room 502A

7:30 PM–9:30 PM	<b>Workshop: Frontiers in Biophysical Instrumentation</b> <b>Chair: Joerg Bewersdorf, Yale University</b>  STUDYING CELL DYNAMICS USING QUANTITATIVE PHASE IMAGING. <i>Gabriel Popescu</i> PROBING SINGLE INDIVIDUAL PROTEINS UNFOLD AND REFOLD WITH 1- $\mu$ s RESOLUTION: IMPROVED AFM-BASED SINGLE MOLECULE FORCE SPECTROSCOPY. <i>Thomas T. Perkins</i> ELUCIDATION OF THE MOLECULAR MACHINERY IN PHOTOSYNTHETIC LIGHT HARVESTING. <i>Gabriela Schlau-Cohen</i> LIVE-CELL OPTICAL MICROSCOPY BEYOND THE DIFFRACTION LIMIT. <i>Joerg Bewersdorf</i>	Room 502B
7:30 PM–9:30 PM	<b>Workshop: Computational Methods for Ion Permeation and Selection</b> <b>Chair: Maria Kurnikova, Carnegie Mellon University</b>  WHAT CAN BE LEARNED ABOUT ION CHANNELS FROM MOLECULAR DYNAMICS SIMULATIONS. <i>Benoit Roux</i> CONTINUUM THEORY OF CALCIUM CHANNELS: FUNDAMENTAL INSIGHTS FROM SIMPLIFIED MODELS. <i>Dirk Gillespie</i> COMPUTATIONAL ELECTROPHYSIOLOGY: CLOSE-UPS OF ION PERMEATION AND MIGRATION IN MEMBRANE PROTEINS. <i>Ulrich Zachariae</i> WILL IT PERMEATE? PREDICTING ION CHANNEL ION SELECTIVITY, PERMITTIVITY AND BLOCK MECHANISMS. <i>Maria Kurnikova</i>	Room 515A
7:30 PM–9:30 PM	<b>Workshop: Methods for Tracking Single Biomolecule Mobility, Clustering, and Conformational State</b> <b>Chair: Keith Lidke, University of New Mexico</b>  MULTI-COLOR SINGLE PARTICLE TRACKING FOR DETERMINING PROTEIN INTERACTION LIFETIMES. <i>Keith A. Lidke</i> TRACKING SUBCELLULAR DYNAMICS WITH MULTIFOCAL PLANE MICROSCOPY. <i>Raimund J. Ober</i> SINGLE MOLECULES IN THE AGE OF BIG DATA. <i>Maxime Dahan</i> INVESTIGATING HOW MOLECULES COME TO LIFE USING SINGLE MOLECULE FLUORESCENCE TECHNOLOGIES. <i>Taekjip Ha</i>	Room 515B
6:00 PM–10:00 PM	<b>Publications Committee Meeting</b>	J.W. Marriott, Olympic II
8:00 PM–10:00 PM	<b>SOBLA (The Society for Latinoamerican Biophysicists) Meeting</b>	Room 409AB

# Tuesday, March 1

## Registration/Information

7:30 AM - 5:00 PM, WEST LOBBY

## Biophysical Society Business Meeting

8:00 AM - 9:00 AM, ROOM 404AB

## Poster Viewing

8:00 AM - 4:30 PM, WEST HALL

## Symposium

### Emerging Techniques for Study of Cell Mechanics

8:15 AM - 10:15 AM, PETREE HALL C

#### Chair

*Amy Rowat, University of California, Los Angeles*

**NO ABSTRACT 8:15 AM**

THE PHYSICS OF SELF-ASSEMBLING CYTOSKELETAL NETWORKS. **R. Dyche Mullins**

**1685-SYMP 8:45 AM**

FEELING FOR CELL FUNCTION - MECHANICAL PHENOTYPING AT 1,000 CELLS/SEC. **Jochen Guck**

**1686-SYMP 9:15 AM**

BIOMECHANICAL IDENTIFICATION AND SORTING OF SINGLE CELLS. **Todd Sulchek**

**1687-SYMP 9:45 AM**

CANCER CELL MECHANOTYPING: FROM SCREENING TO DISEASE BIOPHYSICS. **Amy Rowat**

## Symposium

### Multiscale Biophysics of Membranes

8:15 AM - 10:15 AM, PETREE HALL D

#### Chair

*Felix Goñi, Basque Country University, Spain*

**1688-SYMP 8:15 AM**

INTERACTIONS AT THE MEMBRANE-FLUID INTERFACE. **Suzanne P. Jarvis**

**1689-SYMP 8:45 AM**

CERAMIDE STUDIES FROM THE NANO TO THE MICROSCALE. **Felix M. Goñi, Alicia Alonso**

**1690-SYMP 9:15 AM**

LIPID STRUCTURE AND CONTROL OF MEMBRANE ORDERED DOMAIN FORMATION AND SIZE BY LIPID COMPOSITION AND ASYMMETRY IN VITRO AND IN VIVO. **Erwin London, Deborah A. Brown, Zhen Huang, JiHyun Kim, Guangtao Li, Johnna St.Clair, Qing Wang**

**1691-SYMP 9:45 AM**

THE BIOPHYSICS OF LIVING MEMBRANES: PROTEIN PARTITIONING AND FUNCTIONAL DIFFERENTIATION IN ORDERED PLASMA MEMBRANE DOMAINS. **Ilya Levental**

## Platform

### Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating II

8:15 AM - 10:15 AM, ROOM 502A

#### Co-Chairs

*Glenn Bett, State University of New York*

*Brad Rothberg, Temple University School of Medicine*

**1692-PLAT 8:15 AM**

MOLECULAR DYNAMICS SIMULATIONS OF HYDROPHOBIC MATCHING IN KCSA. **Karen M. Callahan, Benoit Mondou, Louis Sasseville, Jean-Louis Schwartz, Jurgen Sygusch, Nazzareno D'Avanzo**

**1693-PLAT 8:30 AM**

INSIGHTS INTO ION CHANNEL SELECTIVITY WITH IONIC COULOMB BLOCKADE. **William A.T. Gibby, Dmitri G. Luchinsky, Igor Kh Kaufman, Peter V.E. McClintock, Aneta Stefanovska, Robert S. Eisenberg**

**1694-PLAT 8:45 AM**

IONIC BASIS OF REPOLARIZATION OF ATRIAL AND VENTRICULAR SPECIFIC CELL TYPES DERIVED FROM HUMAN INDUCED PLURIPOTENT STEM CELLS. **Aaron D. Kaplan, Randall L. Rasmusson, Glenna CL Bett**

**1695-PLAT 9:00 AM**

SHAKER-IR K CHANNEL GATING IN HEAVY WATER: ROLE OF STRUCTURAL WATER MOLECULES IN INACTIVATION. **Tibor G. Szanto, Szabolcs M. Gaal, Zoltan Varga, Gyorgy Panyi**

**1696-PLAT 9:15 AM**

AN INTRINSIC LIGAND MEDIATES N- AND C-TERMINAL INTERACTIONS WITH THE KCNH GATING MACHINERY. **Yaxian Zhao, Joao H. Morais-Cabral, Andreia Sousa Fernandes, Gail A. Robertson**

**1697-PLAT 9:30 AM**

TARGETED ENHANCEMENT OF HERG K<sup>+</sup> CHANNEL ACTIVITY WITH SCFV ANTIBODY FRAGMENTS. **Greg Starek, Carol A. Harley, David K. Jones, Gail A. Robertson, João H. Morais-Cabral**

**1698-PLAT 9:45 AM**

FUNCTIONAL AND CRYSTALLOGRAPHIC STUDIES OF HETERO-MULTIMERIC K<sup>+</sup> CHANNELS. **Spandana Vemulapally, D. Marien Cortes, Luis G. Cuello**

**1699-PLAT 10:00 AM**

OPTICAL RECORDING OF VOLTAGE ACTIVATION OF ENDOGENOUS POTASSIUM CHANNELS. **Mark W. Lillya, Laxmi K. Parajuli, Sebastian Fletcher-Taylor, Joyce Huang, Bruce E. Cohen, Karen Zito, Jon T. Sack**

## Platform

### Protein Structure, Prediction, and Design

8:15 AM - 10:15 AM, ROOM 502B

#### Co-Chairs

*Evelyn Deplazes, The University of Queensland, Australia*

*Edward Lemke, European Molecular Biology Laboratory, Germany*

**1700-PLAT 8:15 AM**

COMBINING PHYSICS AND KNOWLEDGE IN BLIND PROTEIN STRUCTURE PREDICTION. **Alberto Perez, Emiliano Brini, Joseph Morrone, Jason Wagoner, Justin MacCallum, Ken Dill**

**1701-PLAT 8:30 AM**

A NEW TOOL FOR CUSTOM PROTEIN DESIGN AND ENGINEERING - DH10 BAC-TAG. **Christine Koehler, Paul Sauter, Mirella Wawryszyn, Gemma Estrada Girona, Markus H. Fritz, Moritz Biskup, Hueseyin Besir, Imre Berger, Vladimir Benes, Jan Korbel, Stefan Braese, Edward A. Lemke**

**1702-PLAT 8:45 AM**  
CRYOEM-GUIDED ITERATIVE MOLECULAR DYNAMICS - ROSETTA PROTEIN STRUCTURE REFINEMENT PROTOCOL IMPROVES PROTEIN MODEL QUALITY. **Steffen Lindert**, Melanie Marlett

**1703-PLAT 9:00 AM**  
STRUCTURE-BASED PREDICTION OF PROTEASE MULTISPECIFICITY USING COMPUTATIONAL PROTEIN DESIGN. **Sagar D. Khare**, Aliza Rubenstein, Manasi Pethe

**1704-PLAT 9:15 AM**  
PROTEIN SEQUENCE OPTIMIZATION WITH A POLARIZABLE FORCE FIELD: INSIGHTS FROM PDZ DOMAINS. Jacob M. Litman, Young Joo Sun, Titus Hou, Stephen D. LuCore, Nicolas Panel, Thomas Simonson, Ernesto J. Fuentes, **Michael J. Schnieders**

**1705-PLAT 9:30 AM**  
DE NOVO DESIGN AND BIOPHYSICAL CHARACTERIZATION OF AN AFFINITY-ENHANCED PROTEIN DISPLAYING THE STRUCTURE OF THE BROADLY NEUTRALIZING HIV-1 2F5 ANTIBODY EPI TOPE. **Isabelle Freire Tabosa Viana**, Eduardo Nascimento, Jodi Craigo, Marco Krieger, Robbie Mailliard, Rafael Dhalia, Roberto Lins, Ernesto TA Marques

**1706-PLAT 9:45 AM**  
A TOOL TO INTEGRATE USER EXPERTISE INTO BUILDING ATOMIC LEVEL MODELS FOR LARGE BIOMOLECULAR SYSTEMS. **Till Rudack**, Ryan McGreevy, Marc Siggel, Klaus Schulten

**1707-PLAT 10:00 AM**  
RESIDUE ENVIRONMENT SCORE FOR SELECTING PROTEIN STRUCTURE MODELS AND PROTEIN-PROTEIN DOCKING MODELS. **HyungRae Kim**

## Platform Protein Assemblies

**8:15 AM - 10:15 AM, ROOM 515A**

### Co-Chairs

*James Cole, University of Connecticut*  
*Alasdair Steven, NIH*

**1708-PLAT 8:15 AM**  
SPECIFIC INTERACTION OF A NATURALLY OCCURRING AMYLOIDOGENIC FRAGMENT OF STREPTOCOCCUS MUTANS ADHESIN P1 WITH INTACT P1 ON THE CELL SURFACE MEASURED BY SOLID STATE NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. **Joanna Long**, Wenxing Tang, Paula Crowley, L. Jeannine Brady

**1709-PLAT 8:30 AM**  
REGULATION OF PKR BY RNA: FORMATION OF ACTIVE AND INACTIVE DIMERS. Bushra Husain, Stephen Hesler, **James Cole**

**1710-PLAT 8:45 AM** EDUCATION TRAVEL AWARDEE  
GOVERNING PRINCIPLES OF MULTIPROTEIN COMPLEX FORMATION ON THE CELL MEMBRANES: AN INVESTIGATION USING SINGLE-MOLECULE RESOLUTION SPATIO-TEMPORAL STOCHASTIC COMPUTER SIMULATIONS AND ANALYTICAL CALCULATIONS. **Osman N. Yogurtcu**, Margaret E. Johnson

**1711-PLAT 9:00 AM**  
CHARACTERIZATION OF NOVEL SPLIT-FLUORESCENT PROTEINS AND QUANTITATIVE ANALYSIS OF THEIR SELF-ASSEMBLY PROCESS. **Tugba Koker**, Anthony Fernandez, Arunima Kolekar, Fabien Pinaud

**1712-PLAT 9:15 AM**  
A NEW DIMENSION OF DETECTION IN ANALYTICAL ULTRACENTRIFUGATION WITH FLUORESCENCE DETECTION USING PHOTOSWITCHABLE FPS AS TIME DOMAIN PROBES. **Huaying Zhao**, George Patterson, Peter Schuck

**1713-PLAT 9:30 AM**  
MOLECULAR ARCHITECTURE OF THE NUP82 COMPLEX, THE CYTOPLASMIC MRNA EXPORT PLATFORM IN THE NUCLEAR PORE COMPLEX. **Seung Joong Kim**, Javier Fernandez-Martinez, Yi Shi, Paula Upla, Riccardo Pellarin, Ilan E. Chemmama, Ilona Nudelman, David L. Stokes, Brian T. Chait, Andrej Sali, Michael P. Rout

**1714-PLAT 9:45 AM**  
LOCAL GEOMETRY AND EVOLUTIONARY CONSERVATION OF PROTEIN SURFACES REVEAL THE MULTIPLE RECOGNITION PATCHES IN PROTEIN-PROTEIN INTERACTIONS. **Elodie Laine**, Hugues Ripoché, Alessandra Carbone

**1715-PLAT 10:00 AM**  
RETINOSCHISIN AT 4 Å RESOLUTION FROM CRYO-EM: A JUNCTIONAL MODEL OF BACK-TO-BACK OCTAMERS FOR ADHESION IN THE RETINA. Gökhan Tolun, Camasamudram Vijayarathy, Rick Huang, Yong Zeng, Yan Li, Paul A. Sieving, J. Bernard Heymann, **Alasdair C. Steven**

## Platform Mechanosensation

**8:15 AM - 10:15 AM, ROOM 515B**

### Co-Chairs

*Dolores Bozovic, University of California, Los Angeles*  
*Hongxia Fu, Harvard Medical School*

**1716-PLAT 8:15 AM**  
SINGLE-MOLECULE ACTIVATION BY FLOW: FORCE-INDUCED CONFORMATIONAL TRANSITIONS REGULATE THE LIGAND BINDING AFFINITY OF A LARGE, POLYMERIC MECHANOSENSOR PROTEIN. **Hongxia Fu**, Yan Jiang, Darren Yang, Wesley P. Wong, Timothy A. Springer

**1717-PLAT 8:30 AM**  
BILAYER-MEDIATED STRUCTURAL TRANSITIONS IN THE TREK-2 MECHANOSENSITIVE K<sub>2</sub>P CHANNEL. **Prafulla Aryal**, Viwan Jarerattanachai, Stephen J. Tucker, Mark S.P. Sansom

**1718-PLAT 8:45 AM**  
MAGNETIC NANOPARTICLE STIMULATION FOR DETECTION OF HIGH-ORDER MODE-LOCKING IN HAIR CELLS OF THE INNER EAR. **Dolores Bozovic**, Michael Levy

**1719-PLAT 9:00 AM**  
STRETCH-GATED ION CHANNELS IN NEURONAL MECHANORECEPTORS. **Slav N. Bagriantsev**, Eve R. Schneider, Evan O. Anderson, Jon Matson, Elena O. Gracheva

**1720-PLAT 9:15 AM**  
BIOPHYSICAL FACTORS THAT PROMOTE MECHANICALLY-INDUCED ACTION POTENTIALS IN NEOCORTICAL AND HIPPOCAMPAL PYRAMIDAL NEURONS. Yury A. Nikolaev, Peter J. Dosen, Derek R. Laver, Dirk F. Van Helden, **Owen P. Hamill**

**1721-PLAT 9:30 AM** CPOW TRAVEL AWARDEE  
INFLAMMATORY CYTOKINE IL-1 $\alpha$  UP-REGULATES PIEZO1 AND HYPERSENSITIZES CHONDROCYTES TO COMPRESSION. **Whasil Lee**, Holly Leddy, Amy McNulty, Farshid Guilak, Wolfgang Liedtke

**1722-PLAT 9:45 AM**  
STRUCTURAL AND FUNCTIONAL CHARACTERIZATIONS OF THE MECHANOSENSITIVE PIEZO CHANNEL. **Bailong Xiao**

**1723-PLAT 10:00 AM**  
BENDING PIEZO1: THE EFFECT OF AMPHIPATHS ON THE GATING OF A MECHANOSENSITIVE CHANNEL. **Charles D. Cox**, Boris Martinac

## Platform Networks and Synthetic Biology

8:15 AM - 10:15 AM, Room 501ABC

### Co-Chairs

Andrew Mugler, *Purdue University*  
Chandran Sabanayagam, *University of Delaware*

### 1724-PLAT 8:15 AM

THE NONEQUILIBRIUM STATISTICAL THERMODYNAMICS OF BIOLOGICAL CYCLES. **Jason A. Wagoner**, Ken Dill

### 1725-PLAT 8:30 AM

STATISTICAL MECHANICAL FRAMEWORK FOR PREDICTING CELLULAR RESPONSES FROM SINGLE-CELL DATA. **Lila Forte**, Connie Y. Wang, Thomas F. Miller III

### 1726-PLAT 8:45 AM

FUNDAMENTAL LIMITS TO THE PRECISION OF MULTICELLULAR SENSING. Sean Fancher, Andre Levchenko, Ilya Nemenman, **Andrew Mugler**

### 1727-PLAT 9:00 AM

MULTI-SCALE SPATIO-TEMPORAL DYNAMICS OF HISTONE MODIFICATIONS. **Irem Celen**, Jung Doh, Chandran Sabanayagam

### 1728-PLAT 9:15 AM

DYNAMIC SIMULATIONS OF CELL MIGRATION WITH APPLICATIONS TO BRAIN DEVELOPMENT. **Claude Sinner**, Ines Reinartz, Bernadett Bösze, Steffen Scholpp, Alexander Schug

### 1729-PLAT 9:30 AM

OPTICAL CONTROL OF CANCER INITIATION IN ZEBRAFISH. **Zhiping Feng**

### 1730-PLAT 9:45 AM

IN VITRO CONSTRUCTION OF 3D MICROTUBULE NETWORKS AND APPLICATIONS OF BASIC ARTIFICIAL CYTOSKELETON FOR BIOPHYSICAL STUDIES. **Michael D. Vershinin**, Jared Bergman, Olaolu Osunbayo

### 1731-PLAT 10:00 AM

FROM ION-CHANNELS TO PORINS: ENGINEERING DNA-BASED SYNTHETIC COUNTERPARTS. **Kerstin Göpfrich**, Alexander Ohmann, Satya P. Bhamidimarri, Madhavi V.S.V. Duvvuri, Cristiana I. Bercea, Bertalan Gyenes, Mathias Winterhalter, Ulrich F. Keyser

## Platform Ribosomes and Translation

8:15 AM - 10:15 AM, Room 511ABC

### Co-Chairs

Rubin Gonzalez, *Columbia University, USA*  
Magnus Johansson, *Uppsala University, Sweden*

### 1732-PLAT 8:15 AM

IN VIVO MEASUREMENTS OF PROTEIN SYNTHESIS KINETICS USING SINGLE-MOLECULE TRACKING OF E.COLI TRNAS. Ivan Volkov, Javier Aguirre, Martin Lindén, Johan Elf, **Magnus Johansson**

### 1733-PLAT 8:30 AM

CODON POSITIONS THAT STRONGLY INFLUENCE COTRANSLATIONAL FOLDING ARE FAR FROM EQUILIBRIUM: A FRAMEWORK FOR CONTROLLING NASCENT-PROTEIN FOLDING. Ajeet Sharma, **Edward P. O'Brien**

### 1734-PLAT 8:45 AM

FOLLOWING TRANSLATION AND FOLDING OF INDIVIDUAL PROTEINS BY SINGLE RIBOSOMES IN REAL-TIME USING OPTICAL TWEEZERS. **Alexandros Katranidis**, Florian Wruck, Knud H. Nierhaus, Georg Büldt, Martin Hegner

### 1735-PLAT 9:00 AM

THE DYNAMIC PATHWAYS OF PROKARYOTIC TRANSLATION TERMINATION AND RECYCLING. **Arjun Prabhakar**, Jin Chen, Joseph D. Puglisi

### 1736-PLAT 9:15 AM

IN VITRO OPTIMIZATION OF TRANSLATIONAL ACTIVITY WITH MODIFIED RIBOSOMES. **Noémie M. Kempf**, Cristina Remes, Daryan Kempe, Alexandros Katranidis, Jörg Fitter

### 1737-PLAT 9:30 AM

FUNCTIONAL PROFILING OF RIBOSOMAL RNA MODIFICATIONS USING QUANTITATIVE MASS SPECTROMETRY. **Anna Popova**, James Williamson

### 1738-PLAT 9:45 AM

SINGLE-MOLECULE ELECTRONIC MEASUREMENTS OF DNA POLYMERASE I. **Denys O. Marushchak**, Kaitlin M. Pugliese, Mackenzie W. Turvey, O. Tolga Gul, Arith J. Rajapakse, Gregory A. Weiss, Philip G. Collins

### 1739-PLAT 10:00 AM

QUANTIFYING THE ENERGY LANDSCAPE OF RIBOSOME FUNCTION. **Paul C. Whitford**

## Subgroup Chairs Meeting

9:00 AM - 10:30 AM, Room 510

## Career Center Workshop Career Planning and Job Searching for Science Professionals: Academic Opportunities

9:30 AM - 10:30 AM, Room 518

Learn how to create a flexible career plan for yourself, and identify and leverage your skills, expertise and experience to find a career (not just a job) that is right for you. Special emphasis will be placed on tips for finding and launching a career in academia, but we will also incorporate the development of a contingency plan for the unexpected twists and turns in life.

## Exhibits

10:00 AM - 4:30 PM, WEST HALL

## Coffee Break

10:15 AM - 11:00 AM, WEST HALL

## Symposium Awards

10:45 AM - 12:45 PM, PETREE HALL C

### Chair

Edward Egelman, *University of Virginia, Society President*

### NO ABSTRACT 10:45 AM

TWENTY-EIGHT YEARS, AND STILL (OPTICALLY) TRAPPED! SINGLE MOLECULE BIOPHYSICS COMES OF AGE. **Steven M. Block**

### NO ABSTRACT 11:02 AM

ELEVATOR MECHANISM OF GLUTAMATE TRANSPORTERS. **Olga Boudker**

### NO ABSTRACT 11:19 AM

MECHANICAL ARCHITECTURE OF CELL DIVISION. **Sophie Dumont**

### NO ABSTRACT 11:36 PM

HOW A TAIL WAGS ITS SPERM: REGULATION OF FLAGELLAR MOTILITY BY BIOACTIVE LIPID SIGNALING. **Polina V. Lishko**

**NO ABSTRACT 11:53 PM**  
X-RAYS AND ELECTRONS ILLUMINATE NEUROTRANSMITTER RECEPTOR STRUCTURE AND MECHANISM. **Eric Gouaux**

**NO ABSTRACT 12:10 PM**  
CHOLESTEROL, THE MOLECULE YOU THOUGHT YOU KNEW. **Philip Yeagle**

**NO ABSTRACT 12:27 PM**  
INTERPRETATION OF SOLUTION X-RAY SCATTERING BY EXPLICIT-SOLVENT MOLECULAR DYNAMICS. **Jochen Hub**

## Platform Other Channels

10:45 AM - 12:45 PM, PETREE HALL D

### Co-Chairs

*Jorge Arreola, Universidad Autónoma de San Luis Potosí Inicio, Mexico*  
*Peter Pohl, Johannes Kepler University, Australia*

**1740-PLAT 10:45 AM**  
MOLECULAR DETERMINANTS UNDERLYING THE PATHOGENIC MECHANISM OF KID SYNDROME ELICITED BY CX26G12R MUTATION. **Isaac E. García**, Gustavo Contreras, Amaury Pupo, Bernardo Pinto, Ramón Latorre, Jorge E. Contreras, Agustín D. Martínez, Carlos González

**1741-PLAT 11:00 AM**  
THREE-DIMENSIONAL STRUCTURE OF INNEXIN GAP JUNCTION CHANNELS STUDIED BY ELECTRON CRYSTALLOGRAPHY. **Atsunori Oshima**, Tomohiro Matsuzawa, Kazuyoshi Murata, Kazutoshi Tani, Yoshinori Fujiyoshi

**1742-PLAT 11:15 AM**  
ACCESS OF METAL IONS AND METHANETHIOSULFONATE REAGENTS TO THE CALCIUM-GATED CONNEXIN HEMICHANNEL PORE: IMPLICATIONS FOR THE LOCATION OF THE GATE. **William I. Lopez**, Jaya Ramachandran, Andrew L. Harris, Jorge E. Contreras

**1743-PLAT 11:30 AM**  
MEASURING PROTON DEPLETION IN THE VICINITY OF PROTON CHANNELS. **Leon D. Islas**, Victor De la Rosa-Jimenez, Esteban Suarez, Gisela Rangel

**1744-PLAT 11:45 AM**  
ACID-INDUCED CHLORIDE CURRENT IN DISTAL CONVOLUTED TUBULE. William C. Valinsky, Rhian M. Touyz, **Alvin Shrier**

**1745-PLAT 12:00 PM**  
MODULATION OF THE CALCIUM-DEPENDENT CHLORIDE CHANNEL TMEM16A BY EXTRACELLULAR PROTONS. **Silvia Cruz-Rangel**, José J. De Jesús-Pérez, Criss Hartzell, Patricia Pérez-Cornejo, Jorge Arreola

**1746-PLAT 12:15 PM**  
UNUSUAL ION PATHWAY ARCHITECTURE OF THE DUAL-TOPOLOGY FLUORIDE CHANNEL FLUC. **Nicholas B. Last**, Christopher Miller

**1747-PLAT 12:30 PM**  
VOLTAGE SENSITIVITY OF THE BACTERIAL PROTEIN TRANSLOCATION CHANNEL. **Denis G. Knyazev**, Roland Kuttner, Christine Siligan, Lukas Winter, Peter Pohl

## Platform Actin and Microtubules: Structure and Dynamics

10:45 AM - 12:45 PM, ROOM 502A

### Co-Chairs

*David Sept, University of Michigan*  
*Megan Valentine, University of California, Santa Barbara*

**1748-PLAT 10:45 AM**  
MOLECULAR EFFECTS OF DEAFNESS MUTATIONS IN ACTIN. Lauren Jepsen, Karina Kruth, Peter Rubenstein, **David Sept**

**1749-PLAT 11:00 AM**  
TARGETED ACTIN DISASSEMBLY BY MICAL AND COFILIN. **Elena E. Grintsevich**, Hunkar Gizem Yesilyurt, Shannon K. Rich, Rwei-Jiun Hung, Jonathan R. Terman, Emil Reisler

**1750-PLAT 11:15 AM**  
F-ACTIN FRAGMENTATION INDUCES DISTINCT MECHANISMS OF STRESS RELAXATION IN THE ACTIN CYTOSKELETON. Wonyeong Jung, Michael P. Murrell, **Taeyoon Kim**

**1751-PLAT 11:30 AM**  
THE EFFECT OF MULTIVALENT CATIONS ON MICROTUBULE-PROTEIN TAU ORDERING. **Chaeyeon Song**, Peter Chung, Herbert P. Miller, Youli Li, Stuart C. Feinstein, Leslie Wilson, Cyrus R. Safinya

**1752-PLAT 11:45 AM**  
NOVEL MECHANISM OF REGULATION OF MICROTUBULE DYNAMICS BY TAU. Rehan Ali, **Christopher L. Berger**

**1753-PLAT 12:00 PM**  
SUPER-RESOLUTION IMAGING OF SLOWLY DEPOLYMERIZING MICROTUBULES REVEALS NO CURVED PROTOFILAMENTS WITH A LIFETIME LONGER THAN SECONDS. **Douglas S. Martin**, Nicholas J. Carter, Robert A. Cross

**1754-PLAT 12:15 PM**  
LOCAL ANCHORAGE OF KINETOCHORE-FIBERS TO THE MAMMALIAN SPINDLE PROVIDES MECHANICAL ISOLATION AND LOAD-BEARING REDUNDANCY. **Mary W. Elting**, Dylan B. Udy, Sophie Dumont

**1755-PLAT 12:30 PM**  
SINGLE-MOLECULE INVESTIGATION OF THE DIFFUSIVE MICROTUBULE +TIP TRACKING PROTEIN EB1. Benjamin J. Lopez, **Megan T. Valentine**

## Platform Protein-Lipid Interactions II

10:45 AM - 12:45 PM, ROOM 502B

### Co-Chairs

*Zhiming Chen, University of Pennsylvania*  
*Durba Sengupta, National Chemical Laboratory, Germany*

**1756-PLAT 10:45 AM**  
CROSSLINKING/MS STUDIES OF CHOLESTEROL INTERACTIONS WITH HUMAN  $\alpha 1$  GLYCINE RECEPTOR. **Nicholas Ferraro**, Emily Benner, Jeffrey Madura, Michael Cascio

**1757-PLAT 11:00 AM**  
A THERMODYNAMIC STUDY OF THE EFFECTS OF CHOLESTEROL ON THE ACTIVITY OF ANTIMICROBIAL PEPTIDE PROTEGRIN-1. **Nishanth S. Iyengar**, J. Michael Henderson, Tiffany Suwatthee, Indroneil Roy, Alan J. Waring, Ka Yee C. Lee

**1758-PLAT 11:15 AM**  
CONFORMATIONAL DYNAMICS OF GPCR DIMERS IS DEPENDENT ON MEMBRANE CHOLESTEROL. **Durba Sengupta**, Xavier Prasanna, Amitabha Chattopadhyay

**1759-PLAT 11:30 AM**  
CHOLESTEROL PROMOTES THE PERIPHERAL BINDING OF RETROVIRAL PROTEINS TO LIPID BILAYERS. **Milka Doktorova**, Robert Dick, Frederick A. Heberle, Gerald W. Feigenson, Volker M. Vogt

**1760-PLAT 11:45 AM**  
ASSESSING THE MECHANISM BY WHICH A CHOLESTEROL RECOGNITION AMINO ACID CONSENSUS (CRAC) MOTIF RECOGNIZES MEMBRANE CHOLESTEROL. **Evan Koufos**, Angela C. Brown

**1761-PLAT 12:00 PM**

MISMATCH DEPENDENT TILT OF AMPHIPATHIC  $\alpha$ -HELICAL ANTIMICROBIAL PEPTIDES INSERTED IN POSITIVE SPONTANEOUS CURVATURE LIPID MEMBRANES. **Erik Strandberg**, Jonathan Zerweck, Ariadna Grau-Campistany, Marie-Claude Gagnon, Parvesh Wadhvani, Johannes Reichert, Jochen Bürck, Jean-Francois Paquin, Michele Auger, Francesc Rabanal, Anne S. Ulrich

**1762-PLAT 12:15 PM**

TN-RAS, SYNAPTOTAGMIN1 C2AB, ANNEXINB12 AND AMPHIPHYSIN NBAR CAN DISCRIMINATE SPHERICAL FROM CYLINDRICAL MEMBRANE CURVATURE. **Artu' Breuer**, Jannik Larsen, Kadla Røskva Rosholm, Søren L. Pedersenb, Henrik K. Munch, Vadym Tkach, John J. Sakon, Thomas Bjørnholm, Keith R. Weninger, Poul M. Bendix, Knud J. Jensen, Mark J. Uline, Nikos S. Hatzakis, Dimitrios Stamou

**1763-PLAT 12:30 PM**

BAR DOMAIN PROTEINS CAN DIFFER SUBSTANTIALLY IN THEIR CAPACITY TO GENERATE MEMBRANE CURVATURE. **Zhiming Chen**, Zheng Shi, Katarzyna I. Jankowska, Tobias Baumgart

**Platform****Intrinsically Disordered Proteins (IDP) and Aggregates II****10:45 AM - 12:45 PM, ROOM 515A****Co-Chairs**

*Edward Lemke, European Molecular Biology Laboratory, Germany*  
*Sudipta Maiti, Tata Institute of Fundamental Research, India*

**1764-PLAT 10:45 AM**

PLASTICITY OF NUCLEOPORIN NUCLEAR TRANSPORT RECEPTOR INTERACTIONS - MOLECULAR DESCRIPTION OF A HIGHLY DYNAMIC, ULTRAFAST INTERACTION MECHANISM. **Iker Valle Aramburu**, Davide Mercadante, Sigrid Milles, Malene Ringkjøbing, Niccolò Banterle, Christine Koehler, Swati Tyagi, Jane Clarke, Sarah L. Shammis, Martin Blackledge, Frauke Gräter, Edward A. Lemke

**1765-PLAT 11:00 AM**

A HIDDEN STRUCTURAL TRANSITION ACCOMPANIES THE PROGRESSION OF AMYLOID-BETA OLIGOMERS TO MATURE FIBRILS. Bappaditya Chandra, Debanjan Bhowmik, Barun K. Maity, Debabrata Dhara, Kaustubh Mote, Ravindra Venkatramani, Perunthiruthy K. Madhu, **Sudipta Maiti**

**1766-PLAT 11:15 AM**

REGULATION OF MAMMALIAN DYNEIN INTERMEDIATE CHAIN. **Jing Jie**, Elisar Barbar

**1767-PLAT 11:30 AM**

INTRINSICALLY DISORDERED PROTEINS: GATEKEEPERS OF THE NUCLEAR PORE COMPLEX. Ali Ghavami, Liesbeth M. Veenhoff, Erik Van der Giessen, **Patrick R. Onck**

**1768-PLAT 11:45 AM**

CHARGE PATTERNED SEQUENCES FORM HELICAL STRUCTURES THROUGH CHARGE NEUTRALIZATION. **Tyler S. Harmon**, Rohit V. Pappu

**1769-PLAT 12:00 PM**

STRUCTURAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS DEPEND STRONGLY ON FORCE FIELD: A COMPARISON TO EXPERIMENT. **Sarah Rauscher**, Vytautas Gapsys, Man Zhou, Qui Van, Michal Gajda, Markus Zweckstetter, Joerg Enderlein, Bert L. de Groot, Helmut Grubmüller

**1770-PLAT 12:15 PM**

FACTORS MODULATING THE INTERACTION OF HUNTINGTIN WITH LIPID MEMBRANES: IMPLICATIONS FOR HUNTINGTON'S DISEASE. **Justin Legleiter**, James R. Arndt, Maxmore Chaibva, Xiang Gao, Pranav Jain, Olivia Sarver, Stephen Valentine

**1771-PLAT 12:30 PM**

ELECTROSTATIC CONTRIBUTIONS TO CALMODULIN INTERACTIONS WITH CALCINEURIN. **Trevor P. Creamer**, Erik C. Cook

**Platform**  
**Calcium Signaling****10:45 AM - 12:45 PM, ROOM 515B****Co-Chairs**

*Anne Carlson, University of Pittsburgh*  
*Yubin Zhou, Texas A&M University*

**1772-PLAT 10:45 AM**

CALCIUM SIGNALING REQUIRED FOR THE FAST POLYSPERMY BLOCK IN XENOPUS LAEVIS. Katherine L. Wozniak, **Anne E. Carlson**

**1773-PLAT 11:00 AM**

REGULATION OF THE CARDIAC L-TYPE CALCIUM CHANNEL BY THE CYCLIC NUCLEOTIDE CROSS-TALK SIGNALING NETWORK. **Claire Y. Zhao**, Joseph L. Greenstein, Raimond L. Winslow

**1774-PLAT 11:15 AM**

SR CONTRIBUTION TO CALCIUM CYCLING IN SINO-ATRIAL NODE CELLS: AS SEEN FROM NANOSCALE ELECTRON MICROSCOPY AND NUMERICAL MODELING. **V.Ramesh Iyer**, Oliver Monfredi, Victor Maltsev, Manuela Lavorato, Michael Stern, Clara Franzini-Armstrong

**1775-PLAT 11:30 AM**

A C-TERMINAL SWITCH GATES THE ORAI1 CHANNEL. **Yandong Zhou**, Xiangyu Cai, xianming wang, Natalia A. Loktionova, Xizhuo Wang, Robert M. Nwokonko, Mohamed Trebak, Donald L. Gill

**1776-PLAT 11:45 AM**

HIGH-SPEED CONFOCAL IMAGING REVEALS COMPLEX CALCIUM TRANSIENTS IN PLATELETS. **János Vincze**, Renáta Hudák, János Kappelmayer, László Csernoch

**1777-PLAT 12:00 PM**

NEAR-INFRARED PHOTOACTIVATABLE CONTROL OF CALCIUM SIGNALING. Lian He, Yuanwei Zhang, Guolin Ma, Peng Tan, Youjun Wang, Yun Huang, Patrick Hogan, Gang Han, **Yubin Zhou**

**1778-PLAT 12:15 PM**

THE FUNCTION OF STROMAL INTERACTION MOLECULE 1 (STIM1) IN HEART. **Guiling Zhao**, Hengtao Zhang, Tianyu Li, Didier X. P. Brochet, Paul Rosenberg, W. Jonathan Lederer

**1779-PLAT 12:30 PM**

COMPLEMENT-MEDIATED PURE CHEMOTAXIS OF HUMAN NEUTROPHILS NEITHER REQUIRES NOR CAUSES BURSTS IN INTRACELLULAR CALCIUM LEVELS. **Emmet A. Francis**, Volkmar Heinrich

**Platform****Protein-Dynamics and Allostery I****10:45 AM - 12:45 PM, ROOM 501ABC****Co-Chairs**

*Alessandro Cembran, University of Minnesota Duluth*  
*Blake Mertz, West Virginia University*

**1780-PLAT 10:45 AM**

DYNAMIC HETEROGENEITY AND THE ROLE OF NON-NATIVE CONTACTS IN THE PROTEIN FOLDING/UNFOLDING TRANSITIONS. **Toshifumi Mori**, Shinji Saito

**1781-PLAT 11:00 AM**

NIPAH VIRUS ENTRY INTO HOST CELL: INTER-MONOMER REARRANGEMENT SIGNALLED BY RECEPTOR BINDING AT ALLOSTERIC SITE. **Priyanka Dutta**, Sameer Varma

**1782-PLAT 11:15 AM**  
LIGAND-SPECIFIC CONFORMATIONAL CHANGES IN CCR7 COUPLED TO SELECTING DIFFERENT SIGNALING PATHWAYS UPON CCL19 AND CCL21 LIGAND BINDING. **Zied Gaieb**, David D. Lo, Dimitrios Morikis

**1783-PLAT 11:30 AM**  
PROTEORHODOPSIN ACTIVATION CAPTURED BY MOLECULAR DYNAMICS SIMULATIONS. **Jun Feng**, Blake Mertz

**1784-PLAT 11:45 AM**  
COORDINATED DYNAMICS ORCHESTRATING THE DNA RE-LIGATION BY DE-POISONED TOPOISOMERASE II. **Nan-Lan Huang**, Jung-Hsin Lin

**1785-PLAT 12:00 PM**  
FROM PHYSICS TO PHENOTYPE: NEW INSIGHTS INTO ALLOSTERIC TRANSPORT MECHANISMS IN LEUT. **Michael V. LeVine**, Michel A. Cuendet, George Khelashvili, Harel Weinstein

**1786-PLAT 12:15 PM**  
PLEIOTROPIC ROLE PLAYED BY THE PDZ DOMAIN IN NEURONAL SIGNALING PATHWAYS. Célia Caillet-Saguy, Pierre Maisonneuve, Florent Delhommel, Henri Buc, Monique Lafon, Muriel Delepierre, Florence Cordier, **Nicolas Wolff**

**1787-PLAT 12:30 PM**  
HYDROPHOBIC INTERACTIONS ELICIT COOPERATIVE RESPONSE IN DYSTROPHIN. **Alessandro Cembran**, Anne Hinderliter, Benjamin T. Horn, Caitlin T. Pederson, Katie L. Schneider, Jesse A. Skogstad

## Platform RNA Structure and Dynamics

**10:45 AM - 12:45 PM, ROOM 511ABC**

### Co-Chairs

*Ruben Gonzalez, Columbia University*

*Luis Marky, University of Nebraska Medical Center*

**1788-PLAT 10:45 AM**  
INTERROGATION OF CRISPR DYNAMICS WITH FLUORESCENT SINGLE GUIDE RNAS IN LIVE CELLS. Hanhui Ma, Li-Chun Tu, Ardalan Naseri, Shaojie Zhang, Maximillian Huisman, **David Grunwald**, Thoru Pederson

**1789-PLAT 11:00 AM**  
DECIPHERING THE INFLUENZA A MULTI-SEGMENT GENOME COMPLEX PACKAGING USING SINGLE CELL HIGHLY MULTIPLEXED FISH DATA. **Simon Prisner**, Ivan Haralampiev, Matthias Schade, Jasmine Chamiolo, Fabian Jolmes, Oliver Seitz, Andreas Herrmann

**1790-PLAT 11:15 AM**  
EXPLORING THE LIMITS OF A KNOWLEDGE-BASED COARSE-GRAINED MODEL FOR RNA. **Simon Poblete**

**1791-PLAT 11:30 AM**  
HIGH THROUGHPUT CHARACTERIZATION OF RNA TERTIARY ELEMENTS. **Sarah Denny**, Namita Bisaria, Joseph Yesselman, Rhiju Das, Daniel Herschlag, William Greenleaf

**1792-PLAT 11:45 AM**  
LABEL-FREE, HIGH-TIME-RESOLUTION, SINGLE-MOLECULE STUDIES OF RIBOSWITCH FOLDING. Nathan S. Daly, Jason J. Hon, Steven B. Warren, Scott M. Trocchia, Colin Nuckolls, Kenneth L. Shepard, **Ruben L. Gonzalez Jr**

**1793-PLAT 12:00 PM**  
A COMPARATIVE INVESTIGATION OF THE STABILITY OF DNA AND RNA PSEUDOKNOTS. Calliste Reiling-Steffensmeier, **Luis A. Marky**

**1794-PLAT 12:15 PM**  
RNA SECONDARY AND TERTIARY STRUCTURE PREDICTION BY TRACING NUCLEOTIDE CO-EVOLUTION WITH DIRECT COUPLING ANALYSIS. Eleonora De Leonardis, Benjamin Lutz, Sebastian Ratz, Cocco Simona, Remi Monasson, Martin Weigt, **Alexander Schug**

**1795-PLAT 12:30 PM**  
MECHANICAL FORCE AND SALT EFFECTS ON THE THERMODYNAMICS OF A FRAMESHIFTING RNA PSEUDOKNOT. **Naoto Hori**, Natalia A. Denesyuk, D. Thirumalai

## Exhibitor Presentation Bruker Nano Surfaces

**11:30 AM - 1:00 PM, ROOM 505**

### BioScope Resolve BioAFM – Unrivalled AFM Biomechanics and Resolution

In this presentation we will introduce new capabilities for cell mechanobiology and highest resolution cell and molecular imaging available on the BioScope Resolve BioAFM. We will explain how innovations in force control and instrument design have enabled BioScope Resolve to be the first AFM to image microvilli on live cells and to consistently resolve the double helix of DNA, while on the inverted microscope. To enable highest resolution and accurate cell mechanics data, the entire AFM mechanical loop of BioScope Resolve has been designed for stability, specifically on biological samples, with biological sample carriers, and when mounted on the inverted microscope. Designed for Bruker's exclusive PeakForce Tapping, BioScope Resolve eliminates the need for fluid cantilever tuning entirely with ScanAsyst and provides quantifiable pN force control for imaging and force mapping. The combination of PeakForce Tapping and FASTForce Volume provides the broadest range of frequencies for mechanical characterization, with a new no-touch calibration method guaranteeing accurate calibration. As we will show in the presentation, BioScope Resolve also features synchronization of these unique mechanical measurements with fluorescence, enabling new kinds of correlative studies.

### Speaker

Marcin Walkiewicz, Applications Scientist, Bruker – Atomic Force Microscopy Business

## Research Programs at PUIs Founding, Establishing, and Maintaining a Research Laboratory

**12:00 PM - 1:30 PM, ROOM 408A**

This session, sponsored by the Education Committee, provides guidance on founding, establishing, and maintaining a research laboratory at Primarily Undergraduate Institutions.

### Panelists

Ashley R. Carter, Amherst College  
Christine P. Piro, Franklin and Marshall College  
Alex Small, California State Polytechnic University, Pomona  
Paul Urayama, Miami University

### Moderator

Scott Brewer, Franklin and Marshall College

## Postdoc to Faculty Q&A Transitions Forum and Luncheon

**12:00 PM - 2:00 PM, ROOM 510/512**

This question-and-answer luncheon, sponsored by the Committee for Professional Opportunities for Women (CPOW), is designed for postdocs finishing and actively applying for academic faculty positions. New faculty and recently tenured faculty in basic science and/or medical school departments will lead the discussion, as well as experienced senior-level faculty who have served as department chairs and/or part of faculty



search committees. Topics for discussion include how to prepare the curriculum vitae, the interview process, networking, how to negotiate the job offer, and advice for new faculty as they balance research with their department obligations. Pre-registration was required for lunch. If you are interested in attending and did not register in advance, you are welcome to participate in the discussion on a space-available basis.

#### Speakers

Sarah Bondos, Texas A&M  
Shelli Frey, Gettysburg College  
Fateme Khalili-Araghi, University of Illinois at Chicago  
Susy Kohout, Montana State University  
Benjamin L. Stottrup, Augsburg College  
Valeria Vasquez, University of Tennessee, Memphis  
Pernilla Wittung-Stafshede, Chalmers University of Technology, Sweden

### Exhibitor Presentation Nanion Technologies GmbH

12:30 PM - 2:00 PM, ROOM 513

#### Measure More Membrane: Cells, Bilayers and Transporter Activity

As the title suggests, this workshop has one common denominator: membranes and the measurements thereof. We will showcase four versatile products: the *Port-a-Patch*, the world's smallest patch clamp rig, the *Orbit* product family, for parallel lipid bilayer recordings of reconstituted ion channels, and the *SURFE2R* product family, for label-free and direct measurements of transporter protein activity.

The *Port-a-Patch*, on the market since 2003, is still the smallest patch clamp rig in the world, and supports high quality patch clamp recordings; attainable without months or years of training. Giga-seal recordings and the excellent voltage-clamp of the cellular membrane ensure high quality data, and the versatile add-ons allow unprecedented experimental freedom, way beyond the possibilities of conventional patch clamping.

The *Orbit 16* supports the parallel formation of and recordings from up to 16 lipid bilayers, accommodating reconstituted ion channels or nanopores. Using Micro Electrode Cavity Array (MECA, Ionera) recording substrates, containing a 4 x 4 array of circular micro-cavities, the bilayers are automatically formed by remotely actuated painting (Ionera- SPREAD), which will be demonstrated during this session. Relying on the same principle, however with the possibility of active cooling and heating, the recently introduced *Orbit mini*, a minimal footprint, turn-key system, allows 4 parallel lipid bilayer recordings, also using MECA-chips.

Join this workshop for hands-on experiments and information about three outstanding platforms: Port-a-Patch, Orbit 16, and Orbit mini.

#### Speakers

Andrea Brüggemann, Nanion Technologies GmbH  
Niels Fertig, Nanion Technologies GmbH  
Gerhard Baaken, Ionera  
Ekaterina Zaitseva, Ionera

### Industry and Agency Opportunities Fair

1:00 PM - 3:00 PM, WEST HALL

This fair will introduce attendees to companies and agencies that have employment and funding opportunities outside of academia. Stop by the fair to learn about the variety of opportunities available to scientists in industry and government and to talk one-on-one with representatives from participating organizations.

### GMOs, Severe Weather, and Public Opinion

1:30 PM - 3:00 PM, ROOM 403A

Genetically modified organisms are big news in the popular press, with articles often focused on food safety, related regulations, and labelling. What gets less coverage is the role GMOs can play in protecting our food supply and specific plant economies. This session will take a look at the role GMOs have played in these areas and public policy, as well as the press's coverage of this scientific area.

#### Panelists

Sean Cutler, UC Riverside  
Karen Kaplan, *Los Angeles Times*  
Alan McHughen, UC Riverside

### Snack Break

1:45 PM - 3:00 PM, WEST HALL

### Poster Presentations and Late Posters

1:45 PM - 3:45 PM, WEST HALL

### Career Center Workshop Creating and Using an Effective CV/Résumé

2:30 PM - 3:30 PM, ROOM 518

The CV and Résumé are critical components of any effective job search, regardless of function, level, or industry. In this workshop, we will look at what constitutes a good résumé or CV, what makes the two documents different, as well as what makes them similar. We will examine sample documents (both good and bad) and discuss which document to use, when to use it, and how to most effectively use it when conducting your job search.

### Postdoc to Faculty: Setting Up a Lab

2:30 PM - 4:00 PM, ROOM 403B

This panel, sponsored by the Early Careers Committee, will offer advice on the challenge of setting up your own lab as a new faculty member. Panelists who have recently established independent labs will share their experiences and answer questions about the transition to a tenure-track faculty position.

#### Panelists

Slav Bagriantsev, Yale University  
Alexander Dunn, Stanford University  
Susy Kohout, Montana State University

### Committee on Inclusion and Diversity Networking Event:

#### Resources and Opportunities

3:00 PM - 4:00 PM, ROOM 404AB

This networking event, sponsored by the Committee for Inclusion and Diversity, provides minority and underrepresented students and scientists the opportunity to network and discuss challenges and resources with other minority biophysicists.

### Education Committee Meeting

3:00 PM - 5:00 PM, ROOM 506

## Symposium Optogenetics in Neuroscience

4:00 PM - 6:00 PM, PETREE HALL C

### Chair

*Edward S. Boyden, MIT*

#### 1796-SYMP 4:00 PM

TOOLS FOR ANALYZING AND REPAIRING COMPLEX BIOLOGICAL SYSTEMS. **Edward Boyden**

#### 1797-SYMP 4:30 PM

CONTROLLING BIOLOGICAL PATHWAYS WITH PHOTOPHARMACOLOGY. **Dirk Trauner**

#### 1798-SYMP 5:00 PM

TOOLS FOR ANATOMICAL AND FUNCTIONAL ANALYSIS OF WIDELY DISTRIBUTED BRAIN NETWORKS. **Viviana Gradinaru**

#### 1799-SYMP 5:30 PM

NATURAL ANION CHANNEL RHODOPSINS: A NEW FAMILY OF TOOLS FOR OPTOGENETIC NEURAL INHIBITION. **John L. Spudich**

## Symposium

### p-ATPases: Structure, Mechanism, and Disease

4:00 PM - 6:00 PM, PETREE HALL D

### Chair

*David Gadsby, Rockefeller University*

#### 1800-SYMP 4:00 PM

HYBRID FUNCTION OF THE NA/K-ATPASE: PROTON IMPORT ACCOMPANYING NA/K EXCHANGE. **David Gadsby**, *Natascia Vedovato*

#### 1801-SYMP 4:30 PM

SNAPSHOTS OF P-TYPE ATPASES - FROM CRYSTAL STRUCTURES TO SINGLE-MOLECULE STUDIES. **Poul Nissen**

#### 1802-SYMP 5:00 PM

THE NEW KIDS IN THE BLOCK: FE<sup>2+</sup> TRANSPORT P-ATPASES. **José M. Argüello**

#### 1803-SYMP 5:30 PM

SECRETORY PATHWAY CALCIUM ATPASES IN BREAST CANCER. **Rajini Rao**, *Donna Dang*, *José P. Llongueras*

## Platform

### Cardiac Muscle Mechanics and Structure

4:00 PM - 6:00 PM, ROOM 502A

### Co-Chairs

*Clara Franzini-Armstrong, University of Pennsylvania*

*Howard Young, University of Alberta, Canada*

#### 1804-PLAT 4:00 PM

FUNCTIONAL IMBALANCE AMONG INDIVIDUAL CARDIOMYOCYTES CAUSED BY CELL-TO-CELL VARIATION IN MUTANT MRNA EXPRESSION. A POSSIBLE TRIGGER FOR HYPERTROPHIC CARDIOMYOPATHY. **Theresa Kraft**, *Mirza Makul*, *Julia Beck*, *Judith Montag*, *Ante Radocaj*, *Andreas Perrot*, *Antonio Francino*, *Francesc Navarro-Lopéz*, *Cristobal G. dos Remedios*, **Bernhard Brenner**

#### 1805-PLAT 4:15 PM

DIFFERENTIAL EFFECTS OF CAMKII ACTIVITY IN HCM-LINKED TNT MUTATIONS. **Sarah J. Lehman**, *Lauren Tal-Grinspan*, *Melissa Lynn*, *Mark E. Anderson*, *Jil C. Tardiff*

#### 1806-PLAT 4:30 PM

UNDERSTANDING VISCOELASTICITY CHANGES IN SINGLE CELLS USING VARIABLE INDENTATION-RATE VISCOELASTIC ANALYSIS. **Matthew A. Caporizzo**, *Patrick Robison*, *Alexey Bogush*, *Benjamin L. Prosser*, *David M. Eckmann*, *Russell J. Composto*

#### 1807-PLAT 4:45 PM

CELLULAR STRESS AFFECTS THE NUCLEOSKELETON IN DILATED CARDIOMYOPATHY. **Marlene Pluess**, *Thomas Iskratsch*, *Pauline Bennett*, *Joseph Dwyer*, *Pragati Pandey*, *Cristobal dos Remedios*, **Elisabeth Ehler**

#### 1808-PLAT 5:00 PM

SIMULTANEOUS HIGH-PRECISION IMAGING OF LOCAL CALCIUM AND SINGLE SARCOMERE LENGTH IN RAT NEONATAL CARDIOMYOCYTES VIA EXPRESSION OF YELLOW CAMELEON-NANO140 IN Z-DISCS. **Seiichi Tsukamoto**, **Kotaro Oyama**, *Teruyuki Fujii*, *Fuyu Kobirumaki-Shimozawa*, *Togo Shimozawa*, *Seine A. Shintani*, *Shin'ichi Ishiwata*, *Norio Fukuda*

#### 1809-PLAT 5:15 PM

ELECTRON TOMOGRAPHY OF MITOCHONDRIAL NANOTUNNELS IN A CPVT MODEL WITH RYR2 LOSS-OF-FUNCTION MUTATION. **Manuela Lavorato**, *V.Ramesh Iyer*, *Yang-Ting Zhao*, *Hector Valdivia*, *Clara Franzini-Armstrong*

#### 1810-PLAT 5:30 PM

CORRELATING STRUCTURE AND FUNCTION IN HUMAN GENETIC VARIANTS OF PHOSPHOLAMBAN AND SARCOLIPIN. **Joseph O. Primeau**, *Gareth P. Armanious*, *Jessica L. Gifford*, *Catharine A. Trieber*, **Howard S. Young**

#### 1811-PLAT 5:45 PM

THE N-TERMINI OF SARCOLIPIN AND PHOSPHOLAMBAN PLAY AN IMPORTANT ROLE IN DISTINCT REGULATION OF SARCO-ENDOPLASMIC RETICULUM CA<sup>2+</sup> ATPASE (SERCA) FUNCTION. **Sanjayaka K. Sahoo**, *Sana A. Shaikh*, *Danesh H. Sopariwala*, *Naresh C. Bal*, *Dennis S. Bruhn*, *Wojciech Kopec*, *Himanshu Khandelia*, *Muthu Periasamy*

## Platform

### Protein Stability, Folding, and Chaperones II

4:00 PM - 6:00 PM, ROOM 502B

### Co-Chairs

*Logan Ahlstrom, University of Michigan*

*Patrick Wintrade, University of Maryland*

#### 1812-PLAT 4:00 PM

OVERCOMING HETEROGENEITY TO STUDY THE STRUCTURE AND ASSEMBLY OF SMALL HEAT-SHOCK PROTEIN CHAPERONES WITH NON-AGGREGATING CLIENTS. **Miranda Collier**, *Justin Benesch*

#### 1813-PLAT 4:15 PM

INTERNATIONAL TRAVEL AWARDEE  
STRUCTURE AND STABILITY OF HSP60 AND GROEL IN SOLUTION. **Caterina Ricci**, *Giampaolo Barone*, *Donatella Bulone*, *Giosalba Burgio*, *Rita Carrotta*, *Fabio Librizzi*, *Antonella Marino Gammazza*, *Maria Rosalia Mangione*, *Antonio Palumbo Piccionello*, *Pier Luigi San Biagio*, *Angelo Spinello*, *Francesco Spinozzi*, *Silvia Vilasi*, *Maria Grazia Ortore*

#### 1814-PLAT 4:30 PM

QUANTIFICATION OF MACROMOLECULAR CROWDING IN LIVING CELLS. **Arnold Boersma**, *Boqun Liu*, *Christoffer Aberg*, *Bert Poolman*

#### 1815-PLAT 4:45 PM

INSIGHTS FROM THE FIRST PRINCIPLES BASED LARGE SCALE PROTEIN THERMOSTABILITY CALCULATIONS. **Vytautas Gapsys**, *Servaas Michielssens*, *Daniel Seeliger*, *Bert L. de Groot*

#### 1816-PLAT 5:00 PM

HIGHLY CHARGED PROTEINS ARE THE ACHILLES' HEEL OF AGING PROTEOMES. **Adam M. R. de Graff**, *Michael J. Hazoglou*, *Ken A. Dill*

**1817-PLAT 5:15 PM**  
EVOLUTION UNDER DRUG PRESSURE REMODELS THE FOLDING FREE-ENERGY LANDSCAPE OF HIV-1 PROTEASE. **Julien Roche**

**1818-PLAT 5:30 PM**  
FOLDING MECHANISM OF A METASTABLE SERPIN AT ATOMIC RESOLUTION. Fang Wang, Haiping Ke, Silvio a Beccara, Anne Gershenson, Pietro Faccioli, **Patrick Wintrode**

**1819-PLAT 5:45 PM**  
NMR-INFORMED MOLECULAR MODELING UNCOVERS THE CONFORMATIONAL LANDSCAPE OF CHAPERONE BINDING WITH UNFOLDED SUBSTRATE. **Logan S. Ahlstrom**, Loïc Salmon, Scott Horowitz, Alex Dickson, Charles L. Brooks III, James C.A. Bardwell

## Platform Membrane Physical Chemistry III

**4:00 PM - 6:00 PM, ROOM 515A**

### Co-Chairs

*Padmini Rangamani, University of California, San Diego*  
*Joseph Zasadzinski, University of Minnesota*

**1820-PLAT 4:00 PM**  
ELASTIC DEFORMATION AND COLLECTIVE DYNAMICS IN LIPID MEMBRANES: A SOLID-STATE <sup>2</sup>H NMR RELAXATION STUDY. **Soo Hyun K. Lee**, Trivikram R. Molugu, K.J. Mallikarjunaiah, Michael F. Brown

**1821-PLAT 4:15 PM**  
CHOLESTEROL EFFECT ON THE ELASTIC PROPERTIES OF UNSATURATED LIPID BILAYERS. **Pavel Bashkirov**, Ksenia Chekashkina, Ariana Velasco del Olmo, Piotr Kuzmin, Anna Shnyrova, Vadim Frolov

**1822-PLAT 4:30 PM**  
QUANTITATIVE RELATIONSHIP BETWEEN MONOLAYER DOMAIN STRUCTURE AND INTERFACIAL SHEAR RHEOLOGY. **Joseph A. Zasadzinski**

**1823-PLAT 4:45 PM**  
TWO-POINT MICRORHEOLOGY OF PHASE SEPARATED DOMAINS IN LIPID BILAYERS. **Tristan Hormel**, Matthew A. Reyer, Raghuvier Parthasarathy

**1824-PLAT 5:00 PM**  
IN SILICO MEASUREMENT OF THE MECHANICAL PROPERTIES OF REALISTIC BACTERIAL INNER AND OUTER MEMBRANES. **Hyea Hwang**, James C. Gumbart

**1825-PLAT 5:15 PM**  
CAN WE TRUST HYDRODYNAMIC MODELS TO DETERMINE THE BILAYER VISCOSITY EXPERIENCED BY TRANSMEMBRANE PROTEINS? **Vladimir Adrien**, Ksenia Astafyeva, Marina Kuimova, Wladimir Urbach, Nicolas Taulier

**1826-PLAT 5:30 PM**  
COMBINING FLUORESCENCE MICROSCOPY ON FREESTANDING LIPID BILAYERS WITH ELECTRICAL MEASUREMENTS. **Corianne C. van den Akker**, Steven G. Boxer

**1827-PLAT 5:45 PM**  
IRREVERSIBLE THERMODYNAMICS OF LIPID VESICLES UNDER OSMOTIC STRESS. **Morgan Chabanon**, James Ho, Atul N. Parikh, Padmini Rangamani

## Platform Molecular, Cellular, and Experimental Neuroscience: Reception, Plasticity, and New Approaches

**4:00 PM - 6:00 PM, ROOM 515B**

### Co-Chairs

*Laura Marchetti, Center for Nanotechnology Innovation, Italy*  
*Katalin Torok, St. George's, University of London, United Kingdom*

**1828-PLAT 4:00 PM**  
SINGLE MOLECULE IMAGING AND TRACKING OF NEUROTROPHINS AND THEIR RECEPTORS IN LIVING NEURONAL CELLS. **Laura Marchetti**, Teresa De Nadai, Rosy Amodeo, Carmine Di Rienzo, Fulvio Bonsignore, Francesco Gobbo, Fabio Beltram, Stefano Luin, Antonino Cattaneo

**1829-PLAT 4:15 PM**  
SINGLE MOLECULAR OBSERVATION OF DIFFUSIVE DYNAMICS OF NMDA RECEPTORS IN LIVE NEURONS USING SUPER-RESOLUTION IMAGING AND TRACKING. **Sang Hak Lee**, En Cai, Pinghua Ge, Kai Wen Teng, Okunola Jeyifous, Sung Soo Jang, Hee-Jung Chung, William Green, Paul R. Selvin

**1830-PLAT 4:30 PM**  
STOCHASTIC SINGLE-MOLECULE DYNAMICS OF SYNAPTIC RECEPTOR DOMAINS. **Yiwei Li**, Osman Kahraman, Christoph Haselwandter

**1831-PLAT 4:45 PM**  
PARADOXICAL SIGNALING REGULATES STRUCTURAL PLASTICITY IN DENDRITIC SPINES. **Padmini Rangamani**, Michael Levy, Shahid Khan, George Oster

**1832-PLAT 5:00 PM**  
NANO-MECHANICAL PROBING OF SYNAPTIC ACTIVITY AT DENDRITIC SPINES. **John A. Jones Molina**, Nicola Mandriota, Duckhoe Kim, Ju Yang, Rafael Yuste, Ozgur Sahin

**1833-PLAT 5:15 PM**  
DEVELOPMENT OF FAST-RESPONSE GCAMP6 CALCIUM SENSORS FOR MONITORING NEURONAL ACTION POTENTIAL. Nordine Helassa, Borbala Podor, Alan Fine, **Katalin Torok**

**1834-PLAT 5:30 PM**  
OPTOMEA: A PLATFORM FOR ANALYZING SIGNALING EFFICIENCY OF NEURONAL CIRCUITS USING MULTI-LOCATION EXTRACELLULAR ELECTROPHYSIOLOGY, OPTICAL IMAGING AND OPTOGENETICS. Kimberly Sam, Minqi Wang, Yuan-Zhi Liu, Paritosh Pande, Stephen A. Boppart, **Parijat Sengupta**

**1835-PLAT 5:45 PM**  
LIGHT SHEET MICROSCOPY FOR FUNCTIONAL IMAGING OF BRAIN ACTIVITY EVOKED BY NATURAL SENSORY STIMULI. **Andrey Andreev**, Thai Truong, Scott E. Fraser

## Platform Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence

**4:00 PM - 6:00 PM, ROOM 501ABC**

### Co-Chairs

*Mark Bowen, Stony Brook University*  
*David Thomas, University of Minnesota*

**1836-PLAT 4:00 PM**  
FLUORESCENT PROTEIN FRET AS A PROBE OF PROTEIN CONFORMATION IN VIVO AND IN VITRO. Laura Dougherty, Zhuojun Guo, Fang Wu, **Mark E. Bowen**

**1837-PLAT 4:15 PM**

QUANTITATIVE FLUORESCENCE MICROSCOPY REVEALS FIBROBLAST GROWTH FACTOR RECEPTOR 5 SIGNALING COMPLEX FORMATION.

**Pamuditha N. Silva**, Romario Regeenes, Nicholas K. Wang, Dawn M. Kilkenny, Jonathan V. Rocheleau

**1838-PLAT 4:30 PM**

SUPR: SPECTRAL UNMIXING PLATE READER FOR LIVE-CELL FRET BIOSENSOR DRUG SCREENING. **Tory M. Schaaf**, Ji Li, Samantha L. Yuen, Prachi Bawaskar, Benjamin D. Grant, Kurt C. Peterson, David D. Thomas, Greg G. Gillispie

**1839-PLAT 4:45 PM**

APPLICATION OF FT-IR MICROSCOPY IN THE INVESTIGATION OF THE STRATUM CORNEUM BARRIER FUNCTION. **Enam A. Khalil**, Randa Mansour, Al-Sayed A. Sallam, Imad Hamdan, Ibraheem Yousef

**1840-PLAT 5:00 PM**

ION-PROTEIN INTERACTIONS BETWEEN A POTASSIUM CHANNEL AND ALKALI METAL CATIONS STUDIED BY ATR-FTIR SPECTROSCOPY. **Yuji Furutani**

**1841-PLAT 5:15 PM**

INVESTIGATION OF M2 PROTON CHANNEL IN MEMBRANE BY RAPID LASER PH-JUMP TECHNIQUE WITH TRP FLUORESCENCE AS A PROBE. **Ban-Seok Jeong**

**1842-PLAT 5:30 PM**

SPECTROSCOPIC STUDIES AS A BIOPHYSICAL TOOLBOX FOR PHARMACOKINETIC DRUG PROFILING. **Marlene Lúcio**

**1843-PLAT 5:45 PM**

FLUORESCENT VISUALIZATION OF CELLULAR ION FLUXES. **Lejie Zhang**, William Kobertz

### Workshop Time-resolved Crystallography

7:30 PM - 9:30 PM, ROOM 502A

**Chair**

*Philip Anfinrud, NIH*

**1844-WKSHP 7:30 PM**

TIME-RESOLVED CRYSTALLOGRAPHY WITH SYNCHROTRON AND FREE ELECTRON LASER SOURCES. **Keith Moffat**

**1845-WKSHP 8:00 PM**

STRUCTURAL DYNAMICS OF PHOTOACTIVE YELLOW PROTEIN INVESTIGATED BY TIME RESOLVED SERIAL FEMTOSECOND CRYSTALLOGRAPHY. **Marius Schmidt**

**NO ABSTRACT 8:30 PM**

TIME-RESOLVED FEMTOSECOND CRYSTALLOGRAPHY: TOWARDS MOLECULAR MOVIES OF MOLECULES IN ACTION. **Petra Fromme**

**1846-WKSHP 9:00 PM**

WATCHING PROTEINS FUNCTION WITH TIME-RESOLVED X-RAY DIFFRACTION. **Philip Anfinrud**, Friedrich Schotte, Hyun Sun Cho

### Workshop Frontiers in Biophysical Instrumentation

7:30 PM - 9:30 PM, ROOM 502B

**Chair**

*Joerg Bewersdorf, Yale University*

**1847-WKSHP 7:30 PM**

STUDYING CELL DYNAMICS USING QUANTITATIVE PHASE IMAGING. **Gabriel Popescu**

**1848-WKSHP 8:00 PM**

PROBING SINGLE INDIVIDUAL PROTEINS UNFOLD AND REFOLD WITH 1- $\mu$ S RESOLUTION: IMPROVED AFM-BASED SINGLE MOLECULE FORCE SPECTROSCOPY. **Thomas T. Perkins**

**1849-WKSHP 8:30 PM**

ELUCIDATION OF THE MOLECULAR MACHINERY IN PHOTOSYNTHETIC LIGHT HARVESTING. **Gabriela Schlau-Cohen**

**1850-WKSHP 9:00 PM**

LIVE-CELL OPTICAL MICROSCOPY BEYOND THE DIFFRACTION LIMIT. **Joerg Bewersdorf**

### Workshop Computational Methods for Ion Permeation and Selection

7:30 PM - 9:30 PM, ROOM 515A

**Chair**

*Maria Kurnikova, Carnegie Mellon University*

**NO ABSTRACT 7:30 PM**

WHAT CAN BE LEARNED ABOUT ION CHANNELS FROM MOLECULAR DYNAMICS SIMULATIONS. **Benoit Roux**

**1851-WKSHP 8:00 PM**

CONTINUUM THEORY OF CALCIUM CHANNELS: FUNDAMENTAL INSIGHTS FROM SIMPLIFIED MODELS. **Dirk Gillespie**

**1852-WKSHP 8:30 PM**

COMPUTATIONAL ELECTROPHYSIOLOGY: CLOSE-UPS OF ION PERMEATION AND MIGRATION IN MEMBRANE PROTEINS. **Ulrich Zachariae**

**1853-WKSHP 9:00 PM**

WILL IT PERMEATE? PREDICTING ION CHANNEL ION SELECTIVITY, PERMITTIVITY AND BLOCK MECHANISMS. **Maria Kurnikova**

### Workshop Methods for Tracking Single Biomolecule Mobility, Clustering, and Conformational State

7:30 PM - 9:30 PM, ROOM 515B

**Chair**

*Keith Lidke, University of New Mexico*

**1854-WKSHP 7:30 PM**

MULTI-COLOR SINGLE PARTICLE TRACKING FOR DETERMINING PROTEIN INTERACTION LIFETIMES. **Keith A. Lidke**

**1855-WKSHP 8:00 PM**

TRACKING SUBCELLULAR DYNAMICS WITH MULTIFOCAL PLANE MICROSCOPY. **Raimund J. Ober**

**1856-WKSHP 8:30 PM**

SINGLE MOLECULES IN THE AGE OF BIG DATA. **Maxime Dahan**

**NO ABSTRACT 9:00 PM**

INVESTIGATING HOW MOLECULES COME TO LIFE USING SINGLE MOLECULE FLUORESCENCE TECHNOLOGIES. **Taekjip Ha**

### Publications Committee Meeting

6:00 PM - 10:00 PM, J.W. MARRIOTT, OLYMPIC II

### SOBLA (The Society for Latinoamerican Biophysicists) Meeting

8:00 PM - 10:00 PM, ROOM 409AB

# TUESDAY POSTER SESSIONS

1:45 PM–3:45 PM, WEST HALL

*Below is the list of poster presentations of abstracts submitted by October 1.*

*The list of late abstracts scheduled for Tuesday is available in the Program addendum and the posters can be viewed on boards beginning with L. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted beginning at 6:00 PM on Monday and must be removed NO LATER THAN 4:30 PM on Tuesday evening. Posters will be on view until 10:00 PM on Monday, before presentation. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

On Tuesday the Exhibit Hall will close completely at 4:30 PM to accommodate the tear down of exhibits. **ALL POSTERS MUST BE REMOVED BY THIS TIME.** Posters remaining on boards after that time will be discarded. Posters being presented on Wednesday may be mounted beginning at 7:00 AM on Wednesday.

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

<u>Board Numbers</u>	<u>Category</u>
B1 – B21	Protein Structure and Conformation III
B22 – B39	Protein Dynamics and Allostery III
B40 – B56	Protein Assemblies II
B57 – B89	Protein Stability, Folding, and Chaperones II
B90 – B102	Membrane Protein Structure and Folding III
B103 – B109	Enzyme Regulatory Strategies
B110 – B131	Intrinsically Disordered Proteins (IDP) and Aggregates: Aggregation and Assemblies
B132 – B160	DNA Structure and Dynamics I
B161 – B175	RNA Structure and Dynamics
B176 – B192	Membrane Physical Chemistry II
B193 – B217	Membrane-active Peptides and Toxins II
B218 – B247	Protein-Lipid Interactions II
B248 – B267	Membrane Receptors and Signal Transduction II
B268 – B285	Exocytosis and Endocytosis I
B286 – B304	Intracellular Calcium Channels and Calcium Sparks and Waves II
B305 – B314	Voltage-gated Na Channels II
B315 – B341	Voltage-gated Ca Channels
B342 – B377	Ion Channels, Pharmacology, and Disease
B378 – B398	Ligand-gated Channels II
B399 – B423	Kinesins, Dyneins, and Other Microtubule-based Motors
B424 – B436	Cardiac Muscle Mechanics and Structure II
B437 – B444	Cytoskeletal-based Intracellular Transport
B445 – B458	Bacterial Mechanics, Cytoskeleton, and Motility
B459 – B484	Mitochondrial Cell Life and Death
B485 – B507	Systems Biology and Disease
B508 – B516	System and Sensory Neuroscience
B517 – B550	Optical Microscopy and Super-Resolution Imaging II
B551 – B579	Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence
B580 – B588	Computational Methods and Bioinformatics II
B589 – B616	Force Spectroscopy and Scanning Probe Microscopy
B617 – B646	Micro- and Nanotechnology I
B647 – B656	Biosensors II

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation III (Boards B1 - B21)

- 1857-Pos BOARD B1**  
PHOTO-ISOMERIZATION OF PROLYCOPENE IN CHLOROPLAST OCCURS THROUGH THE TRIPLET STATE: IMPLICATIONS ON CAROTENOID BIOSYNTHESIS. **Vijaya Lakshmi Kanchustambham**
- 1858-Pos BOARD B2**  
FUNCTION OF TYR185 IN STABILIZING THE ISOMERIZATION EQUILIBRIUM OF THE RETINAL CHROMOPHORE IN THE BACTERIORHODOPSIN GROUND STATE. Xiaoyan Ding, Bo Peng, Yujiao Gao, Haolin Cui, Dinu Iuga, Peter Judge, Anthony Watts, **Xin Zhao**
- 1859-Pos BOARD B3**  
TRYPTOPHAN MUTANTS PROBE THE STRUCTURAL AND FUNCTIONAL STATUS OF A COPPER BINDING, CYTOCHROME C OXIDASE ASSEMBLY PROTEIN FROM BACILLUS SUBTILIS (I.E., BSSCO). **Bruce C. Hill**, Shina Hussain, Diann Andrews
- 1860-Pos BOARD B4**  
PRESSURE-INDUCED SPECTRAL SHIFTS IN GFP MUTANTS EXPLAINED BY MOLECULAR DYNAMICS SIMULATIONS. Emanuela Jacchetti, Edi Gabellieri, Patrizia Cioni, Ranieri Bizzarri, **Riccardo Nifosi**
- 1861-Pos BOARD B5**  
ON THE ORIGIN OF THE EXTENDED STOKES SHIFTS IN FLUORESCENT PROTEINS. **Prem Chapagain**, Chola Regmi, Bernard Gerstman
- 1862-Pos BOARD B6 EDUCATION TRAVEL AWARDEE**  
INTERDOMAIN INTERACTIONS AND THE MECHANISM OF STRUCTURAL TRANSFORMATION IN RFAH. **Jeevan B. Gc**, Bernard S. Gerstman, Prem P. Chapagain
- 1863-Pos BOARD B7**  
TOOLKIT FOR MULTI-CONFORMATION BIOMOLECULAR STRUCTURE DETERMINATION BY HIGH-PRECISION FRET AND MOLECULAR SIMULATIONS. **Mykola Dimura**, Stanislav Kalinin, Thomas Peulen, Holger Gohlke, Claus A. M. Seidel
- 1864-Pos BOARD B8**  
UNDERSTANDING SECONDARY STRUCTURE HYDROGEN BONDS OF PEPTIDES USING STEERED MOLECULAR DYNAMICS SIMULATIONS (SMD). **Ferdiemar C. Guinto**, C. Michael McCallum
- 1865-Pos BOARD B9**  
WHY DOES NATURE TIE-UP PROTEINS? STRUCTURAL INSIGHTS FROM SOLUTION STUDIES OF A KNOTTED METHYLTRANSFERASE. **David J. Burban**, Patricia A. Jennings
- 1866-Pos BOARD B10**  
BUILDING GRAPHS TO DESCRIBE DYNAMICS, KINETICS AND ENERGETICS IN THE D-ALA:D-LAC LIGASE VANA. Guillaume Bouvier, Nathalie Duclert-Savatier, Michael Nilges, **Thérèse E. Malliavin**
- 1867-Pos BOARD B11**  
COMPLEX LASSO: NEW ENTANGLED MOTIFS IN PROTEINS. **Joanna I. Sulkowska**
- 1868-Pos BOARD B12**  
COARSE MASTER EQUATION-BASED ANALYSIS OF N-METHYLATION AND TEMPERATURE EFFECTS ON THE DYNAMICS OF CYCLIC PEPTIDES. Aoife Crowe, Goar Sánchez-Sanz, Bartłomiej Tywoniuk, Denis C. Shields, **Nicolae-Viorel Buchete**
- 1869-Pos BOARD B13**  
INSIGHT INTO THE STRUCTURE OF LUNG SURFACTANT PROTEIN B (SP-B). **Tadiwos G. Asrat**, Dr.Valeri Booth

- 1870-Pos BOARD B14**  
STRUCTURAL ANALYSIS OF LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE COMPLEXED WITH PROSTAGLANDIN J<sub>2</sub>. **Shigeru Shimamoto**, Yuta Nakahata, Yusuke Nakagawa, Yutaro Fukuda, Kosuke Aritake, Yoshihiro Urade, Yuji Hidaka
- 1871-Pos BOARD B15**  
THE BIO3D PROJECT: INTERACTIVE TOOLS FOR STRUCTURAL BIOINFORMATICS. **Lars Skjærven**, Shashank Jariwala, Xin-Qiu Yao, Julien Idé, Barry J. Grant
- 1872-Pos BOARD B16**  
PROBING LOCAL ENVIRONMENTS OF AN OXYGEN-BINDING HEME-PROTEIN USING A SPECTROSCOPICALLY ACTIVE UNNATURAL AMINO ACID. **Daniyal Tariq**
- 1873-Pos BOARD B17**  
STRUCTURAL INSIGHT INTO SPLIT GREEN FLUORESCENT PROTEIN. **Alan Deng**, Steven G. Boxer
- 1874-Pos BOARD B18**  
STRUCTURAL AND DYNAMICAL ASPECTS OF ELECTROSTATIC INTERACTIONS BY APPLYING ASPHERICAL ATOM MODEL IN HIV-1 PROTEINASE. **Prashant Kumar**, Paulina Maria Dominiak
- 1875-Pos BOARD B19**  
PROBING THE ELASTIC PROPERTIES OF ALPHA HELICES VIA BUCKLING SIMULATIONS. **Nicholas Jin**, Markus Deserno
- 1876-Pos BOARD B20**  
HETEROTRIMERIC G-PROTEIN ALPHA ( $\alpha$ ) SUBUNIT FROM A. THALIANA FORMS TRIMERIC STRUCTURES IN SOLUTION. **Ersoly Cholak**, Ines Karmous, Bihter Avşar, Zehra Sayers
- 1877-Pos BOARD B21**  
PROTONATION AND DEPROTONATION REACTION OF ASPARTIC ACID SIDE CHAIN MODULATED BY THE SURROUNDING DIELECTRIC MEDIUM - AB INITIO QUANTUM CHEMICAL STUDIES ON ASPARTIC ACID IN SIXTEEN DIFFERENT SOLVENTS AND TWO PROTEIN STRUCTURES. **Akshay Bhatnagar**, Sruthi Varanasi, Dhruv Pramod Ghiya, Chaitanya Gali Sai Ganesh, Debashree Bandyopadhyay

## Protein Dynamics and Allostery III (Boards B22 - B39)

- 1878-Pos BOARD B22**  
OXIDATION EFFECTS ON THE VON WILLEBRAND FACTOR A2 DOMAIN INVESTIGATED BY MOLECULAR DYNAMICS SIMULATIONS. **Gianluca Interlandi**
- 1879-Pos BOARD B23**  
INSIGHT INTO A RAPID HEME TRANSFER REACTION BETWEEN NEAR TRANSPORTER DOMAINS OF STAPHYLOCOCCUS AUREUS: A THEORETICAL STUDY USING QM/MM AND MD SIMULATIONS. **Yoshitaka Moriwaki**, Tohru Terada, Kouhei Tsumoto, Kentaro Shimizu
- 1880-Pos BOARD B24**  
THE COUPLING OF ATP HYDROLYSIS TO RNA TRANSLOCATION IN DENGUE VIRUS NS3 HELICASE: INSIGHTS FROM MOLECULAR DYNAMICS. **Martin McCullagh**, Russell Davidson
- 1881-Pos BOARD B25**  
ALLOSTERIC NETWORKS IN THE NUCLEOSOME CORE PARTICLE. **Samuel Bowerman**, Jeff Wereszczynski
- 1882-Pos BOARD B26**  
INVESTIGATING DYNAMICS OF HLA MOLECULES BY ENERGY DISSIPATION. Elif Naz Bingol, Onur Sercinoglu, **Pemra Ozbek**

**1883-Pos BOARD B27**  
DYNAMIC NETWORK ANALYSIS OF DREAM PROTEIN DIMER INTER-FACE. **Maurizio A. Diaz**, Walter G. Gonzalez, Joseph Hernandez, Jaroslava Miksovska

**1884-Pos BOARD B28**  
GLOBAL CHANGES INDUCED BY LOCAL PERTURBATIONS TO THE HIV-1 CAPSID. **Shana Bergman**, Timothy R. Lezon

**1885-Pos BOARD B29**  
THE EFFECT OF EBOLA GLYCOPROTEIN EVOLUTION ON PROTEIN FLEXIBILITY. **Christopher Mirabzadeh**

**1886-Pos BOARD B30**  
UNDERSTANDING THE EFFECT OF POLYUNSATURATED FATTY ACIDS ON RHODOPSIN USING ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS. **Letty Salas**, Nicholas Leioatts, Tod D. Romo, Alan Grossfield

**1887-Pos BOARD B31**  
GLOBAL DYNAMICS OF INTACT AMPA AND NMDA RECEPTORS USING ELASTIC NETWORK MODELS. **Ji Young Lee**, Anindita Dutta, James Krieger, Javier Garcia-Nafria, Ingo Greger, Ivet Bahar

**1888-Pos BOARD B32**  
AN ARGININE-RICH LOOP IS CRITICAL FOR THE MODULATION OF THE WATER PERMEABILITY OF AQUAPORIN 0. **James B. Fields**, Karinne Németh-Cahalan, J. Alfredo Freitas, James E. Hall, Douglas J. Tobias

**1889-Pos BOARD B33**  
ELECTROSTATIC AND ALLOSTERIC RESPONSE OF MYOSIN UPON ATP BINDING. **Takato Sato**, Jun Ohnuki, Mitsunori Takano

**1890-Pos BOARD B34**  
ALLOSTERIC REGULATION MECHANISM OF TRIMERIC MEMBRANE. **Yuhang Wang**, Abhi Singharoy, Klaus Schulten, Emad Tajkhorshid

**1891-Pos BOARD B35**  
ALLOSTERIC REGULATION OF RAC1-PAK1 BINDING AFFINITY BY MUTANT RESIDUES THROUGH MOLECULAR SIMULATIONS AND AFM. **Saliha Ece Acuner-Ozbabacan**, Fidan Sumbul, Hamdi Torun, Turkan Haliloglu

**1892-Pos BOARD B36**  
ELUCIDATING THE STRUCTURE, DYNAMICS AND FUNCTIONS OF AN IMMATURE RETROVIRUS IN ATOMISTIC DETAIL. **Boon Chong Goh**, Juan R. Perilla, Katrina J. Heyrana, Matthew R. England, Rebecca C. Craven, Klaus Schulten

**1893-Pos BOARD B37**  
STRUCTURE AND DYNAMICS OF THE LPS INSERTASE LPTD/E IN A REALISTIC OUTER-MEMBRANE MODEL. **Karl Lundquist**, Stephen J. Mayclin, Susan K. Buchanan, James C. Gumbart

**1894-Pos BOARD B38**  
NOVEL ALLOSTERIC MUTATIONS INCREASING CEPHALOSPORIN RESISTANCE OF CTX-M9 BETA LACTAMASES. **Malgorzata J. Latallo**, George A. Cortina, Peter M. Kasson

**1895-Pos BOARD B39**  
INVESTIGATING HIV VIF INTERACTIONS WITH HOST PROTEINS. **K. Aurelia Ball**, John Gross, Matthew Jacobson

## Protein Assemblies II (Boards B40 - B56)

**1896-Pos BOARD B40**  
STUDY MOLECULAR INTERACTIONS IN WHOLE CELL EXTRACTS BY FLUORESCENCE-DETECTED ANALYTICAL ULTRACENTRIFUGATION. **Jia Ma**, Huaying Zhao, Kristin Rainey, George Patterson, Peter Schuck

**1897-Pos BOARD B41**  
GRAVITATIONAL SWEEP SEDIMENTATION VELOCITY. Jia Ma, Huaying Zhao, Julia Sandmaier, J. Alexander Liddle, **Peter Schuck**

**1898-Pos BOARD B42**  
ANALYTICAL ULTRACENTRIFUGE STUDIES OF A CYTOKINE, SOLUBLE RECEPTOR INTERACTION: COMPARISON OF SIMULATIONS AND EXPERIMENTS. **Robert Wright**, Peter Sherwood, Walter Stafford, John J. Correia

**1899-Pos BOARD B43**  
A MICROFLUIDIC APPROACH TO THE STUDY OF Z-RING DYNAMICS FORMATION IN LIPOSOMES. **Federico Fanalista**, Siddharth Deshpande, Yaron Caspi, Mercedes Jimenez, German Rivas, Cees Dekker

**1900-Pos BOARD B44**  
FORCE SPECTROSCOPY OF INTERACTIONS OF THE INTEGRIN ALPHAIIIB-BETA3 WITH FIBRIN AND FIBRINOGEN. **Rustem I. Litvinov**, Peter Höök, David H. Farrell, Mark Alber, Joel S. Bennett, John W. Weisel

**1901-Pos BOARD B45**  
SMALL ANGLE NEUTRON SCATTERING OF FIBRINOGEN POLYMERIZATION KINETICS. **Luis A. Palacio**, Christopher B. Stanley, Lucas Burke, Ryan Lybarger, Horia I. Petrache

**1902-Pos BOARD B46**  
THE BINDING INTERFACE BETWEEN HUMAN APOBEC3F AND HIV-1 VIF ELUCIDATED BY GENETIC AND COMPUTATIONAL APPROACHES. **Ozlem Demir**, Christopher Richards, John S. Albin, Nadine M. Shaban, Brett D. Anderson, Rommie E. Amaro, Reuben S. Harris

**1903-Pos BOARD B47**  
CHARACTERIZING BIOPHYSICAL FEATURES DRIVING THE SELF-ASSEMBLY OF MICROTUBULE NANO-ARRAYS. **Adrienne C. Greene**, Marlene Bachand, Andrew Gomez, George D. Bachand

**1904-Pos BOARD B48**  
QUANTIFYING CROWDING EFFECTS ON TRANSIENT ENCOUNTER COMPLEX FORMATION DURING PROTEIN BINDING. **Youngchan Kim**, Jeetain Mittal

**1905-Pos BOARD B49**  
TOWARD MICROSCOPIC SIMULATIONS OF PROTEINS IN CELL-LIKE ENVIRONMENTS. **Fabio Sterpone**, Philippe Derreumaux, Simone Melchionna

**1906-Pos BOARD B50**  
RELATIONSHIPS BETWEEN MECHANOSTABILITY, AGGREGATION RATE AND BINDING AFFINITY OF PEPTIDES: INSIGHTS FROM ALL-ATOM MODELING IN EXPLICIT SOLVENT. Maksim Kouza, Anirban Banerji, Andrzej Kolinski, Irina Buhimschi, **Andrzej Kloczkowski**

**1907-Pos BOARD B51**  
MODELING INTERPROTEIN INTERACTIONS IN CONCENTRATED SOLUTIONS OF WILD-TYPE AND CATARACT-RELATED VARIANTS OF  $\gamma$ D- AND  $\gamma$ S-CRYSTALLINS. **Vera D. Prytkova**, Matthias B. Heyden, Eric Wong, Juan A. Freitas, Douglas J. Tobias

**1908-Pos BOARD B52**  
A FAST METHOD FOR COMPUTING CHEMICAL POTENTIALS AND PHASE EQUILIBRIA OF MACROMOLECULAR MIXTURES. **Sanbo Qin**, Huan-Xiang Zhou

**1909-Pos BOARD B53**  
A MULTI-SCALE MODEL FOR THE ASSEMBLING KINETICS OF PROTEIN COMPLEXES. **Yinghao Wu**

**1910-Pos BOARD B54**  
TWO STUDIES USING CIRCULAR VARIANCE FOR PROTEIN STRUCTURE CHARACTERIZATION. **Mihaly Mezei**

**1911-Pos BOARD B55**  
AN AMINO ACID CODE TO PROTEIN QUATERNARY STRUCTURE. **Keith J. Fraga**, Hyun Joo, Jerry Tsai

**1912-Pos BOARD B56**  
TOWARDS THREE-COLOR LIVE-CELL IMAGING OF SPLICEOSOME ASSEMBLY. **Caitlin M. Davis**, Irisbel Guzman, Martin Gruebele

## Protein Stability, Folding, and Chaperones II (Boards B57 - B89)

**1913-Pos BOARD B57**  
WT HUMAN  $\gamma$ D CRYSTALLIN PROMOTES AGGREGATION OF ITS OXIDATION-MIMICKING MUTANTS. **Eugene Serebryany**

**1914-Pos BOARD B58**  
ELUCIDATING THE COORDINATION FEATURES ASSOCIATED TO COPPER AND ZINC INDUCED AGGREGATION OF HUMAN  $\gamma$ -D CRYSTALLIN. **Jose A. Dominguez-Calva**, Eugene Serebryany, Cammeron Haase-Pettingell, Jonathan A. King, Lilianna Quintanar

**1915-Pos BOARD B59**  
FUSION PROTEIN TM-TM INTERACTIONS: MODULATORS OF PRE-FUSION PROTEIN STABILITY. **Stacy Webb**, Rebecca Dutch

**1916-Pos BOARD B60**  
ASSESSMENT OF NICOTINIC ACETYLCHOLINE RECEPTOR DETERGENT COMPLEXES PURITY AND STABILITY FOR STRUCTURAL STUDIES. **Bianca N. Valdés Fernández**, Jose A. Lasalde-Dominicci

**1917-Pos BOARD B61**  
THE TWO STEPS UNFOLDING PROCESS OF THE ANTIBIOTIC PROTEIN COLICIN A PORE FORMING DOMAIN. **Yan Huang**

**1918-Pos BOARD B62**  
DIMER STABILITY OF ALS-ASSOCIATED MUTANTS OF SUPEROXIDE DISMUTASE PROTEINS. **Daniel Lusebrink**, Mona Habibi, Steven Plotkin

**1919-Pos BOARD B63**  
USING INNER-EAR CADHERINS TO TEST HIGH-THROUGHPUT THERMAL SCREENING ASSAYS FOR PROTEIN-PROTEIN INTERACTIONS. **Deepanshu Choudhary**, Anusha Kumar, Thomas J. Magliery, Marcos Sotomayor

**1920-Pos BOARD B64**  
AN ILBP FAMILY MEMBER DOMAIN SWAPPED DIMER IS EVIDENCE FOR A HIGHLY ORDERED FOLDING INTERMEDIATE. **Zahra Assar**, Zahra Nossoni, Wenjing Wang, Babak Borhan, James H. Geiger

**1921-Pos BOARD B65**  
INCREASE IN DOMAIN SWAPPING OF THE DNA-BINDING DOMAIN OF HUMAN FOXP1 IS RELATED TO A DECREASE IN MONOMER FOLDING STABILITY. **Exequiel Medina**, Cristóbal Córdova, Javiera Reyes, César A. Ramírez-Sarmiento, Jorge Babul

**1922-Pos BOARD B66**  
COILED-COIL PROBES IDENTIFIED THE UNFOLDING PATHWAY OF YEAST PHOSPHOGLYCERATE KINASE. **Qing Li**, Zackary N. Scholl, Piotr E. Marszalek

**1923-Pos BOARD B67**  
FOLDING ANALYSES OF THE MAJOR FOLDING INTERMEDIATE OF PROUROGUANYLIN USING DELETION MUTANTS. **Kenta Hattori**, Masaki Okumura, Shigeru Shimamoto, Yuji Hidaka

**1924-Pos BOARD B68**  
INTERDOMAIN CONTACTS AND RNA POLYMERASE CONTROL NATIVE STATE INTERCONVERSION OF THE TRANSFORMER PROTEIN RFAH ON A DUAL-FUNNELED LANDSCAPE. **César A. Ramírez-Sarmiento**, Jeffrey K. Noel, Sandro L. Valenzuela, Irina Artsimovitch

**1925-Pos BOARD B69**  
FAST CLOSURE OF LONG LOOPS AT THE INITIATION OF A PROTEIN FOLDING PATHWAY. **Elisha Haas**, Dan Amir, Tomer Orevi, Gil Rahamim, Sagar Kathuria, Robert C. Matthews, Osman Bilse

**1926-Pos BOARD B70**  
EXAMINING THE VECTORIAL FOLDING PATHWAY OF THE  $\beta$ -HELICAL PEPTIDE, PERTACTIN, USING MOLECULAR DYNAMICS SIMULATIONS. **Anthony Hazel**, James C. Gumbart

**1927-Pos BOARD B71**  
RESOLVING THE HETEROGENEITY OF THE ENSEMBLE OF UNFOLDED STATES BY A COMBINATION OF FLUORESCENCE SPECTROSCOPIC METHODS. **Katherina Hemmen**, Dmitro Rodnin, Igor Markovic, Suren Felekyan, Ralf Kuehnemuth, Hugo Sanabria, Claus A. Seidel

**1928-Pos BOARD B72 EDUCATION TRAVEL AWARDEE**  
KEY ROLES OF TRANSLOCATING LOOPS IN THE MECHANOCHEMICAL COUPLING AND POWER PRODUCTION OF A AAA<sup>+</sup> PROTEASE MACHINE. **Piere Rodriguez-Aliaga**, Luis Ramirez, Frank Kim, Carlos Bustamante, Andreas Martin

**1929-Pos BOARD B73**  
MOLECULAR MODULATION OF PROTEIN ENERGY LANDSCAPES. **David N. Bunck**, Katrine Museth, Beatriz Atsavapranee, James R. Heath

**1930-Pos BOARD B74**  
ANCESTRAL SEQUENCE RECONSTRUCTION REVEALS THE EVOLUTIONARY HISTORY OF THE FOLDING PATHWAY AND LANDSCAPE OF RIBONUCLEASES H. **Shion A. Lim**, Eric R. Bolin, Michael J. Harms, Kathryn M. Hart, Joseph W. Thornton, Susan Marqusee

**1931-Pos BOARD B75**  
ENGINEERING THE STRUCTURE OF HUMAN ACIDIC FIBROBLAST GROWTH FACTOR THROUGH SITE DIRECTED MUTAGENESIS FOR INCREASED PROTEIN STABILITY. **Julie B. Davis**, Thallapuram K. Suresh Kumar, Srinivas Jayanthi

**1932-Pos BOARD B76**  
STRUCTURAL BASIS FOR INCREASED THERMAL STABILITY OF LOCAL STRUCTURAL ENTROPY-OPTIMIZED ADENYLATE KINASE VARIANTS. Sojin Moon, **Euiyoung Bae**

**1933-Pos BOARD B77**  
INVESTIGATION OF PRESSURE-INDUCED PROTEIN UNFOLDING WITH COARSE-GRAINED MOLECULAR SIMULATION. **Dirar M. Homouz**, Andrei G. Gasic, Jianfa Chen, Margaret S. Cheung

**1934-Pos BOARD B78**  
EXPLORING FOLDING COOPERATIVITY OF A REPEAT PROTEIN FOLDING BY 2D-NMR DETECTED PRESSURE PERTURBATION. **Martin J. Fossat**, Angel Garcia, Doug Barrick, Christian Roumestand, Catherine A. Royer

**1935-Pos BOARD B79**  
DEVELOPMENT AND APPLICATION OF A HIGH THROUGHPUT PROTEIN UNFOLDING KINETIC ASSAY. Qiang Wang, Nicklas Waterhouse, Olusegun Feyijimni, Matthew Dominguez, Zoey Sharp, Rachel Service, Jameson Boothe, **Elliott J. Stollar**

**1936-Pos BOARD B80**  
KINETIC COMPENSATION BETWEEN ESTER-BOND CLEAVAGE, FOLDING AND RELEASE FROM THE RIBOSOME IN PROTEIN BIOGENESIS. **Rayna M. Addabbo**, Hon Nam Lam, Brian Arnold, Silvia Cavagnero

**1937-Pos BOARD B81**  
THE EFFECT OF THE RIBOSOME ON NASCENT CHAIN ENERGY LANDSCAPES. **Madeleine K. Jensen**, Kambiz Hamadani, Avi J. Samelson, Jamie H. Cate, Susan Marqusee



**1938-Pos BOARD B82**

A NEW TOOL TO MEASURE BIOPHYSICAL PROPERTIES OF RIBOSOME NASCENT CHAINS. **Avi Samelson**, Randy Soto, Madeleine K. Jensen, Susan Marqusee

**1939-Pos BOARD B83**

CHAPERONE-MEDIATED MECHANICAL PROTEIN FOLDING AT THE SINGLE MOLECULE LEVEL. **Judit Perales-Calvo**, David Giganti, Sergi Garcia-Manyes

**1940-Pos BOARD B84 EDUCATION TRAVEL AWARDEE**

DIRECT OBSERVATION OF MULTIMER STABILIZATION IN THE MECHANICAL UNFOLDING PATHWAY OF A PROTEIN UNDERGOING OLIGOMERIZATION. **Zackary N. Scholl**, Weitao Yang, Piotr Marszalek

**1941-Pos BOARD B85**

SINGLE-MOLECULE FORCE-SPECTROSCOPY REVEALS THE CALCIUM DEPENDENCY OF FOLDING INTERMEDIATES IN THE MULTIDOMAIN PROTEIN S. **Zackary N. Scholl**, Qing Li, Weitao Yang, Piotr Marszalek

**1942-Pos BOARD B86**

THE SCIENCE OF STRETCHING: MECHANICAL ANISOTROPY IN TITIN IG DOMAINS. **Edward C. Eckels**, Jaime Andres Rivas-Pardo, Jessica Valle-Obrero, Ionel Popa, Julio M. Fernandez

**1943-Pos BOARD B87**

USING SINGLE MOLECULE CHEMO-MECHANICAL UNFOLDING TO PROBE THE EFFECT OF ENVIRONMENTAL CONDITIONS ON THE PROTEIN FOLDING PATHWAY. **Emily J. Guinn**, Bharat Jagannathan, Susan Marqusee

**1944-Pos BOARD B88**

SIMULATED FORCE SPECTROSCOPY OF A BADLY-BEHAVED PROTEIN: ON THE RELIABILITY OF PROTEIN COARSE-GRAINED MODELS. **Mona Habibi**, Joerg Rottler, Steven S. Plotkin

**1945-Pos BOARD B89**

EXPLORING PROTEIN STABILITY BY NANODSF. **Wyatt Strutz**

## Membrane Protein Structure and Folding III (Boards B90 - B102)

**1946-Pos BOARD B90**

DISSECTING THE FOLDING PATHWAY OF POTASSIUM CHANNEL PORE DOMAINS. **Kevin Song**, Benoît Roux, Tobin Sosnick

**1947-Pos BOARD B91**

TRANSMEMBRANE SUBSTRATE UNFOLDING IN INTRAMEMBRANE PROTEOLYSIS. Mia Brown, Alaa Abdine, Jose Chavez, Bryan Lada, Renee D. Jiji, Roman Osman, **Jason W. Cooley**, Iban Ubarretxena-Bilandia

**1948-Pos BOARD B92**

DEEP-UV RESONANCE RAMAN SPECTRAL PROPERTIES OF MEMBRANE PROTEINS. Anahita Zare, Michael Eagleburger, Mia C. Brown, Christopher Halsey, Carol Roach, Olayinka O. Oshokoya, Jeremy King, Jason W. Cooley, **Renee D. Jiji**

**1949-Pos BOARD B93**

SELECTIVE PRESSURE FOR RAPID MEMBRANE INTEGRATION CONSTRAINS THE SEQUENCE OF BACTERIAL OUTER MEMBRANE PROTEINS. **Ashlee M. Plummer**, Janine H. Peterson, Harris D. Bernstein, Karen G. Fleming

**1950-Pos BOARD B94**

HAX-1 STRUCTURAL STUDIES AND INTERACTIONS WITH THE SERCA/PHOSPHOLAMBAN COMPLEX. **Kailey J. Soller**, Caitlin Walker, Sarah Nelson, Michael T. Bowser, Gianluigi Veglia

**1951-Pos BOARD B95**

THE EFFECTS OF SARCOLIPIN PHOSPHORYLATION ON SERCA REGULATION. **Alysha A. Dicke**, Tata Gopinath, Vitaly V. Vostrikov, Gianluigi Veglia

**1952-Pos BOARD B96**

STRUCTURAL ANALYSIS OF KCNE1 TRANSMEMBRANE MUTANT YIELDING KCNE3-LIKE FUNCTION. **Cheryl L. Law**, Charles R. Sanders

**1953-Pos BOARD B97**

BIOCHEMICAL CHARACTERIZATION AND STRUCTURE DETERMINATION OF THE CLASS C TAS1R SUBFAMILY OF CHEMOSENSORY RECEPTORS. **Kate L. White**, Tiffany Lian, Raymond C. Stevens

**1954-Pos BOARD B98**

A SMALL LOOP IN THE SERCA N-DOMAIN FACILITATES THE TRANSITION TO A COMPACT CONFORMATION. **Olga N. Raguimova**, Nikolai Smolin, Seth L. Robia

**1955-Pos BOARD B99**

DEVELOPMENT OF A NOVEL FRET ASSAY TO CHARACTERIZE THE OLIGOMERIZATION STATE OF SELF-ASSOCIATING TRANSMEMBRANE HELICES. **Philipp Johann Heckmeier**, Mark George Teese, Dieter Langosch

**1956-Pos BOARD B100**

SINGLE-MOLECULE MEASUREMENT OF MEMBRANE PROTEIN STABILITY. **Robert Jefferson**, Yu-Chu Chang, Eitan Lerner, Shimon Weiss, James Bowie

**1957-Pos BOARD B101**

COMBINING SOLUTION AND SOLID STATE NMR TECHNIQUES IN THE ANALYSIS OF ARG TO CYS MUTATIONS IN PHOSPHOLAMBAN ASSOCIATED WITH DILATED CARDIOMYOPATHY. **Sarah E. D. Nelson**, Vitaly V. Vostrikov, Kim N. Ha, Kailey Soller, Tata Gopinath, Gianluigi Veglia

**1958-Pos BOARD B102**

EFFECTIVE APPLICATION OF BICELLES FOR CONFORMATIONAL ANALYSIS OF G PROTEIN-COUPLED RECEPTORS BY HYDROGEN/DEUTERIUM EXCHANGE MASS SPECTROMETRY. **Nguyen Minh Duc**, Yang Du, Su-Youn Lee, Cheng Zhang, Brian K. Kobilka, Ka-Young Chung

## Enzyme Regulatory Strategies (Boards B103 - B109)

**1959-Pos BOARD B103**

CHEMICALLY MODIFIED SURFACES AFFECT THE ACTIVATION VOLUME OF ADSORBED ENZYMES. **Vitor D. Schuabb**, Claus Czeslik

**1960-Pos BOARD B104**

ALLOSTERIC POTENTIATION OF PEPTIDASE NEUROLYSIN BY SMALL MOLECULES. Srinidhi Jayaraman, Rui Zhu, Naomi J. Wangler, Yehia Mechref, Thomas J. Abbruscato, David A. Ostrov, **Vardan T. Karamyan**

**1961-Pos BOARD B105**

LINKS OF CONFORMATIONAL SAMPLING TO FUNCTIONAL PLASTICITY AND CLINICAL PHENOTYPES BY SINGLE MOLECULE STUDIES. Matias E. Moses, Sara Thodberg, Krutika Bavishi, Stine Eiersholt, Darui Li, Dimitrios Stamou, Birger L. Moller, Tomas Laursen, **Nikos S. Hatzakis**

**1962-Pos BOARD B106**

QUANTIFYING THE MOLECULAR CONSTRAINTS DRIVING THE TRIMETHOPRIM RESISTANCE IN ESCHERICHIA COLI. **Yusuf T. Tamer**

**1963-Pos BOARD B107**

THE CATALYTIC DETERMINANTS OF STREPTOCOCCAL PNEUMONIAE IGA1 PROTEASE ARE FORMED BY MULTIPLE DOMAINS. **Ying-Chih Chi**, Agnieszka A. Kendrick, Jeremy Rahkola, Edward N. Janoff, Elan Z. Eisenmesser

**1964-Pos BOARD B108**

PRESSURE MODULATION OF THE ENZYMATIC ACTIVITY OF PHOSPHOLIPASE A2 - A PUTATIVE MEMBRANE-ASSOCIATED PRESSURE SENSOR. Saba Suladze, **Roland Winter**

**1965-Pos BOARD B109**  
KINETIC CHARACTERIZATION OF HUMAN LIVER PHOSPHOFRUCTOKINASE. **Amanda J. Tindall**, Gregory D. Reinhart

## Intirinsically Disordered Proteins (IDP) and Aggregates: Aggregation and Assemblies (Boards B110 - B131)

**1966-Pos BOARD B110 INTERNATIONAL TRAVEL AWARDEE**  
WATER IN AMYLOIDOGENIC INTRINSICALLY DISORDERED PROTEINS: INTERPLAY OF CONFORMATIONAL PREFERENCE AND AMYLOID AGGREGATION. **Shruti Arya**, Samrat Mukhopadhyay

**1967-Pos BOARD B111 CPOW TRVEL AWARDEE**  
ILL-POSED? NOT A PROBLEM: INFERRING MECHANISMS OF ACTION FROM AMYLOID FORMATION KINETICS USING APPROXIMATE BAYESIAN COMPUTATION. **Eri Nakatani-Webster**, Abhinav Nath

**1968-Pos BOARD B112**  
FRUSTRATION OF CRYSTALLIZATION BY LOCAL POLYMORPHISM: ROLES OF CORE SHAPE AND ENTROPY. **Thomas G. Mason**, Kun Zhao

**1969-Pos BOARD B113**  
MECHANISM OF LIGHT CHAIN AMYLOID FIBRIL FORMATION: SEEDING-NUCLEATION AND POLYMERIZATION AMYLOID FORMATION AND THE CROSS-SEEDING PHENOMENON. **Luis M. Blancas-Mejia**, Marina Ramirez-Alvarado

**1970-Pos BOARD B114**  
RESOLVING THE STRUCTURAL CONVERSION, AGGREGATION AND NEUROTOXICITY OF PRION PROTEINS AT THE SINGLE MOLECULE LEVEL. **Sanjeevi Sivasankar**, Chi-Fu Yen, Dilshan S. Harischandra, Anumantha Kanthasamy

**1971-Pos BOARD B115**  
MEMBRANE-MEDIATED MISFOLDING OF ISLET AMYLOID POLYPEPTIDE IS A SHARED MECHANISM AMONG TYPE 2 DIABETIC RISK FACTORS. **Alan K. Okada**, Kazuki Teranishi, Robert H. Chow, Ralf Langen

**1972-Pos BOARD B116**  
PROFILIN BINDING MODULATES THE AGGREGATION AND PHASE SEPARATION OF HUNTINGTIN N-TERMINAL FRAGMENTS VIA POLYPHASIC LINKAGE. **Ammon E. Posey**, Kiersten M. Ruff, Tyler S. Harmon, Alex S. Holehouse, Rohit V. Pappu

**1973-Pos BOARD B117**  
AMORPHOUS AGGREGATION OF CYTOCHROME C WITH INHERENTLY LOW AMYLOIDOGENICITY IS CHARACTERIZED BY THE METASTABILITY OF SUPERSATURATION AND THE PHASE DIAGRAM. **Yuxi Lin**, József Kardos, Koichiro Ishimori, Yuji Goto, Young-Ho Lee

**1974-Pos BOARD B118**  
PROTEIN AGGREGATION AND PORE-FORMATION OF A NEURODEGENERATIVE PROTEIN FRAGMENT. **Charles H. Chen**, Ayesha Khan, Joseph Jen-Tse Huang, Martin B. Ulmschneider

**1975-Pos BOARD B119**  
TIP-ENHANCED RAMAN SCATTERING REVEALS HETEROGENEITY OF SECONDARY STRUCTURES IN AMYLOID FIBRILS FORMED BY PEPTIDE CGNNQQNY. **Alexey Krasnoslobodtsev**, Joseph Smolsky, Tanja Deckert-Gaudig, Yuliang Zhang, Volker Deckert, Yuri Lyubchenko

**1976-Pos BOARD B120**  
MOLECULAR STUDY OF HIV-TAT AGGREGATION. **Alina Popescu Hategan**, Elena Karnaukhova, Emiliós K. Dimitriadis, Mario A. Bianchet, Avindra Nath

**1977-Pos BOARD B121**  
EVALUATING FREE ENERGIES OF DIMERIZATION OF SHORT POLYGLUTAMINE PEPTIDES WITH MOLECULAR DYNAMICS SIMULATIONS. **Riley J. Workman**, Jeffrey D. Madura

**1978-Pos BOARD B122**  
THE FORMATION OF AMYLOID FIBRIL ON TWO-DIMENSIONAL SURFACE. **Yichih Lin**, E. James Petersson, Zahra Fakhraai

**1979-Pos BOARD B123**  
LIGHT CHAIN AMYLOID FIBRILS ACT AS A RECRUITMENT POINT FOR SOLUBLE PROTEIN AND REVEAL THEIR CYTOTOXIC POTENTIAL IN HUMAN CARDIOMYOCYTES. **Marta Marin-Argany**, Yi Lin, Jonathan S. Wall, Laura R. Elsbernd, Megan McClure, Marina Ramirez-Alvarado

**1980-Pos BOARD B124**  
INSIGHTS INTO THE GENESIS OF LIGHT CHAIN AMYLOID ASSEMBLY. **Pinaki P. Misra**, Luis M. Blancas-Mejia, Marina Ramirez-Alvarado

**1981-Pos BOARD B125**  
MITOCHONDRALLY-DERIVED PEPTIDES AS DEFENSE AGAINST AMYLOID PROTEIN MISFOLDING. **Kazuki Teranishi**, Alan Okada, Kelvin Yen, Pinchas Cohen, Ralf Langen

**1982-Pos BOARD B126**  
BIOPHYSICS OF TARDIGRADE SURVIVAL. **Samantha Piszkiwicz**, Aakash Mehta, Thomas Boothby, Bob Goldstein, Gary Pielak

**1983-Pos BOARD B127**  
TUBULIN TAILS ARE INTRINSICALLY DISORDERED POLYANIONS THAT REGULATE BINDING TO OTHER PROTEINS BY SEQUENCE AS WELL AS CHARGE. **Dan L. Sackett**

**1984-Pos BOARD B128**  
F ACTIN BUNDLING DYNAMICS AND STIFFNESS OF THE TRIOBP-4 F ACTIN BUNDLE. **Justin J. Raupp**, Laura K. Gunther, Yuwen Mei, Alexander Pattyn, Takeshi Sakamoto

**1985-Pos BOARD B129**  
ROLE OF OSMOLYTES ON THE THERMODYNAMIC AND AGGREGATION PROPERTIES OF AN ELP-DRUG CARRIER. **Valeria Zai-Rose**

**1986-Pos BOARD B130**  
GLOBAL AND LOCAL CONFORMATIONAL HETEROGENIETY GOVERNS THE PRE-NUCLEATION PHASE IN AMYLOIDOGENIC SELF-ASSEMBLY. **Dirk Matthes**, Vytautas Gapsys, Julian T. Brennecke, Bert L. de Groot

**1987-Pos BOARD B131**  
CONFORMATIONAL POLYMORPHISM IN CONDITIONALLY DISORDERED NUCLEOPHOSMIN: FROM SINGLE-MOLECULES TO LIQUID DROPLETS. **Priya R. Banerjee**, Diana M. Mitrea, Richard W. Kriwacki, Ashok Deniz

## DNA Structure and Dynamics I (Boards B132 - B160)

**1988-Pos BOARD B132**  
LONG-TERM MULTICOLOR TRACKING OF GENOMIC LOCI BY MODIFIED SGRNAS OF THE CRISPR/CAS9 SYSTEM. **Shipeng Shao**

**1989-Pos BOARD B133**  
SINGLE MOLECULE ANALYSIS OF CHROMATIN STRUCTURE. **Michal Levy-Sakin**, Catherine Chu, Chin Lin

**1990-Pos BOARD B134**  
DEPENDENCE OF DNA PERSISTENCE LENGTH ON IONIC STRENGTH OF SOLUTIONS WITH MONOVALENT AND DIVALENT SALTS: A JOINT THEORY-EXPERIMENT STUDY. **Annaël Brunet**, **Catherine Tardin**, Laurence Salome, Philippe Rousseau, Nicolas Destainville, Manoel Manghi

**1991-Pos BOARD B135**  
EFFECTS OF HYDRATION ON THE PHOTOIONIZATION THRESHOLD ENERGY OF DNA COMPONENTS AND ON THE ACTIVATION BARRIERS FOR GUANINE METHYLATION BY DIMETHYL SULFATE. **George A. Papadantonakis**, Daniel R. Eichler, Haley A. Hamann, Katherine A. Harte

**1992-Pos BOARD B136**  
DNA FLEXIBILITY DOES NOT SHOW APPRECIABLE TEMPERATURE DEPENDENCE. **Tunc Kayikcioglu**, Taekjip Ha

**1993-Pos BOARD B137**  
STRUCTURAL CHARACTERIZATION OF DSDNA NANOCOMPLEXES BASED ON AMMONIUM GEMINI SURFACTANTS. **Weronika J. Andrzejewska**, Michalina Skupin, Andrzej Skrzypczak, Maciej Kozak

**1994-Pos BOARD B138**  
CAN MARKOV CHAIN MODELS PREDICT NUCLEOSOME POSITIONING? **Marco Tompitak**, Behrouz Eslami Mossalam, Gerard T. Barkema, Helmut Schiessel

**1995-Pos BOARD B139**  
CONTINUOUSLY SCANNING DNA WITH NANOPORE MSPA. **Matthew T. Noakes**, Ian M. Derrington, Kyle W. Langford, Henry D. Brinkerhoff, Elizabeth Manrao, Andrew H. Laszlo, Joshua Bartlett, Benjamin I. Tickman, Jackie Blum, Jens H. Gundlach

**1996-Pos BOARD B140**  
IMAGING AND TRACING MULTIPLE GENETIC ELEMENTS VIA MULTIPLEXED CRISPR IMAGING. **Narendra Chaudhary**, Hayoon Cho, Narangerel Gantumur, Hajin Kim

**1997-Pos BOARD B141**  
STRUCTURAL FEATURES OF DNA INTERACTION WITH AMINO ACID CONJUGATED DAUNORUBICIN DERIVATIVES. **Ádám Orosz**, Péter Horváth, Gábor Mező, Gabriella Csík

**1998-Pos BOARD B142**  
MOLECULAR DYNAMICS INVESTIGATIONS OF Z[WC] DNA AND ITS POTENTIAL ROLE IN THE B TO Z-DNA TRANSITION. **Ashutosh Rai**, Micaela E. Bush, Alma Gracic, Jinhee Kim, Michael G. Lerner, Alexander K. Seewald, Benjamin L. Yee

**1999-Pos BOARD B143**  
CALCULATING WATSON-CRICK TO HOOGSTEEN TRANSITION KINETICS IN DNA WITH LANGEVIN DYNAMICS AND FOKKER-PLANCK DIFFUSION IN REDUCED CONFIGURATION SPACE. **Gianmarc Grazioli**, Ioan Andricioaei

**2000-Pos BOARD B144** EDUCATION TRAVEL AWARDEE  
LINKER HISTONES AND THE DYNAMIC CHROMATIN FIBER. **Stefjord Todolli**, Nicolas Clauvelin, Wilma K. Olson

**2001-Pos BOARD B145**  
ENTROPY CALCULATIONS OF HOOGSTEEN AND WATSON-CRICK CONFORMATIONS. **James McSally**, Ioan Andricioaei

**2002-Pos BOARD B146**  
USE OF NUNCHUK NANOSTRUCTURES FOR DYNAMIC DSDNA BEND ANGLE MEASUREMENTS BY FLUORESCENCE MICROSCOPY. Lourdes Velazquez, **Deborah Clayton-Warwick**, Deborah Fygenon

**2003-Pos BOARD B147**  
DYNAMIC RELEASE OF BENDING STRESS IN SHORT DOUBLE-STRANDED DNA BY TWO TYPES OF DEFORMATION. **CheolHee Kim**, O-Chul Lee, Jae-Yeol Kim, Wookyung Sung, Nam Ki Lee

**2004-Pos BOARD B148**  
NUCLEOSOME DYNAMICS AT MICROSECOND TIMESCALE: DNA-PROTEIN INTERACTIONS, WATER-MEDIATED INTERACTIONS AND NUCLEOSOME FORMATION. **Alexey K. Shaytan**, Grigory A. Armeev, Alexander Goncarencu, Victor B. Zhurkin, David Landsman, Anna R. Panchenko

**2005-Pos BOARD B149**  
EFFECTS OF SALT ON THE STABILITY OF A G-QUADRUPLEX FROM THE HUMAN C-MYC PROMOTER. **Byul Kim**

**2006-Pos BOARD B150**  
SINGLE MOLECULE STUDIES OF OXIDATIVE DAMAGE ON HUMAN TELOMERE. **Hui-Ting Lee**, Grace Kim, Patricia Opresko, Sua Myong

**2007-Pos BOARD B151**  
COUNTERION CONDENSATION VS. ZETA POTENTIAL: CAN EITHER THEORY DESCRIBE THE ELECTROPHORESIS OF DNA AND OTHER POLYIONS? **Nancy C. Stellwagen**

**2008-Pos BOARD B152**  
LOCAL COMPRESSIBILITY: GROUND-STATE PREDICTIONS OF QUANTUM YIELD TRENDS IN AZOBENZENE-MODIFIED DNA. **Addie Kingsland**, Soumyadyuti Samai, Yunqi Yan, David Ginger, Lutz Maibaum

**2009-Pos BOARD B153**  
PROBING THE FOLDING DYNAMICS OF HUMAN TELOMERIC G-QUADRUPLEX WITH SINGLE-MOLECULE FRET. **Mikayel Aznauryan**, Siri Søndergaard, Sofie Noer, Birgit Schjøtt, Victoria Birkedal

**2010-Pos BOARD B154**  
DNA-ORIGAMI NANOTUBES AND THEIR INTERACTION WITH MEMBRANES: INSIGHTS THROUGH MULTISCALE MOLECULAR DYNAMICS SIMULATIONS. **Vishal Maingi**, Jaakko J. Uusitalo, Mickaël Lelimosin, Stefan Howorka, Siewert J. Marrink, Mark S.P. Sansom

**2011-Pos BOARD B155**  
HYDRATION CHANGES ACCOMPANYING HELIX-TO-COIL DNA TRANSITIONS. **Iksae Son**, Yuen Lai Shek, David N. Dubins, Tigran V. Chalikian

**2012-Pos BOARD B156**  
STABILITY AND ION DISTRIBUTIONS AROUND LEFT- AND RIGHT-HANDED DNA AND RNA DUPLEXES: A COMPARATIVE STUDY. **Feng Pan**, Viet H. Man, Christopher Roland, Celeste Sagui

**2013-Pos BOARD B157**  
KINETICS AND THERMODYNAMICS OF NON-CANONICAL DNA. **Micah J. McCauley**, Caitlin J. Cain, Leah Furman, Catherine A. Dietrich, Sally Ruderman, Diana Seminario-McCormick, Grace Ferris, Megan E. Nunez, Mark C. Williams

**2014-Pos BOARD B158**  
ACCURATE DATA PROCESS FOR ANALYZING NANOPORE DATA. **Zhen Gu**

**2015-Pos BOARD B159**  
MECHANISTIC INFLUENCE OF NANOMETER LENGTH-SCALE SURFACE CHEMISTRY ON DNA HYBRIDIZATION. **Payel Das**, Sufi Zafar

**2016-Pos BOARD B160**  
TOPOLOGICAL DIVERSITY OF CHROMATIN FIBERS: INTERPLAY BETWEEN NUCLEOSOME REPEAT LENGTH, DNA LINKING NUMBER AND THE LEVEL OF TRANSCRIPTION. **Davood Norouzi**, Ataur Katebi, Tatiana Nikitina, Victor Zhurkin

## RNA Structure and Dynamics (Boards B161 - B175)

**2017-Pos BOARD B161**  
CHARACTERIZING THE STRUCTURAL AND ENERGETIC PROPERTIES OF TRNA DURING TRANSLOCATION THROUGH A NANOPORE. **Prasad Bandarkar**, Huan Yang, Meni Wanunu, Paul Whitford

**2018-Pos BOARD B162**  
SYNONYMOUS MUTATIONS REDUCE GENOME COMPACTNESS IN ICOSAHEDRAL SSRNA VIRUSES. **Luca Tubiana**, Anze L. Bozic, Cristian Micheletti, Rudolph Podgornik

## Membrane Physical Chemistry II (Boards B176 - B192)

**2019-Pos BOARD B163**  
MIMICKING RIBOSOMAL VECTORIAL UNFOLDING OF RNA PSEUDOKNOT IN A PROTEIN CHANNEL. **Xinyue Zhang**, Xiaojun Xu, Zhiyu Yang, Andrew J. Burcke, Kent S. Gates, Shi-Jie Chen, Li-Qun Gu

**2020-Pos BOARD B164**  
JUNCTION TOPOLOGICAL CONSTRAINTS IN HAIRPIN RIBOZYME FOLDING. **Alex Morriss-Andrews**, Anthony M. Mustoe, Charles L. Brooks, III

**2021-Pos BOARD B165**  
A COMBINED MOLECULAR DOCKING/DYNAMICS APPROACH TO STUDY SELECTIVITY AND BINDING AFFINITY OF L-STEREISOMER RNA APTAMER TOWARDS CCL2 AND RELATED CHEMOKINES. **Senthilkumar Kailasam**

**2022-Pos BOARD B166**  
CONDENSATION OF NUCLEIC ACIDS BY MULTIVALENT IONS: SEQUENCE DEPENDENCE AND THE CURIOUS CASE OF RNA. **Igor S. Tolokh**, Aleksander Drozdetski, Suzette A. Pabit, Andrea M. Katz, Lois Pollack, Nathan A. Baker, Alexey V. Onufriev

**2023-Pos BOARD B167**  
ENTROPIC DETERMINANTS AND BARRIERS IN THE FORMATION OF RNA SECONDARY STRUCTURES. **Chi H. Mak**, Christine Ferry

**2024-Pos BOARD B168**  
ACCURATE DETERMINATION OF THE RNA JUNCTIONS VIA SINGLE-MOLECULE HIGH-PRECISION FRET MEASUREMENTS. **Olga Doroshenko**, Hayk Vardanyan, Sascha Fröbel, Stanislav Kalinin, Simon Sindbert, Oleg Opanasyuk, Christian Hanke, Sabine Müller, Holger Gohlke, Claus A.M. Seidel

**2025-Pos BOARD B169**  
LABEL-FREE, HIGH-TIME-RESOLUTION, SINGLE-MOLECULE STUDIES OF RIBOSWITCH FOLDING. **Nathan S. Daly**, Jason J. Hon, Steven B. Warren, Scott M. Trocchia, Colin Nuckolls, Kenneth L. Shepard, Ruben L. Gonzalez Jr.

**2026-Pos BOARD B170**  
EXPLORING THE EFFECTS OF TEMPERATURE AND PRESSURE ON THE STRUCTURE AND STABILITY OF A SMALL RNA HAIRPIN. **Caroline M P Schuabb**, Salomé Pataráia, Roland Winter

**2027-Pos BOARD B171**  
VFOLD CPX SERVER FOR RNA/RNA COMPLEX STRUCTURE PREDICTION. **Xiaojun Xu**, Shi-Jie Chen

**2028-Pos BOARD B172**  
FOLDING AND CATALYSIS OF THE GLMS RIBOZYME RIBOSWITCH STUDIED AT THE SINGLE-MOLECULE LEVEL. **Andrew Savinov**, Steven M. Block

**2029-Pos BOARD B173**  
KINETIC MODEL OF  $Mg^{2+}$  INDUCED RNA TERTIARY FOLDING FROM STOPPED FLOW FLUORESCENCE DATA. **Robb Welty**, Michael J. Rau, Kathleen B. Hall

**2030-Pos BOARD B174**  
CRYSTAL STRUCTURE OF GROUP II INTRON DOMAIN 1 REVEALS A TEMPLATE FOR RNA ASSEMBLY. **Chen Zhao**, Marco Marcia, Kanagalaghatta R. Rajashankar, Anna Marie Pyle

**2031-Pos BOARD B175**  
THERMODYNAMIC STABILITIES OF MULTIBRANCH LOOPS IN BACTERIOPHAGE PACKAGING RNA. **Alyssa Hill**, Susan Schroeder

**2032-Pos BOARD B176**  
CROSS-VALIDATION OF SIMULATION AND EPR OXIMETRY APPROACHES: MEMBRANE CHOLESTEROL REDUCES OXYGEN FLUX. **Gary Angles**, Casey R. Smith, Kristina Bueche, Sally C. Pias

**2033-Pos BOARD B177**  
MEMBRANE CHOLESTEROL SUBSTANTIALLY ALTERS THE FREE ENERGY TOPOLOGY OF OXYGEN TRANSPORT. Casey R. Smith, Kristina Bueche, Gary Angles, **Sally C. Pias**

**2034-Pos BOARD B178**  
INTERACTION OF RESVERATROL WITH LIPID MEMBRANES. Saima Nur, Fariah Nur, Abdelaziz Alsamarah, Payal Chatterjee, Saadia Nur, Jonathan Moreno, Lyna Luo, **Maria Lambros**

**2035-Pos BOARD B179**  
SELECTIVE ASSOCIATION OF COQ10 WITH LOW DENSITY LIPID MEMBRANES. **Sumit Garg**, Vandana Swaminathan, Sirisha Dhavala, Rangaprasad Sarangarajan, Michael Kiebish, Niven Narain

**2036-Pos BOARD B180**  
GENERAL ANESTHETICS RAISE THE MISCIBILITY TRANSITION TEMPERATURE OF MODEL MEMBRANES. **Caitlin Cornell**, Sarah L. Keller

**2037-Pos BOARD B181**  
INTERACTION OF ADENOSINE TRIPHOSPHATE WITH PHOSPHATIDYLCHOLINE LIPID BILAYERS. **Abhinav Ramkumar**, Xiaoling Leng, Ryan Z. Lybarger, Horia I. Petrache

**2038-Pos BOARD B182**  
THE PARTITIONING BEHAVIOR OF FREE AMINO ACIDS INTO LIPID MEMBRANES. **Merrell A. Johnson**, Sui H. Tial, Bruce D. Ray, Soenke Seifert, Horia I. Petrache

**2039-Pos BOARD B183**  
INFLUENCE OF VITAMIN E ON DOMAIN STRUCTURE AND ELASTIC FLUCTUATIONS IN LIPID MIXTURES. **Drew Marquardt**, Michal Belicka, Thad A. Harroun, Georg Pabst

**2040-Pos BOARD B184**  
SIMULATED BIOPHYSICAL EXPERIMENTAL TECHNIQUES FOR CHLORHEXIDINE IN DMPC/CHOLESTEROL SYSTEMS. **Brad J. Van Oosten**, Thad A. Harroun

**2041-Pos BOARD B185**  
THEORY FOR THE CHARGE DEPENDENCE OF POPG:POPC LIPOSOME REPULSIONS IN DEIONIZED WATER. **Joel A. Cohen**, Ming-Tzo Wei, H. Daniel Ou-Yang

**2042-Pos BOARD B186**  
THERMODYNAMIC MODELLING OF PHASE SEPARATED LIPID MIXTURES INDUCED BY PROTEIN CROWDING. **Wade F. Zeno**, Subhash H. Risbud, Marjorie L. Longo

**2043-Pos BOARD B187**  
LIPID DOMAINS IN ZWITTERIONIC-ANIONIC LIPID MIXTURES INDUCED BY COMBINED EFFECT OF MONOVALENT AND DIVALENT IONS. **Hongcheng Xu**, Sai Ganesan, Silvina Matysiak

**2044-Pos BOARD B188**  
MIXED PHOSPHOINOSITIDE/LIPID LANGMUIR FILMS IN THE PRESENCE OF DIVALENT CATIONS. **Katrice E. King**, Arne Gericke

**2045-Pos BOARD B189**  
PRESENCE OF SALT AND SOLUTION ASYMMETRY ACROSS CHARGED MEMBRANES INFLUENCES THEIR PHASE STATE. **Bastian Kubsch**, Tom Robinson, Reinhard Lipowsky, Rumiana Dimova

**2046-Pos BOARD B190**  
INFLUENCE OF CHARGE ON THE ELASTIC PROPERTIES OF LIPID MEMBRANES. **Elizabeth G. Kelley**, Michihiro Nagao, Robert D. Bradbury, Paul D. Butler

**2047-Pos BOARD B191**  
MOLECULAR SIMULATION OF LIPIDS AND WATER: ATOMISTIC, COARSE-GRAINED, AND MIXED RESOLUTIONS. **Mario Orsi**, Wei Ding, Michail Palaikostas, Wen Wang

**2048-Pos BOARD B192**  
STRUCTURE AND DYNAMICS OF BIO-MEMBRANES AND THEIR HYDRATION WATER IN WATER SOLUTION OF ROOM TEMPERATURE IONIC LIQUIDS: AN EXPERIMENTAL AND COMPUTATIONAL STUDY. **Antonio Benedetto**, Pietro Ballone

## Membrane-active Peptides and Toxins II (Boards B193 - B217)

**2049-Pos BOARD B193**  
STUDYING ANTIBIOTIC-MEMBRANE INTERACTIONS VIA X-RAY DIFFRACTION AND FLUORESCENCE MICROSCOPY. Yi-Ting Sun, Ping-Yuan Huang, Cheng-Hao Lin, Kuan-Rong Lee, **Ming-Tao Lee**

**2050-Pos BOARD B194**  
LANSING LIPOSOMES: UNLOCKING THE MECHANISM OF SHORT AMPHIPHILIC BETA SHEET FORMING PEPTIDES. **Jalen Hoehn**

**2051-Pos BOARD B195**  
TOWARDS THE DELIVERY OF CARGO ACROSS BIOLOGICAL BARRIERS. **Alexander Komin**, Ran Lin, Honggang Cui, Peter C. Searson, Kalina Hristova

**2052-Pos BOARD B196**  
STRUCTURAL AND MECHANISTIC STUDIES OF ANDROPIN, A MEMBRANE-SELECTIVE ANTIMICROBIAL PEPTIDE. **Meghan K. McCaskey**, Larry R. Masterson

**2053-Pos BOARD B197**  
CHARACTERIZATION OF PA CHANNELS IN ANTHRAX TOXIN USING TRP PEPTIDES. **Koyel J. Ghosal**, Bryan A. Krantz

**2054-Pos BOARD B198**  
DESIGN OF PH TRIGGERED, MACROMOLECULAR PORE FORMING PEPTIDES FOR ENDOSOMAL ESCAPE. **Sarah Y. Kim**, Gregory Wiedman, Lucy Li, William C. Wimley, Kalina Hristova

**2055-Pos BOARD B199**  
INTERACTIONS OF HISTIDINE-RICH ANTIMICROBIAL PEPTIDES, GAD-1 AND GAD-2, WITH MODEL MEMBRANES AT LOW AND HIGH PH. **Gagandeep K. Sandhu**, Michael R. Morrow, Valeire Booth

**2056-Pos BOARD B200**  
MOLECULAR BASIS FOR THE ROLE OF CATIONIC RESIDUES IN ANTIMICROBIAL PEPTIDE INTERACTIONS. **Amy Rice**, Jeff Wereszczynski

**2057-Pos BOARD B201**  
OPTIMIZING A SPONTANEOUS MEMBRANE TRANSLOCATING PEPTIDE. **Taylor Fuselier**, William C. Wimley

**2058-Pos BOARD B202**  
SINGLE-MOLECULE IMAGING OF PERFRINGOLYSIN O BINDING AND ASSEMBLY ON MODEL MEMBRANES. Michael J. Senior, **Carina Monico**, Alejandro P. Heuck, Robert J. C. Gilbert, Mark I. Wallace

**2059-Pos BOARD B203**  
INVESTIGATING THE RELATIONSHIP BETWEEN HELICITY AND ACTIVITY IN ANTIMICROBIAL PEPTIDES WITH STABILIZED  $\alpha$ -HELICAL STRUCTURES. **Amy Yuan**, Rida Mourtada, Donald E. Elmore, Loren D. Walensky

**2060-Pos BOARD B204**  
ADAPTATION OF ESCHERICHIA COLI SPHEROPLASTS TO THE CHARACTERIZATION OF ANTIMICROBIAL PEPTIDES. **Lei Wei**, Donald E. Elmore

**2061-Pos BOARD B205**  
THE ROLE OF ARGININE AND LYSINE IN HISTONE DERIVED ANTIMICROBIAL PEPTIDES. **Dania Figueroa**, Carla Perez, Donald E. Elmore

**2062-Pos BOARD B206**  
USING MOLECULAR DYNAMICS SIMULATIONS TO CHARACTERIZE THE ROLE PLAYED BY BASIC RESIDUES IN INTERACTIONS OF HDAPS AND BACTERIAL LIPID MEMBRANES. **Sung Hyun Lee**, Donald E. Elmore

**2063-Pos BOARD B207**  
MIMICKING AND UNDERSTANDING THE AGGLUTINATION EFFECT OF THE ANTIMICROBIAL PEPTIDE THANATIN USING MODEL PHOSPHOLIPID VESICLES. Émile Robert, Thierry Lefèvre, Matthieu Fillion, Benjamin Martial, Justine Dionne, **Michèle Auger**

**2064-Pos BOARD B208**  
2H NMR STUDIES OF LIVING BACTERIA INTERACTING WITH ANTIMICROBIAL PEPTIDES. **Nury P. Santisteban**, Michael R. Morrow, Valerie Booth

**2065-Pos BOARD B209**  
SELECTIVE MEMBRANE DISRUPTION MECHANISM OF AN ANTIBACTERIAL  $\gamma$ -AAPEPTIDE DEFINED BY EPR SPECTROSCOPY. Pavanjeet Kaur, Yaqiong Li, Jianfeng Cai, **Likai Song**

**2066-Pos BOARD B210**  
SELECTIVITY OF ANTIMICROBIAL PEPTIDES: ASSOCIATION TO BACTERIAL AND EUKARYOTIC CELLS AND CELL-DENSITY DEPENDENCE. **Filippo Savini**, Vincenzo Luca, Daniela Roversi, Alessio Boccedi, Renato Massoud, Yoon-kyung Park, Maria Luisa Mangoni, Lorenzo Stella

**2067-Pos BOARD B211**  
PSD1 ANTIMICROBIAL ACTIVITY AGAINST CANDIDA ALBICANS PLANKTONIC CELLS AND BIOFILMS. **Sónia Gonçalves**, Patrícia M. Silva, Mário R. Felício, Luciano N. de Medeiros, Eleonora Kurtenbach, Nuno C. Santos

**2068-Pos BOARD B212**  
SELF-ASSEMBLING AND ION TRANSPORT PROPERTIES OF MEMBRANE ACTIVE PEPTIDES DRIVEN BY FORMATION OF A FLUOROUS INTERFACE. **Normand Voyer**, Raphaël Godbout, Sébastien Légaré, Maud SV Auger, François Otis, Claudia Carpentier, Patrick Lagüe, Michèle Auger

**2069-Pos BOARD B213**  
DAPTOMYCIN BINDS BUT DOES NOT TRANSLOCATE ACROSS PC:PG MEMBRANES. **Mark Kreuzberger**, Antje Pokorny, Paulo F. Almeida

**2070-Pos BOARD B214**  
ARE LEUCINE AND ISOLEUCINE EQUIVALENT IN BINDING OF AMPHIPATHIC PEPTIDES TO MEMBRANES. Mia A. Rosenfeld, Shatima Stokes, Jonathan H. Diaz, Paulo F. Almeida, **Antje Pokorny**

**2071-Pos BOARD B215**  
PHLIP®: USES IN MEASURING CELL SURFACE PH, IMAGING TUMORS, AND DELIVERING THERAPEUTICS. **Donald Engelman**, Yana K. Reshetnyak, Oleg A. Andreev

**2072-Pos BOARD B216**  
THE ROLE OF MULTIVALENCY IN INHIBITION OF BACILLUS ANTHRACIS AND CLOSTRIDIUM BOTULINUM BINARY TOXINS BY CATIONIC PAMAM DENDRIMERS. **Goli Yamini**, Veronica Wright, Holger Barth, Ekaterina M. Nestorovich

**2073-Pos BOARD B217**  
ORDERING EFFECT INDUCED BY SARS-COV FUSION PEPTIDES ON MEMBRANES CONTAINING NEGATIVELY CHARGED LIPIDS MIGHT BE IMPORTANT TO MEMBRANE FUSION. **Luis GM Basso**, Morteza Jafarabadi, Alex I. Smirnov, Antonio J. Costa-Filho

## Protein-Lipid Interactions II (Boards B218 - B247)

### 2074-Pos BOARD B218

INVESTIGATING LIPID-PROTEIN INTERACTIONS IN A COMPLEX BIOLOGICAL MEMBRANE MODEL. **Karelia H. Delgado-Magnero**, Gurpreet Singh, Valentina Corradi, D. Peter Tieleman

### 2075-Pos BOARD B219

ACTIVATION OF INTEGRIN: A MULTISCALE COMPUTATIONAL STUDY. **Anirban Polley**, Anand Srivastava, Gregory A. Voth

### 2076-Pos BOARD B220

THE INTERACTION OF PROTEINS WITH ASYMMETRIC LIPID BILAYERS. **Milka Doktorova**, Gerald W. Feigenson, Harel Weinstein

### 2077-Pos BOARD B221

CONFORMATIONAL DYNAMICS OF PRION PROTEINS AT THE MEMBRANE INTERFACE. **Jesse Woo**, Chad Nieri, Roger Gonzalez, Jason C. Bartz, Patricia Soto

### 2078-Pos BOARD B222

STRUCTURAL ANALYSIS OF THE INTERACTION OF THE FUNCTIONAL AMYLOID FORMING PROTEIN ORB2A WITH LIPIDS. **Maria A. Conrad-Soria**, Silvia A. Cervantes, Alexander S. Falk, Thalia H. Bajakian, Ansgar B. Siemer

### 2079-Pos BOARD B223

INTERACTION OF A MODEL AMPHIPATHIC  $\alpha$ -HELIX BUNDLE PROTEIN WITH AN AQUEOUS-GLYCEROPHOSPHOLIPID-OIL INTERFACE. **Mona Sadat Mirheydari**, Edgar E. Kooijman, Elizabeth K. Mann

### 2080-Pos BOARD B224

COMPUTATIONAL PREDICTION OF LIPID BINDING PROFILES FOR SEC14-LIKE DOMAINS. **Lauren C. Heller**, Mwangala Akamandisa, Donald E. Elmore

### 2081-Pos BOARD B225

MODULATION OF GEL PHASE MODEL MEMBRANES BY VITAMIN D-RELATED PROTEINS. Sidra Rashid, Robert V. Law, Abdel F. Isakovic, Vivian Stojanoff, **Deborah L. Gater**

### 2082-Pos BOARD B226

EFFECT OF THE NOVEL AMYLOID INHIBITOR "ANLE145C" ON AGGREGATION OF ISLET AMYLOID POLYPEPTIDE AND HOW IT IS MODULATED BY MEMBRANES. **Saravanan Manikam Sadasivam**, Sergey Ryazanov, Andrei Leonov, Steven Roeters, Sander Wouterson, Armin Giese, Christian Griesinger, J Antoinette Killian

### 2083-Pos BOARD B227

STRUCTURE AND LIPID BINDING PREFERENCES OF THE ALTERNATIVELY TRANSLATED REGION OF PTEN-LONG. **Anne-Marie Bryant**

### 2084-Pos BOARD B228

SOLUBILIZED NICOTINIC ACETYLCHOLINE RECEPTOR: LIPID COMPOSITION AND REQUIREMENTS FOR ACTIVITY. **Juan C. Mercado**, José A. Lasalde Dominicci, Orestes Quesada, José O. Colón

### 2085-Pos BOARD B229

DETERGENT-FREE ISOLATION, CHARACTERIZATION AND FUNCTIONAL RECONSTITUTION OF A K<sup>+</sup> CHANNEL: THE POWER OF NATIVE NANODISCS. **Jonas M. Dörr**, Marre Schäfer, Martijn C. Koorengel, J. Antoinette Killian

### 2086-Pos BOARD B230

ELECTROSTATIC FORCES GOVERN ASSEMBLY AND DISINTEGRATION OF THE INFLUENZA VIRUS PROTEIN SCAFFOLD TO PROVIDE TENSION FOR MEMBRANE FUSION. **Oleg V. Batishchev**, Liudmila A. Shilova, Michael V. Kachala, Vsevolod Yu. Tashkin, Valerij S. Sokolov, Natalia V. Fedorova, Liudmila A. Baratova, Denis G. Knyazev, Joshua Zimmerberg, Yury A. Chizmadzhev

### 2087-Pos BOARD B231

STOCHASTIC FLUCTUATION SENSING IN A BISTABLE PHOSPHATIDYLINOSITOL-BASED REACTION DIFFUSION SYSTEM. **Scott D. Hansen**, William Y. Huang, Young Kwang Lee, Jay T. Groves

### 2088-Pos BOARD B232

CARDIOLIPIN MEMBRANES AS PHOTOREDUCTION INHIBITORS IN FERRECYTOCHROME C: A RESONANCE RAMAN STUDY WITH Soret BAND EXCITATION. **Dmitry Malyshka**, Reinhard Schweitzer-Stenner

### 2089-Pos BOARD B233

ELUCIDATION OF ELECTROSTATIC DETERMINANTS IN CYTOCHROME C-CARDIOLIPIN BINDING. **Margaret M. Elmer-Dixon**

### 2091-Pos BOARD B235

EXPLORING OXIDATION STATE DEPENDENT CONFORMATIONAL CHANGES OF CYTOCHROME C ON CARDIOLIPIN CONTAINING LIPOSOMES. **Bridget Milorey**, Lee Serpas, Leah Pandiscia, Reinhard Schweitzer-Stenner

### 2092-Pos BOARD B236

SEQUENCE PERMUTATION OF POSITIVE CHARGES IN A MODEL PEPTIDE ANTIBIOTIC PRODUCES DIFFERING ENTHALPIC AND ENTROPIC CONTRIBUTIONS TO THE LIPID-PEPTIDE BINDING AFFINITY. **Brianna Haight**, Ellen R. Arndt, Adrienne P. Loh

### 2093-Pos BOARD B237

INDUCING A HELICAL KINK IN A MODEL PEPTIDE ANTIBIOTIC REDUCES PEPTIDE-MEMBRANE INTERACTION FAVORABILITY IN VESICLES. Riley Larson, Ellen R. Arndt, **Adrienne P. Loh**

### 2094-Pos BOARD B238 EDUCATION TRAVEL AWARDEE

DOES LIPID COMPOSITION REGULATE ANTHRAX TOXIN UPTAKE? **Nnanya U. Kalu**, Clare Kenney, Ekaterina Nestorovich

### 2095-Pos BOARD B239

INVESTIGATION OF THE PHYSIOCHEMICAL PROPERTIES OF THE PHOSPHOLIPID CARDIOLIPIN: IMPLICATIONS FOR OXPHOS REGULATION AND BARTH SYNDROME. **Murugappan Sathappa**, Matthew Greenwood, Nathan Alder

### 2096-Pos BOARD B240

LIPID PROTEIN INTERACTIONS OF G PROTEIN COUPLED RECEPTORS. **Besian Sejdiu**, Christine DeGagne, Valentina Corradi, Peter Tieleman

### 2097-Pos BOARD B241

PROBING THE EFFECT OF LIPID BINDING ON THE MONOMER-DIMER EQUILIBRIUM OF A PROKARYOTIC SUGAR TRANSPORTER BY NATIVE MASS SPECTROMETRY. **Joseph A. C. Donlan**, Kallol Gupta, Weston B. Struwe, Joseph Gault, Carol V. Robinson

### 2098-Pos BOARD B242

ASSESSING LIPID MEMBRANE INTERACTION OF AMYLOID-FORMING PROTEINS BY MEANS OF COLORIMETRIC BIOSENSING VESICLES. **Elizabeth A. Yates**, Michael Dorsey

### 2099-Pos BOARD B243

ABSOLUTE AFFINITY CALCULATIONS FOR CHOLESTEROL BINDING TO G-PROTEIN COUPLED RECEPTORS (GPCR). **Reza Salari**, Grace Brannigan

### 2100-Pos BOARD B244

EFFECTS OF MEMBRANE MOBILITY ON MICROTUBULE GLIDING. **Joseph D. Lopes**, Dail Chapman, Linda Hirst, Jing Xu

### 2101-Pos BOARD B245

A MASS SPECTROMETRIC PLATFORM TO REVEAL LIPID MEDIATED OLIGOMERISATION OF MEMBRANE PROTEINS IN ATOMISTIC DETAIL. **Kallol Gupta**, Carol Robinson

**2102-Pos BOARD B246 CID TRAVEL AWARDEE**  
MOLECULAR BASIS FOR LIPID SPECIFICITY OF THE COAGULATION FACTOR X MEMBRANE-BINDING DOMAIN. **Melanie P. Muller**, Emad Tajkhorshid

**2103-Pos BOARD B247 CID TRAVEL AWARDEE**  
EXPLORING THE INSERTION MECHANISM OF SVS-1  $\beta$ -HAIRPIN PEPTIDE INTO AN ANIONIC LIPID BILAYER. **Keon Reid**, James Kindt

## Membrane Receptors and Signal Transduction II (Boards B248 - B267)

**2104-Pos BOARD B248**  
INHIBITION OF KIR2.1 BY INTRACELLULAR ACIDIFICATION CONTRIBUTES TO SOUR TASTE TRANSDUCTION. **Wenlei Ye**, Rui B. Chang, Jeremy D. Bushman, Yu-Hsiang Tu, Eric Mulhall, Courtney E. Wilson, Alexander J. Cooper, Wallace S. Chick, David Hill-Eubanks, Mark T. Nelson, Sue C. Kinnamon, Emily R. Liman

**2105-Pos BOARD B249**  
DECODING THE SIGNALING THROUGH HOMOMERIC AND HETEROMERIC DOPAMINE D2 AND CANNABINOID CB1 RECEPTORS. **Guoqing Xiang**, Takeharu Kawano, Lia Baki, Diomedes E. Logothetis

**2106-Pos BOARD B250**  
EXPERIMENTS AND SIMULATIONS OF THE INTERNALIZATION OF HETEROLOGOUSLY EXPRESSED MOUSE MELANOPIN. **Adam Byerly**, Tahsin Khan, Juan Carlos Valdez-Lopez Jr., Kathleen Hoffman, Hye-Won Kang, Phyllis Robinson

**2107-Pos BOARD B251**  
LANGEVIN DYNAMICS SIMULATION OF AKAP-PKA COMPLEX: RE-ENVISIONING THE LOCAL CONCENTRATION MECHANISM FOR DIRECTING PKA PHOSPHORYLATION. Marc Rigatti, Paul J. Michalski, Kimberly L. Dodge-Kafka, **Ion I. Moraru**

**2108-Pos BOARD B252**  
CONSTRUCTION OF G ALPHA-16 CHIMERAS FOR DETECTION OF GPCR ACTIVATION. Takeharu Kawano, Apostolia Baki, Guoqing Xiang, **Diomedes E. Logothetis**

**2109-Pos BOARD B253**  
RECEPTOR SPECIES-DEPENDENT SIGNALING OF GQPCRS CONTROLS IKS ACTIVITY. **Marie-Cecile Kienitz**, Dilyana Vladimirova, Lutz Pott, Andreas Rinne

**2110-Pos BOARD B254**  
INTERNAL SODIUM IN GPCRS STRONGLY RESPONDS TO TRANSMEMBRANE VOLTAGE CHANGES. **Owen N. Vickery**, Jan-Phillip Machtens, Giulia Tamburrino, Daniel Seeliger, Ulrich Zachariae

**2111-Pos BOARD B255**  
COMPARATIVE STRUCTURAL DYNAMIC ANALYSIS OF G PROTEINS. **Hongyang Li**, Xin-Qiu Yao, Barry Grant

**2112-Pos BOARD B256**  
ANALYSIS OF RECEPTOR TYROSINE KINASE AND G-PROTEIN COUPLED RECEPTOR SIGNALING DYNAMICS ON MICRO-STRUCTURED SURFACES. Peter Lanzerstorfer, Yosuke Yoneyama, Ulrike Mueller, Renate Haselgruebler, Diana Zindel, Otmar Hoeglinger, Fumihiko Hakuno, Cornelius Krasel, Shin-Ichiro Takahashi, Moritz Buenemann, **Julian Weghuber**

**2113-Pos BOARD B257**  
ALLOSTERIC EFFECTS OF G-PROTEIN COUPLED RECEPTOR HETEROMERIZATION: RELEVANCE TO PSYCHOSIS. **Jason Younkin**, Lia Baki, Diomedes E. Logothetis

**2114-Pos BOARD B258**  
ACTIVATION OF A MUSCARINIC G-PROTEIN COUPLED RECEPTOR AND STRUCTURE-BASED DESIGN OF ALLOSTERIC MODULATORS. **Yinglong Miao**, J. Andrew McCammon

**2115-Pos BOARD B259**  
GPCR HANDSHAKE IN THE SPOTLIGHT: EXPLORING THE DIMERIZATION INTERFACE OF DOPAMINE D2 RECEPTORS BY SIMULATIONS AT MULTIPLE RESOLUTIONS. **Manu Vajpai**, Ramasubbu Sankaramakrishnan

**2116-Pos BOARD B260**  
DYNAMIC COUPLING AND ALLOSTERIC NETWORKS IN THE ALPHA SUBUNIT OF HETEROTRIMERIC G PROTEINS. **Xin-Qiu Yao**, Rabia Malik, Nicholas W. Griggs, Lars Skjærven, John R. Traynor, Sivaraj Sivaramakrishnan, Barry J. Grant

**2117-Pos BOARD B261**  
INVESTIGATING DIFFUSION OF RECEPTORS ON MACROPHAGE MEMBRANES USING SINGLE MOLECULE TRACKING. **Sara Makaremi**, Kyle Novakowski, Markus Rose, Dawn Bowdish, Jose Moran-Mirabal

**2118-Pos BOARD B262**  
CAPTURING TRANSMEMBRANE DIMER STRUCTURES WITH MOBILE MEMBRANES: POINT MUTATIONS TAKE CHARGE. **Taras V. Pogorelov**, Michael J. Hallock, Yekaterina A. Golubeva

**2119-Pos BOARD B263**  
VISUALIZATION OF STRUCTURAL CHANGES ACCOMPANYING ACTIVATION OF KAINATE RECEPTORS USING FAST-SCAN ATOMIC FORCE MICROSCOPY IMAGING. **Mohammad Fahim Kadir**, J Michael Edwardson

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SINGLE VESICLE RECORDING IN HIPPOCAMPAL 'XENAPSES' REVEALS DIFFUSIONAL DISPERSION OF SV PROTEINS AFTER FUSION. **Julia Trahe**, Ulrike Keller, Yaroslav Tsytsyura, Carsten Reissner, Jacob Piehler, Markus Missler, Jurgen Klingauf

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FUSION BETWEEN V-SNARE NANODISCS AND "FLIPPED" T-SNARE CELLS: CONTROL OF FUSION PORE NUCLEATION AND LIFETIMES BY SNARE PROTEIN TRANSMEMBRANE DOMAINS. Zhenyong Wu, Sarah Marie Auclair, Oscar Daniel Bello, Wensi Vennekate, Natasha Duzdzinski, Shyam Sundar Krishnakumar, **Erdem Karatekin**

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EFFECT OF TWO DISEASE-CAUSING MUTATIONS ON THE ENERGETICS AND KINETICS OF SNARE ASSEMBLY. **Aleksander A. Rebane**, Shyam Krishnakumar, James E. Rothman, Yongli Zhang

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SYNAPTOTAGMIN-1 BINDS TO PIP2-CONTAINING MEMBRANE BUT NOT TO SNARES AT PHYSIOLOGICAL IONIC STRENGTH. **Yongsoo Park**

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INVERSION OF LIGAND BINDING PREFERENCES IN RE-ENGINEERED DYSFERLIN C2AV1. **Faraz Harsini**, Anne Rice, Kerry Fuson, R. Bryan Sutton

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MULTIVALENT MEMBRANE LIPID TARGETING BY THE CALCIUM-INDEPENDENT C2 DOMAINS OF GRANUPHILIN: EVIDENCE FROM COMPUTATION AND EXPERIMENT. Abena Watson-Siriboe, Jack Henderson, J. Ryan Osterberg, Daniel T. Giardina, Marissa DeLima, Hai Lin, **Jefferson Knight**

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IS BURSTING MORE EFFECTIVE THAN SPIKING IN EVOKING PITUITARY HORMONE SECRETION? A SPATIOTEMPORAL SIMULATION STUDY OF CALCIUM DIFFUSION AND EXOCYTOSIS. **Alessia Tagliavini**, Joel Tabak, Richard Bertram, Morten G. Pedersen

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SHG-2PF IMAGING OF LOCAL  $Ca^{2+}$  AND SUB-SARCOMERE CONTRACTION IN LIVE CARDIOMYOCYTES. Samir Awasti, **Leighton T. Izu**, Ziliang Mao, Zhong Jian, Ye Chen-Izu, James W. Chan

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ONE AND TWO-PHOTON CALCIUM UNCAGING WITH VISIBLE LIGHT IN CARDIAC MYOCYTES. **Radoslav Janicek**, Hitesh K. Agarwal, Graham C.R. Ellis-Davies, Ernst Niggli

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MOLECULAR ASSEMBLY OF THE MITOCHONDRIAL CALCIUM UNIPORTER COMPLEX. **Ming-Feng Tsai**, Christopher Miller

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MITOCHONDRIAL PERMEABILITY TRANSITION PORE OPENING PROMOTES CALCIUM ALTERNANS AND WAVES IN VENTRICULAR MYOCYTES. **Zhen Song**, Richard Gordan, James N. Weiss, Lai-Hua Xie, Zhilin Qu

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MITOCHONDRIAL SK CHANNELS ATTENUATE CA-DEPENDENT ARRHYTHMIA IN HYPERTROPHIC HEARTS BY REGULATING MITO-ROS-DEPENDENT OXIDATION AND ACTIVITY OF RYR. TaeYun Kim, Weiyan Li, Radmila Terentyeva, Karim Roder, Man Liu, Ian Greener, Richard T. Clements, Samuel C. Dudley, Gideon Koren, Bum-Rak Choi, **Dmitry Terentyev**

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DIASTOLIC CALCIUM LEAK AND THE ROLE OF ZINC. **Benedict Reilly-O'Donnell**, Gavin B. Robertson, Angela Karumbi, Alan J. Stewart, Samantha J. Pitt

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ASSOCIATION BETWEEN  $\beta_3$ -ADRENOCEPTOR ACTIVATION AND INTRACELLULAR FREE ZINC ION INCREASE CONTRIBUTES TO HYPERGLYCEMIA-INDUCED CARDIAC ER-STRESS. Erkan Tuncay, Aysegul Toy, **Belma Turan**

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SHEAR STRESS ENHANCES  $Ca^{2+}$  SPARK OCCURRENCE IN RAT VENTRICULAR MYOCYTES VIA MITOCHONDRIAL NADPH OXIDASE-REACTIVE OXYGEN SPECIES SIGNALING. **Jun Wang**, Joon-Chul Kim, Sun-Hee Woo

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X-ROS WAVELENGTHS IN ATRIAL MYOCYTES PRODUCES ARRHYTHMOGENIC  $Ca^{2+}$  SIGNALS. **Maura Greiser**, Ramzi J. Khairallah, Chris Ward, W. Jonathan Lederer

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NOVEL INSIGHTS INTO SINOATRIAL NODAL CELL LOCAL CALCIUM RELEASES (LCRS) FROM AUTOMATED COMPUTER ANALYSIS IN SPONTANEOUSLY BEATING CELLS. **Alexander V. Maltsev**, Sean Parsons, Edward G. Lakatta, Michael D. Stern, Victor A. Maltsev, Oliver J. Monfredi

**2152-Pos BOARD B296**

SYNCHRONIZATION OF LOCAL CALCIUM RELEASES (LCRS) IN GUINEA PIG SINGLE, ISOLATED SA NODE CELLS CONTRIBUTES TO GENERATION OF RHYTHMIC ACTION POTENTIAL-INDUCED  $Ca^{2+}$  TRANSIENTS. **Mary S. Kim**, Larissa A. Maltseva, Alexander V. Maltsev, Sean P. Parsons, Oliver Monfredi, Kenta Tsutsui, Syevda Sirenko, Bruce Ziman, Edward G. Lakatta, Victor A. Maltsev

**2153-Pos BOARD B297**

COMPUTATIONAL ANALYSIS OF HEART-FAILURE-RELATED REMODELING OF CYTOSOLIC AND NUCLEAR CALCIUM HANDLING IN THE CANINE ATRIAL CARDIOMYOCYTE. **Jordi Heijman**, Xiao Yan Qi, Dobromir Dobrev, Stanley Nattel



**2154-Pos BOARD B298**  
A SYSTEMATIZED APPROACH TO INVESTIGATE CA<sup>2+</sup> SYNCHRONIZATION IN IPSC-DERIVED CARDIOMYOCYTE NETWORKS. Aled R. Jones, David H. Edwards, Michael J. Cummins, Alan J. Williams, **Christopher H. George**

**2155-Pos BOARD B299**  
NUCLEATION OF CALCIUM WAVES IN CARDIAC CELLS: THE ROLE OF NETWORK CONNECTIVITY. **Gonzalo Hernandez-Hernandez**, Yohannes Shiferaw, Enric Alvarez-Lacalle

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CATECHOLAMINERGIC STIMULATION OF NEURONAL NA<sup>+</sup> CHANNELS ACCOUNTS FOR TRIGGERED ARRHYTHMIA MECHANISM IN CPVT. **Przemysław B. Radwański**, Hsiang-Ting Ho, Bin Liu, Andriy Belevych, Antonis Armoundas, Wolfgang Dillmann, Bjorn Knollmann, Peter Mohler, Thomas Hund, Sándor Györke

**2157-Pos BOARD B301**  
EFFECTS OF BETA-ADRENERGIC STIMULATION ON RAT FAILING CARDIOMYOCYTES. **Claudia Crocini**, Raffaele Coppini, Cecilia Ferrantini, Ping Yan, Leslie M. Loew, Elisabetta Cerbai, Corrado Poggesi, Francesco S. Pavone, Leonardo Sacconi

**2158-Pos BOARD B302**  
CONDITIONS THAT PROMOTE GOLGI CA<sup>2+</sup> RELEASE FACILITATE TRAFFICKING OF VEGFR-1 TO THE SURFACE MEMBRANE IN RAT VENTRICULAR MYOCYTES. **Hannah M. Kirton**, Zhaokang Yang, Derek S. Steele

**2159-Pos BOARD B303**  
PROPENSITY AND SEVERITY OF CARDIAC ALTERNANS IS ENHANCED IN HEART FAILURE. **Giedrius Kanaporis**, Lothar A. Blatter

**2160-Pos BOARD B304**  
NOVEL CALMODULIN MUTATION (CALM3-A103V) ASSOCIATED WITH CPVT SYNDROME ACTIVATES ARRHYTHMOGENIC CA WAVES AND SPARKS. **Nieves Gomez-Hurtado**, Dmytro O. Kryshchal, Christopher N. Johnson, Walter J. Chazin, Nicole J. Boczek, Melissa L. Will, David J. Tester, Michael J. Ackerman, Bjorn C. Knollmann

## Voltage-gated Na Channels II (Boards B305 - B314)

**2161-Pos BOARD B305 EDUCATION TRAVEL AWARDEE**  
POINT-MUTATIONS IN SKELETAL MUSCLE VOLTAGE-GATED SODIUM CHANNELS CONFER RESISTANCE TO TETRODOTOXIN: BUT AT A COST? **Robert E. del Carlo**, Normand Leblanc, Edmund D. Brodie, Jr., Chis R. Feldman

**2162-Pos BOARD B306**  
INHIBITION OF A VOLTAGE-GATED SODIUM CHANNEL BY PROPOFOL INVOLVES MODULATION OF SLOW INACTIVATION. **Elaine Yang**, Vincenzo Carnevale, Manuel Covarrubias

**2163-Pos BOARD B307**  
A MODIFIED NEURONAL CELL LINE FOR HIGH THROUGHPUT ANALYSIS OF VOLTAGE-GATED SODIUM CHANNELS. **Carlos G. Vanoye**, Tatiana V. Abramova, Jean-Marc L. DeKeyser, Alfred L. George

**2164-Pos BOARD B308**  
DIII OF VOLTAGE-GATED NA<sup>+</sup> CHANNELS INTERACTS WITH INACTIVATION IN THE TIME DOMAIN OF INTERMEDIATE INACTIVATION. **Eric J. Hsu**, Wandu Zhu, Zoltan Varga, Angela R. Schubert, Jonathan R. Silva

**2165-Pos BOARD B309**  
MAPPING THE NAV1.7 CHANNEL INTERACTION WITH THE CONOTOXIN KIIIA. **Ian H. Kimball**, Phuong T. Nguyen, Jon T. Sack, Vladimir Yarov-Yarovoy

**2166-Pos BOARD B310**  
CLASS I ANTI-ARRHYTHMICS DIFFERENTIALLY REGULATE CARDIAC SODIUM CHANNEL VOLTAGE-SENSING DOMAINS. **Angela R. Schubert**, Wandu Zhu, Jonathan R. Silva

**2167-Pos BOARD B311**  
BIOPHYSICAL CHARACTERIZATION OF TWO NAV1.4 MUTATIONS IDENTIFIED IN PATIENTS WITH COLD-INDUCED MYOTONIA AND PERIODIC PARALYSIS. Hugo Poulin, Pascal Gosselin-Badaroudine, Karima Habbout, Savine Vicart, Damien Syternberg, Serena Giuliano, Sophie Nicole, Said Bendahhou, **Mohamed Chahine**

**2168-Pos BOARD B312**  
MODELING ION CHANNEL KINETICS WITH PARAMETER CONSTRAINTS. **Cynthia B. Lombardo**, Marco A. Navarro, Autoosa Salari, Lorin S. Milesco

**2169-Pos BOARD B313 CID TRAVEL AWARDEE**  
DEFINING THE PROTEIN:PROTEIN INTERACTION INTERFACE OF FGF14:NAV1.6 COMPLEX. Aditya K. Singh, **Syed R. Ali**, Fernanda Laezza

**2170-Pos BOARD B314**  
ACTIVATION DYNAMICS OF SODIUM ION CHANNEL. **Matthew Harrigan**, Vijay Pande

## Voltage-gated Ca Channels (Boards B315 - B341)

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SWITCHABLE CARDIAC L TYPE CA<sup>2+</sup> CHANNEL TRANSCRIPT BY MINERALOCORTICOID PATHWAY. Thassio Mesquita, Gaelle Auguste, Jessica Sabourin, Gema Ruiz Hurtado, Valérie Rouffiac, Florian Le-Billan, Jérôme Fagart, Florence Lefebvre, Say Viengchareun, Eric Morel, Ana Maria Gomez, Marc Lombès, **Jean Pierre Benitah**

**2172-Pos BOARD B316**  
TOWARD A NEW THERAPEUTIC STRATEGY IN THE TREATMENT OF TIMOTHY SYNDROME. **Ivy E. Dick**, Rosy Joshi-Mukherjee, Wanjun Yang, Worawan B. Limpitikul, David T. Yue

**2173-Pos BOARD B317**  
FUNCTIONAL RESCUE OF CALMODULINOPATHY IPSC-DERIVED CARDIOMYOCYTES -- A FORAY INTO PERSONALIZED MEDICINE. **Worawan B. Limpitikul**, Patraranee Limphong, Ivy E. Dick, Myoung Hyun Choi, Wanjun Yang, Jennifer Babich, David J. Tester, Michael J. Ackerman, Gordon F. Tomaselli, David T. Yue

**2174-Pos BOARD B318**  
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BLOCKING OF T-TYPE CALCIUM CHANNELS BY TTA-A2 REVEALS A CONSERVATIVE BINDING SITE FOR STATE-DEPENDENT ANTAGONISTS. Eduardo Chavez-Colorado, Zazil Herrera-Carrillo, **Juan C. Gomora**

**2176-Pos BOARD B320**  
FUNCTIONAL AND MOLECULAR INTERACTION OF PHENYLALKYLAMINES AND DIHYDROPYRIDINES WITH THE MODEL CALCIUM CHANNEL CAV-AB. **Tamer M. Gamal El-Din**, Teresa M. Swanson, Lin Tang, Ning Zheng, William A. Catterall

**2177-Pos BOARD B321**  
NITRIC OXIDE INHIBITS HIGH VOLTAGE-ACTIVATED CALCIUM CHANNELS THROUGH S-NITROSYLATION. **Menghua Zhou**, Alexis Bavencoffe, Hui-Lin Pan

**2178-Pos BOARD B322**  
BLOCK OF RECOMBINANT T-TYPE CALCIUM CHANNELS BY GOSSYPOL, A POTENTIAL CONTRACEPTIVE. **Osbaldo Lopez-Charcas**, Zazil Herrera-Carrillo, Luis E. Montiel-Reyes, Juan C. Gomora

**2179-Pos BOARD B323**  
THE ROLE OF CA<sup>2+</sup> SIGNALING PROTEINS IN CAV1-MEDIATED EXCITATION-TRANSCRIPTION COUPLING. **Nan Liu**, Yaxiong Yang, Xiaodong Liu

**2180-Pos BOARD B324**  
FUNCTIONAL ANALYSIS OF CAV1.1 L-TYPE CALCIUM CHANNELS EXPRESSED IN TSA201 CELLS. Ulises Meza, Christin F. Romberg, Ong Moua, Kurt G. Beam, **Roger A. Bannister**

**2181-Pos BOARD B325**  
ROTENONE, STIMULANT OF SUPEROXIDE RELEASE FROM MITOCHONDRIAL COMPLEX I, TRANSIENTLY AUGMENTS L-TYPE CALCIUM CURRENT IN A7R5 ARTERIAL SMOOTH MUSCLE CELLS. **Rikuo Ochi**, Vidhi Dhagia, Dhara Patel, Michael S. Wolin, Sachin A. Gupta

**2182-Pos BOARD B326**  
CAV1.2 INTERACTION WITH AT1R REDUCES RECEPTOR INTERNALIZATION. Tamara Hermosilla, Matias Encina, Cristian Moreno, Danna Morales, Edgardo Salamanca, Nayareth Hidalgo, Hilda Alfaro, **Diego Varela**

**2183-Pos BOARD B327**  
POSTTRANSLATIONAL PROTEOLYTIC CLEAVAGE OF  $\alpha 2\delta$  SUBUNITS: FUNCTIONAL IMPLICATIONS FOR HIGH VOLTAGE-GATED CALCIUM CHANNELS. **Ivan Kadurin**, Simon Rothwell, Otto Meyer, Claudia Bauer, Leon Douglas, Annette Dolphin

**2184-Pos BOARD B328**  
BIN1 REGULATES CAV1.2 CHANNEL CLUSTERING IN VENTRICULAR MYOCYTES. **Rose E. Dixon**, Tingting Hong, Robin M. Shaw, Luis F. Santana

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MOLECULAR MIMICKING OF PHOSPHORYLATION AT S1928 AND S1700-T1704 CONFERS MODIFIED SURFACE TRAFFIC PROPERTIES TO CAV1.2 VOLTAGE GATED CALCIUM CHANNELS IN CULTURED HIPPOCAMPAL NEURONS. Alessandra Folci, Angela Steinberger, Ruslan Stanika, Marta Campiglio, Claudia Ramprecht, Gerald J. Obermair, Martin Heine, **Valentina Di Biase**

**2186-Pos BOARD B330**  
THE  $\beta 4$  SUBUNIT OF L-TYPE CA<sup>2+</sup> CHANNELS REGULATES TRANSCRIPTION OF ANTIVIRAL FACTORS IN A HEART CELL LINE. **Eshwar R. Tammineni**, Elba D. Carrillo, Ruben Soto, Antonio Angel-Ambrocio, Rosa M. Del Angel, Maria C. Garcia, Jorge A. Sanchez

**2187-Pos BOARD B331**  
RAD IS AN AGENT OF SKELETAL MUSCLE ATROPHY. **Donald Beqollari**, Christin F. Romberg, Stefano Perni, Clara Franzini-Armstrong, Roger A. Bannister

**2188-Pos BOARD B332**  
ALPHA-ACTININ PROMOTES SURFACE LOCALIZATION AND ION CONDUCTING ACTIVITY OF THE L-TYPE CA<sup>2+</sup> CHANNEL BY BINDING TO THE IQ REGION OF CAV1.2. **Peter B. Henderson**, Pang-Yen Tseng, Mark Lillya, Carlota Montagut-Bordas, Johannes W. Hell, Mary C. Horne

**2189-Pos BOARD B333**  
DYNAMICAL EFFECTS OF THE SLOWLY ACTIVATING DELAYED RECTIFIER CURRENT ON VOLTAGE AND CALCIUM ALTERNANS IN CARDIAC MYOCYTES. **Nathaniel-Georg S. Gutierrez**, Daisuke Sato

**2190-Pos BOARD B334**  
DIFFERENT ROLES OF IS4 AND IIS4 SEGMENTS IN CAV1.2 GATING. **Stanislav Beyl**, Annette Hohaus, Stansislav Adranovits, Eugen Timin, Steffen Hering

**2191-Pos BOARD B335**  
CAV2.3 MEDIATE ATP RELEASE FROM RAT TAIL ARTERY SYMPATHETIC NERVES. **Somayeh Mojard Kalkhoran**, Damon Poburko, Jag Walia, Cynthia Gershome

**2192-Pos BOARD B336**  
DIRECT INTERACTION BETWEEN N AND C TERMINI OF  $\alpha 1C$  SUBUNIT OF CAV1.2 L-TYPE CALCIUM CHANNEL. Adva Benmocha Guggenheimer, **Lior Almagor**, Vladimir Tsemakhovich, Debi Ranjan Tripathy, Joel Hirsch, Nathan Dascal

**2193-Pos BOARD B337**  
HIGH THROUGHPUT PHARMACOLOGY OF CARDIAC L-TYPE CA<sup>2+</sup> CHANNELS: STABLE RECORDINGS OF CAV1.2 ON A HIGHLY PARALLEL AUTOMATED PATCH CLAMP SYSTEM. **Markus Rapedius**, Andrea Bruggemann, Tom Goetze, Claudia Haarmann, Ilka Rinke, Sonja Stoelzle-Feix, Joerg Oestreich, Michael George, Niels Fertig

**2194-Pos BOARD B338**  
EMINENCE OF VSD I IN THE VOLTAGE-DEPENDENT INACTIVATION OF THE HUMAN CA<sub>v</sub>1.2 CHANNEL. **Nicoletta Savalli**, Marina Angelini, Antonios Pantazis, Taleh Yusifov, Alan Neely, Riccardo Olcese

**2195-Pos BOARD B339**  
CROSSTALK BETWEEN BETA SUBUNITS, INTRACELLULAR CA<sup>2+</sup> SIGNALING AND SNARES IN THE MODULATION OF CAV2.1 CHANNEL STEADY-STATE INACTIVATION. Selma A. Serra, Gemma G. Gené, Miguel A. Valverde, **Jose M. Fernandez-Fernandez**

**2196-Pos BOARD B340**  
REGULATION OF VOLTAGE SENSING STRUCTURES OF CAV1.2 CALCIUM CHANNELS BY THE AUXILIARY  $\beta$ -SUBUNIT ( $\beta 3$ ). **Daniela De Giorgis**, Gustavo Contreras, Nicoletta Savalli, Nieves Navarro-Quezada, Carlos Gonzalez, Riccardo Olcese, Alan Neely

**2197-Pos BOARD B341**  
VOLTAGE-SENSOR PHARMACOLOGY OF CALCIUM CHANNELS. **Autoosa Salari**, Brooklynn R. White, Timothee Pale, Vincent Baggett, Mirela Milesco

## Ion Channels, Pharmacology, and Disease (Boards B342 - B377)

**2198-Pos BOARD B342**  
WHAT TYPE OF ION CHANNELS ARE IDENTIFIED ON OSTEOSARCOMA CELLS MEMBRANE? **Maria B. Seabra**, Juliana P. Aguiar, Wyndly Daniel C. Gaião, Reginaldo P. Silva, Cláudio Gabriel Rodrigues

**2199-Pos BOARD B343 INTERNATIONAL TRAVEL AWARDEE**  
THE PATHOGENIC A116V MUTATION ENHANCES THE SELECTIVE ION-CHANNEL ACTIVITY AND TOXICITY OF THE PRION PROTEIN IN LIVING CELLS. **Sabareesan Ambadi Thody**

**2200-Pos BOARD B344**  
DIVALENT COPPER COMPLEXES AS INFLUENZA A M2 S31N BLOCKERS. **Kelly L. McGuire**, Spencer Wallentine, Nathan A. Gordon, Greg Mohl, Mckay D. Jensen, Roger Harrison, David D. Busath

**2201-Pos BOARD B345**  
OBSERVATION OF PARTIAL AND COMPLETE BLOCK BY AMANTADINE AND RIMANTADINE IN INFLUENZA A M2 S31N BY ELECTROPHYSIOLOGY METHODS. **Kelly L. McGuire**, Mitchell L. Gleed, David D. Busath

**2202-Pos BOARD B346**  
EPR AND ELECTRON MICROSCOPY STUDY OF THE INFLUENZA A M2 TRANSMEMBRANE DOMAIN ASSEMBLY AND DRUG RESPONSE. **Elka R. Georgieva**, Peter P. Borbat, Kirill Grushin, Svetla Stoilova-McPhie, Nichita J. Kulkarni, Zhichun Liang, Jack H. Freed

**2203-Pos BOARD B347**  
ASSESSING THE IN VITRO CARDIOTOXICITY OF SUPERPARAMAGNETIC ION OXIDE NANOPARTICLES (SPIONS). **Roberta Gualdani**, Andrea Guerrini, Elvira Fantechi, Claudio Sangregorio, Maria Rosa Moncelli

**2204-Pos BOARD B348**  
HERG ION CHANNEL ACTIVITY MEASURED IN PLANAR LIPID BILAYER ARRAYS: RECONSTITUTION FROM EUKARYOTIC CELL-FREE EXPRESSION SYSTEM AND CELLULAR MEMBRANE PREPARATIONS. **Ekaterina Zaitseva**, Juan del Rio Martinez, Srujan Kumar Dondapati, Gerhard Baaken, Sönke Petersen, Stefan Kubick, Jan C. Behrends

**2205-Pos BOARD B349**  
COMPREHENSIVE CARDIAC SAFETY SCREENING: PHARMACOLOGY OF STEM CELL-DERIVED CARDIOMYOCYTES USING HIGH-THROUGHPUT AUTOMATED PATCH CLAMP. Nadine Becker, **Claudia S. Haarmann**, Sonja Stölzle-Feix, Ilka Rinke, Markus Rapedius, Tom Götze, Timo Stengel, Andrea Brueggemann, Michael George, Niels Fertig

**2206-Pos BOARD B350**  
NOVEL LOCAL ANESTHETICS DEMONSTRATE ISOMER-DEPENDENT ANALGESIA IN MICE. **George Kracke**, Monika VanGordon, Kuanysh Kabytaev, Yulia Sevryugina, Satish Jalisatgi, Fred Hawthorne

**2207-Pos BOARD B351**  
USE-DEPENDENT BLOCK OF HUMAN CARDIAC SODIUM CHANNELS BY GS967. **Franck Potet**, Alfred L. George, Jr

**2208-Pos BOARD B352**  
CONFORMATIONAL CHANGES OF THE NMDA RECEPTORS ASSOCIATED WITH ETHANOL-INDUCED INHIBITION. **Hamid Reza Noori**, Christian Mücksch, Herbert Urbassek

**2209-Pos BOARD B353**  
EXPLORING STRUCTURAL INTERACTIONS OF TARANTULA TOXINS WITH LIPID MEMBRANES USING ROSETTA AND MOLECULAR DYNAMICS SIMULATION. **Puong T. Nguyen**, Jon T. Sack, Toby W. Allen, Vladimir Yarov-Yarovoy

**2210-Pos BOARD B354**  
VALIDATION OF KCA3.1 CHANNEL SMALL MOLECULES INTERACTION SITES PREDICTED BY ROSETTA. **Hai M. Nguyen**, Latika Singh, Heike Wulff, Vladimir Yarov-Yarovoy

**2211-Pos BOARD B355**  
CARDIAC SMALL CONDUCTANCE CALCIUM-ACTIVATED K CHANNELS MAINTAIN REPOLARIZATION RESERVE IN A PHARMACOLOGICAL MODEL OF TYPE 3 LONG QT SYNDROME. Jum Suk Ko, Dechun Yin, Thomas H. Everett, Zhenhui Chen, Michael Rubart, **Peng-Sheng Chen**

**2212-Pos BOARD B356**  
CALCIUM-ACTIVATED POTASSIUM CHANNELS IN THE MALARIA PARASITE ERYTHROCYTE CYCLE. **Matthias Garten**, Marika M. Kachman, Svetlana Glushakova, Joshua Zimmerberg

**2213-Pos BOARD B357**  
SUPPRESSION OF KV2-MEDIATED CURRENTS BY THE ANTICONVULSANT RETIGABINE. **Jeroen I. Stas**, Elke Bocksteins, Dirk J. Snyders

**2214-Pos BOARD B358**  
USING VOLTAGE CLAMP FLUOROMETRY TO UNDERSTAND KCNQ CHANNEL PHARMACOLOGY. **Robin Y. Kim**, Stephan A. Pless, Harley T. Kurata

**2215-Pos BOARD B359**  
A NEW KCNQ1 MUTATION AT THE S5 SEGMENT THAT IMPAIRS ITS ASSOCIATION WITH KCNE1 IS RESPONSIBLE FOR SHORT QT SYNDROME. **Alicia de la Cruz**, Cristina Moreno, Anna Oliveras, Chiara Bartolucci, Juan R. Gimeno, Stefano Severi, Antonio Felipe, Teresa Gonzalez, Pier Lambiase, Carmen Valenzuela

**2216-Pos BOARD B360**  
MOLECULAR DYNAMICS SIMULATIONS OF MUTANT K CHANNELS INVOLVED IN SEVERE EARLY ONSET EPILEPSY. **Robert A. Farley**, Yi Shi, Yibo Wang, Van Ngo, Sergei Noskov

**2217-Pos BOARD B361**  
A MISSENSE MUTATION IN THE SELECTIVITY FILTER OF BK AFFECTS THE CHANNEL'S POTASSIUM CONDUCTANCE. **João L. Carvalho-de-Souza**, Tomoya Kubota, Xiaofei Du, Ramon Latorre, Christopher M. Gomez, Francisco Bezanilla

**2218-Pos BOARD B362**  
PHARMACOLOGY AND REGULATION OF FUNGAL K2P CHANNELS. **Ryan W. Manville**, Fernanda S. Povreslo, Andrew Corran, Anthony Lewis

**2219-Pos BOARD B363**  
THE 2-PORE DOMAIN POTASSIUM CHANNEL TREK-1 REGULATES CYTOKINE SECRETION FROM HUMAN ALVEOLAR EPITHELIAL CELLS INDEPENDENTLY OF POTASSIUM CURRENTS. **Andreas Schwingshackl**, Bin Teng, Marc Borsotto, Christopher M. Waters

**2220-Pos BOARD B364**  
CALCIUM CURRENT PROPERTIES AND LEAK CONDUCTANCE IN MOUSE MUSCLE FIBERS OVEREXPRESSING A TYPE 1 HYPOKALEMIC PERIODIC PARALYSIS MUTANT L-TYPE CALCIUM CHANNEL. Clarisse Fuster, Jimmy Perrot, Christine Berthier, Vincent Jacquemond, **Bruno Allard**

**2221-Pos BOARD B365**  
MICRODOMAIN-SPECIFIC REMODELLING OF AUTONOMIC REGULATION OF L-TYPE CALCIUM CHANNELS REVEALED BY SUPER-RESOLUTION SCANNING PATCH CLAMP IN RAT ATRIAL MYOCYTES IN HEART FAILURE. **Alexey V. Glukhov**, Marina Balycheva, Jose L. Sanchez-Alonso, Navneet Bhogal, Ivan Diakonov, Marta Mazzola, Giuseppe Faggian, Julia Gorelik

**2222-Pos BOARD B366**  
CHARACTERISING THE EFFECTS OF A PEPTIDE DIRECTED AGAINST THE L-TYPE  $Ca^{2+}$  CHANNEL ON MITOCHONDRIAL FUNCTION IN HYPERTROPHIC CARDIOMYOPATHY. **Livia C. Hool**, Helena M. Viola, Victoria P.A. Johnstone, Henrietta Cserne Szappanos, Tatiana Tsoutsman, Chris Semsarian, Christine Seidman

**2223-Pos BOARD B367**  
SIMULATION OF L-TYPE CALCIUM CURRENTS USING DIFFERENT EXPERIMENTAL DATA SOURCES: FROM CELL LINE TO IPS-DERIVED CARDIOMYOCYTE. **Ken Wang**, Gary Mirams, Mark Davies, Antonello Caruso, Denis Noble, Ruben Alvarez-Sanchez, Antje Christine Walz, Thierry Lave, Franz Schuler, Thomas Singer, Liudmila Polonchuk

**2224-Pos BOARD B368**  
EFFECT OF FLECAINIDE DERIVATIVES ON SARCOPLASMIC RETICULUM  $Ca^{2+}$  RELEASE CONFIRMS A LACK OF DIRECT ACTION ON THE CARDIAC RYANODINE RECEPTOR. **Anita Alvarez-Laviada**, Mark L. Bannister, Nia Lowri Thomas, Sammy A. Mason, Christo L. du Plessis, Abbygail T. Moran, David Neil-Hall, Hasnah Osman, Mark C. Bagley, Kenneth T. McLeod, Christopher H. George, Alan J. Williams

**2225-Pos BOARD B369**  
FUNDAMENTAL GATING DEFECTS OF SUDDEN CARDIAC DEATH-LINKED MUTANT CARDIAC RYANODINE RECEPTORS DETERMINE  $Ca^{2+}$  RELEASE DYNAMICS IN CELLS. **Shanna R. Hamilton**, Chloe Maxwell, Christopher H. George, Saptarshi Mukherjee, Alan J. Williams, Nia L. Thomas

**2226-Pos BOARD B370**  
LOSS OF MYOCARDIAL NNOS MEDIATED BY UPREGULATION OF MIR-31 IN HUMAN ATRIA CONTRIBUTES TO BEGETTING OF ATRIAL FIBRILLATION. **Xing Liu**, Svetlana Reilly, Ricardo Carnicer, Alice Recalde, Anna Muszkiewicz, Raja Jayaram, Maria Cristina Carena, Matilde Stefanini, Rohan Wijesurendra, Oliver Lomas, Rana Sayeed, George Krasopoulos, Alfonso Bueno-Orovio, Blanca Rodriguez, Barbara Casadei

**2227-Pos BOARD B371**  
ISOPIMARIC ACID - A PROMISCUOUS ION CHANNEL MODULATOR AND A POTENTIAL DRUG CANDIDATE AGAINST ATRIAL FIBRILLATION. Sajjad Salari, **Malin Silverå Ejneby**, Johan Brask, Fredrik Elinder

**2228-Pos BOARD B372**  
TOWARDS A STRUCTURAL UNDERSTANDING OF CANTÚ DISEASE ASSOCIATED GATING PERTURBATIONS IN THE KATP POTASSIUM CHANNEL. **Eva-Maria Plessl**, Anna Stry-Weinzinger

**2229-Pos BOARD B373**  
MATHEMATICAL MODELING OF HUMAN PANCREATIC ALPHA-CELLS: INSIGHT INTO THE ROLE OF SGLT2 IN GLUCAGON SECRETION. **Morten G. Pedersen**, Ingela Ahlstedt, Eva-Marie Andersson, Sven Göpel

**2230-Pos BOARD B374**  
CFTR POTENTIATORS EXERT DIFFERENT EFFECTS ON HUMAN, MURINE, AND XENOPUS CFTR. **Guiying Cui**, Netya Khazanov, Brandon B. Stauffer, Daniel T. Infield, Barry R. Imhoff, Hanoch Senderowitz, Nael A. McCarty

**2231-Pos BOARD B375**  
CFTR ON AN AUTOMATED PATCH CLAMP SYSTEM. Rasmus B. Jacobsen, **Naja Møller M. Sørensen**

**2232-Pos BOARD B376**  
SLC6A14 ENHANCES CFTR CHANNEL ACTIVITY IN THE CYSTIC FIBROSIS AFFECTED LUNG EPITHELIUM. **Saumel Ahmadi**, Sunny Xia, Michelle Di Paola, Wan Ip, Johanna Rommens, Tanja Gonska, Christine E. Bear

**2233-Pos BOARD B377**  
IDENTIFICATION OF CARDIAC MITOCHONDRIAL CHLORIDE INTRACELLULAR CHANNEL (CLIC) PROTEINS AND THEIR PHYSIOLOGICAL FUNCTION. **Devasena Ponnalagu**, Shubha Gururaja Rao, Piotr Bednarczyk, Yansheng Feng, Jason Farber, Rushi Thanawala, Ahmed Tafsirul Hussain, Jean Chrisostome Bopassa, Adam Szweczyk, Harpreet Singh

## Ligand-gated Channels II (Boards B378 - B398)

**2234-Pos BOARD B378**  
CHARACTERIZATION OF THE INTERACTION OF THE INTRACELLULAR DOMAIN OF 5-HT<sub>3A</sub> RECEPTORS WITH THE CHAPERONE PROTEIN RIC-3. **Elham Pirayesh**, Frankie Leung, Akash Pandhare, Michaela Jansen

**2235-Pos BOARD B379**  
PENTAMERIC STRUCTURE OF THE SOLUBLE INTRACELLULAR DOMAIN OF 5-HT<sub>3A</sub> RECEPTORS. **Akash Pandhare**, Petar N. Grozdanov, Michaela Jansen

**2236-Pos BOARD B380**  
MASS SPECTROMETRY COUPLED WITH CROSSLINKING AS A STRUCTURAL TOOL FOR STRUCTURAL DETERMINATION OF HUMAN  $\alpha 1$  GLYCINE RECEPTOR. **Rathna J. Veeramachaneni**, Chelsea Donelan, Michael Cascio

**2237-Pos BOARD B381**  
PRINCIPAL COMPONENTS FROM LIGAND-GATED ION CHANNEL STRUCTURES ENABLE ENSEMBLE STUDIES OF MICROSECOND-SCALE TRANSITIONS. **Ozge Yoluk**, Laura Orellana, Edward J. Bertaccini, James R. Trudell, Erik Lindahl

**2238-Pos BOARD B382**  
CATION- $\pi$  INTERACTIONS: COMPUTATIONAL ANALYSES OF THE AROMATIC BOX MOTIF AND THE FLUORINATION STRATEGY FOR EXPERIMENTAL EVALUATION OF CYS-LOOP RECEPTORS AND RELATED STRUCTURES. **Matthew R. Davis**, Dennis A. Dougherty

**2239-Pos BOARD B383**  
EXPLORING THE BINDING OF GABA TO THE INSECT RDL RECEPTOR WITH METADYNAMICS. **Federico Comitani**, Vittorio Limongelli, Carla Molteni

**2240-Pos BOARD B384**  
RELATIVE AFFINITIES OF POSITIVE AND NEGATIVE MODULATORS OF HETEROMERIC GABA(A) RECEPTORS FOR PSEUDO-SYMMETRIC INTER-SUBUNIT BINDING SITES. **Sruthi Murlidaran**, Reza Salari, Jérôme Hémin, Grace Brannigan

**2241-Pos BOARD B385**  
IDENTIFYING GABA-A RECEPTOR MODULATORS THAT BIND TO INTERSUBUNIT SITES IN THE GABA-A RECEPTOR TRANSMEMBRANE DOMAIN. **Selwyn S. Jayakar**, Xiaojuan Zhou, Pavel Y. Savechenkov, Karol S. Bruzik, Keith W. Miller, Jonathan B. Cohen

**2242-Pos BOARD B386**  
INTERACTIONS OF A PHOTOREACTIVE STEROID ANESTHETIC (F4N3-ALPHAXALONE) WITH HUMAN  $\alpha 1\beta 3\gamma 2$  GABA-A RECEPTORS. **David C. Chiara**, Pavel Y. Savechenkov, Xiaojuan Zhou, Rooma Desai, Alex T. Stern, Yinghui Zhang, Stuart A. Forman, Karol S. Bruzik, Keith W. Miller, Jonathan B. Cohen

**2243-Pos BOARD B387**  
PULSED ELECTRON PARAMAGNETIC RESONANCE OF SPIN LABELED HUMAN GABA(A)RS FUNCTIONALLY RECONSTITUTED IN LIPID BILAYERS SUGGESTS THERE IS SPACE FOR LIPIDS BETWEEN THE SUBUNITS. Yinghui Zhang, Jessica L. Sarver, Xiaojuan Zhou, David S. Cafiso, **Keith W. Miller**

**2244-Pos BOARD B388**  
VISIBLE-LIGHT ABSORBING, PHOTOLABILE, QUINONE-BASED PROTECTING GROUPS FOR ALCOHOLS AND AMINES. **David P. Walton**, Clinton J. Regan, Oliver S. Shafaat, Chris B. Marotta, Dennis A. Dougherty

**2245-Pos BOARD B389**  
A SOLUBLE GABA<sub>A</sub> $\rho 1$  INTRACELLULAR DOMAIN CHIMERA FOR STRUCTURAL STUDIES. **Laura J. Delin**, Akash Pandhare, Katharine Jenkins, Michaela Jansen

**2246-Pos BOARD B390**  
ALLOSTERIC GATING PATHWAYS FOR THE PENTAMERIC LIGAND-GATED ION CHANNEL GLIC. Bogdan Lev, Samuel Murail, Michael Thomas, Marc Baaden, Marc Delarue, **Toby W. Allen**

**2247-Pos BOARD B391**  
INSIGHTS INTO GATING MOTIONS OF GLIC VIA PERTURBATION OF CRITICAL PROLINES WITH NON-CANONICAL AMINO ACID PROBES. **Matthew Rienzo**, Angela R. Rocchi, Stephanie D. Threath, Dennis A. Dougherty, Sarah C. R. Lummiss

**2248-Pos BOARD B392**  
ELUCIDATING PROTON SENSITIVITY AND ACTIVATION IN THE GLOEOBACTER VIOLACEUS LIGAND-GATED ION CHANNEL. **Ákos Nemezc**, Zaineb Fourati, Haidai Hu, Pierre-Jean Corringer, Marc Delarue

**2249-Pos BOARD B393**  
A SINGLE MUTATION IN GLIC REVEALS BOTH THE POTENTIATING AND THE INHIBITORY NATURE OF PROPOFOL. **Stephanie A. Heusser**, Rebecca J. Howard, Iman Pouya, Göran Klement, Cecilia Borghese, R. Adron Harris, Erik Lindahl

**2250-Pos BOARD B394**  
MOLECULAR INSIGHTS INTO ALLOSTERIC MODULATION OF GLIC GATING BY MEMBRANE LIPIDS. **Sandip Basak**, Nicolaus Schmandt, Sudha Chakrapani

**2251-Pos BOARD B395**  
RADIAL TILTING OF THE EXTRACELLULAR DOMAIN OF GLIC REVEALED BY EPR SPECTROSCOPY. **Varun Tiwari**, Abby M. Schuh, Candice S. Klug, Cynthia Czajkowski

**2252-Pos BOARD B396**

THE CRYSTAL STRUCTURE OF ELIC IN COMPLEX WITH CHLORPROMAZINE UNEXPECTEDLY UNVEILS AN ALLOSTERIC BINDING SITE IN THE LIGAND-BINDING DOMAIN. Mieke Nys, Ana Farinha, Eveline Wijckmans, Marijke Brams, Özge Yoluk, Magnus Andersson, Erik Lindahl, **Chris Ulens**

**2253-Pos BOARD B397**

PROBING MOLECULAR INTERACTIONS IN ERWINIA LIGAND-GATED ION CHANNEL (ELIC). Gabrielle S. Tender, Dennis A. Dougherty, **Sarah C. Lummis**

**2254-Pos BOARD B398**

ON THE ATYPICAL CATION-CONDUCTION AND GATING PROPERTIES OF ELIC. **Giovanni Gonzalez-Gutierrez**, Claudio Grosman

## Kinesins, Dyneins, and Other Microtubule-based Motors (Boards B399 - B423)

**2255-Pos BOARD B399**

COMBINED POLTRIF AND SUB-PIXEL PARTICLE TRACKING OF CYTOPLASMIC DYNEIN SUPPORTS A WINCH-LIKE STEPPING MECHANISM. **Lisa G. Lippert**, Tali Dadosh, Benjamin T. Diroll, Christopher B. Murray, Erika LF Holzbaur, Samara L. Reck-Peterson, Yale E. Goldman

**2256-Pos BOARD B400**

THE MOTILITY OF AXONEMAL DYNEIN IS REGULATED BY THE TUBULIN CODE. **Joshua Alper**, Franziska Decker, Bernice Agana, Jonathon Howard

**2257-Pos BOARD B401**

DYNEIN DYNAMICS IN VIVO: A SINGLE-MOLECULE VIEW ON ITS FUNCTION IN INTRAFAGELLAR TRANSPORT. Jona Mijalkovic, Bram Prevo, Felix Oswald, Pierre Mangeol, **Erwin J.G. Peterman**

**2258-Pos BOARD B402**

TRANSPORT BY KINESIN-1 MOTORS DIFFUSING ON A LIPID BILAYER. **Rahul Grover**, Janine Fischer, Petra Schwillle, Stefan Diez

**2259-Pos BOARD B403 EDUCATION TRAVEL AWARDEE**

KINESIN'S FRONT HEAD IS GATED BY THE BACKWARD ORIENTATION OF ITS NECK LINKER. **Sinan Can**, Merve Yusra Dogan, Frank Cleary, Vedud Purde, Ahmet Yildiz

**2260-Pos BOARD B404**

MECHANISM OF KINSEIN-2 NAVIGATION AROUND OBSTACLES ON THE MICROUBULE SURFACE. **Gregory Hoeprich**, Keith Mickolajczyk, William O. Hancock, Christopher L. Berger

**2261-Pos BOARD B405**

ALLOSTERICALLY REGULATED STRUCTURAL FLUCTUATION AND MICROTUBULE-BINDING AFFINITY OF KIF1A --A SIMULATION STUDY OF COARSE-GRAINED MODEL. **Macoto Kikuchi**, Ryo Kanada, Fumiko Takagi

**2262-Pos BOARD B406**

MAPPING THE PROCESSIVITY DETERMINANTS OF THE KINESIN-3 MOTOR DOMAIN. **Guido Scarabelli**, Virupakshi Soppina, Xin-Qiu Yao, Joseph Atherton, Carolyn A. Moores, Kristen J. Verhey, Barry J. Grant

**2263-Pos BOARD B407**

N-TERMINAL COILED-COILS IN THE HUMAN KINESIN-5 AND KINESIN-1 STALK ARE SUFFICIENT FOR TETRAMERIC ORGANIZATION. **Rebecca S. Buckley**, Victoria Dauphin, Tomas Vanagunas, David WorthyLake, Hsin-Hung Huang, Thomas M. Huckaba, Sunyoung Kim

**2264-Pos BOARD B408**

THE STRUCTURAL KINETICS OF SWITCH-1 AND THE NECK LINKER EXPLAIN THE FUNCTIONS OF KINESIN-1 AND EG5. Joseph Muretta, Yonggun Jun, Steven Gross, Jennifer Major, David Thomas, **Steven Rosenfeld**

**2265-Pos BOARD B409**

REGULATION AND POSSIBLE PHYSIOLOGICAL ROLE OF BI-DIRECTIONAL MOTILITY OF THE KINESIN-5 CIN8. Ofer Shapira, Alina Goldstein, Jawdat Al-Bassam, **Larisa Gheber**

**2266-Pos BOARD B410 EDUCATION TRAVEL AWARDEE**

TRAPPING THE TRANSITION STATE OF KINESIN-5 PRODUCES A DIFFERENT MULTIMOTOR FORCE OUTCOME THAN INHIBITING PRODUCT RELEASE. **Minmin Luo**, Edward Wojcik, Sunyoung Kim

**2267-Pos BOARD B411 CID TRAVEL AWARDEE**

NON-CANONICAL MICROTUBULE INTERACTION BY YEAST KINESIN-5, CIN8. **Kayla M. Bell**, Hyokeun Cha, Charles V. Sindelar, Jared C. Cochran

**2268-Pos BOARD B412**

HIGH-RESOLUTION CRYO-EM STUDIES ON THE YEAST MITOTIC KINESIN-5. **Hyo Keun Cha**, Kayla Bell, Jared Cochran, Charles Sindelar

**2269-Pos BOARD B413**

SYNTHESIS OF FLUORESCENT-NTA AND ITS APPLICATION TO THE LABELING OF PHOTO-CONTROLLED KINESIN EG5. **Yuki Tamura**, Kei Sadakane, Kentaro Saido, Ryoma Yamamoto, Shinsaku Maruta

**2270-Pos BOARD B414**

UNDERSTANDING THE SEQUENCE OF CHEMOMECHANICAL TRANSITIONS IN KINESIN-5. **Geng-Yuan Chen**, William O. Hancock

**2271-Pos BOARD B415**

THREE-DIMENSIONAL MOTILITY OF THE HIGHLY PROCESSION KINESIN-8 ALONG THE MICROTUBULE LATTICE. **Aniruddha Mitra**, Felix Ruhnnow, Salvatore Girardo, Diez Stefan

**2272-Pos BOARD B416 EDUCATION TRAVEL AWARDEE**

CHROMOKINESINS NOD AND KID USE ALTERNATIVE NUCLEOTIDE MECHANISMS AND ONE-DIMENSIONAL DIFFUSION TO TARGET MICROTUBULE PLUS ENDS. **Benjamin C. Walker**, Caleb A. Starr, Jared C. Cochran

**2273-Pos BOARD B417**

KINETIC CHARACTERIZATION OF NOVEL RICE PLANT KINESIN E11. **Hironobu Taniguchi**, Naoto Inomoto, Shinsaku Maruta

**2274-Pos BOARD B418**

EXPLORING THE MECHANISMS OF A PHOSPHORYLATION INDUCED INHIBITION OF MICROTUBULE DEPOLYMERIZATION IN THE KINESIN 13 KLP10A. **Mathieu P.M.H. Benoit**, J. Daniel Diaz, Ana B. Asenjo, Gary J. Gerfen, David J. Sharp, Hernando J. Sosa

**2275-Pos BOARD B419**

COOPERATIVE TRANSPORT BY POPULATIONS OF FAST AND SLOW KINESINS UNCOVERS NOVEL FAMILY-DEPENDENT MOTOR CHARACTERISTICS IMPORTANT FOR IN VIVO FUNCTION. Göker Arpağ, Shankar Shastry, David Arginteanu, Stephen R. Norris, Kristen Verhey, **William O. Hancock**, Erkan Tuzel

**2276-Pos BOARD B420**

QUANTITATIVE DETERMINATION OF THE PROBABILITY OF MULTIPLE-MOTOR TRANSPORT IN BEAD-BASED ASSAYS. **Qiaochu Li**, Stephen J. King, Ajay Gopinathan, Jing Xu

**2277-Pos BOARD B421**

HOW KINESIN MOTOR PROTEINS DEAL WITH TRAFFIC JAMS. **Vandana S. Kushwaha**, Daniël M. Miedema, Dmitry V. Denisov, Seyda Acar, Bernard Nienhuis, Peter Schall, Erwin J.G. Peterman

**2278-Pos BOARD B422**

PHOTO-CONTROL OF KINESIN DIMERIZATION AND MOTOR ACTIVITY USING PHOTOCROMIC MOLECULES. **Haruka Fujio**, Kazunori Kondo, Shinsaku Maruta

**2279-Pos BOARD B423**  
APLIP1 CONTROLS THE PROCESSIVITY OF NEUREXIN AXONAL TRANSPORT. **Ulises Rey**, Mehmet Ucar, Reinhard Lipowsky, Stephan Sigrist

## Cardiac Muscle Mechanics and Structure II (Boards B424 - B436)

**2280-Pos BOARD B424**  
HIGH-SPEED, HIGH-PERFORMANCE REAL-TIME IMAGING OF PHYSIOLOGICAL SARCOMERE DYNAMICS IN THE BEATING MOUSE HEART IN VIVO. **Fuyu Kobirumaki-Shimozawa**, Kotaro Oyama, Togo Shimozawa, Takashi Ohki, Takako Terui, Shin'ichi Ishiwata, Norio Fukuda

**2281-Pos BOARD B425**  
IMAGINGS OF SARCOMERES IN RAT NEONATAL CARDIOMYOCYTES EXPRESSING STRESS FIBER-LIKE STRUCTURES. **Teruyuki Fujii**

**2282-Pos BOARD B426**  
OSCILLATORY BEHAVIOR IN MUSCLE MYOSIN. **Lorenzo Marcucci**, Takumi Washio, Toshio Yangida

**2283-Pos BOARD B427**  
CROSS-BRIDGE GROUP ENSEMBLES DESCRIBING COOPERATIVITY IN THERMODYNAMICALLY CONSISTENT WAY. **Mari Kalda**, Pearu Peterson, Marko Vendelin

**2284-Pos BOARD B428**  
CARDIAC LENGTH-DEPENDENT ACTIVATION: WEAK BINDING HYPOTHESIS TESTED BY A COMPUTATIONAL SARCOMERE MODEL. **William C. Hunter**, Alison L. Schroeder

**2285-Pos BOARD B429**  
MODELING PREDICTS NON-MONOTONIC DEPENDENCE OF MYOFILAMENT  $Ca^{2+}$  SENSITIVITY ON TROPOMYOSIN STIFFNESS. **Lorenzo R. Sewanan**, Stuart Campbell

**2286-Pos BOARD B430**  
A FRET INVESTIGATION ON THE EFFECTS OF TROPOMYOSIN D230N AND CARDIAC TROPONIN T R92L MUTANTS ON THE TROPOMYOSIN OVERLAP STRUCTURE. **Mark T. McConnell**, Lauren Tal Grinspan, Benjamin Schwartz, Ofer Z. Fass, Jayant James Jayasundar, Jil C. Tardiff

**2287-Pos BOARD B431**  
MOLECULAR MECHANISMS OF CARDIOMYOPATHY-CAUSING TNT MUTANTS IMPLICATED IN INTERACTIONS WITH TROPOMYOSIN. **Binnu Gangadharan**, Souhrid Mukherjee, Margaret S. Sunitha, Ashvini Dubey, R Sowdhamini, James A. Spudich, John A. Mercer

**2288-Pos BOARD B432**  
 $Ca^{2+}$ -SENSITIVITY AND ELEMENTARY STEPS OF THE CROSS-BRIDGE CYCLE IN PAPILLARY MUSCLE FIBERS FROM THE TROPONIN C (TNC)-A8V KNOCK-IN MOUSE, WHICH EXHIBITS HYPERTROPHIC CARDIOMYOPATHY (HCM). Masataka Kawai, Tarek Karam, **Jose R. Pinto**

**2289-Pos BOARD B433**  
HCM ASSOCIATED CARDIAC TROPONIN I MUTATIONS ALTER CARDIAC TROPONIN FUNCTION, CONTRACTILE PROPERTIES AND MODULATION BY PKA MEDIATED PHOSPHORYLATION. **Yuanhua Cheng**, Lindert teffen, An-Yue Tu, Maria V Razumova, Luping Xie, Lucas Oxenford, Andrew D. McCulloch, J Andrew McCammon, Michael Regnier

**2290-Pos BOARD B434**  
THE ROLE OF CALCIUM AFFINITY AND C-I INTERACTION IN LENGTH-DEPENDENT ACTIVATION. **Jordan M. Klaiman**, Maria V. Razumova, Joseph D. Powers, Cameron W. Turtle, Farid Moussavi-Harami, Todd E. Gillis, Michael Reniger

**2291-Pos BOARD B435**  
SARCOMERE LENGTH DEPENDENT EFFECTS ON  $Ca^{2+}$ -INDUCED TROPONIN REGULATION WITHIN CHEMICALLY SKINNED CARDIAC MUSCLE FIBERS. King-Lun Li, R. John Solaro, **Wenji Dong**

**2292-Pos BOARD B436**  
DESIGNING A HIGH AFFINITY CARDIAC TROPONIN ACTIVATOR. **Fangze Cai**, Monica Li, Sandra Pineda-Sanabria, Shorena Geloza, Steffen Lindert, J. Andrew McCammon, Frederick West, Brian Sykes, Peter Hwang

## Cytoskeletal-based Intracellular Transport (Boards B437 - B444)

**2293-Pos BOARD B437**  
BROWNIAN DYNAMICS SIMULATION REVEALS FREEDOM OF MOTORS IN THE CARGO MEMBRANE CAN INFLUENCE CARGO DYNAMICS. **Matthew J. Bovyn**, Steven Gross, Jun Allard

**2294-Pos BOARD B438**  
CONTROLLING VESICLE MOTION IN CORTICAL NEURONS WITH MAGNETIC FORCES. **Anja Kunze**, Coleman Murray, Andy K. Tay, Dino Di Carlo

**2295-Pos BOARD B439**  
THE ROLE OF THE MICROTUBULE CYTOSKELETON IN REGULATING INTRACELLULAR TRANSPORT. **Linda Balabanian**, Christopher L. Berger, Adam G. Hendricks

**2296-Pos BOARD B440**  
MICROTUBULE GLIDING FORMATION ON CURVED SURFACES. **Kaylee Cortes**

**2297-Pos BOARD B441 INTERNATIONAL TRAVEL AWARDEE**  
COLLECTIVE EFFECTS OF MOTORS AND MICROTUBULES GEOMETRY IN GLIDING ASSAYS. Neha Khetan, Kunalika Jain, Anushree R. Chaphalkar, **Chaitanya A. Athale**

**2298-Pos BOARD B442**  
MYOSIN VA MOTOR TEAMS NAVIGATE VESICLE CARGOS THROUGH 3D ACTIN FILAMENT INTERSECTIONS. **Andrew T. Lombardo**, Shane Nelson, M. Yusuf Ali, Kathleen Trybus, Sam Walcott, David M. Warshaw

**2299-Pos BOARD B443**  
3D MODEL OF VESICLES TRANSPORTED BY MYOSIN VA MOTOR TEAMS THROUGH ACTIN INTERSECTIONS PREDICTS EXPERIMENTAL DIRECTIONAL OUTCOMES. **Sam Walcott**, Andrew T. Lombardo, Shane Nelson, M. Yusuf Ali, David M. Warshaw

**2300-Pos BOARD B444**  
FORCE GENERATION BY MEMBRANE-ASSOCIATED MYOSIN-I. Serapion Pырpassopoulos, Goker Arpag, Elizabeth A. Feeser, Henry Shuman, **Erkan Tuzel**, E. Michael Ostap

## Bacterial Mechanics, Cytoskeleton, and Motility (Boards B445 - B458)

**2301-Pos BOARD B445**  
DYNAMICS OF REVERSIBILITY OF PRESSURE INDUCED CHANGES IN CELL MORPHOLOGY, CELL DIVISION, AND GENE EXPRESSION OF ESCHERICHIA COLI. **Pradeep Kumar**

**2302-Pos BOARD B446**  
DYNAMICS OF PHENOTYPIC REVERSIBILITY OF BACTERIAL CELLS WITH OSCILLATING PRESSURES. **Sudip Nepal**, Pradeep Kumar

**2303-Pos BOARD B447**  
INVESTIGATING THE MATERIAL PROPERTIES OF THE CAULOBACTER CRES-CENTUS ADHESIVE HOLDFAST. **Alex Nyarko**, Hazel Barton, Ali Dhinojwala

**2304-Pos BOARD B448**  
HETEROGENEOUS MOLECULAR DYNAMICS REVEALED THROUGH LIVE, SINGLE-CELL IMAGING. **Zachary T. Barry**, Ethan Garner, Mark Bathe

**2305-Pos BOARD B449**  
COARSE-GRAINED SIMULATIONS REVEAL MECHANISMS OF BACTERIAL MORPHOGENESIS. **Lam T. Nguyen**, Matthew Swulius, James C. Gumbart, Morgan Beeby, Grant J. Jensen

**2306-Pos BOARD B450**  
CAN ESCHERICHIA COLI SENSE SPATIALLY? **Richa Karmakar**, Mahesh S. Tirumkudulu, K. V. Venkatesh

**2307-Pos BOARD B451**  
SODIUM-DRIVEN ENERGY CONVERSION FOR FLAGELLAR ROTATION OF THE EARLIEST DIVERGENT HYPERTHERMOPHILIC BACTERIUM. Norihiko Takekawa, **Masayoshi Nishiyama**, Tsuyoshi Kaneseiki, Tamotsu Kanai, Haruyuki Atomi, Seij Kojima, Michio Homma

**2308-Pos BOARD B452**  
FORCE SPECTROSCOPY OF A BACTERIAL ADHESIN WITH AN INTERNAL THIOESTER BOND. **Daniel Echelman**, Julio Fernandez

**2309-Pos BOARD B453**  
ARCHITECTURE OF THE TYPE IVA PILUS MACHINE. **Yi-Wei Chang**, Lee Rettberg, Anke Treuner-Lange, Janet Iwasa, Lotte Sjøgaard-Andersen, Grant Jensen

**2310-Pos BOARD B454**  
SWIMMING OF A NON-FLAGELLATED BACTERIUM BY A NON-ROTARY MOLECULAR MOTOR. **Matthias Koch**, Julian Roth, Alexander Rohrbach

**2311-Pos BOARD B455**  
INVESTIGATION OF THE BACTERIAL FLAGELLAR MOTORS THROUGH MAGNETIC TORQUE WRENCH. **Ilyong Jung**, Maarten M. van Oene, Nynke H. Dekker

**2312-Pos BOARD B456**  
ELASTIC PROPERTIES OF MAGNETOSOME CHAINS. **Bahareh Kiani**, Damien Faivre, Stefan Klumpp

**2313-Pos BOARD B457**  
DIFFERENTIAL INTERACTION FORCES GOVERN BACTERIAL SORTING AND STABILITY IN EARLY BIOFILMS. **Lena Dewenter**, Enno R. Oldewurtel, Nadzeya Kouzel, Thorsten Volkman, Katja Henseler, Berenike Maier

**2314-Pos BOARD B458**  
DISTINCT MECHANICAL ROLES FOR BACTERIA-PRODUCED BIOPOLYMERS IN BIOFILM INITIATION AND STRENGTH. **Vernita Gordon**, Christopher Rodesney, BJ Cooley, Kristin Kovach, Megan Davis-Fields

## Mitochondrial Cell Life and Death (Boards B459 - B484)

**2315-Pos BOARD B459**  
DARK HYPERICIN AFFECTS SEVERAL SUB-CELLULAR LEVELS. **Katarina Stroffekova**, Veronika Huntosova, Marta Novotova, Zuzana Nichtova, Tibor Kozar, Pavol Miskovsky

**2316-Pos BOARD B460**  
CORRELATION BETWEEN MITOCHONDRIAL MORPHOLOGY AND FUNCTIONALITY AFTER OXIDATIVE STRESS. **Zuzana Nadova**, Lenka Lenkavska, Alexandra Fragola, Stephanie Bonneau, Franck Sureau, Pavol Miskovsky

**2317-Pos BOARD B461**  
OXIDATIVE STRESS AND JNK ACTIVATION CAUSE MITOCHONDRIAL DYSFUNCTION AND CELL DEATH IN HEPATOCARCINOMA AFTER VDAC-TUBULIN ANTAGONISTS. **Eduardo Maldonado**, David N. DeHart, Diana Fang, Kareem Heslop, Monika Beck Gooz, John Lemasters

**2318-Pos BOARD B462**  
STUDY OF THE NIR LIGHT INDUCED EFFECTS ON NEUROBLASTOMA N2A CELLS WITH PARKINSON'S-LIKE FEATURES. **Lenka Koptasikova**, Veronika Huntosova, Emmanuel Gerelli, Pavol Miskovsky, Georges Wagnieres, Katarina Stroffekova

**2319-Pos BOARD B463**  
A PHYSIOLOGICAL ROLE FOR ALPHA-SYNUCLEIN IN THE REGULATION OF ATP SYNTHESIS. **Marthe Ludtmann**, Plamena Angelova, Natalia Ninkina, Sonia Gandhi, Vladimir Buchman, Andrey Abramov

**2320-Pos BOARD B464**  
MEMBRANE-BINDING PEPTIDE INHIBITS BLOCKAGE OF MITOCHONDRIAL VDAC BY ALPHA-SYNUCLEIN: IN SEARCH OF A-SYNUCLEIN TOXICITY PREVENTION. **Philip Gurnev**, David Hoogerheide, Tatiana Rostovtseva, Sergey Bezrukov

**2321-Pos BOARD B465**  
STRAIN DEPENDENT EFFECTS OF ALPHA-SYNUCLEIN MUTATIONS ON MITOCHONDRIAL DYSFUNCTION. **Minee L. Choi**, Zhi Yao, Laura Tosatto, David Klenerman, Andrey Y. Abramov, Sonia Gandhi

**2322-Pos BOARD B466**  
MITOCHONDRIAL TRANSFER BY PHOTOTHERMAL NANOBLADE RESTORES RESPIRATION IN MAMMALIAN CELLS WITH DYSFUNCTIONAL MITOCHONDRIA. **Alexander N. Patananan**, Ting-Hsiang Wu, Enrico Sagullo, Dana Case, Xin Zheng, Yanjing Li, Jason S. Hong, Tara TeSlaa, J. Michael McCaffery, Kayvan Niazi, Daniel Braas, Carla M. Koehler, Thomas G. Graeber, Pei-Yu Chiou, Michael A. Teitell

**2323-Pos BOARD B467**  
DIVISION OF MITOCHONDRIAL NUCLEOIDS VISUALIZED BY BIPLANE FPALM / DSTORM. **Petr Jezek**, Tomas Spacek, Lukas Alan

**2324-Pos BOARD B468**  
FLUORESCENCE MEASUREMENT OF PERICELLULAR OXYGEN. **Liron Boyman**, Joseph P. Y. Kao, Jennie B. Leach, W. Jonathan Lederer, George S. B. Williams

**2325-Pos BOARD B469**  
TECHNIQUES FOR QUANTITATIVE ANALYSIS OF MITOCHONDRIAL DYNAMICS. **David Weaver**, Aniko Gal, Gyorgy Hajnoczky

**2326-Pos BOARD B470**  
ELASTOCAPILLARY INSTABILITY IN MITOCHONDRIAL FISSION. David Gonzalez-Rodriguez, Sébastien Sart, Avin Babataheri, David Tareste, Abdul I. Barakat, Christophe Clanet, **Julien Husson**

**2327-Pos BOARD B471**  
MITOCHONDRIAL NM23-H4/NDPK-D SUPPORTS CARDIOLIPIN SIGNALING TO ELIMINATE DEPOLARIZED MITOCHONDRIA BY MITOPHAGY. **Uwe Schlattner**, Jianfei Jiang, Zhentai Huang, Yulia Y. Tyurina, Céline Desbourdes, Cécile Cottet-Rousselle, Haider Dar, Manish Verma, Vladimir A. Tyurina, Alexandr A. Kapralov, Marie-Lise Lacombe, Charleen T. Chu, Rama Mallampalli, Hülya Bayir, Valerian E. Kagan

**2328-Pos BOARD B472**  
THE ROLE OF LIPIDS IN REGULATION OF PROGRAMMED CELL DEATH. Martin Lidman, Artur Dingeldein, Šárka Pokorná, Radek Šachl, Tobias Sparrman, Martin Hof, **Gerhard Gröbner**

**2329-Pos BOARD B473**  
MITOCHONDRIAL MECHANISMS OF SPORADIC PARKINSONISM: ROLE OF THE 18 KDA PROTEIN TSPO. **Michele Frison**

**2330-Pos BOARD B474** CPOW TRAVEL AWARDEE  
REGULATION OF MITOCHONDRIAL SIGNALING AND QUALITY CONTROL BY THE 18KDA TRANSLOCATOR PROTEIN (TSPO). **Jemma L. Gatliff**, Daniel East, Federico Turkheimer, Michelangelo Campanella

**2331-Pos BOARD B475**  
GENERATION OF THE OUTER MEMBRANE POTENTIAL IN MITOCHONDRIA BY VDAC-KINASE COMPLEXES: THERMODYNAMIC ESTIMATIONS. **Victor V. Lemeshko**

**2332-Pos BOARD B476**  
THE NEUROPROTECTIVE COORDINATION OF MITOPHAGY BY IF1. **Ivana Matic**, Danilo Faccenda, Caterina Ferraina, Francesca Di Guglielmo, Federica Rossin, Mauro Piacentini, Michelangelo Campanella

**2333-Pos BOARD B477**  
UNDERSTANDING THE ROLE OF MITOCHONDRIAL PATHOPHYSIOLOGY IN FRIEDREICH'S ATAXIA. **Rosella Abeti**, Michael H. Parkinson, Iain P. Hargreaves, Mark A. Pook, Andrey Y. Abramov, Paola Giunti

**2334-Pos BOARD B478**  
MITOCHONDRIAL TARGETING OF APOLLO-NADP<sup>+</sup> REVEALS THAT PALMITATE-INDUCED TOXICITY IN BETA-CELLS INVOLVES A DROP IN MITOCHONDRIAL NADPH/NADP<sup>+</sup> REDOX STATE. **William D. Cameron**, Cindy V. Bui, Jonathan V. Rocheleau

**2335-Pos BOARD B479**  
NOVEL MUTATIONS IN SLC25A3 ENCODING THE MITOCHONDRIAL PHOSPHATE CARRIER. **Erin Seifert**, Aniko Gal, Michelle G. Acoba, Steven M. Claypool, Lauren Anderson-Pullinger, Peter Varnai, Cynthia Moffat, David Weaver, Neal Sondheimer, Gyorgy Hajnoczky

**2336-Pos BOARD B480**  
OTOTOXIC AMINOGLYCOSIDES INHIBIT NADH METABOLISM AND INCREASE REACTIVE OXYGEN SPECIES FORMATION IN COCHLEAR CELLS. **Danielle Desa**, Erinn Riley, Michael Nichols, Heather Jensen Smith

**2337-Pos BOARD B481**  
THE INFLUENCE OF ALTERNATIVE ENERGY TRANSFER SYSTEMS ON RESPIRATION IN CREATINE-DEFICIENT MOUSE CARDIOMYOCYTES. **Jelena Branovets**, Svetlana Jugai, Marko Vendelin, Rikke Birkedal

**2338-Pos BOARD B482**  
PEROXYNITRITE PRODUCED VIA NITRIC OXIDE SYNTHESIS IN ISOLATED CARDIAC MITOCHONDRIA. **Harrison J. Gerdes**, Amadou K.S. Camara, James S. Heisner, David F. Stowe

**2339-Pos BOARD B483**  
NUMBER OF OPEN MITOCHONDRIAL VOLTAGE-DEPENDENT ANION CHANNELS AND INTRACELLULAR DIFFUSION COEFFICIENT IN HEART MUSCLE. Päivo Simson, Natalja Jephina, Martin Laasmaa, Jelena Branovets, Pearu Peterson, Rikke Birkedal, **Marko Vendelin**

**2340-Pos BOARD B484**  
DEPLETION OF BAK AFFECTS EMISSION OF REACTIVE OXYGEN SPECIES FROM MITOCHONDRIA. Ma Su Su Aung, Stephen Madamba, **Pablo M. Peixoto**

## Systems Biology and Disease (Boards B485 - B507)

**2341-Pos BOARD B485**  
FTIR STUDY OF THE BIOCHEMICAL EFFECTS INDUCED BY X-RAY IRRADIATIONS COMBINED WITH GD NANOPARTICLES IN F98 GLIOMA CELLS. Ibraheem Yousef, **Olivier Seksek**, Josep Sulé-Suso, Silvia Gil, Yolanda Prezado, Immaculada Martinez-Rovira

**2342-Pos BOARD B486**  
INFLAMMATION LEADS TO AN INCREASE OF CHOLESTEROL'S CHEMICAL POTENTIAL IN PLASMA MEMBRANES OF CULTURED CELLS. **Ruben M. Markosyan**, Artem G. Ayuyan, Fredric S. Cohen

**2343-Pos BOARD B487**  
ONSET, TIMING, AND EXPOSURE THERAPY OF STRESS DISORDERS: MECHANISTIC INSIGHT FROM A MATHEMATICAL MODEL OF OSCILLATING NEUROENDOCRINE DYNAMICS. **Lae U. Kim**, Tom Chou, Maria Rita D'Orsogna

**2344-Pos BOARD B488**  
CELL LYSING AND DNA FRAGMENTATION OF LISTERIA MONOCYTOGENES IN ONE STEP. **Tonya Santaus**

**2345-Pos BOARD B489**  
DYNAMICS LIGHT SCATTERING AS A TOOL FOR ASSESSING HEALTH STATUS AND DISEASE RISK. **Ina Mishra**, Vipul Patel, Michelle D. Robinson, Katrina Gordon, Sneha Deodhar, David P. Cistola

**2346-Pos BOARD B490**  
LIVE IMAGING STUDIES OF INVASION PHENOTYPES OF ERYTHROCYTES BY P. FALCIPARUM. **Yen-Chun Lin**

**2347-Pos BOARD B491**  
INTEGRATED ANALYSIS FOR QUANTITATIVE PREDICTIONS OF DRUG INDUCED CARDIOTOXICITY. **Jaehee V. Shim**, Marc R. Birtwistle, Ravi Iyengar, Eric A. Sobie

**2348-Pos BOARD B492**  
BUILDING AN ACCURATE CHROMOSOME SEGREGATION MACHINE IN FISSION YEAST. Hadrien Mary, Guillaume Gay, Thibault Courthéoux, Jonathan Fouchard, Reyes Céline, Sylvie Tournier, **Yannick Gachet**

**2349-Pos BOARD B493**  
A SYNTHETIC KNOB FOR MODULATING ANTIBIOTIC RESISTANCE. Dilay Hazal Ayhan, Yusuf Talha Tamer, Mohammed Akbar, David E. Greenberg, **Erdal Toprak**

**2350-Pos BOARD B494**  
THE EFFECTS OF POPULATION DENSITY ON ANTIBIOTIC EFFICACY IN E. FAECALIS. **Jason Karlake**, Kevin Wood

**2351-Pos BOARD B495**  
RULE-BASED MODELING WITH VIRTUAL CELL: EFFECT OF UBE3A ON DENDRITIC SPINE MORPHOGENESIS. **Judy E. Bloom**, Michael L. Blinov, Leslie M. Loew

**2352-Pos BOARD B496**  
DECODING THE EVOLUTION OF COMPLEX BIOLOGICAL NETWORKS- A THEORY FOR THE DYNAMICS OF MODULARITY IN POPULATIONS. **Liang R. Niestemski**, Jeong-Man Park, Michael W. Deem

**2353-Pos BOARD B497**  
THE  $\beta$ 1-ADRENERGIC RECEPTOR BLOCKER, METOPROLOL, IMPROVES SURVIVAL AND ELECTRICAL REMODELING IN RATS WITH PULMONARY ARTERY HYPERTENSION. **Eleftheria Pervolaraki**, Mark Drinkhill, Ewan Fowler, Rachel Stones, Ed White

**2354-Pos BOARD B498**  
DEVELOPMENT OF PHYSIOLOGIC VERSUS PATHOLOGIC HYPERTROPHY IN MOUSE MODELS EXPRESSING MUTATIONS IN MYOSIN ESSENTIAL LIGHT CHAIN. Katarzyna Kazmierczak, Chen-Ching Yuan, Rosemeire Kanashiro-Takeuchi, Jingsheng Liang, Zhiqun Zhou, Jenice X. Cheah, Jennifer E. Gilda, Aldrin V. Gomes, Thomas C. Irving, **Danuta Szczesna-Cordary**

**2355-Pos BOARD B499**  
RESOLVING AND TARGETING THE MECHANOBIOLOGICAL OF PANCREATIC DUCTAL ADENOCARCINOMA. **Alexandra Surcel**, Qingfeng Zhu, Eric Schiffhauer, Robert Anders, Douglas Robinson

**2356-Pos BOARD B500**  
REAL TIME TRANSPOSABLE ELEMENT ACTIVITY IN INDIVIDUAL LIVE CELLS. **Neil H. Kim**, Gloria Lee, Nicholas A. Sherer, K. Michael Martini, Nigel Goldenfeld, Thomas E. Kuhlman



**2357-Pos BOARD B501**  
THE ROLE OF EXOSOME-MEDIATED CELL-CELL COMMUNICATION IN INDUCING PHENOTYPIC CHANGES. **Mingyang Lu**, Michela Capello, Herbert Levine, Samir M. Hanash, Eshel Ben-Jacob, Jose' Nelson Onuchic

**2358-Pos BOARD B502**  
ON CANCER RISK AND THE HIERARCHICAL ARCHITECTURE OF TISSUES. **Imre Derenyi**, Gergely J. Szollosi

**2359-Pos BOARD B503**  
PREDICTING THE ONSET OF ALTERNATING RHYTHMS IN NOISY CARDIAC SYSTEMS. **Thomas Quail**, Alvin Shrier, Leon Glass

**2360-Pos BOARD B504**  
MEASUREMENT FOR A NONLINEAR DYNAMICAL THEORY OF ACUTE CELL INJURY. **Doaa T. Taha**, Fika T. Anggraini, Donald J. Degracia, Zhi-Feng Huang

**2361-Pos BOARD B505**  
OPTIMIZING PROTEIN SPECIFICITY IN THE CROWDED CELL THROUGH CONCENTRATION BALANCE AND NETWORK MOTIF SELECTION. **David O. Holland**, Margaret E. Johnson

**2362-Pos BOARD B506**  
AUTOMATED DIAGNOSIS OF LEUKEMIA BASED ON ENTROPY. **Jose M. G. Vilar**

**2363-Pos BOARD B507**  
SPATIAL HOMOGENEITY IN METABOLIC ACTIVITY CONTROLS ELECTRICAL ACTIVITY IN PANCREATIC ISLETS. **Matthew J. Westacott**, Marina Pozzoli, Richard K.P. Benninger

## System and Sensory Neuroscience (Boards B508 - B516)

**2364-Pos BOARD B508**  
MAPPING CONNECTIVITY OF NETWORK BURSTING NEURONS. **Tuan D. Nguyen**, Kelly D. O'Connor, Krishna S. Sheth

**2365-Pos BOARD B509**  
BEYOND CONES: COMPUTING TACTILE INPUT FORCES FROM IMPROVED MODELS OF WHISKER BENDING. **Xiyue Wang**, Vincent Huang, Jonathan Sy, Adam Schuyler, David Golomb, Samuel Andrew Hires

**2366-Pos BOARD B510**  
REPRESENTATION OF MECHANOSENSORY FORCES IN SOMATOSENSORY CORTEX DURING OBJECT LOCALIZATION. **Jonathan A. Cheung**, Adam Schuyler, Mariah Kim, Jonathan Sy, Samuel Andrew Hires

**2367-Pos BOARD B511**  
OPTOGENETIC SYNTHESIS OF TOUCH PERCEPTION VIA BIOMIMETIC PHOTO STIMULATION OF S1. **Samson G. King**, Monica Song, N. Mariah Kim, Isis Wyche, Adam Schuyler, S. Andrew Hires

**2368-Pos BOARD B512**  
BOTH GLUTAMATERGIC AND GABAERGIC NEURONS ARE RECRUITED TO BE ASSOCIATIVE MEMORY CELLS. **Jin H. Wang**, Dangui Wang, Zilong Gao, Na Chen, Zhuofen Lei, Shan Cui, Wei Lu

**2369-Pos BOARD B513**  
DO PRESTIN VARIANTS PERSIST WITHIN THE COCHLEA TO AFFECT CHARGE MOVEMENT IN VITRO?. Varun K.A. Sreenivasan, **Vivek Rajasekharan**, Brenda Farrell

**2370-Pos BOARD B514**  
UNIQUE BIOPHYSICAL PROPERTIES OF AN INWARD PROTON CURRENT THAT MEDIATES SOUR TASTE TRANSDUCTION. Wenlei Ye, Jeremy Bushman, **Emily Liman**

**2371-Pos BOARD B515**  
MODULATION BY OFF-FLAVORS OF CNG CHANNELS IN OLFACTORY CILIA. **Hiroko Takeuchi**, Takashi Kurahashi

**2372-Pos BOARD B516**  
IMAGING PARADIGM FOR STUDYING BRAIN-WIDE ACTIVITY PATTERNS IN A DROSOPHILA NEURAL CIRCUIT. **Amicia D. Elliott**, Feici Diao, Yicong Wu, Sarav Shah, Hari Shroff, Benjamin White

## Optical Microscopy and Super-Resolution Imaging II (Boards B517 - B550)

**2373-Pos BOARD B517**  
APPLICATION OF THE DIVER DETECTION METHOD TO MULTIPHOTON MICROSCOPY AND FLIM. **Alexander Dvornikov**, Suman Ranjit, Enrico Gratton

**2374-Pos BOARD B518**  
FLUORESCENCE ANISOTROPY IMAGING IN 3D WITH SINGLE PLANE ILLUMINATION MICROSCOPY. **Per Niklas Hedde**, Enrico Gratton

**2375-Pos BOARD B519**  
LABEL FREE LINEAR AND NON-LINEAR EXCITATION NANOSCOPY. Kseniya Korobchevskaya, Chiara Peres, Francesca D'Autilia, Nirmal Mazumder, Luca Lanzano, Peter Saggau, Colin J. R. Sheppard, Alberto Diaspro, **Paolo Bianchini**

**2376-Pos BOARD B520**  
POLARIZATION-RESOLVED PHASE MICROSCOPY FOR QUANTITATIVE RETARDANCE IMAGING. **Chiara Peres**, Renjie Zhou, Poorya Hosseini, Andreea F. Martin, Paolo Bianchini, Alberto Diaspro, Peter T.C. So, Zahid Yaqoob

**2377-Pos BOARD B521**  
MULTIPHOTON STED AND FRET IN HUMAN SKIN: RESOLVING THE SKIN BARRIER. Jes Dreier, Jens A. Sørensen, **Jonathan R. Brewer**

**2378-Pos BOARD B522**  
SNAPSHOT HYPERSPECTRAL LIGHT-SHEET IMAGING ALLOWS 5D INVESTIGATION OF PANCREATIC ISLETS. **Zeno Lavagnino**, David W. Piston

**2379-Pos BOARD B523**  
LIGHT SHEET FLUORESCENCE MICROSCOPY IN INTACT BONES REVEALS SPATIAL LIMITATIONS FOR MEGAKARYOCYTE MIGRATION IN THE MURINE BONE MARROW. Judith M. van Eeuwijk, David Stegner, Oğuzhan Angay, Mari Gorelashvili, Jürgen Pinnecker, Harald Schulze, Bernhard Nieswandt, **Katrin G. Heinze**

**2380-Pos BOARD B524**  
RHESUS D EXPRESSION CLASSIFICATION ON RED BLOOD CELLS USING HIGH-RESOLUTION FLUORESCENCE MICROSCOPY AND MACHINE LEARNING. **Sandra Mayr**

**2381-Pos BOARD B525**  
NANOSCOPIC CELL WALL ARCHITECTURE OF AN IMMUNOGENIC LIGAND IN CANDIDA ALBICANS DURING ANTIFUNGAL DRUG TREATMENT. **Aaron K. Neumann**, Jia Lin, Michael J. Wester, Matthew S. Graus, Keith A. Lidke

**2382-Pos BOARD B526**  
EXPRESSION-ENHANCED FLUORESCENT PROTEINS BASED ON EGFP FOR SUPER-RESOLUTION MICROSCOPY. Sam Duwé, Elke De Zitter, Vincent Gielen, Benjamin Moeyaert, Wim Vandenberg, Tim Grotjohann, Stefan Jakobs, Luc Van Meervelt, **Peter Dedecker**

**2383-Pos BOARD B527**  
OPIOID RECEPTORS ARE ORGANIZED INTO NANODOMAINS IN THE PLASMA MEMBRANE. **Ottavia Golfetto**, Sunetra Biswas, Raphael Jorand, Huiying Zhang, Steven Jeffrey Tobin, Daniel Ganjali, Athanasios Sideris, Alexander R. Small, Vladana Vukojević, Tijana Jovanović-Talisman

**2384-Pos BOARD B528**  
MAPPING CFTR CLUSTERS IN 3D VIA SINGLE MOLECULE STEP PHOTO-BLEACHING ANALYSIS IN EPITHELIAL CELLS. **Paul W. Wiseman**, Jean F. Desjardins, Asmahan Abuarish, John W. Hanrahan

**2385-Pos BOARD B529**  
DIFFUSION ANALYSIS OF LYMPHOCYTE SPECIFIC KINASE REVEALS IMMOBILISATION HOT SPOTS IN LIVE T-CELL PLASMA MEMBRANES. **Andreas M. Arnold**, Florian Baumgart, Gerhard J. Schuetz

**2386-Pos BOARD B530**  
LCK IS RANDOMLY DISTRIBUTED ON THE T CELL PLASMA MEMBRANE. **Florian Baumgart**, Andreas Arnold, Gerhard Schütz

**2387-Pos BOARD B531**  
NANOSCALE SPATIAL ORGANIZATION OF CHROMATIN IN ITS CELLULAR CONTEXT, FROM TELOMERES TO HOX. **Suliana Manley**, Kyle Douglass, Verena Pfeiffer, Aleksandra Vancevska, Pierre Fabre, Alexander Benke, Elisabeth Joye, Thi Hanh Nguyen Huynh, Denis Duboule, Joachim Lingner

**2388-Pos BOARD B532**  
AN ORGANELLE SIZER BASED ON LOCAL IMAGE CORRELATION SPECTROSCOPY DETECTS CHANGES IN SUBCELLULAR MORPHOLOGY. **Lorenzo Scipioni**, Melody Di Bona, Marta D'Amora, Enrico Gratton, Alberto Di-aspro, Luca Lanzanò

**2389-Pos BOARD B533**  
TRACKING GOLD NANORODS IN LIVE CELLS. **Sara Carozza**, Veer I.P. Keizer, Jamie Culkin, Aimee L. Boyle, Alexander Kros, Marcel J.M. Schaaf, John van Noort

**2390-Pos BOARD B534**  
SITE-SPECIFIC LABELING OF PROTEINS IN LIVE MAMMALIAN CELLS USING CLICK CHEMISTRY. **Jun Hee Kang**, Ivana Nikić, Gemma Estrada Girona, Edward A. Lemke

**2391-Pos BOARD B535**  
3D SUPER-RESOLUTION IMAGING OF UNPERTURBED CELLS. **Alexander R. Carr**, James McCol, Ana M. Santos, Ji-Eun Lee, Aleks Ponjavic, Dave Klenerman, Simon Davis, Steven F. Lee

**2392-Pos BOARD B536**  
IMPROVED PHOTO PHYSICAL PROPERTIES OF MEOS3 FOR SINGLE MOLECULE TRACKING. **Lisa-Maria Needham**, Srinjan Basu, Edward Taylor, Ernest D. Laue, David Klenerman, David Lando, Steven F. Lee

**2393-Pos BOARD B537**  
A PHOTOGATE MICROSCOPY TO TRACK SINGLE MOLECULES IN CROWDED ENVIRONMENTS. **Ahmet Yildiz**

**2394-Pos BOARD B538**  
BACKGROUND-SUPPRESSION IN THE DETECTION OF GOLD NANOPARTICLES IN CELLS THROUGH ANTI-STOKES PHOTOLUMINESCENCE. **Aquiles Carattino**, Veer Keizer, Michel Orrit

**2395-Pos BOARD B539**  
QUANTITATIVE SINGLE MOLECULE ANALYSIS OF THE NANOSCALE ORGANIZATION OF THE INHIBITORY SYNAPSE. **Francesca Pennacchiotti**, Sebastiano Vascon, Christian Rosillo, Thierry Nieuws, Das Sabyasachi, Alessio Del Bue, Enrica Maria Petrini, Alberto Diaspro, Andrea Barberis, Francesca Cella Zancchi

**2396-Pos BOARD B540 INTERNATIONAL TRAVEL AWARDEE**  
TRACKING THE SWITCH OF INFLUENZA RNA GENESIS BY A NOVEL MULTIPLEXED FISH METHOD IN SINGLE CELLS. **Ivan Haralampiev**, Simon Prisner, Matthias Schade, Jasmine Chamiolo, Fabian Jolmes, Oliver Seitz, Andreas Herrmann

**2397-Pos BOARD B541**  
NAD(P)H-FLIM AND FRET IMAGING OF PANCREATIC ISLET OSCILLATIONS REVEALS NOVEL ACTIVATORS OF MITOCHONDRIAL RESPIRATORY COMPLEX I IN THE SETTING OF OBESITY. Trillian Gregg, Chetan Poudel, Rush Dhillon, Brian A. Schmidt, John M. Denu, Kevin W. Eliceiri, **Matthew J. Merrins**

**2398-Pos BOARD B542**  
TIME-RESOLVED STUDY OF TRIPLEBODY-MEDIATED LYSIS BY NATURAL KILLER CELLS ON MICROSTRUCTURED TARGET CELL ARRAYS. **Elisavet I. Chatzopoulou**, Farzad Sekhavati, Todd A. Braciak, Georg H. Fey, Joachim O. Rädler

**2399-Pos BOARD B543**  
DYNAMIC OPTICAL DISPLACEMENT SPECTROSCOPY TO QUANTIFY BIOMEMBRANE BENDING FLUCTUATIONS. Cornelia Monzel, Daniel Schmidt, Udo Seifert, Ana-Suncana Smith, Kheya Sengupta, **Rudolf Merkel**

**2400-Pos BOARD B544**  
SINGLE-PARTICLE TRACKING ANALYSIS USING THE RADIUS OF GYRATION TENSOR, REVISITED. **Michael J. Saxton**

**2401-Pos BOARD B545**  
QUANTITATIVE DETERMINATION OF PHOTOTOXICITY IN LIVE CELL SUPER-RESOLUTION MICROSCOPY. **Alexander Goryaynov**, Julia Neuwirth, Joerg Bewersdorf

**2402-Pos BOARD B546**  
ILLUMINATING DYNAMIC PROCESSES IN THE EMBRYOGENESIS OF CAENORHABDITIS ELEGANS WITH LIGHTSHEET MICROSCOPY. **Philipp Struntz**, Rolf Fickentscher, Matthias Weiss

**2403-Pos BOARD B547**  
NITROGEN-VACANCY SPINS IN DIAMOND A POSSIBLE TOOL TO STUDY PROTEIN DIFFUSION AND OLIGOMERIZATION. **Sri Ranjini Arumugam**

**2404-Pos BOARD B548**  
MGARNET, A FAR-RED FLUORESCENT PROTEIN FOR LIVE-CELL STED IMAGING. Anika Hense, Benedikt Prunsche, Peng Gao, Yuji Ishitsuka, **Karin Nienhaus**, G. Ulrich Nienhaus

**2405-Pos BOARD B549**  
SUPER-RESOLUTION IMAGING OF PLASMA MEMBRANE LESIONS INFLECTED BY 405-NM LASER LIGHT. Lu Zhou, Volker Middel, **G. Ulrich Nienhaus**, Uwe Uwe Strähle

**2406-Pos BOARD B550**  
TWO-PHOTON EXCITATION STED-FCS WITH FAR-RED DYES IN TISSUE - MEASURING DIFFUSION IN STRATUM CORNEUM. **Jes Dreier**, Jens A. Soerensen, Jonathan R. Brewer

## Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence (Boards B551 - B579)

**2407-Pos BOARD B551**  
SYNTHETIC OPTIMIZATION OF AN EFFECTIVE VIBRATIONAL REPORTER UNNATURAL AMINO ACID: 4-(AZIDOMETHYL)-L-PHENYLALANINE. **Tianjiao Shi**, Scott H. Brewer, Edward E. Fenlon

**2408-Pos BOARD B552**  
SYNTHESIS AND EVALUATION OF THIOCYANATE AND SELENOCYANATE DERIVATIVES OF ADENOSINE AND PHENYLALANINE AS VIBRATIONAL REPORTERS. **Daniel E. Levin**, Edward E. Fenlon, Scott H. Brewer

**2409-Pos BOARD B553**  
INVESTIGATION OF NOVEL SPECTROSCOPIC FEATURES IN THE NEAR ULTRAVIOLET REGION ARISING FROM NON-AROMATIC AMINO ACIDS IN PEPTIDES AND PROTEINS. **Saumya Prasad**, Imon Mandal, Ashim Paul, Bhubaneswar Mandal, Ravindra Venkatramani, Rajaram Swaminathan

**2410-Pos BOARD B554**  
CHARACTERIZATION OF THE ROLE OF INDIVIDUAL EF-HANDS IN DREAM IN MODULATING CONFORMATIONAL DYNAMICS, OLIGOMERIC STATES, AND INTERACTION WITH DNA. **Khoa N. Pham**, Jose Alfonso, Jaroslava Miksovska

**2411-Pos BOARD B555**  
PHOTOPHYSICAL CHARACTERIZATION OF FLUORESCENT LYSOZYME STABILIZED GOLD NANOCCLUSERS AND THEIR APPLICATIONS. **Sunil Ajit Shah**, Rahul Chib, Bryan Jan, Zygmunt Gryczynski, Ignacy Gryczynski

**2412-Pos BOARD B556**  
LIPOPLEXES FOR GENE DELIVERY CHARACTERIZED BY FLUORESCENCE CORRELATION SPECTROSCOPY. **Juliane Lopes de Assis**, Iago L. Grobas, Paula Viegas Pereira Signoretti, Aline Marie Fernandes, Maria Adelaide Carvalho Miranda, Bruno F. B. Silva, Rafael Hospodar Felipe Valverde, Marcelo Einicker-Lamas, Pieter A. A. De Beule

**2413-Pos BOARD B557**  
MANIPULATIONS OF THE TNF-RECEPTOR AFFINITY AND OLIGOMERIZATION CHARACTERIZED BY FLUORESCENCE LIFETIME MEASUREMENTS. **Chih Hung Lo**, Andrew Lewis, Tory Schaaf, Prachi Bawaskar, Nagamani Vunnam, Karl Peterson, David Thomas, Jonathan Sachs

**2414-Pos BOARD B558**  
RESOLVING STRUCTURAL DYNAMICS OF THE SERCA-PLB COMPLEX BY MERGING MD SIMULATION AND ORIENTATION-SENSITIVE EPR MEASUREMENT. **Andrew Reid**, Peter Martin, Jesse McCaffrey, Bengt Svensson

**2415-Pos BOARD B559**  
DETECTING COUNTERFEIT PHARMACEUTICALS THROUGH UV SPECTROPHOTOMETRY. **Gabriela Figueroa**, Bruce Ray, Horia Petrache

**2416-Pos BOARD B560**  
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**2417-Pos BOARD B561**  
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**2418-Pos BOARD B562**  
RIBOFLAVIN AS A GRAS LUMINESCENT PROBE OF FOOD AND PHARMACEUTICAL QUALITY. **Yan L. Wang**, Victoria Yeung, Maria G. Corradini, Richard D. Ludescher

**2419-Pos BOARD B563**  
REVEALING STRUCTURAL FEATURES AND AFFINITIES OF PROTEIN COMPLEXES IN LIVING CELLS BY MFIS-FRET. **Qijun Ma**, Marc Somssich, Stanislav Kalinin, Thomas Peulen, Ralf Kühnemuth, Yvonne Stahl, Rüdiger Simon, Stefanie Weidtkamp-Peters, Claus A.M. Seidel

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BINDING STUDIES OF BIOTIN LABELED MACROMOLECULES TO STREPTAVIDIN IN SOLUTION AND ON SOLID SURFACES. **Qiaoqiao Ruan**, Kerry M. Swift, Richard A. Haack, Sergey Y. Tetin

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IMPROVED FRET-BASED TRILATERATION METHODS APPLIED TO THE MAPPING OF CALMODULIN WITHIN THE RYANODINE RECEPTOR. **Bengt Svensson**, Robyn T. Rebbeck, David D. Thomas, Razvan L. Cornea

**2422-Pos BOARD B566**  
NANOSCALE CHEMICAL AND TOPOLOGY IMAGING OF COLLAGEN WITH PHOTO-INDUCED FORCE MICROSCOPY. Will Morrison, Jinhui Tao, Katie Park, **Derek Nowak**, Sung Park, James De Yoreo

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CORRELATIVE FLOURESCENCE - BRILLOUIN SCATTERING IMAGING OF PLANTS. **Kareem Elsayad**, Marcal Gallemi, Edmundo R. Sanchez-Guajardo, Lijuan Zhang, Youssef Belkhadir

**2424-Pos BOARD B568**  
DETERMINATION OF ANTIBODY BINDING AFFINITY USING SINGLE-MOLECULE COUNTING AND FLOW. **Patrick J. Macdonald**, Qiaoqiao Ruan, Richard A. Haack, Sergey Y. Tetin

**2425-Pos BOARD B569**  
MULTI-CHANNEL TIRF IMAGING OF CARDIAC CALCIUM SIGNALS. **Lars Cleemann**, Martin Morad

**2426-Pos BOARD B570**  
OPTICALLY MODULATED PHOTOSWITCHABLE FLUORESCENT PROTEINS YIELD IMPROVED BIOLOGICAL IMAGING SENSITIVITY. **Yen-Cheng Chen**, Amy E. Jablonski, Irina Issaeva, Daisy Bourassa, Jung-Cheng Hsiang, Christoph J. Fahrni, Robert M. Dickson

**2427-Pos BOARD B571**  
ULTRASENSITIVE TIME- AND SPACE-RESOLVED DETECTION OF LUMINESCENCE, I.E. SINGLET OXYGEN PHOSPHORESCENCE. **Christian Litwinski**, Sebastian Tannert, Manoel Veiga, Felix Koberling, Volker Buschmann, Matthias Patting, Marcus Sackrow, Michael Wahl, Olaf Schulz, Marcelle Koenig, Rainer Erdmann, Christian Wolf, Christian Kaufmann, Humberto Rodriguez Alvarez

**2428-Pos BOARD B572**  
LINEAR COMBINATION BETWEEN LIFETIME AND SPECTRAL PHASOR PLOTS: A NEW APPROACH TO STUDY MEMBRANE ORGANIZATION WITH LAURDAN. **Leonel S. Malacrida**, David M. Jameson, Enrico Gratton

**2429-Pos BOARD B573**  
DARK STATE DYNAMICS OF RED FLUORESCENT PROTEINS IN THE CELL ENVIRONMENT MEASURED IN MICROFLUIDIC FLOW. **Premashis Manna**, Felix Vietmeyer, Ralph Jimenez

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EXPERIMENTAL DETERMINATION OF SINGLE- AND TWO-PHOTON EXCITATION TRANSITION MOMENTS IN REPRESENTATIVE FLUORESCENT PROTEINS. **Josef Lazar**, Prakash Shukla, Richard Chazal, Alexey Bondar, David von Stetten, Antoine Royant

**2431-Pos BOARD B575**  
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**2432-Pos BOARD B576**  
A COMPARISON OF LIBS FOR THE QUANTIFICATION OF AU NANOPARTICLES USING 1064 NM, 532 NM, AND 266 NM EXCITATION. Komal Vig, Aaleyah Joe, **Cleon M. Barnett**

**2433-Pos BOARD B577**  
DIRECT LABEL-FREE MEASUREMENT OF THE DISTRIBUTION OF SMALL MOLECULAR WEIGHT COMPOUND INSIDE THICK BIOLOGICAL TISSUE USING COHERENT RAMAN MICROSCOPY. Masahiko Kawagishil, Yuki Obara, Takayuki Suzuki, Masumi Hayashi, Kazuhiko Misawa, **Sumio Terada**

**2434-Pos BOARD B578**  
COMPARISON BETWEEN AUTOFLUORESCENCE AND REFLECTANCE-BASED HYPERSPECTRAL IMAGING FOR VISUALIZATION OF ATRIAL ABLATION LESIONS. **Huda Asfour**, Mohammed Aljishi, Tigran Chahbazian, Luther Swift, Narine Muselimyan, Daniel Gil, Narine Sarvazyan

**2435-Pos BOARD B579**  
USE OF EXCITATION EMISSION MATRICES TO REVEAL SPECTRAL CHANGES CAUSED BY RADIOFREQUENCY ABLATION OF CARDIAC TISSUE.  
**Mohammed Aljishi**, Huda Asfour, Luther Swift, Narine Muselimyan, Tigran Chahbazian, Narine Sarvazyan

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**2438-Pos BOARD B582**  
RULE-BASED MODELING AND SIMULATION FOR BEGINNERS: INTUITIVE GRAPHICAL INTERFACE WITHIN VIRTUAL CELL. **Michael L. Blinov**, Dan Vasilescu, Ion I. Moraru, Leslie M. Loew, James C. Schaff

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MAPPING EPIGENETIC LANDSCAPES OF GENE REGULATORY NETWORKS BY ADAPTIVE WEIGHTED ENSEMBLE SAMPLING. **Margaret J. Tse**, Brian K. Chu, Elizabeth L. Read

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USING NETWORK MODELS OF PROTEINS TO PREDICT FUNCTIONALLY LINKED INTERFACES OF PROTEINS (FLIPS) AT THE RESIDUE LEVEL. **Isha D. Mehta**, Brian W. Beck

**2441-Pos BOARD B585**  
ANALYSIS OF NOVEL MECHANISMS UNDERLYING ASPIRIN RESISTANCE USING BIOINFORMATICS APPROACH. Beryen Lai, Mallory Brooke Lai, **Baskaran Thyagarajan**

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CLUSTERING AND VISUALIZING OF MEMBRANE PROTEINS SEQUENCE SIMILARITY NETWORK. **Geng-Ming Hu**, Te-Lun Mai, Chi-Ming Chen

**2443-Pos BOARD B587**  
EVOLUTION AND STRUCTURAL ADAPTATION TO MEMBRANES OF SINGLE-PASS TRANSMEMBRANE PROTEINS. **Andrei L. Lomize**, Irina Pogozheva

**2444-Pos BOARD B588**  
TABULATION AS A HIGH-RESOLUTION ALTERNATIVE TO COARSE-GRAINING PROTEIN INTERACTIONS: INITIAL APPLICATION TO VIRUS CAPSID SUBUNITS. **Justin M. Spirti**, Daniel M. Zuckerman

## Force Spectroscopy and Scanning Probe Microscopy (Boards B589 - B616)

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EXAMINING THE MECHANICAL PROPERTIES OF COPPER BINDING AZURIN USING SINGLE MOLECULE FORCE SPECTROSCOPY AND STEERED MOLECULAR DYNAMICS. **Anju Yadav**, Sanjoy Paul, Ravindra Venkatramani, Sri Rama Koti Ainavarapu

**2446-Pos BOARD B590**  
RESOLVING INDIVIDUAL DAMAGE SITES IN DNA WITH AFM USING REENGINEERED REPAIR PROTEINS. **Christopher J. Fitzgibbon**, Eric A. Josephs, Piotr E. Marszalek

**2447-Pos BOARD B591**  
DIRECT OBSERVATION OF THE FOLDING TRAJECTORY OF A SLIPKNOTTED PROTEIN. **Chengzhi He**, Chunmei Lyu, Chunguang Hu, Xiaodong Hu, Xiaotang Hu, Hongbin Li

**2448-Pos BOARD B592**  
MUTUAL A DOMAIN INTERACTIONS IN THE FORCE SENSING PROTEIN VON WILLEBRAND FACTOR (VWF). **Sandra Posch**, Camilo Aponte-Santamaria, Frauke Gräter, Tobias Obser, Gesa König, Maria A. Brehm, Hermann J. Gruber, Reinhard Schneppenheim, Robert Tampé, Peter Hinterdorfer

**2449-Pos BOARD B593**  
SURPRISING FORCE-DEPENDENT UNFOLDING OF TITIN IMMUNOGLOBULIN DOMAIN REVEALED BY MAGNETIC TWEEZERS. Guohua Yuan, Zhoujie Yang, Hui Qian, Xin Zhou, Jie Yan, **Hu Chen**

**2450-Pos BOARD B594**  
MULTIPLE INTERMEDIATES IN THE FOLDING OF SUPEROXIDE DISMUTASE 1 REVEALED BY SINGLE MOLECULE FORCE SPECTROSCOPY. **Supratik Sen Mojumdar**, Derek R. Dee, Logan Rouleau, Uttam Anand, Craig Garen, Michael T. Woodside

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SWINGING ARMS OF ANTIBODY IGG MAKE THE ANTIGEN BINDING DOCCILE. **Norito Kotani**, Ramanujam Kumaresan, Yoko Kawamoto-Ozaki, Takao Okada

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MOLECULAR TOOLS FOR ADVANCED SINGLE-MOLECULE STUDIES. **Fabian Baumann**, Magnus Sebastian Bauer, Lukas Frederik Milles, Hermann Eduard Gaub, Diana Angela Pippig

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MECHANICAL PROPERTIES OF THE FIBRIN NETWORK ON THE MACROSCOPIC AND MICROSCOPIC SCALES. **Timea Feller**, Balazs Kiss, Jolan Harsfalvi, Miklos Kellermayer

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AGGREGATES OF AMPHOTERICIN B ONTO SUPPORTED LIPID BILAYERS OF DOPC:SM:CHOL. **Arturo Galván-Hernández**, Carlos Muñoz-Garay, Iván Ortega-Blake

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SINGLE MOLECULAR FORCE SENSING REVEALS FIBRONECTIN-SPECIFIC BINDING EPITOPES OF BACTERIAL CURLI FIMBRIAE. **Yoo Jin Oh**, Michael Hubauer-Brenner, Hermann J. Gruber, Yidan Cui, Sungsu Park, Peter Hinterdorfer

**2456-Pos BOARD B600 INTERNATIONAL TRAVEL AWARDEE**  
SELECTIVE INTERACTION BETWEEN TOXIC AMYLOID OLIGOMERS AND THE CELL MEMBRANE REVEALED BY INNOVATIVE AFM APPLICATIONS. **Reinier Oropesa-Nuñez**, Silvia Seghezze, Sandeep Keshavan, Silvia Dante, Cristina Cecchi, Massimo Stefani, Fabrizio Chiti, Alberto Diaspro, Claudio Canale

**2457-Pos BOARD B601**  
STRUCTURAL AND MECHANICAL CUES IN CARTILAGE MORPHOGENESIS. **Carina Prein**, Hauke Clausen-Schaumann, Attila Aszodi

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BIOPHYSICAL CHARACTERIZATION OF ANTIMICROBIAL RESISTANCE. **Mehrdad M. Tajkarimi**

**2459-Pos BOARD B603**  
NANOMECHANICAL AND VISCOELASTIC MEASUREMENTS IN BIOLOGICAL ATOMIC FORCE MICROSCOPY (AFM). **Sophia Hohlbauch**

**2460-Pos BOARD B604 INTERNATIONAL TRAVEL AWARDEE**  
COMBINED MAGNETO-OPTICAL TWEEZERS AND SUPER-RESOLUTION FLUORESCENCE IMAGING FOR PROBING DYNAMIC SINGLE-MOLECULE TOPOLOGY OF DNA, AND PROTEIN MACHINES THAT MANIPULATE DNA TOPOLOGY. **Zhaokun Zhou**, Helen Miller, Christoph Baumann, Mark Leake

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TRAPPING OF HIGHLY BIREFRINGENT RUTILE NANOCYLINDERS IN THE OPTICAL TORQUE WRENCH. **Yera Y. Ussembayev**, Seungkyu Ha, Richard Janissen, Maarten M. van Oene, Nynke H. Dekker

**2462-Pos BOARD B606**  
IMPROVED AXIAL OPTICAL TRAPPING. **Russell Pollari**, Joshua N. Milstein

**2463-Pos BOARD B607**  
ENHANCED SITE-SPECIFIC ANCHORING OF BIOMOLECULES FOR SINGLE-MOLECULE FORCE SPECTROSCOPY. **Robert Walder**, William J. Van Patten, Ayush Adhikari, Marc-Andre LeBlanc, Stephen R. Okoniewski, Ruby May A. Sullan, Marcelo C. Sousa, Thomas T. Perkins

**2464-Pos BOARD B608**  
A NOVEL PLATFORM FOR TAILORING MEMBRANE PROTEIN MOBILITY. **Andreas Karner**, Benedikt Nimmervoll, Birgit Plochberger, Enrico Klotzsch, Andreas Horner, Denis G. Knyazev, Roland Kuttner, Klemens Winkler, Lukas Winter, Christine Siligan, Nicole Ollinger, Peter Pohl, Johannes Preiner

**2465-Pos BOARD B609**  
IMPROVED CALIBRATION METHOD FOR THE NONLINEAR REGIME OF A SINGLE-BEAM OPTICAL TRAP ALLOWS HIGHER FORCE APPLICATIONS. **Jamianne C. Wilcox**, Benjamin J. Lopez, Otger Campas, Megan T. Valentine

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PRECISE CONTROL AND MEASUREMENT OF TEMPERATURE WITH FEMTOSECOND OPTICAL TWEEZERS. **Dipankar Mondal**, Debabrata Goswami

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A COMBINED IMAGING AND FORCE SPECTROSCOPY APPROACH REVEALS THE MATERIAL PROPERTIES OF VIRAL NANOPARTICLES. **Denise Denning**, Gijis J.L. Wuite, Wouter H. Roos

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HIGH SPEED AFM THROUGH NON-RASTER SCANNING AND HIGH SPEED ACTUATION. Trevor Ashley, Tian Huang, William Nagel, **Sean Andersson**, Kam Leang

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HIGH RESOLUTION MAGNETIC TWEEZERS TO PROBE SINGLE MOLECULE DYNAMICS. **Bob M. Lansdorp**, Omar A. Saleh

**2470-Pos BOARD B614 EDUCATION TRAVEL AWARDEE**  
MULTIPLEXED MECHANOCHEMISTRY ASSAY - A TOOL FOR MULTIPLEXED SINGLE MOLECULE BOND RUPTURE FORCE STUDIES. **Bhavik Nathwani**, Darren Yang, Wesley Wong, William M. Shih

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LABEL-FREE INTRAMOLECULAR CHEMICAL MICROSCOPY OF A PROTEIN-RNA COMPLEX. **Duckhoe Kim**, Zhenghan Gao, Ozgur Sahin

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TUNING THE MUSIC: ACOUSTIC FORCE SPECTROSCOPY (AFS) 2.0. **Douwe Kamsma**, Ramon Creyghton, Gerrit Sitters, Erwin J.G. Peterman, Gijis J.L. Wuite

## Micro- and Nanotechnology I (Boards B617 - B646)

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CHARACTERIZATION OF NUCLEOSOMES USING DNA ORIGAMI. **Jenny V. Le**, Yi Luo, Christopher R. Lucas, Michael G. Poirier, Carlos E. Castro

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THERAPEUTIC ENHANCEMENT WITH NUCLEAR TARGETED GOLD NANOPARTICLES. **Celina J. Yang**, Devika B. Chithrani

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MICROCARRIER-GUIDED NANOPORE DIELECTROPHORESIS FOR SELECTIVE NUCLEIC ACID DETECTION. **Kai Tian**, Karl Decker, Aleksei Aksimentiev, Liqun Gu

**2476-Pos BOARD B620**  
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**2477-Pos BOARD B621**  
A NOVEL MULTI-LAYER MICROFLUIDIC PIPETTE ASPIRATION DEVICE FOR STUDYING MECHANOSENSITIVE VESICLES. Lap Man Lee, Danielle Chase, **Allen Liu**

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AN ION-SPECIFIC EFFECT ON POLYMER-PROTEIN INTERACTION ENHANCES RESOLUTION OF NANOPORE-BASED DETECTION. Aleksandra Dylewska-Chaumeil, Gerhard Baaken, **Jan C. Behrends**

**2479-Pos BOARD B623**  
IONIC AND MOLECULAR TRANSPORT INSIDE CARBON NANOTUBES: TOWARDS THE DETECTION OF INDIVIDUAL BIOMOLECULES. Khadija Yazda, Said Tahir, Thierry Michel, Jean-Baptiste Thibaud, **Francois Henn**, Vincent Jourdain

**2480-Pos BOARD B624**  
FABRICATION OF LOW NOISE BOROSILICATE GLASS NANOPORES FOR SINGLE MOLECULE SENSING. Jayesh Bafna, **Gautam Soni**

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MAGNETIC FOCUSING AND HYDRODYNAMIC DEFLECTION OF MICROPARTICLES IN A MICRODEVICE. **Vikash Kumar**, Pouya Rezai

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CONTROLLING GLIDING TRAJECTORIES OF MICROTUBULES BY ALTERING MICROTUBULE FLEXURAL RIGIDITY. **Naoto Isozaki**, Scott Erickson, Shintaku Hirofumi, Hidetoshi Kotera, Taviare L. Hawkins, Jennifer L. Ross, Ryuji Yokokawa

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A MICROFLUIDIC DEVICE FOR SINGLE CELL IMAGING AND INTRACELLULAR COMPONENTS COUNTING. **David C. Duran**, Juan Manuel Pedraza

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- 2488-Pos BOARD B632**  
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- 2489-Pos BOARD B633**  
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- 2493-Pos BOARD B637**  
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- 2497-Pos BOARD B641**  
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- 2498-Pos BOARD B642**  
A NEW PROCEDURE FOR MEASURING PARTICLE LENGTH USING THE RESISTIVE PULSE TECHNIQUE WITH IRREGULAR SINGLE MICROPORES. **Preston Hinkle**, Yinghua Qiu, Crystal Yang, Zuzanna Siwy, Arnout Imhof, Henriette Bakker
- 2499-Pos BOARD B643**  
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- 2500-Pos BOARD B644**  
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- 2502-Pos BOARD B646**  
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USE OF WATER-SOLUBLE OXYGEN SENSORS TO STUDY THE OXYGEN CONSUMPTION DURING PHOTOSENSITIZATION WITH HYPERICIN IN VITRO AND IN VIVO. **Veronika Huntosova**, Dominik Belej, Emmanuel Gerelli, Pavol Miskovsky, Georges Wagnieres
- 2504-Pos BOARD B648**  
DETECTION OF SHUNT OCCLUSIONS WITHIN CLINICAL RANGE. **David J. Apigo**, Philip L. Bartholomew, Alokik Kanwal, Reginald C. Farrow, Gordon A. Thomas
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- 2509-Pos BOARD B653**  
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- 2511-Pos BOARD B655**  
DEVELOPMENT AND CHARACTERIZATION OF A NOVEL BISTABLE DNA SENSOR FOR ANTI-HIV DRUG DISCOVERY. **Nan Thuzar Myint**, Raghuvaran M. Iyer, Deborah J. Kerwood, Phillip N. Borer
- 2512-Pos BOARD B656**  
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# Wednesday, March 2, 2016

## Daily Program Summary

All rooms are located in the *Los Angeles Convention Center* unless noted otherwise.

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8:00 AM–11:00 AM	<b>New Council Meeting</b>	Room 510
8:15 AM–10:15 AM	<b>Symposium: Voltage Sensing and Gating</b> <b>Chair:</b> <i>Peter Larsson, University of Miami</i>  CONFORMATIONAL CHANGES DURING VOLTAGE SENSING. <i>Francisco Bezanilla</i> VOLTAGE-SENSING DOMAINS AS ION CHANNELS. <i>Francesco Tombola</i> MOLECULAR LOCATIONS OF GATES IN POTASSIUM CHANNELS. <i>Crina Nimigean</i> MECHANISMS OF KCNE BETA SUBUNIT MODULATION OF VOLTAGE SENSING AND GATING IN KCNQ1 CHANNELS. <i>Peter Larsson</i>	Petree Hall C
8:15 AM–10:15 AM	<b>Symposium: Chemomechanical Coupling in Immune Response</b> <b>Chair:</b> <i>Jay Groves, University of California, Berkeley</i>  SIGNALING REACTIONS ON MEMBRANE SURFACES: THE ROLES OF SPACE, FORCE, AND TIME. <i>Jay Groves</i> CHEMOMECHANICAL INTERACTIONS ENHANCE IGE-FC $\epsilon$ RI SIGNALING IN MAST CELLS. <i>Barbara Baird</i> PROTEIN NANOCLUSTERING AS FUNCIONAL UNIT OF IMMUNE CELLS. <i>Maria Garcia-Parajo</i> ANATOMIC COMPARTMENTALIZATION REGULATES TCR-Pep-MHC INTERACTION AND FATE. <i>Cheng Zhu</i>	Petree Hall D
8:15 AM–10:15 AM	<b>Platform: Cell Mechanics, Mechanosensing, and Motility II</b>	Room 502A
8:15 AM–10:15 AM	<b>Platform: Protein Dynamics and Allostery II</b>	Room 502B
8:15 AM–10:15 AM	<b>Platform: Protein-Nucleic Acid Interaction</b>	Room 515A
8:15 AM–10:15 AM	<b>Platform: Force Spectroscopy and Scanning Probe Microscopy</b>	Room 515B
8:15 AM–10:15 AM	<b>Platform: Biosensors</b>	Room 501ABC
8:15 AM–10:15 AM	<b>Platform: Membrane Fusion</b>	Room 511ABC
10:30 AM–12:30 PM	<b>Poster Presentations and Late Posters</b>	West Hall
1:00 PM–3:00 PM	<b>Symposium: Multiscale Correlative Imaging Techniques</b> <b>Chair:</b> <i>Jacob Hoogenboom, Delft University of Technology, Netherlands</i>  CORRELATIVE IMAGING OF INTRACELLULAR TRANSPORT PROCESSES AT HIGH RESOLUTION. <i>Melike Lakadamyali</i> VIVO IMAGING OF CELLULAR DYNAMICS FROM THE NANOSCALE TO THE MACROSCALE. <i>Eric Betzig</i> LOCALIZING MOLECULES IN CELLULAR CT SCANS. <i>Carolyn Larabell</i> MATCHING SCALES AND CAPABILITIES WITH INTEGRATED FLUORESCENCE AND ELECTRON MICROSCOPY. <i>Jacob P. Hoogenboom</i>	Petree Hall C
1:00 PM–3:00 PM	<b>Symposium: Crowding and Order in the Genome</b> <b>Chair:</b> <i>John Marko, Northwestern University</i>  PREDICTABILITY AND CONTROL OF GENE BURSTING IN LIVE MAMMALIAN CELLS. <i>Ibrahim Cissé</i> SINGLE-MOLECULE IMAGING OF RNA IN LIVE CELLS. <i>Maria Carmo-Fonseca</i> SEEING IS BELIEVING VS SEEING IS DECEIVING IN THE CELL NUCLEUS. <i>David Grunwald</i> MICROMECHANICAL STUDY OF MAMMALIAN METAPHASE CHROMOSOMES AND NUCLEI. <i>John F. Marko</i>	Petree Hall D
1:00 PM–3:00 PM	<b>Platform: Molecular Dynamics II</b>	Room 502A
1:00 PM–3:00 PM	<b>Platform: Cardiac Muscle Regulation</b>	Room 502B
1:00 PM–3:00 PM	<b>Platform: Ion Channels, Pharmacology, and Disease</b>	Room 515A
1:00 PM–3:00 PM	<b>Platform: Protein Plasticity &amp; Binding</b>	Room 515B
1:00 PM–3:00 PM	<b>Platform: Micro- and Nanotechnology</b>	Room 501ABC
1:00 PM–3:00 PM	<b>Platform: Membrane Receptors and Signal Transduction</b>	Room 511ABC



# Wednesday, March 2

## New Council Meeting

8:00 AM - 11:00 AM, ROOM 510

## Symposium

### Voltage Sensing and Gating

8:15 AM - 10:15 AM, PETREE HALL C

#### Chair

*Peter Larsson, University of Miami*

**2513-SYMP** 8:15 AM  
CONFORMATIONAL CHANGES DURING VOLTAGE SENSING. **Francisco Bezanilla**, Jerome Lacroix, Michael Priest

**2514-SYMP** 8:45 AM  
VOLTAGE-SENSING DOMAINS AS ION CHANNELS. **Francesco Tombola**

**2515-SYMP** 9:15 AM  
MOLECULAR LOCATIONS OF GATES IN POTASSIUM CHANNELS. **Crina Nimigean**

**2516-SYMP** 9:45 AM  
MECHANISMS OF KCNE BETA SUBUNIT MODULATION OF VOLTAGE SENSING AND GATING IN KCNQ1 CHANNELS. **Peter Larsson**

## Symposium

### Chemomechanical Coupling in Immune Response

8:15 AM - 10:15 AM, PETREE HALL D

#### Chair

*Jay Groves, University of California, Berkeley*

**2517-SYMP** 8:15 AM  
SIGNALING REACTIONS ON MEMBRANE SURFACES: THE ROLES OF SPACE, FORCE, AND TIME. **Jay Groves**

**2518-SYMP** 8:45 AM  
CHEMOMECHANICAL INTERACTIONS ENHANCE IGE-FC $\epsilon$ R1 SIGNALING IN MAST CELLS. **Barbara Baird**

**2519-SYMP** 9:15 AM  
PROTEIN NANOCLUSTERING AS FUNCTIONAL UNIT OF IMMUNE CELLS. **Maria Garcia-Parajo**

**2520-SYMP** 9:45 AM  
ANATOMIC COMPARTMENTALIZATION REGULATES TCR-PEP-MHC INTERACTION AND FATE. **Cheng Zhu**, Prithiviraj Jothikumar, Young-Jin Seo, Arash Grakoui

## Platform

### Cell Mechanics, Mechanosensing, and Motility II

8:15 AM - 10:15 AM, ROOM 502A

#### Co-Chairs

*Joshua Franco, University of California, San Diego*

*Daniel Hammer, University of Pennsylvania*

**2521-PLAT** 8:15 AM  
THE FORCE DYNAMICS OF INTERACTING CELLS. **Daniel A. Hammer**, Micah Dembo, Marc Herant, Olga Shebanova

**2522-PLAT** 8:30 AM EDUCATION TRAVEL AWARDEE  
MECHANOBIOLOGY IN CELL-CELL FUSION: ROLES OF MYOSIN II AND SPECTRIN IN MECHANOSENSING AND FORCE GENERATION DURING CELL-CELL FUSION. **Ji Hoon Kim**, Elizabeth Chen

**2523-PLAT** 8:45 AM  
MYOSIN II FACILITATES LIGAND DISCRIMINATION DURING T CELL ACTIVATION. **Jinsung Hong**, Sricharan Murugesan, John A. Hammer

**2524-PLAT** 9:00 AM  
MECHANISMS OF B CELL ANTIGEN EXTRACTION REVEALED BY DNA-BASED MOLECULAR SENSORS. **Katelyn M. Spillane**, Pavel Tolar

**2525-PLAT** 9:15 AM  
CELL MIGRATION IN MECHANICALLY RESISTIVE ENVIRONMENT. **Nishit Srivastava**, Robert Kay, Alexandre Kabla

**2526-PLAT** 9:30 AM  
ACTIN RETROGRADE FLOWS STABILIZE CELL POLARITY BY MECHANOCHEMICAL FEEDBACK LOOPS IN MIGRATING CELLS. **Stefan Wieser**, Verena Ruprecht, Monika Ritsch-Marte, Carl-Philipp Heisenberg, Matthieu Piel, Michael Sixt

**2527-PLAT** 9:45 AM  
MECHANICS OF ADHESION DEPENDENT AND INDEPENDENT NEUTROPHIL MIGRATION IN THREE-DIMENSIONAL EXTRA-CELLULAR MATRICES. **Joshua Francois**, Ruedi Meili, Juan Carlos del Alamo, Richard A. Firtel, Juan C. Lasheras

**2528-PLAT** 10:00 AM  
CORTICAL CONTRACTION WAVES AT CYTOKINESIS OF LARGE CELLS. **Johanna Bischof**, Christoph Brand, Ulrich Schwarz, Peter Lenart

## Platform

### Protein Dynamics and Allostery II

8:15 AM - 10:15 AM, ROOM 502B

#### Co-Chairs

*Ernesto Fuentes, University of Iowa*

*Henrike Mueller-Werkmeister, University of Toronto, Canada*

**2529-PLAT** 8:15 AM  
ALLOSTERIC REGULATION OF UHRF1 FOR DNA METHYLATION MAINTENANCE. **Zhi-Min Zhang**, Scott B. Rothbart, David F. Allison, Joseph S. Harrison, Yinsheng Wang, Brian D. Strahl, Gang G. Wang, **Jikui Song**

**2530-PLAT** 8:30 AM  
OPTICAL ABSORBANCE SENSITIVITY TO RUGGED ENERGY LANDSCAPE. **Katherine A. Niessen**, Edward Snell, Andrea G. Markelz

**2531-PLAT** 8:45 AM  
ROLE OF AROMATIC RESIDUES IN DYNAMIC NETWORKS IN DREAM/KCHIP3. **Walter G. Gonzalez**, Maurizio Diaz, David H. Perez, Jaroslava Miksovska

**2532-PLAT** 9:00 AM  
CAPTURING FUNCTIONALLY RELEVANT PROTEIN MOTIONS AT THE ATOMIC LEVEL: FEMTOSECOND TIME RESOLVED SERIAL CRYSTALLOGRAPHY OF LIGAND DISSOCIATION OF CARBOXY-MYOGLOBIN. **Henrike M. Müller-Werkmeister**, Anling Kuo, Helen M. Ginn, Saeed Oghbaey, Antoine Sarracini, Olivier Pare-Labrosse, Darren Sherrell, Alexander Marx, Sascha W. Epp, Arwen R. Pearson, Robin L. Owen, David I. Stuart, Oliver P. Ernst, R. J. Dwayne Miller

**2533-PLAT** 9:15 AM  
MECHANISM OF CYCLIC AMP PARTIAL AGONISM IN PROTEIN KINASE G (PKG). **Bryan VanSchouwen**, Rajeevan Selvaratnam, Rajanish Giri, Robin Lorenz, Friedrich W. Herberg, Choel Kim, Giuseppe Melacini

**2534-PLAT 9:30 AM**  
 MAPPING MOTIONS AND STRUCTURE TO A STATE NECESSARY FOR OLIGOMERIZATION OF A LARGE GTPASE: A JOINT SAXS, NSE, EPR AND FRET STUDY. **Thomas-Otavio Peulen**, Carola S. Hengstenberg, Ralf Biehl, Mykola Dimura, Alessandro Valeri, Semra Ince, Tobias Vöpel, Bela Farago, Holger Gohlke, Christian Herrmann, Johann Klare, Andreas Stadler, Claus A.M. Seidel

**2535-PLAT 9:45 AM**  
 TONB BINDING PRODUCES ALLOSTERIC CHANGES IN THE OUTER LOOPS AND SUBSTRATE BINDING SITE OF THE TBDT BTUB. **Arthur K. Sikora**, David Cafiso

**2536-PLAT 10:00 AM**  
 CONFORMATIONAL DYNAMICS AND STRUCTURE UNDERLIE THE NOVEL LIGAND BINDING SPECIFICITY OF A TIAM1 PDZ DOMAIN MUTANT. **Ernesto J. Fuentes**, Xu Liu, David C. Speckhard, Tyson R. Shepherd, Sarah R. Hengel, Liping Liping, C. Andrew Fowler, Lokesh Gakhar

**Platform**  
**Protein-Nucleic Acid Interaction**  
**8:15 AM - 10:15 AM, ROOM 515A**

**Co-Chairs**  
*Timothy Craggs, University of Oxford, United Kingdom*  
*Steve Harvey, University of Pennsylvania*

**2537-PLAT 8:15 AM**  
 HOW STRUCTURE-SPECIFIC DNA-BINDING PROTEINS RECOGNISE THEIR SUBSTRATES. **Timothy D. Craggs**, Marko Sustarsic, Majid Mosayebi, Hendrik Kaju, Johannes Hohlbein, Phillip C. Biggin, Jonathan P.K. Doye, Achilles N. Kapanidis

**2538-PLAT 8:30 AM**  
 FLIPPING BY DNA BOUND PROTEINS OCCURS THROUGH RAPID REBINDING. **Mahipal Ganji**, Margreet Docter, Stuart F.J. Le Grice, Elio Abbondanzieri

**2539-PLAT 8:45 AM**  
 STEPWISE NUCLEOSOME TRANSLOCATION BY RSC REMODELING COMPLEXES. **Bryan T. Harada**, William L. Hwang, Sebastian Deindl, Blaine Bartholomew, Xiaowei Zhuang

**2540-PLAT 9:00 AM**  
 PROBING HELICASE DYNAMICS ON NUCLEIC ACIDS THROUGH FLUORESCENCE-FORCE MEASUREMENTS. **Chang-Ting Lin**, Meigang Gu, Charles M. Rice, Virginia A. Zakian, Taekjip Ha Ha

**2541-PLAT 9:15 AM**  
 THE SCRUNCHWORM HYPOTHESIS: TRANSITIONS BETWEEN A-DNA AND B-DNA PROVIDE THE DRIVING FORCE FOR GENOME PACKAGING IN DOUBLE-STRANDED DNA BACTERIOPHAGES. **Stephen C. Harvey**, James T. Waters, James C. Gumbart, Harold D. Kim

**2542-PLAT 9:30 AM**  
 TFAM REGULATES MITOCHONDRIAL TRANSCRIPTION THROUGH SEQUENCE-SPECIFIC DNA LOOPING. **Divakaran Murugesapillai**, Maria F. Lodeiro, Louis J. Maher III, Craig E. Cameron, Mark C. Williams

**2543-PLAT 9:45 AM**  
 VISUALIZING THE ASSEMBLY OF DNA CONDENSATION CLUSTERS BY SMC USING SINGLE-MOLECULE MICROSCOPY. **Hyeonjun Kim**, Joseph J. Loparo

**2544-PLAT 10:00 AM**  
 SINGLE MOLECULE IMAGING OF P53'S DYNAMIC INTERACTION WITH CHROMATIN. Vincent Wong, Zhe Liu, Sam Peng, Charles Kenworthy, Wei-Li Liu, **Robert A Coleman**

**Platform**  
**Force Spectroscopy and Scanning Probe Microscopy**  
**8:15 AM - 10:15 AM, ROOM 515B**

**Co-Chairs**  
*Pieter De Beule, International Iberian Nanotechnology Laboratory, Portugal*  
*A. Catalina Velez-Ortega, University of Kentucky*

**2545-PLAT 8:15 AM**  
 ACOUSTIC FORCE SPECTROSCOPY: AN INSTRUMENT TO PERFORM HIGHLY PARALLEL SINGLE MOLECULE MEASUREMENTS. **Gerrit Sitters**, Felix Oswald, Douwe Kamsma, Jerom Langeveld, Willem Peutz, Erwin Peterman, Gijs Wuite, Olivier Heyning

**2546-PLAT 8:30 AM**  
 A NOVEL METHOD FOR MULTIPLEXED NANOMETRIC BEAD TRACKING. **Thomas Brouwer**, John van Noort

**2547-PLAT 8:45 AM**  
 SIMULTANEOUS ADVANCED MICROSCOPIES FOR LIVE CELL SIGNALING DYNAMICS INVESTIGATIONS. Adelaide Miranda, Marco Martins, **Pieter A. A. De Beule**

**2548-PLAT 9:00 AM**  
 VIDEO-BASED FORCE DETECTION IN OPTICAL TWEEZERS TO MEASURE DNA TRANSLOCATION THROUGH SI-NX AND LIPID-COATED NANOPORES. **Andy Sischka**, Sebastian Knust, Lukas Galla, Andreas J. Meyer, Andre Spiering, Michael Mayer, Adam R. Hall, Peter Reimann, Karsten Gall, Dario Anselmetti

**2549-PLAT 9:15 AM**  
 ADAPTIVE HOPPING PROBE ION CONDUCTANCE MICROSCOPY OF LIVE CELLS AT ~5-10 NM RESOLUTION. **A. Catalina Velez-Ortega**, Oleg Belov, Pavel Novak, Samir A. Rawashdeh, Yuri E. Korchev, Gregory I. Frolenkov

**2550-PLAT 9:30 AM**  
 DIRECT OBSERVATION OF TRANSITION PATHS DURING THE FOLDING OF PROTEINS AND NUCLEIC ACIDS. Krishna Neupane, Daniel AN Foster, Derek R. Dee, Hao Yu, Feng Wang, **Michael T. Woodside**

**2551-PLAT 9:45 AM**  
 EQUILIBRIUM FOLDING OF AN INDIVIDUAL BACTERIORHODOPSIN INTO AND OUT OF ITS NATIVE LIPID BILAYER RESOLVES ENERGY LANDSCAPES AND HIDDEN DYNAMICS. **Hao Yu**, Matthew G. W. Siewny, Devin T. Edwards, Aric W. Sanders, Thomas T. Perkins

**2552-PLAT 10:00 AM**  
 BINDING MECHANISM OF PURINE NUCLEOTIDES TO MITOCHONDRIAL UNCOUPLING PROTEINS EXPLORED BY RECOGNITION FORCE SPECTROSCOPY. **Melanie Koehler**, Gabriel Macher, Anne Rupprecht, Rong Zhu, Hermann J. Gruber, Elena E. Pohl, Peter Hinterdorfer

**Platform**  
**Biosensors**  
**8:15 AM - 10:15 AM, ROOM 501ABC**

**Co-Chairs**  
*Loredana Casalis, Elettra Sincrotrone Trieste, Italy*  
*Sergey Sekatskii, École Polytechnique Fédérale de Lausanne, Switzerland*

**2553-PLAT 8:15 AM** INTERNATIONAL TRAVEL AWARDEE  
 CONTROLLING THE NANOSCOPIC CONFINEMENT OF ENZYMES INSIDE CLYA NANOPORES FOR SINGLE-PROTEIN STUDIES. **Annemie Biesemans**, Misha Soskine, Giovanni Maglia

**2554-PLAT 8:30 AM**  
LABEL-FREE OPTICAL BIOSENSOR BASED ON PHOTONIC CRYSTAL SURFACE WAVES REVEALS BINDING KINETICS OF ANTIBODIES TO LIVING BACTERIA IN REAL TIME. Ekaterina Rostova, Giovanni Dietler, **Sergey K. Sekatskii**

**2555-PLAT 8:45 AM**  
SINGLE WAVELENGTH EXCITATION DUAL COLOR FLIM FOR MULTIPLEXING GENETICALLY ENCODED FRET BIOSENSORS. **Claire Demeautis**, François Sipieter, Julien Roul, Catherine Chapuis, Sergi Padilla-Parra, Franck Riquet, Marc Tramier

**2556-PLAT 9:00 AM**  
HIGH-RESOLUTION ANALYSIS OF MOLECULAR OXYGEN IN MAMMALIAN CELL MODELS BY PHOSPHORESCENCE LIFETIME IMAGING MICROSCOPY. **Ruslan I. Dmitriev**, James Jenkins, Irina A. Okkelman, Dmitri B. Papkovsky

**2557-PLAT 9:15 AM**  
A NANO-IMMUNOASSAY BASED ON FLUORESCENCE AND ATOMIC FORCE SPECTROSCOPY FOR THE DETECTION OF CIRCULATING CANCER BIOMARKERS: THE CASE OF HER2 POSITIVE BREAST CANCER. **Loredana Casalis**, Elena Ambrosetti, Pietro Parisse, Alessandro Bosco, Ario De Marco, Elda Tagliabue

**2558-PLAT 9:30 AM**  
DETECTION OF A GEOGRAPHICALLY DIVERSE MALARIAL BIOMARKER VIA MULTI-EPI TOPE TARGETED SCREENING. **JingXin Liang**, Arundhati Nag, Samir Das, David Bunck, Amy McCarthy, Anvita Mishra, John E. Heath, Belen Villalonga, James R. Heath

**2559-PLAT 9:45 AM**  
NANOCUSTER BEACONS FOR DETECTION OF A SINGLE N6-METHYL-ADENINE EPIGENETIC MODIFICATION. Yu-An Chen, Judy M. Oblisca, Yen-Liang Liu, Cong Liu, Mary L. Gwozdz, **Tim Yeh**

**2560-PLAT 10:00 AM**  
SENSING MEMBRANE POTENTIAL BY INORGANIC SEMICONDUCTOR NANORODS. Kyoungwon Park+, **Yung Kuo**, Volodymyr Shvadchak, Antonino Ingargiola, Xinghong Dai, Lawrence Hsiung, Wookyeom Kim, Z. Hong Zhou, Peng Zou, Alex J. Levine, Jack Li, Shimon Weiss

### Platform Membrane Fusion 8:15 AM - 10:15 AM, ROOM 511ABC

#### Co-Chairs

*Claire François-Martin, Ecole Normale Supérieure, France*  
*Chris Stroupe, University of Virginia*

**2561-PLAT 8:15 AM**  
EXPERIMENTAL MEASUREMENT OF THE ACTIVATION ENERGY OF PHOSPHOLIPID MEMBRANE FUSION. **Claire François-Martin**, James E Rothman, Frédéric Pincet

**2562-PLAT 8:30 AM**  
PLANAR PORE-SPANNING MEMBRANES: A PLATFORM TO STUDY SNARE-MEDIATED FUSION PROCESSES. Raphael Hubrich, Jan Kuhlmann, Lando LG Schwenen, Dragomir Milovanovic, Reinhard Jahn, Burkhard Geil, **Claudia Steinem**

**2563-PLAT 8:45 AM**  
DIRECT QUANTITATIVE DETECTION OF DOC2B-INDUCED HEMIFUSION IN OPTICALLY TRAPPED MEMBRANES. **Ineke Brouwer**, Asiya Giniatullina, Niels Laurens, Jan R.T. van Weering, Dirk Bald, Alexander J.A. Groffen, Gijs J.L. Wuite

**2564-PLAT 9:00 AM**  
CELL FUSION STAGE IN OSTEOCLAST FORMATION. **Santosh K. Verma**, Evgenia Leikina, Kamran Melikov, Leonid V. Chernomordik

**2565-PLAT 9:15 AM**  
THE ROLE OF ACIDIC PH IN EBOLA MEDIATED CELL-CELL FUSION. **Ruben Markosyan**, Grigory Melikian, Chungui Miao, Shan-Lu Liu, Fredric S. Cohen

**2566-PLAT 9:30 AM** INTERNATIONAL TRAVEL AWARDEE  
THE MECHANISM OF HIV ENTRY INHIBITION BY 25-HYDROXYCHOLESTEROL. **Bárbara Gomes**, Axel Hollmann, Nuno C. Santos

**2567-PLAT 9:45 AM**  
RECEPTOR-MEDIATED HDL-LIPID UPTAKE IS REGULATED BY ELASTIC PROPERTIES OF THE PLASMA MEMBRANE. Birgit Plochberger, Clemens Roehrl, Johannes Preiner, Julian Weghuber, Erdinc Sezgin, Peter Hinterdorfer, Herbert Stangl, **Gerhard J. Schuetz**

**2568-PLAT 10:00 AM**  
THE HOPS/CLASS C VPS COMPLEX TETHERS MEMBRANES BY BINDING TO A RAB GTPASE IN ONE MEMBRANE AND DIRECTLY TO A SECOND MEMBRANE VIA A CURVATURE-SENSING MOTIF. **Christopher Stroupe**

### Poster Presentations and Late Posters 10:30 AM - 12:30 PM, WEST HALL

### Symposium Multiscale Correlative Imaging Techniques 1:00 PM - 3:00 PM, PETREE HALL C

#### Chair

*Jacob Hoogenboom, Delft University of Technology, Netherlands*

**2569-SYMP 1:00 PM**  
CORRELATIVE IMAGING OF INTRACELLULAR TRANSPORT PROCESSES AT HIGH RESOLUTION. **Melike Lakadamyalı**

**2570-SYMP 1:30 PM**  
IN VIVO IMAGING OF CELLULAR DYNAMICS FROM THE NANOSCALE TO THE MACROSCALE. **Eric Betzig**

**2571-SYMP 2:00 PM**  
LOCALIZING MOLECULES IN CELLULAR CT SCANS. **Carolyn Larabell**, Gerry McDermott, Mark Le Gros

**2572-SYMP 2:30 PM**  
MATCHING SCALES AND CAPABILITIES WITH INTEGRATED FLUORESCENCE AND ELECTRON MICROSCOPY. **Jacob P. Hoogenboom**

### Symposium Crowding and Order in the Genome 1:00 PM - 3:00 PM, PETREE HALL D

#### Chair

*John Marko, Northwestern University*

**2573-SYMP 1:00 PM**  
PREDICTABILITY AND CONTROL OF GENE BURSTING IN LIVE MAMMALIAN CELLS. **Ibrahim Cissé**

**2574-SYMP 1:30 PM**  
SINGLE-MOLECULE IMAGING OF RNA IN LIVE CELLS. **Maria Carmo-Fonseca**

**NO ABSTRACT 2:00 PM**  
SEEING IS BELIEVING VS SEEING IS DECEIVING IN THE CELL NUCLEUS. **David Grunwald**

**2575-SYMP 2:30 PM**  
MICROMECHANICAL STUDY OF MAMMALIAN METAPHASE CHROMOSOMES AND NUCLEI. **John F. Marko**

## Platform Molecular Dynamics II

1:00 PM - 3:00 PM, ROOM 502A

### Co-Chairs

*Tristan Bereau, Max Planck Institute for Polymer Research, Germany*  
*Tobin Sosnick, University of Chicago*

#### 2576-PLAT 1:00 PM

RNA CONFORMATIONAL ENSEMBLES: NARROWING THE GAP BETWEEN EXPERIMENTS AND SIMULATIONS WITH METADYNAMICS. **Alejandro Gil-Ley**, Sandro Bottaro, Giovanni Bussi

#### 2577-PLAT 1:15 PM

APPLICATION OF THE STRING AND 2D HAMILTONIAN REPLICA EXCHANGE UMBRELLA SAMPLING METHODS FOR THE STUDY OF CONFORMATIONAL CHANGES IN THE BACTERIAL ASPARTATE TRANSPORTER GLT(PH). **Hristina R. Zhekova**, Bogdan Lev, Sergei Noskov

#### 2578-PLAT 1:30 PM

EDUCATION TRAVEL AWARDEE

QUANTIFYING MACROMOLECULAR TRANSITION PATHS WITH PATH SIMILARITY ANALYSIS. **Sean L. Seyler**, Avishek Kumar, Taylor Colburn, Michael F. Thorpe, Oliver Beckstein

#### 2579-PLAT 1:45 PM

INVESTIGATING KINETICS OF CONFORMATIONAL CHANGE USING MOLECULAR DYNAMICS AND MILESTONING. **Hiroshi Fujisaki**, Ayori Mitsutake

#### 2580-PLAT 2:00 PM

IMPROVED KINETICS OF MOLECULAR SIMULATIONS USING BIASED MARKOV STATE MODELS. Joseph F. Rudzinski, Kurt Kremer, **Tristan Bereau**

#### 2581-PLAT 2:15 PM

UPSIDE: A NEW DYNAMICS METHOD CAPABLE OF COOPERATIVE DE NOVO PROTEIN FOLDING IN CPU-HOURS. **Tobin R. Sosnick**, John M. Jumper, Karl F. Freed

#### 2582-PLAT 2:30 PM

MODELLING CYSTEINE DISULFIDE EXCHANGE REACTIONS BY MOLECULAR DYNAMICS SIMULATIONS. **Katra Kolšek**, Camilo Aponte-Santamaría, Frauke Gräter

#### 2583-PLAT 2:45 PM

CLASSICAL DENSITY FUNCTIONAL THEORY FOR IMPLICIT SOLVENT SIMULATIONS. **Eric A. Mills**, Steven S. Plotkin

## Platform Cardiac Muscle Regulation

1:00 PM - 3:00 PM, ROOM 502B

### Co-Chairs

*Nazha Hamdani, Ruhr University Bochum, Germany*  
*Alla Kostyukova, Washington State University*

#### 2584-PLAT 1:00 PM

DOES TROPOMYOSIN SLIDE OR ROLL OVER F-ACTIN DURING REGULATORY TRANSITIONS? Michael Rynkiewicz, Veronika Schott, Marek Orzechowski, Stefan Fischer, **William Lehman**

#### 2585-PLAT 1:15 PM

TROPOMYOSIN DYNAMICS DURING CARDIAC THIN FILAMENT ACTIVATION AS GOVERNED BY A MULTI-WELL ENERGY LANDSCAPE. **Yasser Aboelkassem**, Natalia Trayanova

#### 2586-PLAT 1:30 PM

INVESTIGATING COOPERATIVITY USING A NEW BIOPHYSICALLY DETAILED CARDIAC CONTRACTION MODEL. **Sander Land**, Steven A. Niederer

#### 2587-PLAT 1:45 PM

CARDIOMYOPATHY-ASSOCIATED MUTATION K15N IN TROPOMYOSIN AFFECTS ITS INTERACTION WITH LEIOMODIN AND TROPOMODULIN. Mert Colpan, Dmitri Tolkatchev, Samantha Grover, Gregory L. Helms, John R. Cort, Natalia Moroz, **Alla S. Kostyukova**

#### 2588-PLAT 2:00 PM

INTEGRATION OF CARDIAC TROPONIN I PHOSPHORYLATIONS TO MODULATE FUNCTION. **Hussam E. Salhi**, Nicholas P. Gualtieri, Shane D. Walton, Elizabeth A. Brundage, Jonathan P. Davis, Brandon J. Biesiadecki

#### 2589-PLAT 2:15 PM

CROSSTALK WITHIN CARDIAC TROPONIN COMPLEX WITH THE R145W MUTATION IN CARDIAC TROPONIN I. **Nikolai Smolin**, Alexey V. Dvornikov, Jodi L. Martin, Seth L. Robia, Pieter P. de Tombe

#### 2590-PLAT 2:30 PM

CMYBP-C PHOSPHORYLATION MODULATES SARCOMERE LENGTH-DEPENDENT CHANGES IN CARDIAC MUSCLE CONTRACTILE FUNCTION. **Ranganath Mamidi**, Kenneth S. Gresham, Julian E. Stelzer

#### 2591-PLAT 2:45 PM

IMPACT OF CGMP-PKG PATHWAY MODULATION ON TITIN PHOSPHORYLATION AND TITIN-BASED MYOCARDIAL PASSIVE STIFFNESS. **Nazha Hamdani**, Melissa Herwig, Soraya Heopler, Doris Koesling, Marcus Kreuger, Michaela Kuhn, Wolfgang A. Linke

## Platform

### Ion Channels, Pharmacology, and Disease

1:00 PM - 3:00 PM, ROOM 515A

### Co-Chairs

*Aurelia Honerkamp-Smith, University of Cambridge, United Kingdom*  
*Harley Kurata, University of Alberta, Canada*

#### 2592-PLAT 1:00 PM

POSITIVE ALLOSTERIC MODULATION OF SK CHANNELS BY RILUZOLE. Young-Woo Nam, Sara Ali, Stephen Chiang, Tia Alexander, **Miao Zhang**

#### 2593-PLAT 1:15 PM

DEFINING THE MOLECULAR MECHANISMS OF SUBTYPE SPECIFIC KCNQ2/3 POTASSIUM CHANNEL ACTIVATORS. **Wei-Ting (Alice) Wang**, Michael Yau, Harley Kurata

#### 2594-PLAT 1:30 PM

VOLTAGE-DEPENDENT ACCESSIBILITY OF PHOSPHORYLATION SITES AT THE CARBOXY-TERMINAL DOMAIN OF KV1.3 CHANNELS DETERMINES KV1.3-INDUCED CELL PROLIFERATION. **Teresa Pérez-García**, Pilar Ciudad, Laura Jiménez-Perez, Ines Alvarez-Miguel, Alba Santos-Hipolito, Esperanza Alonso, Miguel A. de la Fuente, José R. López-López

#### 2595-PLAT 1:45 PM

USING UNNATURAL AMINO ACIDS TO PROBE THE MOLECULAR BASIS FOR HERG DRUG BLOCK. **Logan Macdonald**, Robin Y. Kim, Harley T. Kurata, Christopher Ahern, David Fedida

#### 2596-PLAT 2:00 PM

MANUAL PATCH-CLAMP RECORDING FOR MEDIUM-THROUGHPUT ION CHANNEL DRUG SCREENING: ASSAY VALIDATION BY SEARCHING FOR A BLOCKER OF NUCLEAR MONOVALENT CATIONIC CHANNEL. **Viktor Yarotsky**, Robert T. Dirksen

#### 2597-PLAT 2:15 PM

ON THE RELATION BETWEEN HERG CHANNEL BLOCK IN CELL LINE AND ACTION POTENTIAL PROLONGATION IN HUMAN IPSC CARDIOMYOCYTES. **Priyanka Saxena**, Maria Hortigon-Vinagre, Stanislav Beyl, Igor Baburin,

Anna Costa, Adriaan P IJzerman, Philipp Kügler, Eugen Timin, Godfrey Smith, Steffen Hering

**2598-PLAT 2:30 PM**

SOMATIC MOSAICISM OF NOVEL SCN5A MUTATION IN PURKINJE SYSTEM (PS) MAY UNDERLIE 2:1 BLOCK IN AN INFANT WITH LONG QT SYNDROME (LQTS). **Joseph K. Yu**, Patrick M. Boyle, Thomas O'Hara, James R. Priest, Euan Ashley, Natalia A. Trayanova

**2599-PLAT 2:45 PM**

THE VOLTAGE-GATED POTASSIUM CHANNEL KV1.3 AS A TARGET FOR INHIBITING DETRIMENTAL M1 MICROGLIA FUNCTIONS. Yi-Je Chen, Hai M. Nguyen, Izumi Maezawa, Lee-Way Jin, **Heike Wulff**

## Platform Protein Plasticity & Binding

1:00 PM - 3:00 PM, ROOM 515B

### Co-Chairs

*Margaret Cheung, University of Houston*  
*Oliver Fiset, Ruhr-University Bochum, Germany*

**2600-PLAT 1:00 PM**

A STRUCTURAL CHARACTERIZATION OF THE KV7.2-KV7.3 M CHANNEL PROXIMAL C-TERMINUS/CAM COMPLEX. **Roi Strulovich**, William Tobelaim, Bernard Attali, Joel A. Hirsch

**2601-PLAT 1:15 PM**

LESSONS IN PROTEIN DESIGN FROM COMBINED EVOLUTION AND CONFORMATIONAL DYNAMICS. **Margaret S. Cheung**, Swarnendu Tripathi, M. N. Waxham, Yin Liu

**2602-PLAT 1:30 PM**

IN SILICO IDENTIFICATION OF BINDING SITES RESPONSIBLE FOR SPECIES SPECIFICITY ON HUMAN CD81 AND HEPATITIS C VIRUS E2 PROTEIN. **Chun-Chun Chang**, Hao-Jen Hsu, Je-Wen Liou

**2603-PLAT 1:45 PM**

SINGLE-MOLECULE EXPERIMENTS TO RESOLVE STRUCTURAL AND MECHANICAL PROPERTIES OF CONDENSIN. **Jorine Eeftens**, Allard Katan, Marc Kschonsak, Markus Hassler, Essam Dief, Liza de Wilde, Christian Haering, Cees Dekker

**2604-PLAT 2:00 PM**

PROTEIN COMPLEXES FROM MD SIMULATIONS: THE ROPE-PULLING GAME OF TAPASIN AND HISTOCOMPATIBILITY MOLECULES. **Olivier Fiset**, Lars V. Schäfer

**2605-PLAT 2:15 PM**

REMEDIAL SYNERGISTIC CONCOCTION OF  $\beta$ -CYCLODEXTRIN AND NATURALLY OCCURRING POLYPHENOLS TARGETING  $\alpha$ -SYNUCLEIN AGGREGATION UNDER CELL MIMICKING CONDITIONS. **Saurabh Gautam**, Prमित K. Chowdhury

**2606-PLAT 2:30 PM**

CONFORMATIONAL CHANGE IN THE ECTODOMAIN OF THE AMYLOID PRECURSOR PROTEIN IN RESPONSE TO PROTEOLYTIC PROCESSING: THE RANDOM COIL REGIONS MATTER. **Clare Peters-Libeu**

**2607-PLAT 2:45 PM**

THE NON AMYLOID- $\beta$  COMPONENT (NAC) OF HUMAN  $\alpha$ -SYNUCLEIN OLIGOMERS INDUCES THE FORMATION OF NEW A $\beta$  OLIGOMERS: INSIGHT INTO THE MOLECULAR INTERACTIONS THAT LINK PARKINSON'S DISEASE AND ALZHEIMER'S DISEASE. **Yoav Atsmon-Raz**, Yifat Miller

## Platform Micro- and Nanotechnology

1:00 PM - 3:00 PM, ROOM 501ABC

### Co-Chairs

*Nicholas Fitzkee, Mississippi State University*  
*Meni Wanunu, Northeastern University*

**2608-PLAT 1:00 PM**

HOW DO NANOPARTICLE SIZE AND PROTEIN CHARGE AFFECT GOLD NANOPARTICLE-PROTEIN INTERACTIONS? **Nicholas C. Fitzkee**, Ailin Wang, Karen E. Woods, Randika Perera

**2609-PLAT 1:15 PM**

BIOINTERACTIONS OF ULTRASMALL GOLD NANOPARTICLES: INFLUENCE OF NANOPARTICLE SIZE AND SURFACE CHEMISTRY. Luiza L. Knittel, Sergio A. Hassan, Maria A. Aronova, Peter Schuck, Richard D. Leapman, **Aljoscka A. Sousa**

**2610-PLAT 1:30 PM**

TOWARDS A "GREEN" ANTIMICROBIAL THERAPY: STUDY OF GRAPHENE NANOSHEETS INTERACTION WITH HUMAN PATHOGENS. **Valentina Palmieri**, Massimiliano Papi, Francesca Bugli, Mariacarmela Lauriola, Claudio Conti, Gabriele Ciasca, Giuseppe Maulucci, Maurizio Sanguinetti, Marco De Spirito

**2611-PLAT 1:45 PM**

TRACKING SINGLE-PARTICLE ROTATION DURING MACROPHAGE UPTAKE. **Lucero Sanchez**, Yan Yu

**2612-PLAT 2:00 PM**

PEPTIDE TRANSLOCATION THROUGH SINGLE LYSININ CHANNELS. **Nisha Shrestha**, Sheenah Bryant, Xinzhu Pu, Paul Carnig, Juliette Tinker, Charles Hanna, Daniel Fologea

**2613-PLAT 2:15 PM**

NANOPORE ZERO-MODE WAVEGUIDES FOR DNA SEQUENCING AND BEYOND. Joseph Larkin, Robert Y. Henley, Jonas Korlach, **Meni Wanunu**

**2614-PLAT 2:30 PM**

CARBON NANOTUBE PORINS: BIOMIMETIC MEMBRANE PORE CHANNELS FOR NANOFUIDIC STUDIES. **Aleksandr Noy**

**2615-PLAT 2:45 PM**

IMPROVING DNA SEQUENCING WITH NANOPORE MSPA. **Henry Brinkerhoff**

## Platform Membrane Receptors and Signal Transduction

1:00 PM - 3:00 PM, ROOM 511ABC

### Co-Chairs

*Diane Lidke, University of New Mexico*  
*Christian Sieben, Humboldt-University Berlin, Germany*

**2616-PLAT 1:00 PM**

THE DYNAMICS AND LOCALIZATION OF THE EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) ON LIVE CELL PLASMA MEMBRANE STUDIED BY ITIR-FCS. **Shuangru Huang**, Nirmalya Bag, Thorsten Wohland

**2617-PLAT 1:15 PM**

PROBING THE NON-GENETIC CELL-TO-CELL HETEROGENEITY IN EGFR-MEDIATED MAPK ACTIVATION BY SUPER-RESOLUTION MICROSCOPY. **Oana Coban**

**2618-PLAT 1:30 PM**

INFLUENZA A VIRUSES USE MULTIVALENT SIALIC ACID CLUSTERS FOR CELL BINDING AND RECEPTOR ACTIVATION. **Christian Sieben**, Suliana Manley

**2619-PLAT 1:45 PM**

THE BINDING LIFETIME OF SYK KINASE TO THE IMMUNE RECEPTOR FC $\epsilon$ R1

REGULATES THE EFFICIENCY OF SIGNAL PROPAGATION. **Samantha L. Schwartz**, Cedric Cleyrat, Bridget S. Wilson, Keith A. Lidke, Diane S. Lidke

**2620-PLAT 2:00 PM**

DOES RECEPTOR PHOSPHORYLATION AFFECT LATERAL DIMERIZATION? **Deo R. Singh**, Michael Paul, Kalina Hristova

**2621-PLAT 2:15 PM**

OPTICAL PROBING OF METABOTROPIC GLUTAMATE RECEPTORS. **Josh Levitz**, Chris Habrian, Shashank Bharill, Zhu Fu, Reza Vafabakhsh, Ehud Isacoff

**2622-PLAT 2:30 PM**

PRECOUPLING OF G PROTEINS WITH GPCRS VISUALIZED BY TWO-PHOTON POLARIZATION MICROSCOPY. **Alexey Bondar**, Adela Brzakova, Stepan Timr, Josef Lazar

**2623-PLAT 2:45 PM**

MAPPING SINGLE MOLECULE RECEPTOR BINDING TO EARLY CELLULAR ACTIVATION IN LIVING PRIMARY T CELLS. **Jenny J. Lin**, Kate N. Alfieri, Shalini T. Low-Nam, Jay T. Groves

# WEDNESDAY POSTER SESSIONS

10:30 AM–12:30 PM, WEST HALL

*Below is the list of poster presentations of abstracts submitted by October 1.*

*The list of late abstracts scheduled for Wednesday is available in the Program addendum and the posters can be viewed on boards beginning with L. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted between 7:00 AM and 8:00 AM on Wednesday and removed by 3:00 PM. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

**ODD-NUMBERED BOARDS 10:30 AM–11:30 AM | EVEN-NUMBERED BOARDS 11:30 AM–12:30 PM**

<u>Board Numbers</u>	<u>Category</u>
B1 – B13	Protein Structure and Conformation IV
B14 – B40	Protein Structure, Prediction, and Design
B41 – B70	Protein-Small Molecule Interactions II
B71 – B92	Enzymes Function, Cofactors, and Post-translational Modifications
B93 – B113	Intrinsically Disordered Proteins (IDP) and Aggregates: A $\beta$ , Tau, and $\alpha$ -Synuclein
B114 – B140	Investigating the Properties of Intrinsically Disordered Proteins (IDP)
B141 – B152	Protein-Nucleic Acid Interactions II
B153 – B175	DNA Structure and Dynamics II
B176 – B204	Membrane Dynamics
B205 – B234	Protein-Lipid Interactions III
B235 – B264	Membrane Structure II
B265 – B283	Cardiac Smooth and Skeletal Muscle Electrophysiology II
B284 – B305	Membrane Receptors and Signal Transduction III
B306 – B316	Exocytosis and Endocytosis II
B317 – B327	Intracellular Transport
B328 – B342	Excitation-Contraction Coupling II
B343 – B347	Voltage-gated K Channels and voltage Mechanisms of Voltage Sensing and Gating III
B348 – B363	Ligand-gated Channels III
B364 – B388	Ion Channel Regulatory Mechanisms
B389 – B407	TRP Channels II
B408 – B420	Myosins
B421 – B437	Cytoskeletal Assemblies and Dynamics
BB438 – B463	Cell Mechanics, Mechanosensing, and Motility III
B464 – B490	Membrane Pumps, Transporters, and Exchangers II
B491 – B497	Computational Neuroscience
B498 – B537	Single-Molecule Spectroscopy
B538 – B567	Molecular Dynamics II
B568 – B591	Optical Microscopy and Super-Resolution Imaging III
B592 – B617	Micro-and Nantotechnology II

It is the responsibility of the poster presenters to remove print materials from the board after their presentations. Please do not leave materials or belongings under poster boards or in the poster area. Posters will not be collected or stored for pick-up at a later time. The Biophysical Society is not responsible for any articles left in the poster area.

## Protein Structure and Conformation IV (Boards B1 - B13)

**2624-Pos BOARD B1**  
CHANGES IN  $\beta$ L-CRYSTALLIN AND OVALBUMIN DUE TO EXPOSURE TO GREEN AND RED LIGHT. **Juan Horacio Espinoza Rodríguez**, Hilda Mercado Uribe

**2625-Pos BOARD B2**  
THE EFFECT OF SMALL MOLECULES ON EARLY AND LATE EVENTS OF ALPHA SYNUCLEIN AGGREGATION IN SOLUTION AND INSIDE LIVING CELLS. **Amrita Kundu**, Sumanta Ghosh, Krishnananda Chattopadhyay

**2626-Pos BOARD B3**  
MENADIONE SUPPRESSES AMYLOID FIBRILLOGENESIS AND CYTOTOXICITY: IMPLICATION IN THE TREATMENT OF SYSTEMIC AMYLOIDOSIS. **Parvez Alam**, Sumit K. Chaturvedi, Mohd K. Siddiqi, Rizwan H. Khan

**2627-Pos BOARD B4**  
OLIGOMERIC STRUCTURES OF AN AGGREGATION-TRIGGERING FRAGMENT OF SOD1 PROTEIN. **Qingwen Zhang**, Yu Zou

**2628-Pos BOARD B5**  
STRUCTURAL REARRANGEMENT FROM OLIGOMER TO FIBRIL IN A DESIGNED AMPHIPHILIC PEPTIDE. **Heng Chi**, Timothy A. Keiderling

**2629-Pos BOARD B6**  
STUDY OF MOLECULAR MECHANISMS OF AMYLOID  $\beta$ -PEPTIDE VARIANTS AGGREGATION IN PRESENCE OF SURFACTANTS. **Michalina Skupin**, Maciej Kozak

**2630-Pos BOARD B7**  
ANOMALOUS IRREVERSIBLE "CONVERSION" OF TAG-BFP FLUORESCENCE SPECTRA IN THE PRESENCE OF TAG-RFP: POSSIBLE MODEL OF PRION INTERACTIONS. **Andrey Samsonov**, Andrea Klarich, Nathan Zenser, Hongyi Zhang, Dmitry Malkov

**2631-Pos BOARD B8**  
COMPARATIVE CONFORMATIONAL DYNAMICS OF CELLULAR PRION PROTEINS TOWARDS ELUCIDATING THE SPECIES BARRIER. **Robyn Hamada**, Jesse Woo, Ronald Shikiya, Patricia Soto

**2632-Pos BOARD B9**  
EXPLORING THE ORB2 FIBRIL CORE. **Alexander S. Falk**, Silvia A. Cervantes, Maria A. Conrad-Soria, Thalia H. Bajakian, Ansgar B. Siemer

**2633-Pos BOARD B10**  
CONFORMATIONAL SHIFTS IN HUNTINGTIN EXON 1 MONOMER ARE DEPENDENT ON TEMPERATURE AND POLYGLUTAMINE LENGTH. Natalie C. Kegulian, **Mario J. Isas**, Sean S. Chung, Nitin K. Pandey, Jose M. Bravo, Ralf Langen

**2634-Pos BOARD B11**  
ASSEMBLY MECHANISM AND NANOMECHANICS OF  $A\beta$  IN ALZHEIMER'S DISEASE. Hsien-Shun Liao, **Catherine Stark**, James B. Yao, Havisha Garimella, Paul D. Smith, Curtis W. Meuse, Albert J. Jin

**2635-Pos BOARD B12**  
INVESTIGATION ON PLEXIN RHO GTPASE BINDING DOMAIN (RBD) BINDING WITH SMALL RHO GTPASES USING MOLECULAR DYNAMICS SIMULATIONS. **Liqun Zhang**, Thomas Centa, Matthias Buck

**2636-Pos BOARD B13**  
CONFORMATIONAL PLASTICITY OF THE MAGE-A3 PROTEIN AS A THERAPEUTIC STRATEGY IN MULTIPLE MYELOMA. **Roman Osman**, Hearn J. Cho, Anna H. Mei, Joseph A. Newman, Opher Gileadi

## Protein Structure, Prediction, and Design (Boards B14 - B40)

**2637-Pos BOARD B14**  
ENHANCING THE COEVOLUTIONARY SIGNAL. **Travis A. Hoppe**, Pengfei Tian, Robert Best

**2638-Pos BOARD B15**  
ALTERNATIVE APPROACH TO PROTEIN STRUCTURE PREDICTION BASED ON SEQUENTIAL SIMILARITY OF PHYSICAL PROPERTIES. **Yi He**, S. Rackovsky, Yanping Yin, Harold A. Scheraga

**2639-Pos BOARD B16**  
PROTEIN RETHREADING. **Salem Faham**, Sandra Poulos, Austin Yu, Sayeh Agah

**2640-Pos BOARD B17**  
PREDICTION OF PROTEIN RIGID DOMAINS AND HINGE RESIDUES BASED ON GRAPH THEORY AND ELASTIC NETWORK MODEL. **Julian Lee**, Jun Sim, Jaehyun Sim, Eunsung Park

**2641-Pos BOARD B18**  
CHARACTERIZING THE STATISTICAL PROPERTIES OF PROTEIN SURFACES. **Ji Hyun Bak**, Anne-Florence Bitbol, William Bialek

**2642-Pos BOARD B19**  
A NOVEL IN SILICO 4D GEOMETRICAL MEASURE OF THE ACTIVE SITE CORRELATES WITH THE ENZYMIC ACTIVITY OF HCV NS3 PROTEASE; IMPLICATIONS IN CATALYSIS AND DRUG DESIGN. **Mohammad S. Yousef**, Hamzah Hamad, Jeremy Thurston, Thomas Teague, Edward Ackad

**2643-Pos BOARD B20**  
TENSILE MECHANICS OF COILED COIL PROTEIN STRUCTURES. Mojtaba Jokar, **Korosh Torabi**

**2644-Pos BOARD B21**  
DESIGN AND ENGINEERING OF NANOPORES WITH EMERGENT FUNCTIONS. **Giovanni Maglia**

**2645-Pos BOARD B22**  
ON THE COMBINATION OF RESTRAINT-DRIVEN DOCKING OF FLEXIBLE PEPTIDES TO ION CHANNELS - LESSONS LEARNT FROM THE COMPLEX FORMED BY THE SPIDER VENOM PCTX1 AND THE ACID SENSING ION CHANNEL1. **Evelyne Deplazes**, Josephine Davies, Alexandre M. J. J. Bonvin, Alan E. Mark

**2646-Pos BOARD B23**  
DE NOVO DESIGNED PEPTIDES INHIBIT THE CYTOKINES BINDING TO THEIR RECEPTORS FROM MOLECULAR SIMULATIONS AND IN VITRO EXPERIMENTS. **Yi Chung**, Shinn-Jong Jiang, Je-Wen Liou, Hao-Jen Hsu

**2647-Pos BOARD B24**  
MUTUALLY EXCLUSIVE FOLDING AND ITS ESCAPE HATCH: DESIGNING FUNCTIONAL POLYMERS BY ENGINEERED DOMAIN SWAPPING. **Joshua M. Karchin**, Jeung-Hoi Ha, Stewart N. Loh

**2648-Pos BOARD B25**  
COMBINING FRAGMENTATION OF AN AMINO ACYL TRNA SYNTHETASE WITH FUSION TO INTERACTING PROTEINS TO INCREASE CONTROL OVER PROTEIN METABOLIC LABELING. **Emily E. Thomas**

**2649-Pos BOARD B26**  
DE NOVO DESIGN AND IN SILICO OPTIMIZATION OF ANTIBODY-LIKE BINDERS TARGETING EBOLA VIRAL ANTIGEN. **Muyun Lihan**, Boon Chong Goh, Tong Li, Costas D. Maranas, Klaus Shulten



## Protein-Small Molecule Interactions II (Boards B41 - B70)

**2650-Pos BOARD B27**  
COMPUTATIONAL APPROACH TO DESIGNING ANTIBODY FOR EBOLA VIRUS. **Amir Barati Farimani**, Narayana R. Aluru, Emad Tajkhorshid, Eric Jakobsson

**2651-Pos BOARD B28**  
STRUCTURAL REFINEMENT OF BAR-PH DOMAINS REMODELING CELL MEMBRANE USING MDFF. Chun Chan, Xiaoyun Pang, Yan Zhang, Victor W. Hsu, Fei Sun, **Jun Fan**

**2652-Pos BOARD B29**  
STRUCTURE AND INTERACTION OF TYPE II CAS1 FROM STERPTOCOCCUS PYOGENES. **Donghyun Ka**, Euiyoung Bae

**2653-Pos BOARD B30**  
PROBING P53 ACTIVATING STAPLED-PEPTIDE INTERACTION WITH ALBUMIN USING MOLECULAR DOCKING AND SIMULATION. **Garima Tiwari**, Chandra S. Verma

**2654-Pos BOARD B31**  
COMPUTATIONAL AND EXPERIMENTAL STUDY OF NEUROGLOBIN AND CARBON MONOXIDE. **Lauren Nelson**, Samuel Cho, Daniel Kim-Shapiro

**2655-Pos BOARD B32**  
ELUCIDATING THE ROLE OF STRUCTURAL DYNAMICS IN LIGAND SELECTION OF HUMAN ADIPOCYTE FATTY ACID BINDING PROTEIN BY NMR SPECTROSCOPY. **Kim N. Ha**, Youlin Xia, Yenchu Tran, Gianluigi Veglia, David Bernlohr

**2656-Pos BOARD B33**  
THE KNOB-SOCKET MODEL: AN AMINO ACID CODE DESCRIBING PROTEIN TERTIARY PACKING STRUCTURE. Hyun Joo, Keith J. Fraga, **Jerry Tsai**

**2657-Pos BOARD B34**  
AN AMINO ACID CODE FOR THE RATIONAL DESIGN AND INVESTIGATION OF PROTEIN PACKING STRUCTURE USING THE KNOB-SOCKET MODEL. **Shivarni Patel**, Hyun Joo, Jerry Tsai

**2658-Pos BOARD B35**  
AUTOMATED CROSS-LINKS-BASED CONFORMATIONAL SAMPLING OF PROTEIN ASSEMBLIES : THE GEOMETRICAL CHALLENGE OF CROSS-LINKS. **Mathias Ferber**, Michael Nilges, Guillaume Bouvier

**2659-Pos BOARD B36**  
PHOTOCONTROL OF PROTEIN AFFINITY REAGENTS BY RED LIGHT USING AZOBENZENE SWITCHES. **Amirhossein Babalhavaeji**, Mingxin Dong, Di Wu, G. Andrew Woolley

**2660-Pos BOARD B37**  
BLUE LIGHT CONTROL OF CREB VIA A DESIGNED DOMINANT NEGATIVE. **Jakeb M. Reis**, Ahmed M. Ali, Yan Xia, Asim Rashid, Valentina Mercaldo, Katherine Brechun, Vitali Borisenko, Sheena Josselyn, John Karanicolas, Andrew Woolley

**2661-Pos BOARD B38**  
VIBRATIONAL AND ELECTRONIC STARK EFFECTS IN GREEN FLUORESCENT PROTEIN. **Joshua D. Slocum**, Lauren J. Webb

**2662-Pos BOARD B39**  
A SPLIT GFP BARREL WITH AN INTERNAL CAVITY THAT BINDS THE CHROMOPHORE. **Chi-Yun Lin**, Steven G. Boxer

**2663-Pos BOARD B40**  
A REVERSIBLY PHOTODISSOCIABLE SPLIT GFP. **Johan H. Both**, Steven G. Boxer

**2664-Pos BOARD B41 INTERNATIONAL TRAVEL AWARDEE**  
MODELING PROTEIN- DNA INTERACTION ON GROUNDS OF QUANTUM ENTANGLEMENT. **Yadira Medina Guevara**, Joao D. T. Arruda-Neto, Danyer Perez Adan

**2665-Pos BOARD B42**  
ACCELERATED MOLECULAR DYNAMICS SIMULATIONS OF PHOSPHATE BINDING PROTEINS. **Sigurd F. Truelsen**

**2666-Pos BOARD B43**  
INVESTIGATION OF INHIBITORY POTENCY OF BHQ DERIVATIVES AS SERCA INHIBITORS TO USE AS POTENTIAL DRUGS AS WELL AS TOOLS TO STUDY THE SERCA FUNCTION: BINDING FREE ENERGY COMPUTATION USING FEP/MD SIMULATIONS. **Manori Jayasinghe**, Qi Wang, Andrew Schirmer, George Stan

**2667-Pos BOARD B44**  
INVESTIGATION OF HNO-DERIVED MODIFICATIONS ON PHOSPHOLAMBAN. **Gizem Keceli**, Ananya Majumdar, Chevon N. Thorpe, James E. Mahaney, Nazareno Paolucci, John P. Toscano

**2668-Pos BOARD B45**  
PHOSPHOLAMBAN INTERACTION WITH SR CA-ATPASE INVESTIGATED BY PRE-STEADY STATE CHARGE MEASUREMENTS. **Serena Smeazzetto**, Howard S. Young, Catharine A. Trieber, Maria Rosa Moncelli, Francesco Tadini-Buoninsegni

**2669-Pos BOARD B46**  
MOLECULAR COMPETITORS OF THE ALPHA GLOBIN/ENOS INTERACTION. **T. C. Stevenson Keller IV**, Joshua T. Butcher, Brant E. Isakson, Linda M. Columbus

**2670-Pos BOARD B47**  
CANCER CELL-DIRECTED DRUG DELIVERY AND CHEMOPOTENTIATING EFFECTS BY GSP1-ACTIVATED NITRIC OXIDE (NO)-RELEASING PRODRUG. **Vandana Kumari**, Ryan J. Holland, Christina E. Luthers, Marzena A. Dyba, Sergey G. Tarasov, Joseph E. Saavedra, Larry K. Keefer, Xinhua Ji

**2671-Pos BOARD B48**  
ISOTHERMAL ANALYSIS OF INTERACTION BETWEEN LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE AND PROSTANOIDS. **Yusuke Nakagawa**, Shigeru Shimamoto, Yutaro Fukuda, Takahiro Maruno, Yuji Kobayashi, Tadayasu Ohkubo, Kousuke Aritake, Yoshihiro Urade, Yuji Hidaka

**2672-Pos BOARD B49**  
FLUNITRAZEPAM CONVERSION BY CYP3A4 IS ALTERED BY CAFFEINE AND ETHANOL. **Thomas R. Larson**, Larry R. Masterson

**2673-Pos BOARD B50**  
DECIPHERING THE BINDING MODE OF PROMISING ANTITUBERCULOSIS COMPOUNDS WITH THEIR BACTERIAL MEMBRANE TARGET IN LIVING CELLS BY NMR. Catherine Simenel, Guillaume Bouvier, Michael Nilges, **Nadia Izadi Pruneyre**

**2674-Pos BOARD B51**  
A RAPID BIOCHEMICAL ASSAY TO MEASURE SMALL MOLECULES BINDING TO PREGNANE XENOBIOTIC RECEPTORS FROM HUMAN, DOG AND RAT. **Anita Niedziela-Majka**, Kristina Hinman, Johannes Voigt, Magdeleine Hung, Andrew Post, Roman Sakowicz

**2675-Pos BOARD B52**  
CHARACTERIZATION OF THE MOLECULAR INTERACTIONS BETWEEN PARE/GYRB AND AN INHIBITOR AND ITS INSIGHT INTO DEVELOPING ANTIBACTERIAL AGENTS. **Congbao Kang**

**2676-Pos BOARD B53**  
STRUCTURAL BASIS OF MEMBRANE TARGETING BY THE INNATE IMMUNITY ADAPTOR TIRAP. **Xiaolin Zhao**, Shuyuan Xiao, Jeffrey Ellena, Geoffrey Armstrong, Daniel Capelluto

**2677-Pos BOARD B54**  
NOVEL MODULATORS OF GLYCINE RECEPTORS. **Marta M. Wells**, Andrew Maxwell, Yan Xu, Pei Tang

**2678-Pos BOARD B55**  
SCREENING OF A PROTEIN-PROTEIN INTERACTION FOCUSED LIBRARY TARGETING BIG3-PHB2 INTERACTION. **Takeru Chigira**, Satoru Nagatoishi, Kouhei Tsumoto

**2679-Pos BOARD B56**  
PEPTIDES DERIVED FROM CXCL8 BASED ON IN SILICO ANALYSIS INHIBIT CXCL8 INTERACTIONS WITH ITS RECEPTOR CXCR1. Chun-Chun Chang, Shinn-Jong Jiang, Je-Wen Liou, Yi Chung, **Hao-Jen Hsu**

**2680-Pos BOARD B57**  
PROTEIN-PEPTIDE DOCKING WITH HIGH CONFORMATIONAL FLEXIBILITY USING CABS-DOCK WEB TOOL. **Maksim Kouza**, Maciej Blaszczyk, Mateusz Kurcinski, Lukasz Wieteska, Aleksander Debinski, Andrzej Kolinski, Sebastian Kmiecik

**2681-Pos BOARD B58**  
INCREASED FLEXIBILITY OF LOCAL CONFORMATION IN THE N-TERMINAL DOMAIN OF MDMX ENHANCES LIGAND-BINDING AFFINITY. **Lingyun Qin**, Rong Chen, Huili Liu, Zhengding Su

**2682-Pos BOARD B59**  
THE INFLUENCES OF DRUG-RESISTANT MUTATIONS OF EGFR TO THE INHIBITOR BINDING AFFINITY AND THE DRUG TARGET SELECTIVITY PROFILES. **Jiyong Park**, Joseph J. McDonald, Russell C. Petter, Ken Houk

**2683-Pos BOARD B60**  
THE IMPACT OF EXPERIMENTAL, PROTEIN STRUCTURE ON OUR ABILITY TO MODEL PROTEIN FUNCTION. **Oleg Y. Borbulevych**, Lance M. Westerhoff

**2684-Pos BOARD B61**  
HEPARIN-SCLEROSTIN INTERACTIONS FROM SURFACE PLASMON RESONANCE AND MOLECULAR DYNAMICS SIMULATIONS. **J. Joel Janke**, Fuming Zhang, Robert J. Linhardt, Angel E. Garcia

**2685-Pos BOARD B62**  
MOLECULAR BASES BASIS OF ANTIBIOTIC TRANSLOCATION ACROSS OUTER MEMBRANE PORINS OF ENTEROBACTER AEROGENES. **Jiajun Wang**, Muriel Masi, Harsha Bajaj, Mohamed Kreir, Mathias Winterhalter, Niels Fertig

**2686-Pos BOARD B63**  
STUDY OF LIGAND BINDING SELECTIVITY OF HISTONE DEACETYLASES BY REPLICA-EXCHANGE UMBRELLA SAMPLING MOLECULAR DYNAMICS SIMULATIONS. **Shuichiro Tsukamoto**, Yoshitake Sakae, Yukihiko Itoh, Takayoshi Suzuki, Yuko Okamoto

**2687-Pos BOARD B64 INTERNATIONAL TRAVEL AWARDEE**  
PREDICTING LIGAND SELECTIVITY ACROSS BROMODOMAIN FAMILIES. **Matteo Aldeghi**, Alexander Heifetz, Michael J. Bodkin, Stefan Knapp, Philip C. Biggin

**2688-Pos BOARD B65**  
A MOLECULAR DYNAMICS STUDY OF MICHAELIS COMPLEX FOR DESIGNING SELECTIVE TRANSITION STATE ANALOG INHIBITORS FOR CYSTEINE PROTEASE CALPAIN-2. **Payal Chatterjee**, Abdelaziz Alsamarah, David Kent, Li Qian, David Wych, Christine N. Pham, Alla Avetisyan, Steven Standley, Michel Baudry, Yun Luo

**2689-Pos BOARD B66**  
MECHANISM OF UREA CONDUCTION THROUGH H. PYLORI UREI. **Ugur Akgun**

**2690-Pos BOARD B67 CPOW TRAVEL AWARDEE**  
DISSECTING THE CONTRIBUTION OF KINASE CONFORMATIONAL REORGANIZATION ENERGIES TO INHIBITOR SELECTIVITY. **Sonya M. Hanson**, Lucelenie Rodriguez, Julie M. Behr, Andrea Rizzi, Daniel L. Parton, Kyle A. Beauchamp, Joshua H. Fass, Jan-Hendrik Prinz, Sarah E. Boyce, Markus A. Seeliger, Nicholas M. Levinson, John D. Chodera

**2691-Pos BOARD B68**  
MULTISCALE MODELING OF DENDRIMERS FOR BIOLOGICAL APPLICATIONS. **Bo Wang**, Esteban Gurzov, Pu Chun Ke, Feng Ding

**2692-Pos BOARD B69**  
PHOSPHORYLATION MODIFIES COUPLING OF THE MEMBRANE DOMAINS AND NBD1 OF FULL LENGTH CFTR. **Stephanie Chin**, Mohabir Ramjeesingh, Paul Eckford, Christine E. Bear

**2693-Pos BOARD B70**  
A FUSION PROTEIN OF P53 PEPTIDE AND MDMX AS AN EFFICIENT MODEL FOR SCREENING OF ANTICANCER PRODRUGS WITH FLUORESCENCE SPECTROSCOPY. Rong Chen, Lingyun Qin, **Zheng Su**

## Enzymes Function, Cofactors, and Post-translational Modifications (Boards B71 - B92)

**2694-Pos BOARD B71 EDUCATION TRAVEL AWARDEE**  
IMPULSIVE ENZYMES: A NEW FORCE IN MECHANOBIOLOGY. **Krishna Kanti Dey**, Ayusman Sen

**2695-Pos BOARD B72**  
DISSECTING PROTON DELOCALIZATION AND THE ELECTROSTATIC CONTRIBUTION TO CATALYSIS IN AN ENZYME'S HYDROGEN BOND NETWORK WITH UNNATURAL AMINO ACIDS. **Yufan Wu**, Steven G. Boxer

**2696-Pos BOARD B73**  
VIBRATIONAL STARK EFFECTS FOR DIVERSE CARBONYL PROBES APPLIED TO THE RE-INTERPRETATION OF IR AND RAMAN DATA IN TERMS OF ELECTRIC FIELDS AT ENZYME ACTIVE SITES. **Samuel H. Schneider**, Steven G. Boxer

**2697-Pos BOARD B74**  
COMPUTATIONAL STUDY ON THE CATALYTIC EFFECT OF THE MAGNESIUM IONS IN THE MECHANISM OF DNA POLYMERASES. **Ricardo A. Matute**, Arieh Warshel

**2698-Pos BOARD B75**  
THE EFFECT OF MAGNESIUM ION CONCENTRATION ON THE NUCLEOTIDE SPECIFICITY AND FIDELITY OF HIV-1 REVERSE TRANSCRIPTASE. **Shanzhong Gong**, Kenneth Johnson

**2699-Pos BOARD B76 EDUCATION TRAVEL AWARDEE**  
THE ROLE OF PHOSPHORYLATION AND ACETYLATION OF TFAM IN DNA BINDING REGULATION USING SINGLE-MOLECULE MANIPULATION AND FLUORESCENCE MICROSCOPY. **Maryam Hashemi Shabestari**, Graeme A. King, Wouter H. Roos, Carolyn K. Suzuki, Gijs J. L. Wuite

**2700-Pos BOARD B77 EDUCATION TRAVEL AWARDEE**  
NEW INSIGHT INTO THE CATALYTIC AND INHIBITION MECHANISM OF THE HUMAN ACYL PROTEIN THIOESTERASE. **Martina Audagnotto**, Sylvia Ho, Patrick Sandoz, Nicole Andenmatten, Gisou van der Goot, Matteo Dal Peraro

**2701-Pos BOARD B78**  
STRUCTURAL AND BIOCHEMICAL INVESTIGATIONS ON THE CATALYTIC MECHANISM OF PYRIDOXAL KINASE (PDXK) FROM SALMONELLA TYPHIMURIUM AND ITS INTERACTIONS WITH PLP-DEPENDENT ENZYMES. **G. Deka**, J. F. Benazir, J. N. Kalyani, H. S. Savithri, M.R.N. Murthy

**2702-Pos BOARD B79**  
MOLECULAR BASIS FOR COHESIN ACETYLATION BY ESTABLISHMENT OF SISTER CHROMATID COHESION N-ACETYLTRANSFERASE (ESCO1). **Yadillette Rivera-Colon**, Andrew Maguire, Glen P. Liszczak, Ronen Marmorstein

**2703-Pos BOARD B80**  
ORIGINS OF CATALYTIC SPECIFICITY IN BACTERIAL OLIGOSACCHARYLTRANSFERASE. **Brittany R. Morgan**, Francesca Massi

**2704-Pos BOARD B81**  
MOLECULAR MECHANISM OF THE CATALYTIC REACTION OF NO REDUCTASE REVEALED BY NOVEL TIME-RESOLVED VISIBLE/IR ABSORPTION SPECTROMETERS WITH MICROFLUIDIC DEVICE. **Tetsunari Kimura**, Hanae Takeda, Shoko Ishii, Takehiko Tosha, Yoshitsugu Shiro, Minoru Kubo

**2705-Pos BOARD B82**  
DROPLET-BASED MICROFLUIDICS FOR MEASURING ENZYMIC ACTIVITIES: APPLICATION TO L-ASPARAGINASE USED IN ANTILEUKEMIC THERAPY. **Manfred W. Konrad**, Christos S. Karamitros, Joanan Lopez Morales, Jean-Christophe Baret

**2706-Pos BOARD B83 EDUCATION TRAVEL AWARDEE**  
TRANSGLUTAMINASE FACTOR XIII CROSS-LINKS REACTIVE GLUTAMINES IN DISORDERED REGIONS OF FIBRINOGEN  $\alpha$ C. **Kelly Njine Mouapi**, Kerrie A. Smith, Robert A.S Ariens, Helen Philippou, Muriel C. Maurer

**2707-Pos BOARD B84**  
CHARACTERIZATION OF THE PYRUVATE OXIDASE CIDC FROM S. AUREUS. **Xinyan Zhang**, Kenneth Bayles, Sorin Luca

**2708-Pos BOARD B85**  
PHOSPHODIESTERASE 5 SIGNALS THROUGH HIPPO/TAZ PATHWAY IN MAINTAINING STEMNESS OF PROSTATE CANCER CELLS. **Naihua Liu**, Xing Ji, Ximei Wu

**2709-Pos BOARD B86**  
THE NEET PROTEINS MEDIATE IRON-SULFUR CLUSTER TRANSPORT FROM THE MITOCHONDRIA TO CYTOSOLIC PROTEINS. **Colin H. Lipper**, Mark L. Paddock, Rachel Nechushtai, Patricia A. Jennings

**2710-Pos BOARD B87**  
KINETIC AND STRUCTURAL ANALYSES OF A DYNAMIN MECHANOEZYME. **Blake Hill**, Nolan Kennedy

**2711-Pos BOARD B88**  
KINETIC DISSECTION OF THE PRE-EXISTING CONFORMATIONAL EQUILIBRIUM IN THE TRYPSIN FOLD. Austin D. Vogt, **Pradipta Chakraborty**, Enrico Di Cera

**2712-Pos BOARD B89**  
INFLUENCE OF DIFFUSION ON THE KINETICS OF MULTISITE PHOSPHORYLATION. **Irina V. Gopich**, Attila Szabo

**2713-Pos BOARD B90**  
EFFECTS OF METAL SUBSTITUTION IN HDAC8 AND IMPLICATIONS FOR KINETICS. **Nathan Gallup**, Michael Nechay

**2714-Pos BOARD B91**  
SYNTHESIZING CAGED-NAD MOLECULES TO CONDUCT LAUE TIME-RESOLVED CRYSTALLOGRAPHY MEASUREMENTS ON HMGCOA REDUCTASE. **Vatsal Purohit**, Farbod Salahi, Nic Steussy, Paul Helquist, Olaf Weist, Cynthia Stauffacher

**2715-Pos BOARD B92**  
DISTRIBUTION OF IMMOBILIZED ENZYMES ON THE SURFACE AND INTO THE MESOPOROUS SILICA PARTICLE. **Pegah S. Nabavi Zadeh**, Björn Åkerman

## Intrinsically Disordered Proteins (IDP) and Aggregates: A $\beta$ , Tau, and $\alpha$ -Synuclein (Boards B93 - B113)

**2716-Pos BOARD B93**  
WHY PRESSURE IS BAD FOR YOUR BRAIN? HYDROSTATIC PRESSURE PROMOTES AGGREGATION OF ALPHA-SYNUCLEIN IN CELLS. **Urszula P. Golebiewska**, Suzanne Scarlata

**2717-Pos BOARD B94**  
AGGREGATION AND FIBRILLATION OF  $\alpha$ -SYNUCLEIN BY POLYMORPH PATCHY PARTICLES. **Ioana M. Ilie**, Wouter K. den Otter, Wim J. Briels

**2718-Pos BOARD B95**  
ALPHA-SYNUCLEIN AND ITS INTERACTION WITH CYTOSKELETON (ASSOCIATED) PROTEINS: IMPLICATIONS IN PARKINSON'S DISEASE. **Senthil Kumar Thangaraj**, Lisanne Dijk, Mireille Claessens

**2719-Pos BOARD B96**  
MOLECULAR DYNAMICS SIMULATIONS OF ALPHA-SYNUCLEIN ENSEMBLE FRET MEASUREMENTS FROM DIFFERENT FORCE FIELDS. Reinhard Klement, **Timo Graen**, Asaf Grupi, Elisha Haas, Helmut Grubmüller

**2720-Pos BOARD B97**  
UNCONVENTIONAL CHAPERONE INHIBITS AMYLOID FORMATION BY PROMOTING OFF-PATHWAY AGGREGATION. Illes-Toth Eva, Shah Maliha, Wu Nelson, Verzini Silvia, Selenko Philipp, Wanker E. Erich, **Jan Bieschke**

**2721-Pos BOARD B98 EDUCATION TRAVEL AWARDEE**  
MULTI-TARGET THERAPEUTIC POTENTIAL OF GREEN TEA CATECHINS AND BLACK TEA THEAFLAVINS TOWARD A $\beta$ -INDUCED SIGNAL PATHWAYS INVOLVED IN ALZHEIMER'S DISEASE. **Shelby E. Chastain**, Melissa Moss

**2722-Pos BOARD B99**  
EFFECT OF ACIDIC PH ON THE STABILITY OF ALPHA-SYNUCLEIN DIMERS. **Zhengjian Lv**, Alexey V. Krasnoslobodtsev, Yuliang Zhang, Daniel Ysselstein, Jean-Christophe Rochet, Scott C. Blanchard, Yuri L. Lyubchenko

**2723-Pos BOARD B100**  
THE INTERPLAY OF INTRINSIC DISORDER AND MACROMOLECULAR CROWDING ON  $\alpha$ -SYNUCLEIN FIBRIL FORMATION. **Nobu C. Shirai**, Macoto Kikuchi

**2724-Pos BOARD B101**  
ASSESSING N-TERMINAL MODIFICATIONS ON ALPHA-SYNUCLEIN STRUCTURE AND FUNCTION. **Siobhan Toal**, David DeWitt, Adam Trexler, Mark Brown, Elizabeth Rhoades

**2725-Pos BOARD B102**  
EFFICIENT LIPID PEROXIDATION CATALYZED BY AMYLOID-BETA-COPPER COMPLEX: OBSERVATION OF CHEMICAL OSCILLATION AND CHAOS. Ciaran McFarlane, Paul Girvan, Thomas Branch, **Liming Ying**

**2726-Pos BOARD B103**  
SELF-ASSEMBLY OF FULL-SIZE AMYLOID BETA 40 PROTEINS IN DIMERS. **Mohtadin Hashemi**, Yuliang Zhang, Zhengjian Lv, Yuri L. Lyubchenko

**2727-Pos BOARD B104**  
X-RAY DIGITAL AGGREGATED DYNAMICS OF INTRINSICALLY DISORDERED PROTEINS. **Naruki Hara**, Yufuku Matsushita, Keigo Ikezaki, Hiroshi Sekiguchi, Naoya Fukui, Yasushi Kawata, Yuji C. Sasaki

**2728-Pos BOARD B105**  
TAU MEDIATES WIDELY-SPACED MICROTUBULE BUNDLES THROUGH LOCAL POLYION ATTRACTIONS AT THE MIDPLANE LAYER: A NOVEL, FUNCTIONAL MECHANISM FOR INTRINSICALLY DISORDERED PROTEINS. **Peter J. Chung**, Chaeyeon Song, Joanna Deek, Herbert P. Miller, Youli Li, Leslie Wilson, Stuart C. Feinstein, Cyrus R. Safinya

**2729-Pos BOARD B106 EDUCATION TRAVEL AWARDEE**  
A $\beta$  FIBRILS ACT AS AQUEOUS PORES: A MOLECULAR DYNAMICS STUDY. **Sachin R. Natesh**, Stephen C. Meredith, Tobin R. Sosnick, Karl F. Freed, Esmael J. Haddadian

**2730-Pos BOARD B107**  
DANCING WITH STRINGS: THE CONFORMATIONAL DYNAMICS OF VQIXXK MOTIFS WITHIN TAU PROTEIN IN MONOMER, FIBRIL AND HYPER-PHOSPHORYLATED FILAMENT STATES. **Buyong Ma**, Guanghong Wei, Jie Zhen, Ruth Nussinov

**2731-Pos BOARD B108**  
THE CONFORMATION OF A $\beta$ -PEPTIDE AGGREGATES ON 2D SURFACES IS DIFFERENT THAN IN SOLUTION: A MOLECULAR DYNAMICS STUDY. **Sachin R. Natesh**, Kark F. Freed, **Esmael J. Haddadian**

**2732-Pos BOARD B109**  
TAU BINDS TO MULTIPLE TUBULIN DIMERS WITH HELICAL STRUCTURE. **Xiaohan Li**, Jacob A. Culver, Elizabeth Rhoades

**2733-Pos BOARD B110**  
THE DISPARATE EFFECTS OF TWO MOLECULAR CHAPERONES ON TAU AMYLOID FORMATION. **Hannah E.R. Baughman**, Amanda F. Clouser, Rachel E. Klevit, Abhinav Nath

**2734-Pos BOARD B111**  
BINDING-ACTIVATED SUPERRADIANT PROBES FOR AMYLOID IN SOLUTION AND TISSUE. **Patrick Donabedian**, Nicole Maphis, Shanya Jiang, Kiran Bhaskar, David Whitten, Eva Chi

**2735-Pos BOARD B112**  
AMYLOID AGGREGATION OF AMYLIN: GAIN OF FUNCTION ALONG AGGREGATION PATHWAY? **Anoop Rawat**, Debanjan Bhowmik, Barun Kumar Maity, Sudipta Maiti

**2736-Pos BOARD B113**  
AMYLOID- $\beta$ (1-42)OLIGOMER MODELS DEVELOPED USING COMBINED SOLID STATE NMR AND SEQUENCE SPECIFIC HYDROXYL RADICAL FOOTPRINTING DATA. **Alexandra Klinger**, Cong Guo, Huan-Xiang Zhou, Anant Paravastu, Janna Kiselar, Andrew J. Nix, Terrone L. Rosenberry

## Investigating the Properties of Intrinsically Disordered Proteins (IDP) (Boards B114 - B140)

**2737-Pos BOARD B114**  
NMR INVESTIGATION OF CALMODULIN INDUCED FOLDING IN THE REGULATORY DOMAIN OF CALCINEURIN. **Dinesh K. Yadav**

**2738-Pos BOARD B115**  
PROTEIN DESIGN FOR DECREASED DISORDER: SHERP AS AN EXEMPLAR PROTEIN. **Elliot Drew**, David T. Jones, B.A. Wallace

**2739-Pos BOARD B116**  
STRUCTURAL MODELS OF AN INTRINSICALLY DISORDERED PROTEIN ADAPTED FOR BACTERIAL SECRETION. **Darragh Patrick O'Brien**, Belen Hernandez, Dominique Durand, Veronique Hourdel, Ana Cristina Sotomayor Pérez, Patrice Vachette, Mahmoud Ghomi, Julia Chamot-Rooke, Daniel Ladant, Sébastien Brier, **Alexandre Chenal**

**2740-Pos BOARD B117**  
MULTI-COLOR SINGLE MOLECULE FRET STUDY OF INTRINSICALLY DISORDERED PROTEIN BINDING. **Hoi Sung Chung**, Fanjie Meng, Jae-Yeol Kim, John M. Louis

**2741-Pos BOARD B118**  
CHARACTERIZATION OF AN INTRINSIC DISORDER DOMAIN AND FUNCTIONAL ACTIVITY OF CHIZ MEMBRANE PROTEIN FROM MYCOBACTERIUM TUBERCULOSIS. **Cristian A. Escobar**, Riqiang Fu, Timothy A. Cross

**2742-Pos BOARD B119**  
EXPERIMENTAL POLYPROLINE II PROPENSITIES DESCRIBE SEQUENCE-DEPENDENT VARIABILITY IN THE HYDRODYNAMIC SIZE OF INTRINSICALLY DISORDERED PROTEINS. **Steven T. Whitten**

**2743-Pos BOARD B120**  
RESCUING THE OVER-COLLAPSE OF INTRINSICALLY DISORDERED PROTEINS USING A FORCE FIELD DERIVED BY A NEW PARADIGM. **Davide Mercadante**, Sigrid Milles, Gustavo Fuertes, Dmitri Svergun, Edward A. Lemke, Frauke Gräter

**2744-Pos BOARD B121**  
PROTEOMIC AND BIOPHYSICAL ANALYSIS OF POLAR TRACTS. **Kiersten M. Ruff**, Alex S. Holehouse, Mary G.O. Richardson, Rohit V. Pappu

**2745-Pos BOARD B122**  
SINGLE-MOLECULE DISSECTION OF THE CONFORMATIONS, DYNAMICS AND BINDING OF THE DISORDERED 4E-BP2 PROTEIN. **Zhenfu Zhang**, Alaji Bah, Hamda Sajjad, Julie D. Forman-Kay, Claudiu C. Gradinaru

**2746-Pos BOARD B123**  
LC8 MOTIF RECOGNITION: INSIGHTS FROM THE LC8-CHICA COMPLEX. **Sarah Clark**

**2747-Pos BOARD B124**  
NMR-BASED MOLECULAR VIEW OF THE BIOLOGY AND BIOPHYSICS OF WIP, AN INTRINSICALLY DISORDERED PROTEIN. **Eva Rozentur-Shkop**, Hadassa Shaked, **Jordan Chill**

**2748-Pos BOARD B125 EDUCATION TRAVEL AWARDEE**  
DYNAMICS OF CONTACT FORMATION IN DISORDERED POLYPEPTIDES. **Gül H. Zerze**, Robert B. Best, Jeetain Mittal

**2749-Pos BOARD B126**  
CHEMICAL PERTURBATION OF AN INTRINSICALLY DISORDERED REGION OF TFIID DISTINGUISHES DE NOVO TRANSCRIPTION INITIATION FROM REINITIATION. **Zhengjian Zhang**, Zarko Boskovic, Mahmud Hussain, Wenxin Hu, Carla Inouye, Angela Koehler, Stuart Schreiber, Robert Tjian

**2750-Pos BOARD B127**  
RNA-BINDING DOMAIN DISORDER MODULATES THE RNA DESTABILIZING ACTIVITY IN THE TTP FAMILY OF PROTEINS. **Laura M. Deveau**, **Francesca Massi**

**2751-Pos BOARD B128**  
PROBING THE CONFORMATIONAL ENSEMBLE OF A BACTERIAL ANTITOXIN THROUGH MOLECULAR DYNAMICS SIMULATIONS AND MASS SPECTROMETRY. **Virginia M. Burger**, Albert Konijnenberg, Alexandra Vanderwelde, Frank Sobott, Remy Loris, Collin M. Stultz

**2752-Pos BOARD B129**  
THE ROLE OF INTRINSIC DISORDER IN THE MOLECULAR MECHANISM OF NUCLEAR TRANSPORT. **Laura K. Maguire**, Kathryn Wall, Geoff Armstrong, Kaushik Dutta, Samuel Sparks, Deniz B. Temel, Alia Kamal, Jaclyn Tetenbaum-Novatt, Michael P. Rout, David Cowburn, Loren Hough

**2753-Pos BOARD B130**  
ELUCIDATING THE MECHANISM OF RECOGNITION AND BINDING OF PROTEIN KINASE INHIBITOR BY PROTEIN KINASE A USING NMR AND FLUORESCENCE SPECTROSCOPY. **Geoffrey Li**, Cristina Olivieri, Matthew Neibergall, Jonggul Kim, Susan Taylor, Joseph Muretta, Gianluigi Veglia

**2754-Pos BOARD B131**  
CONFORMATIONS AND EXCHANGE DYNAMICS OF FLGM, AN INTRINSICALLY DISORDERED PROTEIN, IN DILUTE AND CROWDED CONDITIONS STUDIED BY NMR SPECTROSCOPY. **Pieter E S Smith**, Huan-Xiang Zhou

**2755-Pos BOARD B132**  
HYDROPHOBICITY OF POLY(A)-BINDING PROTEIN'S INTRINSICALLY DISORDERED REGION DETERMINES ITS CONFORMATION AND ORGANISM THERMOTOLERANCE. **Joshua Riback**, Chris Katanski, Tobin R. Sosnick, D. Allan Drummond

**2756-Pos BOARD B133**  
SMFRET AND DEER DISTANCE MEASUREMENTS AS APPLIED TO DISORDERED AND STRUCTURED PROTEINS. Keith Weninger, Ruoyi Qiu, Erkang Ou, Sergey Milikisiyants, Hugo Sanabria, **Tatyana I. Smirnova**

**2757-Pos BOARD B134**  
LIKE-CHARGE REGIONS (LCRS) AND OTHER EVOLUTIONARILY CONSERVED FEATURES REGULATE FG NETWORK FORMATION AT THE CENTER OF THE NPC. **Mohaddeseh Peyro**, Mohammad Soheilypour, Briana Lynne Lee, Ali Ghavami, Mohammad R. K. Mofrad

**2758-Pos BOARD B135**  
EFFECTS OF A STRUCTURED DOMAIN ON THE CONFORMATIONAL ENSEMBLE OF DISORDERED REGIONS IN BRAIN-DERIVED NEUROTROPHIC FACTOR. **Ruchi Lohia**, Reza Salari, Grace Brannigan

**2759-Pos BOARD B136**  
ULTRA-SENSITIVE NUCLEOSOME BINDING RESPONSE OF FACT BY THE PHOSPHORYLATION TO ITS IDP ELEMENT. **Shin-ichi Tate**

**2760-Pos BOARD B137**  
SPECTRAL PROPERTIES OF "DISORDERED" AND POLYPROLINE II STRUCTURES DEFINED BY CIRCULAR DICHROISM SPECTROSCOPY. **Jose Luiz S. Lopes**, A J. Miles, Lee Whitmore, BA Wallace

**2761-Pos BOARD B138**  
DIMENSIONS AND DYNAMICS OF HIGHLY COOPERATIVE SIC1-WD40 BINDING: SMFRET THROUGH A POLYMER PHYSICS LENS. **Gregory Gomes**, Veronika Csizmok, Jianhui Song, Hue Sun Chan, Julie Forman-Kay, Claudiu C. Gradinaru

**2762-Pos BOARD B139**  
SMALL ANGLE NEUTRON SCATTERING OF THE INTRINSICALLY DISORDERED PROTEIN FLGM UNDER CROWDED CONDITIONS. **Anthony Banks**, Kevin Weiss, Chris Stanley, Huan-Xiang Zhou

**2763-Pos BOARD B140**  
PROMISCUOUS BINDING OF MEMBRANE PROTEINS ON FLEXIBLE CO-CHAPERONES, YEAST SGT2 AND HUMAN SGTA. **Ku-Feng Lin**, William M. Clemons

## Protein-Nucleic Acid Interactions II (Boards B141 - B152)

**2764-Pos BOARD B141**  
INVESTIGATION OF PARTITION MECHANISM OF HIGH-COPY NUMBER BACTERIAL PLASMIDS VIA REPLICATION INCOMPATIBILITY. Tai-Ming Hsu, **Yi-Ren Chang**

**2765-Pos BOARD B142**  
CHARACTERIZATION OF NUCLEIC ACID BINDING BY THE HISTONE-DERIVED ANTIMICROBIAL PEPTIDES BUFORIN II AND DESHDAP1. **Sukin Sim**, Kara J. Cutrona, Brittany Beyer, Penny Wang, Mala L. Radhakrishnan, Donald E. Elmore

**2766-Pos BOARD B143**  
OXYGEN-TO-SULFUR SUBSTITUTION OF DNA PHOSPHATE ENTROPICALLY ENHANCES PROTEIN-DNA AFFINITY. **Dan Nguyen**, Levani Zandarashvili, Kurtis M. Anderson, Mark A. White, David G. Gorenstein, Junji Iwahara

**2767-Pos BOARD B144**  
ROLE OF THE MOIETY CHIRALITY IN DETERMINING THE DNA BINDING CHARACTERISTICS OF THREADING INTERCALATORS. **Thayaparan Paramanathan**, Nicholas Bryden, Fredrik Westerlund, Per Lincoln, Micah McCauley, Ioulia Rouzina, Mark C. Williams

**2768-Pos BOARD B145**  
DIRECT OBSERVATION OF THE STEPPING BEHAVIOR OF E. COLI UVRR HELICASE. **Kevin D. Whitley**, Matthew J. Comstock, Haifeng Jia, Timothy M. Lohman, Yann R. Chemla

**2769-Pos BOARD B146**  
EFFECTS OF HFQ ON THE CONFORMATION AND COMPACTION OF DNA. **Johan R. van der Maarel**, Kai Jiang, Veronique Arluison, Jeroen van Kan

**2770-Pos BOARD B147**  
EFFECTS OF H2A HISTONE VARIANTS ON DNA SEQUENCE AND NUCLEOSOME STRUCTURE USING COARSE GRAIN SIMULATIONS. **Ignacio Faustino**, Siewert-Jan Marrink

**2771-Pos BOARD B148**  
EFFECTOR-FREE MOLECULAR MECHANISM OF EPIGENETIC REGULATION REVEALED BY MOLECULAR DYNAMICS SIMULATIONS AND SINGLE-MOLECULE FRET EXPERIMENTS. Jejoong Yoo, Hajin Kim, Taekjip Ha, **Aleksei Aksimentiev**

**2772-Pos BOARD B149 EDUCATION TRAVEL AWARDEE**  
NUCLEOSOME KINETICS REGULATES THE BINDING TIMESCALES OF NON-HISTONE PROTEINS TO DNA SITES. **Jyotsana J. Parmar**, Dibyendu Das, Ranjith Padinhateeri

**2773-Pos BOARD B150**  
EFFECT OF THE SECONDARY STRUCTURE OF LONG RNAs ON THEIR PACKAGING BY VIRAL CAPSID PROTEIN. **Christian Beren**, Lisa Dreesens, Katherine Liu, Richard Sportsman, Charles Knobler, William Gelbart

**2774-Pos BOARD B151**  
RECOGNITION AND CONDENSATION OF THE BACTERIAL CENTROMERE BY PARB. **Gemma L. Fisher**, César L. Pastrana, James A. Taylor, Annika Butterer, Frank Sobott, Fernando Moreno-Herrero, Mark S. Dillingham

**2775-Pos BOARD B152**  
INVESTIGATING THE HANDEDNESS DYNAMICS OF TETRASOMES. **Orkide Ordu**, Rifka Vlijm, Mina Lee, Alexandra Lusser, Cees Dekker, Nynke H. Dekker

## DNA Structure and Dynamics II (Boards B153 - B175)

**2776-Pos BOARD B153**  
INTERACTION OF TETRAALKYLAMMONIUM<sup>+</sup> AND DNA. **Earle Stellwagen**, Nancy Stellwagen

**2777-Pos BOARD B154**  
BASE-PAIR LEVEL ANALYSIS OF DNA FOUR-WAY JUNCTION STRUCTURE AND DYNAMICS. Matthew R. Adendorff, **Mark Bathe**

**2778-Pos BOARD B155**  
MEASURING AND MODELING THE EFFECT OF SINGLE MISMATCH ON DNA STRAND DISPLACEMENT. **D. Bo Broadwater, Jr.**, Harold D. Kim

**2779-Pos BOARD B156**  
DNA ORIGAMI FORCE BALANCE. Philipp C. Nickels, Phil Holzmeister, Bettina Wünsch, Dina Grohmann, Philipp Tinnefeld, **Tim Liedl**

**2780-Pos BOARD B157**  
THE OCCURRENCE OF PLECTONEMES IN SUPERCOILED DNA DEPENDS ON DNA SEQUENCE. **Sung Hyun Kim**, Mahipal Ganji, Jaco van der Torre, Elio Abbondanzieri, Cees Dekker

**2781-Pos BOARD B158**  
PREDICTING THE MECHANISM AND KINETICS OF THE WATSON-CRICK TO HOOGSTEEN BASE PAIRING TRANSITION. **Jocelyne Vreede**, Peter G. Bolhuis, David WH Swenson

**2782-Pos BOARD B159**  
BIOPHYSICAL MECHANISM OF SEQUENCE-DEPENDENT ATTRACTION BETWEEN DOUBLE-STRANDED DNAs AND ITS BIOLOGICAL SIGNIFICANCE. **Hajin Kim**

**2783-Pos BOARD B160**  
G-QUADRUPLEXES RECOGNITION BY PLATINUM COMPLEXES PROBED BY SITE-DIRECTED SPIN LABELING. Xiaojun Zhang, Cuixia Xu, Zong-Wan Mao, **Peter Qin**

**2784-Pos BOARD B161**  
COMPUTATIONAL INVESTIGATION OF THE DISSOCIATIVE RECOMBINATION OF ADENINE, GUANINE, THYMINE, AND CYTOSINE. **Zachary P. Chen**, Hwoi Chan Kwon, Yoon Seo Lee, Charles P. De Guzman, Vola M. Andrianarijaona

**2785-Pos BOARD B162**  
ELUCIDATING THE ROLE OF ELECTROSTATICS IN CONDENSED DNA ARCHITECTURES. **Sarah Hansen**, Wei Meng, Abby Bull, Xiangyun Qiu, Kurt Andresen

**2786-Pos BOARD B163**  
DESIGN AND CONSTRUCT A TYPE OF FLUORESCENTLY LABELED CIRCULAR DNA MOLECULES TO STUDY DNA TOPOLOGY AND TOPOISOMERASES BY FLUORESCENCE RESONANCE ENERGY TRANSFER (FRET). **Maria De Cabrera**, Maxwell Gu, Fenfei Leng

**2787-Pos BOARD B164**  
THE EFFECT OF LOCAL MELTING OF DNA ON DNA LOOP FORMATION. **Jiyoun Jeong**, Harold D. Kim

**2788-Pos BOARD B165**  
A SURVEY OF THE IONIZATION ENERGIES OF THE DNA NITROGENOUS BASES VIA DFT-BASED CALCULATIONS OF THEIR POTENTIAL ENERGY SURFACES. **Hwoi Chan Kwon**, Zachary P. Chen, Aaron Z. Watson, Vola M. Andrianarijaona

**2789-Pos BOARD B166**  
THE ROLE OF INTER-NUCLEOBASE COULOMBIC DECAY IN THE PHOTOIONIZATION OF DNA. **Abraham C. Duot**, Justin Lyu, David Rivas, Michael Andrianarijaona

**2790-Pos BOARD B167**  
DYNAMICS OF LARGE DNA LOOPS. **Zubair Azad**, Robert Riehn

**2791-Pos BOARD B168**  
SYSTEMATIC AND QUANTITATIVE ANALYSIS OF G-QUADRUPLEX DNA FOLDING. **Chun-Ying Lee**, Alex Kreig, Sua Myong

**2792-Pos BOARD B169**  
STRUCTURE-BASED DESIGN, SYNTHESIS, AND CHARACTERIZATION OF CUSTOM DNA NANOPARTICLES. **Sakul Ratanalert**, Remi Veneziano, Kaiming Zhang, Keyao Pan, Fei Zhang, Wah Chiu, Hao Yan, Mark Bathe

**2793-Pos BOARD B170**  
STAPLE-FREE DNA SELF-ASSEMBLY. **Sakul Ratanalert**, Mark Bathe

**2794-Pos BOARD B171**  
NUCLEIC ACID-PEPTIDE COMPLEXES CONTROLLED BY DNA HYBRIDIZATION. **Jeffrey Vieregg**, Michael Lueckheide, Lorraine Leon, Amanda Marciel, Matthew Tirrell

**2795-Pos BOARD B172**  
THE ROLE OF ENTROPY IN EXPLAINING TIGHTLY BEND DNA PROPENSITY AND KINETIC BARRIERS TO BASE PAIR UNZIPPING. **Ioan Andricioaei**

**2796-Pos BOARD B173**  
DESIGNING AN ELECTROCHEMICALLY LABELLED THROMBIN DNA AP-TAMER USING MOLECULAR DYNAMICS SIMULATIONS. **Loan K. Huynh**, Alan Chen

**2797-Pos BOARD B174**  
DYNAMIC CONTROL OF DNA ORIGAMI NANOSTRUCTURES VIA GOLD NANOPARTICLES. **Joshua A. Johnson**, Abhilasha Dehankar, Qirui Fan, Jessica Winter, Carlos Castro

**2798-Pos BOARD B175**  
COMPUTATIONAL AND EXPERIMENTAL CHARACTERIZATION OF RIBOSOMAL DNA AND RNA G-QUADRUPLEXES. **Samuel S. Cho**

## Membrane Dynamics (Boards B176 - B204)

**2799-Pos BOARD B176**  
FLIP-FLOP PROMOTION BY MEMBRANE-SPANNING SEQUENCES IN THE ER MEMBRANE PROTEINS. **Hiroyuki Nakao**, Keisuke Ikeda, Yasushi Ishihama, Minoru Nakano

**2800-Pos BOARD B177**  
MOLECULAR DYNAMICS SIMULATIONS OF INTER-LEAFLET DEPENDENCE IN ASYMMETRIC LIPID MEMBRANES. **Michael D. Weiner**, Gerald W. Feigenson

**2801-Pos BOARD B178**  
CONTROLLING MEMBRANE DYNAMICS BY TUNING THE HYDROPHOBIC MISMATCH AND LIPID COMPOSITION. **Butler D. Paul**, Elizabeth Kelley, Rana Ashkar, Robert Bradbury, Andrea Woodka, Michihiro Nagao

**2802-Pos BOARD B179**  
STOCHASTIC BUT FINE-TUNED: DUALISM IN CELL MEMBRANES' ORGANIZATION AS REVEALED BY COMPUTER SIMULATIONS. **Roman G. Efremov**

**2803-Pos BOARD B180**  
PRE-TRANSITION EFFECTS MEDIATE FORCES OF ASSEMBLY BETWEEN TRANSMEMBRANE PROTEINS: THE ORDERPHOBIC EFFECT. **Shachi Katira**, Kranthi K. Mandadapu, Suriyanarayanan Vaikuntanathan, Berend Smit, David Chandler

**2804-Pos BOARD B181**  
MEMBRANE CROWDING AND ANOMALOUS DIFFUSION IN ARTIFICIAL LIPID BILAYERS. **Helena L.E. Coker**, Matthew R. Cheetham, Ravinash Krishna Kumar, Mark I. Wallace

**2805-Pos BOARD B182**  
FAST MEMBRANE DYNAMICS IN PLANAR SUSPENDED LIPID BILAYERS REVEALED BY SINGLE PARTICLE TRACKING. **Xinxin Woodward**, Abir Kabbani, Christopher V. Kelly

**2806-Pos BOARD B183**  
INVESTIGATING MEMBRANE DOMAIN DYNAMICS USING MULTIMODAL OPTICAL MICROSCOPY. Tyler Floden, Rochelle Warner, Ahmed A. Heikal, **Erin D. Sheets**

**2807-Pos BOARD B184**  
FASTER, MORE ACCURATE QUANTIFICATION OF DIFFUSION AND CORRELATED MOTIONS IN LIPID BILAYERS. **Tara M. Urner**, Gwendolyn A. Clafin, Michael G. Lerner, Rodoula Kyvelou-Kokkalis

**2808-Pos BOARD B185**  
SINGLE PARTICLE TRACKING IN DOUBLE CUSHIONED, BLEBBED SUPPORTED LIPID BILAYERS ENABLES STUDIES OF TRANSMEMBRANE PROTEIN DIFFUSION. **Rohit R. Singh**, Martin I. Malgago, Maurine Linder, Susan Daniel

**2809-Pos BOARD B186**  
NANO-SUBSTRUCTURES OF RAFT-MIMETIC LIQUID-ORDERED MEMBRANE DOMAINS REVEALED BY HIGH-SPEED SINGLE-PARTICLE TRACKING. Hsiao-Mei Wu, Ying-Hsiu Lin, Tzu-Chi Yen, **Chia-Lung Hsieh**

**2810-Pos BOARD B187**  
SUPERDIFFUSIVE MOTION OF MEMBRANE-TARGETING DOMAINS. **Diego Krapf**, Grace Campagnola, Kanti Nepal, Olve B. Peersen

**2811-Pos BOARD B188**  
CALCULATING TRANSMEMBRANE DIFFUSIVITY. **Christopher N. Rowley**, Ernest Awoonor-Williams, Kari Gaalswyk

**2812-Pos BOARD B189**  
PROBING ROLE OF CHOLESTEROL IN INTEGRIN CROSSTALK AND COMPLEXATION OF INTEGRINS WITH GPI-ANCHORED UROKINASE RECEPTORS AND GANGLIOSIDES USING MODEL LIPID MIXTURES. **Yifan Ge**, Jiayun Gao, Rainer Jordan, Christoph Naumann

**2813-Pos BOARD B190 EDUCATION TRAVEL AWARDEE**  
DYNAMICS AND STATICS IN PHASE SEPARATING, ADHERING LIPID MEMBRANES. **Orrin Shindell**, Natalie Mica, Max Ritzer, Vernita D. Gordon

**2814-Pos BOARD B191**  
SPECIFIC ADHESION OF GIANT PLASMA MEMBRANE VESICLES TO SURFACE-IMMOBILIZED SIRP $\alpha$  BY MEMBRANE RECONSTITUTED "MARKER OF SELF" SIGNALING PROTEIN CD47. **Jan Steinkühler**, Cory Alvey, Reinhard Lipowsky, Rumiana Dimova, Dennis Discher

**2815-Pos BOARD B192**  
T-CELLS IN SUSPENSION DO NOT SHOW PRE-CLUSTERED LCK. **Jorge Bernardino de la Serna**, Veronica T. Chang, Dominic Waithe, Ricardo A. Fernandes, Marco Fritzsche, Ana Mafalda Santos, Dilip Shrestha, James H. Felce, Meike C. Assmann, Simon J. Davis, Christian Eggeling

**2816-Pos BOARD B193**  
SINGLE-MOLECULE FLUORESCENCE IMAGING TO DETERMINE THE STOICHIOMETRY OF THE TWIN-ARGININE TRANSLOCASE. **Hajra Basit**, Felicity Alcock, Ben Berks, Mark I. Wallace

**2817-Pos BOARD B194**  
DC-SIGN MEDIATED DENGUE VIRUS ENTRY INTO CELLS. **Kenneth Jacobson**, Ping Liu, Marc Ridilla, Laurie Betts, Aravinda de Silva, Nancy L. Thompson

**2818-Pos BOARD B195**  
EFFECT OF DENGUE FUSION PEPTIDE IN LANGMUIR MONOLAYERS. **Thaís F. Schmidt**, Christian Salesse, Karin A. Riske

**2819-Pos BOARD B196**  
DIRECTING MEMBRANE PORE AND STALK FORMATION IN MD SIMULATIONS WITH EMBEDDED MECHANICAL DEVICES. **Gregory Bubnis**, Helmut Grubmuller

**2820-Pos BOARD B197**  
MITOCHONDRIAL MEMBRANE FUSION: COMPUTATIONAL MODELING OF MITOFUSINS. **Dario De Vecchis**, Antoine Taly, Marc Baaden, Jérôme Hénin

**2821-Pos BOARD B198**  
MOLECULAR DYNAMICS SIMULATIONS OF MEMBRANE TRANSLOCATION OF DENDRIMERS. **Valreia Marquez-Miranda**, Ingrid Araya-Duran, Jeffrey Comer, Maria Carolina Otero Acuna, Jonathon Canan, Fernando Danilo Gonzalez Nilo

**2822-Pos BOARD B199**  
THE SIZE OF A REVERSE MICELLE. **Gozde Eskici**, Paul H. Axelsen

**2823-Pos BOARD B200**  
FLUCTUATING LIPID NANODOMAINS NEAR CRITICAL TRANSITIONS. George R. Heath, Stephen D. Evans, **Simon D. Connell**

**2824-Pos BOARD B201**  
MICELLES AND BICELLES AS MEMBRANE MIMICS FOR MEMBRANE PROTEIN CHARACTERIZATION. **Ashton Brock**, Shelby Lipes, Ryan Oliver, Svetlana Baoukina, Peter Tieleman, Linda Columbus

**2825-Pos BOARD B202**  
DETAILED INVESTIGATION OF DETERGENT MICELLE FORMATION USING MOLECULAR DYNAMICS SIMULATIONS. **Sadegh Faramarzi**, Danielle Grodi, Andrew Philpott, Michael Block, Madison Kukura, Erica Harvey, Blake Mertz

**2826-Pos BOARD B203 INTERNATIONAL TRAVEL AWARDEE**  
ATOMISTIC AND COARSE-GRAINED MOLECULAR SIMULATIONS OF MIXED LAMELLAR/NONLAMELLAR LIPID MEMBRANES. **Wei Ding**, Michail Palaiokostas, Wen Wang, Mario Orsi

**2827-Pos BOARD B204**  
ATOMISTIC SIMULATIONS OF SMALL MOLECULE PERMEATION THROUGH LAMELLAR/NONLAMELLAR LIPID MEMBRANES. **Michail Palaiokostas**, Wei Ding, Mario Orsi

## Protein-Lipid Interactions III (Boards B205 - B234)

**2828-Pos BOARD B205**  
MEMPROTMD: PROTEIN-LIPID INTERACTIONS OF PHOSPHOLIPID BIOSYNTHETIC ENZYMES AND DEVELOPMENT OF THE WEB DATABASE. **Thomas D. Newport**, Mark S.P. Sansom, Phillip J. Stansfeld

**2829-Pos BOARD B206**  
LIPOPHILICITY IS A KEY FACTOR TO INCREASE THE ANTIVIRAL ACTIVITY OF HIV NEUTRALIZING ANTIBODIES. **Marcelo T. Augusto**, Axel Hollmann, Fulvia Troise, Ana S. Veiga, Antonello Pessi, Nuno C. Santos

**2830-Pos BOARD B207**  
FREE ENERGIES OF INTERACTION OF PH DOMAINS WITH PHOSPHATIDYLINOSITOL PHOSPHATE LIPIDS. **Fiona B. Naughton**, Antreas C. Kalli, Mark S P Sansom

**2831-Pos BOARD B208**  
BINDING OF GABRA1 CYTOPLASMIC PEPTIDE TO PHOSPHATIDYLSERINE UNILAMELLAR VESICLES. Julie L. Mustard, **Norbert W. Seidler**

**2832-Pos BOARD B209**  
THE SYNAPTOTAGMIN-7 C2AB DOMAIN ALTERS MEMBRANE MORPHOLOGY IN A CALCIUM-DEPENDENT MANNER. **Peter Dahl**, Joseph Vasquez, Jefferson Knight, Arun Anantharam

**2833-Pos BOARD B210**  
INTERPLAY BETWEEN HYDROPHOBIC AND ELECTROSTATIC INTERACTIONS IN PROTONATION-DEPENDENT INSERTION OF TRANSMEMBRANE HELICES. **Victor Vasquez-Montes**, Alexander Kyrychenko, Mykola V. Rodnin, Stephen H. White, Martin B. Ulmschneider, Alexey S. Ladokhin

**2834-Pos BOARD B211**  
SINGLE MOLECULE DIFFUSION OF PHOSPHATIDYLINOSITOL BISPHTHOSPHATE (PIP2) LIPIDS ON ASYMMETRIC LIPID BILAYERS UNDER THE INFLUENCE OF POLYCATIONIC MACROMOLECULES. **Xiaojun Shi**, Xiaosi Li, Maryam Kohram, Adam W. Smith

**2835-Pos BOARD B212 EDUCATION TRAVEL AWARDEE**  
MEMBRANE FISSION BY PROTEIN CROWDING. **Wilton T. Snead**, Carl C. Hayden, Jeanne C. Stachowiak

**2836-Pos BOARD B213**  
UNDERSTANDING THE ROLE OF PEPTIDE-LIPID REACTIONS IN BIOLOGICAL SYSTEMS. **Hannah M. Britt**, Vian S. Ismail, Jackie A. Moseley, John M. Sanderson

**2837-Pos BOARD B214**  
SELECTIVE TARGETING OF LIPID DROPLETS BY PROTEINS. **Morris E. Cohen**, Gregory A. Voth

**2838-Pos BOARD B215**  
MEMBRANE LATERAL PRESSURE CONTROLS HYDRATION AND WATER MOBILITY AT THE COPPER-BINDING SITE OF THE P1B-TYPE COPPER ATP-ASE COP-A FROM LEGIONELLA PNEUMOPHILA. **Karim Fahmy**, Elisabeth Fischermeier, Ahmed Sayed

**2839-Pos BOARD B216**  
HUMAN AND BACTERIUM HSP70 INTERACTS DIFFERENTLY WITH LIPID MEMBRANES. Victor Lopez, David M. Cauvi, Nelson Arispe, **Antonio De Maio**

**2840-Pos BOARD B217**  
ROLE OF PIP2-DEPENDENT MEMBRANE INTERACTIONS IN VINCULIN ACTIVATION, MOTILITY AND FORCE TRANSMISSION. **Sharon L. Campbell**, Peter M. Thompson, Caitlin E. Tolbert, Lindsay Case, Srinivas Ramachandran, Mihir Pershad, Nikolay Dokholyan, Keith Burrige, Clare Waterman

**2841-Pos BOARD B218**  
ORIENTATION OF DIMERIC TUBULIN ON LIPID MEMBRANES STUDIED USING NEUTRON REFLECTOMETRY. **David P. Hoogerheide**, Sergei Noskov, Tatiana K. Rostovtseva, Sergey M. Bezrukov, Hirsh Nanda

**2842-Pos BOARD B219**  
SHAPE TRANSFORMATION OF BIOMEMBRANE INDUCED BY BANANA-SHAPED PROTEIN RODS: TUBULATION AND FORMATION OF POLYHEDRAL VESICLES. **Hiroshi Noguchi**

**2843-Pos BOARD B220**  
INTRODUCING IMPROVED PROTEIN SIDE CHAIN DYNAMICS IN THE MARTINI MODEL TO SIMULATE PROTEIN-MEMBRANE INTERACTIONS. **Florian A. Herzog**, Lukas Braun, Ingmar Schoen, Viola Vogel

**2844-Pos BOARD B221**  
TRANSPORTATION OF AN ARTIFICIAL CARGO BY A PAR-MIN HYBRID SYSTEM. **James A. Taylor**, Anthony G. Vecchiarelli, Keir C. Neuman, Kiyoshi Mizuuchi

**2845-Pos BOARD B222**  
NEW INSIGHTS ON THE LIPIDATION OF PEPTIDES AND PROTEINS IN LIPID MEMBRANES. Hannah M. Britt, Vian S. Ismail, **John M. Sanderson**

**2846-Pos BOARD B223**  
A NOVEL EXPERIMENTAL PLATFORM TO STUDY THE TEMPORAL EVOLUTION OF PHOSPHOINOSITIDE GRADIENTS IN MODEL MEMBRANES. **Brittany M. Neumann**, Devin Kenney, Qi Wen, Arne Gericke

**2847-Pos BOARD B224**  
DYNAMIC CONTACTS BETWEEN THE ENDOPLASMIC RETICULUM AND THE PLASMA MEMBRANE REGULATE PHOSPHOINOSITIDE METABOLISM AND CONTROL CELLULAR EXCITABILITY. **Eamonn J. Dickson**, Jill B. Jensen, Bertil Hille

**2848-Pos BOARD B225**  
ENDOLYSIN PLYC BINDING TO MODEL MEMBRANES REVEALS ITS ENTRY POINT ON MAMMALIAN CELLS. **Marilia Barros**, Tarek Vennemann, Frank Heinrich, Daniel Nelson, Mathias Lösche

**2849-Pos BOARD B226**  
MEMBRANE BINDING OF HIV-1 MATRIX PROTEIN: DEPENDENCE ON BILAYER COMPOSITION AND PROTEIN LIPIDATION. **Marilia Barros**, Frank Heinrich, Siddhartha A. K. Datta, Alan Rein, Mathias Lösche

**2850-Pos BOARD B227**  
LIPROTIDES: A NEW CLASS OF PROTEIN LIPID-COMPLEXES. **Jannik N. Pedersen**, Henriette Kristina S. Frislev, Jan S. Pedersen, Daniel E. Otzen

**2851-Pos BOARD B228**  
A SURFACE PLASMON RESONANCE STUDY OF LIPID INTERACTIONS FOR AMPHIPATHIC ALPHA-HELIX BUNDLES. **Sewwandi S. Rathnayake**, Elizabeth R. Brown, Edgar E. Kooijman

**2852-Pos BOARD B229**  
LIPROTIDES: NANO-SIZED CYTOTOXIC PROTEIN-FATTY ACID COMPLEXES WITH A CORE-SHELL OR MULTI-LAYER STRUCTURE. **Henriette S. Frislev**, Jannik N. Pedersen, Jan S. Pedersen, Daniel E. Otzen

**2853-Pos BOARD B230 EDUCATION TRAVEL AWARDEE**  
TO UNFOLD OR NOT TO UNFOLD? STRUCTURAL INSIGHTS OF PEROXIDASE-ACTIVE CARDIOLIPIN-BOUND CYTOCHROME C BY SOLID-STATE NMR. **Abhishek Mandal**, Cody L. Hoop, Ravindra Kodali, Marissa Di, Maria DeLucia, Valerian E. Kagan, Jinwoo Ahn, Patrick C. A. van der Wel

**2854-Pos BOARD B231**  
PRINCIPLES UNDERLYING MEMBRANE INTERACTION OF RETROVIRAL STRUCTURAL PROTEIN GAG. **Yi Wen**, Robert A. Dick, Gerald W. Feigenson, Volker M. Vogt

**2855-Pos BOARD B232**  
STRUCTURAL MECHANISM IN A MEMBRANE REMODELLING ATP-ASE. **Maria Hoernke**, Elin Larsson, Jagan Mohan, Jeanette Blomberg, Sebastian Westenhoff, Richard Lundmark, Christian Schwieger

**2856-Pos BOARD B233**  
NEW METHOD FOR MEASURING THE ANCHORING ENERGY OF STRONGLY-BOUND MEMBRANE-ASSOCIATED PROTEINS. **Michael S. Kent**, Elisa La Bauve, Briana C. Vernon, Dongmei Ye, David M. Rogers, Cathryn M. Siegrist, Bryan Carson, Susan L. Rempe, Aihua Zheng, Margaret Kielian, Andrew P. Schreve

**2857-Pos BOARD B234**  
MEMBRANE PHASE CHARACTERISTICS CONTROL NA-CATH ACTIVITY. Robin L. Samuel, **Susan D. Gillmor**

## Membrane Structure II (Boards B235 - B264)

**2858-Pos BOARD B235**  
CHOLESTEROL MODULATED INTERDIGITATION OF LONG-CHAIN SPHINGOMYELIN AND GLYCOLIPIDS. **Tomasz Rog**, Adam Orłowski, Moutusi Manna, Alicia Llorente, Tore Skotland, Tuulia Sylvänne, Dimple Kauhanen, Kim Ekroos, Kirsten Sandvig, Ilpo Vattulainen

**2859-Pos BOARD B236**  
TRANSBILAYER REGISTRATION OF LIQUID-ORDERED DOMAINS: NO INTERACTIONS AT THE MEMBRANE MIDPLANE REQUIRED. Timur R. Galimzyanov, Veronika V. Alexandrova, Peter Pohl, **Sergey A. Akimov**

**2860-Pos BOARD B237**  
N-RAS LIPID ANCHOR ADSORPTION TO MEMBRANES AS A FUNCTION OF LIPID COMPOSITION AND CURVATURE. Jannik B. Larsen, Celeste Kennard, Søren L. Pedersen, Knud J. Jensen, Nikos S. Hatzakis, **Mark J. Uline**, Dimitrios Stamou

**2861-Pos BOARD B238**  
SEGMENTATION OF MEMBRANE PROTEIN MOTION IN THE AXON INITIAL SEGMENT. **Christian M. Winterflood**, David Albrecht, Gabrielle de Wit, Philipp Kukura, Helge Ewers

**2862-Pos BOARD B239**  
MECHANISTIC INSIGHTS INTO MEMBRANE BENDING BY PROTEIN CROWDING: UNDERSTANDING THE ROLE OF MEMBRANE COMPOSITION, PHASE SEPARATION AND FREE ENERGY OF PROTEIN BINDING. **Gokul Raghunath**, Brian Dyer

**2863-Pos BOARD B240**  
A DETERGENT-FREE APPROACH TO MEMBRANE PROTEIN RESEARCH: POLYMER-BOUNDED "NATIVE" NANODISCS. **Jonas M. Dörr**, Juan J. Dominguez Pardo, Marleen H. van Coevorden-Hameete, Stefan Scheidelaar, Martijn C. Koorengel, Casper C. Hoogenraad, J. Antoinette Killian



**2864-Pos BOARD B241**  
 "ANIONIC H-BONDS" STRUCTURE TWO SIMPLE BILAYERS, ONE NATURAL. Edward G. Hohenstein, Michael A. Green, Alisher Kariev, Saranga Naganathan, Mary Manning Cleveland, **Thomas H. Haines**

**2865-Pos BOARD B242**  
 CURVATURE-INDUCED LIPID SORTING IN PLASMA MEMBRANE TETHERS. **Svetlana Baoukina**, Helgi I. Ingolfsson, Siewert J. Marrink, D. Peter Tieleman

**2866-Pos BOARD B243** EDUCATION TRAVEL AWARDEE  
 DIRECT OBSERVATION OF ORDERED AND DISORDERED MEMBRANE DOMAINS IN B CELL PLASMA MEMBRANES USING MULTI-COLOR SUPER-RESOLUTION FLUORESCENCE MICROSCOPY AND APPLICATION TO B CELL RECEPTOR SIGNALING. **Matthew B. Stone**, Sarah Shelby, Marcos Nunez, Sarah Veatch

**2867-Pos BOARD B244**  
 HIGH RESOLUTION IMAGING ATOMIC FORCE MICROSCOPE STUDY OF INTERACTIONS AT THE MEMBRANE-FLUID INTERFACE. **Chiara Rotella**, Jason I. Kilpatrick, Simona Capponi, Miguel Holmgren, Francisco Bezanilla, Eduardo Perozo, Suzanne P. Jarvis

**2868-Pos BOARD B245**  
 LYSOZYME IN THE TEAR FILM LIPID LAYER. **Lukasz Cwiklik**, Agnieszka Olżyńska, D. Robert Iskander, Alicja Wizert

**2869-Pos BOARD B246**  
 THE POWER OF FREEZE-FRACTURE ELECTRON MICROSCOPY IN MEMBRANE EXPLORATION. **Brigitte Papahadjopoulos-Sternberg**

**2870-Pos BOARD B247** EDUCATION TRAVEL AWARDEE  
 DETERMINING THE CQC-MEDIATED INTERACTIONS IN THE MUCIN 1 HOMODIMER. **Emily Bilyk**, Christina Freeman, Timothy Stachowski, Edwin Li

**2871-Pos BOARD B248**  
 REVISITING TILT IN CLASSICAL CURVATURE ELASTIC THEORIES FOR MEMBRANES. **M. Mert Terzi**, Markus Deserno

**2872-Pos BOARD B249**  
 PHASE BEHAVIOR OF COMPLEX LIPID MIXTURES: SIGNATURES OF SPATIAL ORGANIZATION. **Shushan He**, Lutz Maibaum

**2873-Pos BOARD B250**  
 ERGOSTEROL HAS NO CONDENSING EFFECT OF CHOLESTEROL. **Wei-Chin Hung**, Hsien Chung, Nicholas Charron, Ming-Tao Lee, Huey W. Huang

**2874-Pos BOARD B251**  
 SCATTERING SIGNATURES OF COMPLEX LIPID MEMBRANES: SPHERICAL VESICLES VS. PLANAR PATCHES. Yongtian Luo, **Lutz Maibaum**

**2875-Pos BOARD B252**  
 THE TERNARY LIPID PHASE DIAGRAM BY AFM. **Anders Aufderhorst-Roberts**, George R. Heath, James A. Goodchild, Simon D. Connell

**2876-Pos BOARD B253**  
 MECHANISM OF LINE ACTIVITY OF GANGLIOSIDE GM1 ON LIQUID-ORDERED DOMAINS. **Timur R. Galimzyanov**, Veronika V. Alexandrova, Oleg V. Batischev, Anna S. Lyushnyak, Sergey A. Akimov

**2877-Pos BOARD B254**  
 EICOSAPENTAENOIC ACID (EPA), BUT NOT OTHER TRIGLYCERIDE-LOWERING AGENTS, INHIBITS GLUCOSE-INDUCED CHANGES IN MEMBRANE WIDTH AND CHOLESTEROL DOMAIN FORMATION THROUGH A POTENT ANTIOXIDANT MECHANISM. **R. Preston Mason**, Samuel C.R. Sherratt, Robert F. Jacob

**2878-Pos BOARD B255**  
 HOFMEISTER EFFECTS ON RAFT-LIKE DOMAINS. **Michal Belicka**, Santosh Prasad Gupta, Bing Sui-Lu, Rudolf Podgornik, Georg Pabst

**2879-Pos BOARD B256**  
 DOCOSAHEXAENOIC ACID (DHA), BUT NOT EICOSAPENTAENOIC ACID (EPA), INCREASES BOTH MEMBRANE FLUIDITY AND CHOLESTEROL CRYSTALLINE DOMAIN FORMATION IN LIPID VESICLES. **Samuel C.R. Sherratt**, Sandeep Shrivastava, Robert F. Jacob, Amitabha Chattopadhyay, R. Preston Mason

**2880-Pos BOARD B257**  
 BINDING OF VITAMIN E IN MODEL MEMBRANES STUDIED BY UMBRELLA SAMPLING SIMULATIONS. **Xiaoling Leng**, Fangqiang Zhu, Stephen R. Wassall

**2881-Pos BOARD B258**  
 ALL N-3 PUFA ARE NOT THE SAME: A COMPARISON OF DPA, EPA AND DHA BY MD SIMULATIONS. **Xiaoling Leng**, Jacob J. Kinnun, Saame R. Shaikh, Scott E. Feller, Stephen R. Wassall

**2882-Pos BOARD B259**  
 HOW LIPID COMPOSITION CONTROLS ORDERED MEMBRANE DOMAIN ("RAFT") FORMATION IN MEMBRANES OF PATHOGENIC BACTERIA. **Zhen Huang**, Erwin London, Jorge L. Benach, Alvaro Toledo

**2883-Pos BOARD B260**  
 DIETARY FATS REMODEL PLASMA MEMBRANE LIPIDOME AND PHYSICAL PROPERTIES TO REGULATE PHASE SEPARATION IN BIOLOGICAL MEMBRANES. **Kandice R. Levental**, Joseph H. Lorent, Xubo Lin, Alemayehu A. Gorfie, **Ilya Levental**

**2884-Pos BOARD B261**  
 MOLECULAR MODELING OF THE LAMELLAR TO INVERSE HEXAGONAL PHASE TRANSITION IN DOPE-DOPC LIPID SYSTEMS. **Katherine I. Driscoll**, Mark J. Uline

**2885-Pos BOARD B262**  
 CA<sup>2+</sup> GRADIENT INDUCES MEMBRANE BENDING AND FORMATION OF NANOTUBES IN GIANT LIPID VESICLES. **Baharan Ali Doosti**, Tatsiana Lobovkina

**2886-Pos BOARD B263**  
 OXIDIZED LIPIDS IN MODEL MEMBRANES: ATOMISTIC DETAILS FROM SOLID-STATE NMR EXPERIMENTS AND MD SIMULATIONS. **Tiago Mendes Ferreira**, Ruth Bärenwald, Rohit Sood, Roman Volinsky, Simon Drescher, Göran Karlström, Daniel Topgaard, Paavo Kinnunen, Kay Saalwächter, Samuli Ollila

**2887-Pos BOARD B264**  
 ON THE TRANSITION REGION OF TRANSMEMBRANE PORES. **Neha Awasthi**, Jochen S. Hub

## Cardiac Smooth and Skeletal Muscle Electrophysiology II (Boards B265 - B283)

**2888-Pos BOARD B265**  
 POPULATION-BASED MATHEMATICAL MODELING FACILITATES THE INTERPRETATION OF DYNAMIC CLAMP EXPERIMENTS IN CARDIOMYOCYTES. **Ryan A. Devenyi**, Francis A. Ortega, Trine Krogh-Madsen, David J. Christini, Eric A. Sobie

**2889-Pos BOARD B266**  
 AN IN SILICO STUDY OF FEMALE SUSCEPTIBILITY TO AROUSAL-INDUCED ARRHYTHMIAS. **Pei-Chi Yang**, Yibo Wang, Laura L. Perissinotti, Junko Kurokawa, Kevin R. DeMarco, Mao-Tsuen Jeng, Robert D. Harvey, Colleen E. Clancy

**2890-Pos BOARD B267**  
PULSE DURATION DETERMINES EFFICACY OF ARRHYTHMIA TERMINATION VIA TARGETED OPTOGENETIC STIMULATION. Patrick M. Boyle, **Michael Murphy**, Thomas V. Karathanos, Dafang Wang, Sohail Zahid, Kaitlyn N. Whyte, Erica L. Schwarz, Emilia Entcheva, Natalia A. Trayanova

**2891-Pos BOARD B268**  
QUANTIFICATION OF THE IONIC CURRENT CONTRIBUTIONS TO CARDIAC REPOLARIZATION RESERVE BASED ON A NOVEL PIECEWISE-LINEAR APPROXIMATION APPROACH. Michelangelo Paci, Jari Hyttinen, **Stefano Severi**

**2892-Pos BOARD B269**  
THE HUMAN SINOATRIAL ACTION POTENTIAL: AN IN SILICO MODEL. Alan Fabbri, Matteo Fantini, Ronald Wilders, **Stefano Severi**

**2893-Pos BOARD B270**  
QUANTITATIVE PREDICTIONS OF ADULT HUMAN DRUG EFFECTS FROM STEM CELL-DERIVED MYOCYTE PHYSIOLOGY. **Jingqi Gong**, Eric A. Sobie

**2894-Pos BOARD B271**  
ANALYSIS OF ACTIVATION-RECOVERY INTERVALS FROM INTRACARDIAC ELECTROGRAMS IN NORMAL AND INFARCTED PORCINE HEARTS. Danielle Denisko, Sudip Ghate, Samuel Oduneye, Ilan Lashevsky, Graham Wright, **Mihaela Pop**

**2895-Pos BOARD B272**  
DETERMINANTS OF THE DIASTOLIC CALCIUM-VOLTAGE COUPLING GAIN FOR DELAYED AFTERDEPOLARIZATION MEDIATED TRIGGERED ACTIVITY. **Michael B. Liu**, Christopher Y. Ko, Zhen Song, Alan Garfinkel, James N. Weiss, Qu Zhilin

**2896-Pos BOARD B273**  
MONITORING CARDIOMYOCYTE FUNCTIONAL INDICES WITH HYBRID MEA-IMPEDANCE TECHNOLOGY. **Liudmila Polonchuk**, Ulrich Thomas, Mark Davies, Sonja Stoelzle-Feix

**2897-Pos BOARD B274**  
ROOM TEMPERATURE VS ICE COLD - TEMPERATURE EFFECTS ON CARDIAC CELL ACTION POTENTIAL. Ken Wang, Andreu Climent, David Gavaghan, Peter Kohl, **Christian Bollensdorff**

**2898-Pos BOARD B275** EDUCATION TRAVEL AWARDEE  
POSTNATAL DEVELOPMENT OF CALCIUM SIGNALING IN RAT CARDIOMYOCYTES. **Katarina Mackova**, Alexandra jr. Zahradnikova, Ivan Zahradnik, Alexandra Zahradnikova

**2899-Pos BOARD B276**  
DETERMINATION OF THE UPPER BOUND OF INTRACELLULAR [NA<sup>+</sup>] BY ELECTROPHYSIOLOGICAL METHOD: PROBING THE SUBSARCOLEMMA [NA<sup>+</sup>]. **Bence Hegyi**, Tamas Banyasz, Zhong Jian, Rafael Shimkunas, Ye Chen-Izu, Leighton T. Izu

**2900-Pos BOARD B277**  
AGE-RELATED CHANGES IN ELECTRICAL ACTIVITIES AND MICRORNAs OF LEFT VENTRICULAR CARDIOMYOCYTES ISOLATED FROM RAT HEART. **Yusuf Olgar**, Erkan Tuncay, Belma Turan

**2901-Pos BOARD B278**  
DYSFERLIN STABILIZES EXCITATION-CONTRACTION COUPLING IN MURINE SKELETAL MYOFIBERS. **Valeriy Lukyanenko**, Joaquin Muriel, Robert J. Bloch

**2902-Pos BOARD B279**  
ROLE OF ZIP7 IN REGULATION OF CYTOSOLIC FREE ZN<sup>2+</sup> LEVEL IN MAMMALIAN CARDIOMYOCYTES. **Erkan Tuncay**, Verda C. Bitirim, Aysegul Toy, Zeynep Tokcaer Keskin, Kamil C. Akcali, Guy A. Rutter, Belma Turan

**2903-Pos BOARD B280**  
PHOSPHODIESTERASE TYPE-1 REGULATES TRANSIENT BK CURRENTS AND CONTRACTILITY OF HUMAN URINARY BLADDER SMOOTH MUSCLE. **Georgi V. Petkov**, Vitor S. Fernandes, Ning Li, Biao Chen, Eric S. Rovner, Wenkuan Xin

**2904-Pos BOARD B281**  
EFFECTS OF PRUNUS MUME SIEBOLD & ZUCC. ON THE PACEMAKING ACTIVITIES OF INTERSTITIAL CELLS OF CAJAL IN MURINE SMALL INTESTINE. Sang Weon Lee, Sung Jin Kim, Hyungwoo Kim, Hyun Jung Kim, **Byung Joo Kim**

**2905-Pos BOARD B282**  
MOLECULAR INTERACTIONS OF SLC26A6 AND CFTR IN CARDIOMYOCYTES. Wei Chun Chen, Jeong-Han Lee, Choong-Ryoul Sihm, Hannah Ledford, Yinyu Zhang, Megan A. Yamoah, Victor C. Lau, Catherine Kim, Gu Dai, Maria Timofeyeva, Richard E. Myers, Sassan Rafizadeh, **Xiao-Dong Zhang**

**2906-Pos BOARD B283**  
CAPACITIVE MEMBRANE ACTIVITY IN ISOLATED CARDIAC MYOCYTES. Ivan Zahradnik, **Matej Hotka**

## Membrane Receptors and Signal Transduction III (Boards B284 - B305)

**2907-Pos BOARD B284**  
MG53 PROMOTES WOUND HEALING AND REDUCES SCAR FORMATION BY FACILITATING CELL MEMBRANE REPAIR AND CONTROLLING MYOFIBROBLAST DIFFERENTIATION. **Haichang Li**, Pu Duann, Pei-Hui Lin, Li Zhao, Zhaobo Fan, Tao Tan, Xinyu Zhou, Mingzhai Sun, Matthew Sermersheim, Hanley Ma, Steven Steinberg, Hua Zhu, Chunyu Zeng, Jianjun Guan, Jianjie Ma

**2908-Pos BOARD B285**  
ZINC BINDING TO MG53 FACILITATES REPAIR OF INJURY TO CELL MEMBRANE. **Peihui Lin**, Chuanxi Cai, Hua Zhu, Jae-Kyun Ko, MoonSun Hwang, Zui Pan, Tao Tan, Daiju Yamazaki, Hiroshi Takeshima, Irina Korichneva, Jianjie Ma

**2909-Pos BOARD B286**  
MODELING THE STRUCTURAL DIFFERENCES BETWEEN WILD-TYPE AND POLYMORPHIC G PROTEIN-COUPLED RECEPTOR KINASE 4 GAMMA. **Rhye-Samuel Kanassatega**, Abdelaziz Alsamarah, Yun Luo, Bradley T. Andresen

**2910-Pos BOARD B287**  
SINGLE MOLECULE ASSAYS OF FULL LENGTH SOS ON MEMBRANES USING CRUDE CELL LYSATES. **Young Kwang Lee**, Shalini Low-Nam, Scott D. Hansen, Steven Alvarez, Hiu Yue Monatrice Lam, Jay T. Groves

**2911-Pos BOARD B288**  
STUDY OF THE PATHOGENIC MECHANISM OF THE W64R MUTATED HUMAN  $\beta$ 3-ADRENERGIC RECEPTOR BY CONFOCAL FLUORESCENCE MICROSCOPY. Chao Sun, Yanan Yang, Xiaoyan Ding, **Xin Zhao**

**2912-Pos BOARD B289** INTERNATIONAL TRAVEL AWARDEE  
STRUCTURAL AND FUNCTIONAL INSIGHTS OF NORRIN MIMICS WNT FOR SIGNALLING. **Tao-Hsin Chang**, Fu-Lien Hsieh, Matthias Zebisch, Karl Harlos, Jonathan Elegeert, E. Yvonne Jones

**2913-Pos BOARD B290**  
A COMPUTATIONAL INVESTIGATION PREDICTS MECHANISMS OF SUBCELLULAR CAMP COMPARTMENTATION. Pei-Chi Yang, Britton Boras, Mao-Tsuen Jeng, **Steffen Docken**, Timothy Lewis, Andrew McCulloch, Robert Harvey, Colleen Clancy

**2914-Pos BOARD B291**

BK CHANNELS ALLEVIATE LYSOSOMAL STORAGE DISEASES BY PROVIDING POSITIVE FEEDBACK REGULATION OF LYSOSOMAL CA<sup>2+</sup> RELEASE. **Xianping Dong**

**2915-Pos BOARD B292**

DIFFERENTIAL REGULATION OF CYTOPLASMIC AND NUCLEAR PKA ACTIVITIES BY  $\beta$ 1- AND  $\beta$ 2-ADRENOCEPTORS IN ADULT CARDIAC MYOCYTES. **Ibrahim Bediounne**, Audrey Varin, Rodolphe Fischmeister, Grégoire Vandecasteele

**2916-Pos BOARD B293**

SUPRA-MOLECULAR ORGANIZATION OF THE CRYSTALLOGRAPHIC CONFORMATIONS OF INACTIVE AND ACTIVATED  $\mu$ -OPIOID RECEPTOR IN A MULTI-COMPONENT PLASMA MEMBRANE MODEL. **Kristen A. Marino**, Davide Provasi, Marta Filizola

**2917-Pos BOARD B294**

BINDING PATHWAYS OF A G-PROTEIN BIASED  $\mu$ -OPIOID RECEPTOR AGONIST UNDER CLINICAL EVALUATION. Sebastian Schneider, **Davide Provasi**, Marta Filizola

**2918-Pos BOARD B295**

ATP-DEPENDENT BIOMECHANICAL PROPERTIES OF CILIATED AND NON-CILIATED CELLS MEASURED BY ATOMIC FORCE MICROSCOPY. **Karla Droguett**, Camilo Navarrete, Christian Fuentes, Mariana Ríos, Manuel Villalón, Nelson Barrera

**2919-Pos BOARD B296**

ELUCIDATING THE FUNCTIONAL ROLES OF SPATIAL ORGANIZATION IN CROSS-MEMBRANE SIGNAL TRANSDUCTION BY A HYBRID SIMULATION METHOD. **Yinghao Wu**

**2920-Pos BOARD B297**

TRACKING CHANGES IN PROTONATION AND CONFORMATION DURING PHOTOACTIVATION OF A PHYTOCHROME PROTEIN. **Serena Donnini**, Modi Vaibhav, Janne Ihalainen, Gerrit Groenhof

**2921-Pos BOARD B298**

MECHANISM OF TIM1, TIM3, AND TIM4 BINDING TO LIPID MEMBRANES. **Zhiliang Gong**, Daniel Kerr, Gregory T. Tietjen, James Michael Henderson, Adrienne M. Luoma, Wei Bu, Kathleen D. Cao, Hyeondo Luke Hwang, Theodore L. Steck, Binhua Lin, Erin J. Adams, Ka Yee C. Lee

**2922-Pos BOARD B299**

NON BACTERIAL LIPID AND PROTEINS AGGREGATES ARE ACTIVATORS OF THE INNATE SYSTEM. **Jean-Marie Ruyschaert**, Malvina Pizzuto, Caroline Lonz

**2923-Pos BOARD B300**

A CYTOKINE RECEPTOR REVOLUTION: ACTIVATION OF THE TYPE-I CYTOKINE RECEPTORS VIA PROTOMER ROTATION. **Michael Corbett**, David Poger, Alan E. Mark

**2924-Pos BOARD B301**

PROBING THE DIMERIZATION AFFINITY OF VISUAL OPSINS. Megan J. Kalszewski, William D. Comar, Kevin C. Skinner, Beata Jastrzebska, Krzysztof Palczewski, **Adam W. Smith**

**2925-Pos BOARD B302**

LIGAND-INDUCED GROWTH OF CD36-FYN CLUSTERS INDUCES SIGNALING. John Maringa Githaka, Anthony R. Vega, Michelle A. Baird, Michael W. Davidson, Khuloud Jaqaman, **Nicolas Touret**

**2926-Pos BOARD B303**

DISTINCT ROLES OF  $\alpha$ -ACTININ IN REGULATING TALIN-INDUCED ACTIVATION OF  $\alpha$ IIb $\beta$ 3 VERSUS  $\alpha$ 5 $\beta$ 1 INTEGRINS. **Hengameh Shams**, Mohammad R. K. Mofrad

**2927-Pos BOARD B304**

TARGETING LIPOSOMES FOR UPTAKE INTO CEACAM-EXPRESSING HUMAN CELLS USING A BACTERIAL MEMBRANE PROTEIN. **Jason Kuhn**, Asya Smirnov, Alison K. Criss, Linda Columbus

**2928-Pos BOARD B305**

MECHANISM OF INTERACTION BETWEEN ADENOSINE PHOSPHATES AND LYSENIN CHANNELS. **Sheenah L. Bryant**, Nisha Shrestha, Paul Carnig, Samuel R. Kosydar, Philip Belzeski, Jason May, Lauren McDaid, Daniel Folega

## Exocytosis and Endocytosis II (Boards B306 - B316)

**2929-Pos BOARD B306**

IMAGING THE RAPID RECRUITMENT OF DYNAMINS AT THE EXOCYTIC FUSION PORE. **Adam J. Trexler**, Justin W. Taraska

**2930-Pos BOARD B307**

NON-INVASIVE IMAGING OF MEMBRANE DYNAMICS ACCOMPANIED WITH ENDOCYTOSIS IN LIVING CELLS BY ATOMIC FORCE MICROSCOPY. **Aiko Yoshida**, Shuichi Ito, Masahiro Kumeta, Shige H. Yoshimura

**2931-Pos BOARD B308**

WHAT CAN GEOMETRY TELL US ABOUT DYNAMIN FILAMENTS ON MEMBRANE NECKS? **Zachary McDargh**, Pablo Vázquez-Montejo, Jemal Guven, Markus Deserno

**2932-Pos BOARD B309**

MEMBRANE TENSION INHIBITS DEFORMATION BY COAT PROTEINS IN CLATHRIN-MEDIATED ENDOCYTOSIS. **Julian Hassinger**, David Drubin, George Oster, Padmini Rangamani

**2933-Pos BOARD B310**

DEVELOPMENT OF A NEW SINGLE-MOLECULE IMAGING APPROACH TO MEASURE TURNOVER DYNAMICS OF ENDOCYTIC PROTEINS. **Michael M. Lacy**, David Baddeley, Julien Berro

**2934-Pos BOARD B311**

FEEDBACK INTERACTIONS BETWEEN ACTIN AND ITS REGULATORS IN ENDOCYTIC PROTEIN PATCHES. **Xinxin Wang**, Brian J. Galletta, John A. Cooper, Anders E. Carlsson

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OLIGOMERIZATION AND ENDOCYTOSIS OF HEDGEHOG IS NECESSARY FOR ITS EFFICIENT EXOVESICULAR SECRETION. **Anup Parchure**, Neha Vyas, Charles Ferguson, Robert G. Parton, Satyajit Mayor

**2936-Pos BOARD B313**

CLATHRIN-INDEPENDENT ENDOCYTOSIS OF WINGLESS VIA CLIC/GEEC PATHWAY IS NECESSARY FOR EFFECTIVE SIGNALLING IN DROSOPHILA WING DISCS. **Anupama HL**, Chaitra Prabhakara, Satyajit Mayor

**2937-Pos BOARD B314**

EFFECTS OF STEROL STRUCTURE AND STEROL ABILITY TO FORM ORDERED MEMBRANE DOMAINS UPON CELLULAR ENDOCYTOSIS. **Ji Hyun Kim**, Ashutosh Singh, Maurizio Del Poeta, Deborah Brown, Erwin London

**2938-Pos BOARD B315**

DIACYLGLYCEROL GUIDES THE HOPPING OF CLATHRIN-COATED PITS ALONG MICROTUBULES FOR EXO-ENDOCYTOSIS COUPLING. **Liangyi Chen**

**2939-Pos BOARD B316**

INDUCED PLURIPOTENT STEM (IPS) CELLS TO ASSESS THE CARDIOPROTECTIVE AND PROANGIOGENIC ACTIVITIES OF EXOSOMES SECRETED BY HUMAN CARDIAC PROGENITOR CELLS. **Claudia Altomare**, Elisabetta Cervio, Ciullo Alessandra, Giuseppina Milano, Tiziano Torre, Stefanos Demertzis, Lucio Barile, Giuseppe Vassalli

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- 2940-Pos BOARD B317**  
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- 2941-Pos BOARD B318**  
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- 2942-Pos BOARD B319**  
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- 2943-Pos BOARD B320**  
QUANTITATIVE ANALYSIS OF AUTOPHAGIC FLUX BY RATIOMETRIC PH-IMAGING OF AUTOPHAGIC INTERMEDIATES. **Giuseppe Maulucci**, Michela Chiarotto, Massimiliano Papi, Valentina Palmieri, Gabriele Ciasca, Maria Carmela Lauriola, Daniela Samengo, Giovambattista Pani, Marco De Spirito
- 2944-Pos BOARD B321**  
EFFECTS OF OBSTACLE BINDING AND BOUND MOBILITY IN A LATTICE MODEL OF PROTEIN DIFFUSION. **M. D. Betterton**, Samantha Norris, Franck Vernerey, Loren E. Hough
- 2945-Pos BOARD B322**  
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- 2946-Pos BOARD B323**  
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- 2947-Pos BOARD B324**  
ANISOTROPIC AND ANOMALOUS DIFFUSION IN MITOTIC CELLS. **Matthias Weiss**
- 2948-Pos BOARD B325**  
ANALYSIS OF SCFD2 - A NEW MEMBER OF THE SM PROTEIN FAMILY. **Janeta V. Iordanova**, Dirk Fasshauer
- 2949-Pos BOARD B326**  
QUANTIFYING THE INFLUENCE OF THE CROWDED CYTOPLASM ON IONIC DIFFUSION. **Selcuk Atalay**, Caitlin E. Scott, Peter M. Kekenus-Huskey
- 2950-Pos BOARD B327**  
TRANSPORT IMAGING OF LIVING CELLS. **Szabolcs Osváth**, Levente Herényi, Gergely Agócs, Katalin Kis Petik, Miklós S.Z. Kellermayer

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- 2951-Pos BOARD B328**  
FLUORESCENT DEXTRAN DIFFUSION ASSAY TO STUDY CARDIAC T-TUBULES. **Keita Uchida**, Anatoli N. Lopatin
- 2952-Pos BOARD B329**  
THE T-SYSTEM PROVIDES A DYNAMIC  $Ca^{2+}$ -BUFFER IN HUMAN SKELETAL MUSCLE FIBRES. **Tanya R. Cully**, Bradley S. Launikonis
- 2953-Pos BOARD B330**  
POSTNATAL DEVELOPMENT OF T-TUBULES IN SHEEP ATRIAL MYOCYTES. **Charlotte E.R. Smith**, David A. Eisner, Andrew W. Trafford, Katharine M. Dibb

- 2954-Pos BOARD B331**  
RELATIONSHIP BETWEEN MULTI-SCALE CARDIOMYOCYTE ORGANIZATION AND FUNCTION IN TRABECULAE OF THE FAILING HUMAN HEART. **Michelle L. Munro**, Xin Shen, Marie Ward, David J. Crossman, Christian Soeller
- 2955-Pos BOARD B332**  
MODULATION BY CGP-37157 (CGP) ANALOGS OF THE SARCOPLASMIC RETICULUM CALCIUM ATPASE SERCA). Melanie M. Loulousis, Yuanzhao L. Darcy, **Julio A. Copello**
- 2956-Pos BOARD B333**  
ENHANCED CARDIAC CONTRACTILITY AND  $Ca^{2+}$  SIGNALLING FOLLOWING DIETARY NITRATE SUPPLEMENTATION IN MICE. Niklas Ivarsson, Gianluigi Pironti, Jingning Yang, Alex Bersellini Farinotti, William Jonsson, Camilla Svensson, Håkan Westerblad, Eddie Weitzberg, Jon Lundberg, John Pernow, Johanna Lanner, **Daniel C. Andersson**
- 2957-Pos BOARD B334**  
CAMKII AND HEART FAILURE PROMOTE A PATHOLOGICAL RYANODINE RECEPTOR CONFORMATION THAT REDUCES CALMODULIN BINDING AND ENHANCES SR  $Ca^{2+}$  LEAK. **Hitoshi Uchinoumi**, Yi Yang, Tetsuro Oda, Jose L. Puglisi, Ye Chen-Izu, Razvan L. Cornea, Xander H.T. Wehrens, Donald M. Bers
- 2958-Pos BOARD B335**  
CARDIAC-SPECIFIC OVEREXPRESSION OF PHOSPHODIESTERASE 2 (PDE2) IN MOUSE IS CARDIOPROTECTIVE. **Marta Lindner**, Christiane Vettel, Matthias Dewenter, Merle Riedel, Simon Lämmle, Fleur Mason, Simon Meinecke, Thomas Wieland, Hind Mehel, Sarah Karam, Patrick Lechene, Jerome Leroy, Gregoire Vandecasteele, Ali El-Armouche, Rodolphe Fischmeister
- 2959-Pos BOARD B336**  
CARDIAC OVER-EXPRESSION OF CREATINE KINASE DIFFERENTIALLY AFFECTS CARDIOMYOCYTE FUNCTION IN ISCHEMIC AND NON-ISCHEMIC HEART FAILURE. **Carlo G. Tocchetti**, Michelle K. Leppo, Djahida Bedja, Yibin Wang, Robert G. Weiss, Nazareno Paolucci
- 2960-Pos BOARD B337**  
MECHANICAL REMODELING OF ATRIAL MYOCARDIUM IN HCM MOUSE MODELS CARRYING CTNT MUTATIONS. **Josè Manuel Pioner**, Francesca Gentile, Raffaele Coppini, Beatrice Scellini, Jil Tardiff, Chiara Tesi, Corrado Poggesi, Cecilia Ferrantini
- 2961-Pos BOARD B338**  
MECHANO-CHEMO-TRANSDUCTION IN RABBIT CARDIOMYOCYTES MEDIATED BY NO SIGNALING. **Rafael Shimkunus**, Zhong Jian, Bence Hegyi, John Shaw, Nipavan Chiamvimonvat, Kenneth Ginsburg, Julie Bossuyt, Donald M. Bers, Kit S. Lam, Leighton T. Izu, Ye Chen-Izu
- 2962-Pos BOARD B339**  
THE ROLE OF ROS AND CALCIUM FOR THE PROLONGED FORCE DEPRESSION AFTER ECCENTRIC CONTRACTIONS. **Håkan Westerblad**, Niklas Ivarsson, Abram Katz, Sigita Kamandulis, Maja Schlittler, Marius Brazaitis, Albertas Skurvydas
- 2963-Pos BOARD B340**  
THE LOSS OF THE TRANSMEMBRANE PROTEIN MG23 AFFECTS THE FAST-TWITCH FEATURE OF EDL MUSCLE. **Myuki Nishi**, Takahisa Gouda, Nagomi Kurebayashi, Yu Takahashi, Shinji Komazaki, Hua Zhu, Hiroshi Takeshima
- 2964-Pos BOARD B341**  
ROLES OF MITSUGUMIN53 IN SKELETAL MUSCLE. **Mi Kyoung Ahn**, Keon Jin Lee, Mei Huang, Jianjie Ma, Eun Hui Lee
- 2965-Pos BOARD B342**  
SILDENAFIL IS EFFECTIVE TO ENHANCE THE PROLIFERATION OF SKELETAL MYOBLASTS. **Mei Huang**, Keon Jin Lee, Mi Kyoung Ahn, Chung-Hyun Cho, Eun Hui Lee

## Voltage-gated K Channels and Mechanisms of Voltage Sensing and Gating III (Boards B343 - B347)

**2966-Pos BOARD B343**  
TRYPTOPHAN 207 IS CRUCIAL TO THE UNIQUE PROPERTIES OF THE HUMAN VOLTAGE GATED PROTON CHANNEL, HHV1. Vladimir V. Cherny, Deri Morgan, Boris Musset, Gustavo Chaves2, Susan M.E. Smith, **Thomas E. DeCoursey**

**2967-Pos BOARD B344**  
HV1 PROTON CHANNEL RESTING-STATE VOLTAGE SENSOR MODEL STRUCTURES ARE REFINED BY EXPERIMENTAL MAPPING OF ZINC-COORDINATING RESIDUES. **Victor De-la-Rosa**, Ashley L. Bennett, Ian Scott Ramsey

**2968-Pos BOARD B345**  
KVAP GATING STATES PROBED BY ELECTRON SPIN-ECHO ENVELOPE MODULATION (ESEEM) SPECTROSCOPY. **Dylan O. Burdette**, Adrian Gross

**2969-Pos BOARD B346**  
REGULATION OF HERG1B BY HERG1A N-TERMINAL REGIONS. **Beth A. McNally**, Matthew C. Trudeau

**2970-Pos BOARD B347**  
MULTIPLE METAL BRIDGES AT THE INTRACELLULAR GATE OF A VOLTAGE ACTIVATED POTASSIUM CHANNEL PREVENT CLOSING. **Angel A. de la Cruz Landrau**, Miguel Holmgren

## Ligand-gated Channels III (Boards B348 - B363)

**2971-Pos BOARD B348**  
MOLECULAR MODELING OF CHARGE SELECTIVITY IN PENTAMERIC LIGAND-GATED ION CHANNELS. **Tyler J. Harpole**, Claudio Grosman

**2972-Pos BOARD B349**  
PATCH CLAMP FLUOROMETRY IN OUTSIDE-OUT PATCHES FOR LIGAND-GATED ION CHANNELS. **Matthias Wulf**, Stephan A. Pless

**2973-Pos BOARD B350**  
THE ROLE OF A TRYPTOPHAN CLUSTER IN THE EXTRACELLULAR DOMAIN OF CYS-LOOP RECEPTORS. **Nina Braun**, Timothy Lynagh, Rilei Yu, Philip C. Biggin, Stephan A. Pless

**2974-Pos BOARD B351**  
EXPRESSION AND PURIFICATION OF THE INTRACELLULAR DOMAIN OF A CATIONIC PENTAMERIC LIGAND-GATED ION CHANNEL. **Katharine Jenkins**, Akash Pandhare, Laura J. Delin, Michaela Jansen

**2975-Pos BOARD B352**  
FUNCTIONAL AND BIOCHEMICAL CHARACTERIZATION OF ALVINELLA POMPEJANA CYS-LOOP RECEPTOR HOMOLOGUES. **Eveline Wijckmans**, Mieke Nys, Sarah Debaveye, Marijke Brams, Els Pardon, Daniel Bertrand, Jan Steyaert, Chris Ulens

**2976-Pos BOARD B353**  
UNDERSTANDING NICOTINIC RECEPTOR ASSEMBLY IN THE ENDOPLASMIC RETICULUM WITH SINGLE MOLECULE FLUORESCENCE MICROSCOPY. **Chris Richards**, Ashley Loe, Faruk Moonschi

**2977-Pos BOARD B354**  
PROBING BINDING INTERACTIONS OF AGONISTS WITH THE  $\alpha 6\beta 2$  NICOTINIC ACETYLCHOLINE RECEPTOR. **Michael R. Post**, Dennis A. Dougherty, Henry A. Lester

**2978-Pos BOARD B355**  
EFFECTS OF MENTHOL ON  $\alpha 3\beta 4^*$  NICOTINIC RECEPTORS. **Suparna Patowary**, Elisha D.W. Mackey, Sheri L. McKinney, Purnima Deshpande, Brandon J. Henderson, Gabriel Biener, Valerica Raicu, Henry A. Lester

**2979-Pos BOARD B356**  
SELECTIVITY OF SPIROIMINE PHYCOTOXINS TOWARD NICOTINIC ACETYLCHOLINE RECEPTORS. **Bogdan I. Iorga**, Rómulo Aráoz, Evelyne Benoit, Jordi Molgó

**2980-Pos BOARD B357**  
SIMULATIONS OF ENDPLATE ACHRS: AGONIST SITE  $\beta$ -SHEET AND M1  $\pi$ -HELIX. **Srirupa Chakraborty**, Anthony Auerbach

**2981-Pos BOARD B358**  
FUNDAMENTAL CONSTANTS FOR ACTIVATION OF HUMAN ENDPLATE RECEPTORS. **Anthony Auerbach**, Tapan K. Nayak

**2982-Pos BOARD B359**  
EFFECTS OF QUASI-NATIVE LIPID COMPOSITION ON MEMBRANE DOMAIN FORMATION INDUCED BY NICOTINIC ACETYLCHOLINE RECEPTORS. **Liam M. Sharp**, Reza Salari, Grace Brannigan

**2983-Pos BOARD B360**  
INTERACTOME MAPS OF THE ACETYLCHOLINE RECEPTOR GATE REGION. **Tapan K. Nayak**, Anthony Auerbach

**2984-Pos BOARD B361**  
THE  $\beta 2(+)/\alpha 4(-)$  INTERFACES OF  $(\alpha 4\beta 2)2\alpha 4$  NICOTINIC RECEPTORS ALLOSTERICALLY CONTRIBUTE TO RECEPTOR FUNCTION. **Simone Mazzaferro**, Isabel Bermudez, Silvia Garcia Del Villar, Karina K. New

**2985-Pos BOARD B362**  
BETWEEN THE SHEETS: INTER-SUBUNIT BACKBONE INTERACTIONS AT ACHR NEUROTRANSMITTER BINDING SITES. **Shaweta Gupta**, Srirupa Chakraborty, Anthony Auerbach

**2986-Pos BOARD B363**  
INTERACTION OF THE POSITIVE ALLOSTERIC MODULATOR LY2087101 WITH  $\alpha 4\beta 2$  NICOTINIC ACETYLCHOLINE RECEPTOR. Ze-Jun Wang, Farah Deba, Tiffany R. Trevino, Kara Ramos, **Ayman K. Hamouda**

## Ion Channel Regulatory Mechanisms (Boards B364 - B388)

**2987-Pos BOARD B364**  
HIGH MEMBRANE PERMEABILITY FOR MELATONIN. **Haijie Yu**, Eamonn Dickson, Seung-Ryoung Jung, Duk-Su Koh, Bertil Hille

**2988-Pos BOARD B365**  
LOCKING THE ASYMMETRIC OPEN CONFORMATION OF  $Mg^{2+}$  CHANNEL CORA WITH A SYNTHETIC ANTIBODY FRAGMENT. **Bharat Reddy**, Pawel Dominik, Olivier Dalmas, Tony Kossiakoff, Eduardo Perozo

**2989-Pos BOARD B366**  
MITOGENIC ACTIVATION AND PROLIFERATION OF T LYMPHOCYTES IN TRPM7 KINASE-DEAD MUTANT MICE. **Pavani Beesetty**, Masayuki Matsushita, J. Ashot Kozak

**2990-Pos BOARD B367**  
DYNAMIC INTERPLAY OF CALMODULIN AND FIBROBLAST GROWTH FACTOR HOMOLOGOUS FACTORS IN REGULATING NA CHANNELS. **Manu B. Johnny**, Gordon F. Tomaselli, David T. Yue

**2991-Pos BOARD B368 CPOW TRAVEL AWARDEE**  
SECRETED HUMAN CLCA1 ACTIVATES CALCIUM-DEPENDENT CHLORIDE CURRENTS THROUGH DIRECT BINDING OF ITS VWA DOMAIN WITH AN EXTRACELLULAR LOOP OF TMEM16A/ANOCTAMIN 1. **Monica Sala-Rabanal**, Zeynep Yurtsever, Colin G. Nichols, Tom J. Brett

**2992-Pos BOARD B369**  
FUNCTIONAL COUPLING BETWEEN TRPV1 AND ANO1 IN SENSORY NEURONS REQUIRES CA<sup>2+</sup>-RELEASE FROM THE ENDOPLASMIC RETICULUM. **Shihab Shah**, Nikita Gamper

**2993-Pos BOARD B370**  
TRANSCRIPTIONAL REGULATION OF POTASSIUM CHANNEL EXPRESSION BY G9A IN NEUROPATHIC PAIN. **Hui-Lin Pan**, Shao-Rui Chen, Geoffroy Laumet, Yuhao Zhang

**2994-Pos BOARD B371**  
NICOTINE-UPREGULATION OF ALPHA 7 NACHR IN XENOPUS OOCYTES. **Joseph Farley**, Mohammad F. Islam, Patrick B. Schwartz, Kristi DeBoeuf, Jayharsh Panchal, Thangaraju Murugesan, Jed E. Rose

**2995-Pos BOARD B372**  
MOLECULAR MECHANISM OF USE-DEPENDENT ACTIVATION OF KV1.2 CHANNEL COMPLEXES AND ITS IMPACT ON REGULATION OF NEURONAL EXCITABILITY. **Victoria A. Baronas**, Brandon R. McGuinness, Yury Y. Vilin, Stefano G. Brigidi, Shernaz X. Bamji, Runying Yang, Harley T. Kurata

**2996-Pos BOARD B373**  
HETERODIMERIZATION WITHIN THE TREK CHANNEL SUBFAMILY. **Guillaume Sandoz**

**2997-Pos BOARD B374**  
POLYMODAL GATING OF THE TREK-2 K2P POTASSIUM CHANNEL INVOLVES STRUCTURALLY DISTINCT OPEN STATES. **Conor McClenaghan**, Marcus Schewe, Thomas Baukowitz, **Stephen J. Tucker**

**2998-Pos BOARD B375**  
KV7.5 POTASSIUM CHANNEL SUBUNITS ARE THE PRIMARY TARGET FOR PKA-DEPENDENT ENHANCEMENT OF VASCULAR SMOOTH MUSCLE KV7 CURRENTS. **Lyubov I. Brueggemann**, Bharath K. Mani, Christina Robakowski, Leanne L. Cribbs, Kenneth L. Byron

**2999-Pos BOARD B376**  
INTRACELLULAR ZINC AND ASCORBATE POTENTIATE KCNQ CURRENTS VIA DISTINCT MECHANISMS. **Aurelien Boillat**, Haixia Gao, Chris Peers, Nikita Gamper

**3000-Pos BOARD B377**  
INTRACELLULAR ZINC POTENTIATES KCNQ CHANNELS THROUGH MODULATION OF THEIR SENSITIVITY TO PIP2. **Haixia Gao**, Aurelien Boillat, Chris Peers, **Nikita Gamper**

**3001-Pos BOARD B378**  
MODULATION OF NEURONAL KIR3 CHANNELS BY CHOLESTEROL. **Anna N. Bukiya**, **Avia Rosenhouse-Dantsker**

**3002-Pos BOARD B379**  
CROSS-TALK BETWEEN CHOLESTEROL, PIP2 AND CAVEOLIN IN REGULATING KIR2 CHANNELS. **Huazhi Han**, Avia Rosenhouse-Dantsker, Radhakrishnan Gnanasambandam, Frederick Sachs, **Irena Levitan**

**3003-Pos BOARD B380**  
A SHARED MECHANISM OF BK CHANNEL ACTIVATION BY MALLOTOXIN AND AUXILIARY  $\gamma$ 1 SUBUNIT. **Xin Guan**, Qin Li, **Jiusheng Yan**

**3004-Pos BOARD B381**  
A CRITICAL ROLE OF THE S6 TRANSMEMBRANE HELIX IN BK CHANNEL MODULATION BY AUXILIARY  $\gamma$  SUBUNITS. **Qin Li**, Jiusheng Yan

**3005-Pos BOARD B382**  
THE STRETCH-ACTIVATED BK (SAKCA) CHANNEL IN CHICK HEART IS INHIBITED BY THE SPIDER PEPTIDE GSMTX-4. **Qiong-Yao Tang**, Xiao-Dong Tang, Yan-Jun Feng, Hui Li, Fei-Fei Zhang, Zhe Zhang, Masahiro Sokabe

**3006-Pos BOARD B383**  
N-LINKED GLYCOSYLATION REGULATES CALHM1 CHANNEL FUNCTION AND SUBCELLULAR LOCALIZATION. **Akiyuki Taruno**, Hongxin Sun, Makiko Kashio, Yoshinori Marunaka

**3007-Pos BOARD B384**  
EFFECTS OF EXCLUDED VOLUME AND INDUCED N-TERMINAL CONFORMATIONAL CHANGE ON ION TRANSLOCATION ACROSS VDAC. **Sai Shashank Chavali**, Grace Brannigan, Reza Salari

**3008-Pos BOARD B385**  
ELECTROPHYSIOLOGICAL CHARACTERIZATION OF TWO NOVEL ION CHANNELS OF MITOCHONDRIA. **Vanessa Checchetto**, Angela Paggio, Simona Reina, Diego De Stefani, Vito De Pinto, Rosario Rizzuto, Ildikò Szabò

**3009-Pos BOARD B386**  
CONFORMATIONAL CHANGES THAT OPENS TRKH ION CHANNEL. **Hanzhi Zhang**, Zhao Wang, Wah Chiu, Ming Zhou

**3010-Pos BOARD B387** CID TRAVEL AWARDEE  
ELUCIDATING THE PH DEPENDENT MECHANISM OF OMPG GATING. **Christina M. Chisholm**, Emily Friis, Monifa A. Fahie, Min Chen

**3011-Pos BOARD B388**  
CHARACTERIZATION OF TRANSMEMBRANE SYNTHETIC CHLORIDE ION TRANSPORTERS. **Ahmed Fuwad**

## TRP Channels II (Boards B389 - B407)

**3012-Pos BOARD B389**  
STORE-OPERATED CA<sup>2+</sup> ENTRY MEDIATED BY ORAI1 AND TRPC1 PARTICIPATES TO INSULIN SECRETION IN RAT  $\beta$ -CELLS. **Jessica Sabourin**, Loïc Le Gal, Jacques-Antoine Haefliger, Eric Raddatz, Florent Allagnat

**3013-Pos BOARD B390**  
TRPC3-CALCINEURIN MICRODOMAINS GOVERN ORAI1 SIGNALING IN MAST CELLS. **Michael Poteser**, Bernadett Bacsá, Oleksandra Tiapko, Michaela Lichtenegger, Irene Frischauf, Christoph Romanin, **Klaus Groschner**

**3014-Pos BOARD B391**  
MODULATION OF NEURONAL ACTIVITY BY SYNTHETIC ACTIVATORS OF LIPID-GATED TRPC CHANNELS. **Oleksandra Tiapko**, Toma Glasnov, Gemma Guedes de la Cruz, Michael Poteser, Michaela Lichtenegger, Klaus Groschner

**3015-Pos BOARD B392** INTERNATIONAL TRAVEL AWARDEE  
MECHANOSENSITIVITY OF TRPC6 ION CHANNEL RECONSTITUTED IN THE LIPOSOMES. **Yury A. Nikolaev**, Paul R. Rohde, Derek R. Laver, Boris Martinac

**3016-Pos BOARD B393**  
CRITICAL ROLES OF G<sub>i/o</sub> PROTEINS AND PHOSPHOLIAPSE C- $\delta$ 1 IN THE ACTIVATION OF RECEPTOR-OPERATED TRPC4 CHANNELS. **Dhananjay Thakur**, Jin Bin Tian, Jaepyo Jeon, Michael X. Zhu

**3017-Pos BOARD B394**  
REGULATOR OF G PROTEIN SIGNALING (RGS) AND GOLOCO PROTEINS SUPPRESS TRPC4 CHANNEL FUNCTION VIA ACTING AT GAI/O. **Jaepyo Jeon**, Dhananjay P. Thakur, Jin Bin Tian, Michael X. Zhu

**3018-Pos BOARD B395**  
INTRACELLULAR CALCIUM ACTIVATED AN ENDOGENOUS CURRENT IN HEK293 CELLS, BUT DID NOT ACTIVATE TRPC4-MEDIATED CURRENTS. **Yekaterina Merkulova**, Nicholas Penington, Keith Williams

**3019-Pos BOARD B396**  
STORE OPERATED CALCIUM CHANNELS, NEW TARGETS OF ALDOSTERONE IN CARDIOMYOCYTES. **Fiona Bartoli**, Jessica Sabourin, Ana-Maria Gomez, Jean-Pierre Benitah

**3020-Pos BOARD B397**

THE CYCLIC AMP SIGNALING PATHWAY AND DIRECT PKA PHOSPHORYLATION REGULATE POLYCYSTIN-2 (TRPP2) CHANNEL FUNCTION. **María del Rocío Cantero**, Irina F. Velázquez, Andrew J. Streets, Albert C.M. Ong, Horacio F. Cantiello

**3021-Pos BOARD B398**

REGULATION OF POLYCYSTIN-2 TRPP2 ASSOCIATED CATION CURRENTS IN THE RENAL EPITHELIAL CELL LINE LLC-PK1 BY THE CALCIUM-SENSING RECEPTOR. Xiao Qing Dai, **Paula L. Perez**, Mariano Smoler, María del Rocío Cantero, Horacio F. Cantiello

**3022-Pos BOARD B399**

FURTHER EVIDENCE OF AN ALTERNATIVE ION PERMEATION PATHWAY IN THE NOCICEPTOR TRPM3. **Katharina Held**, Annelies Janssens, Thomas Voets, Joris Vriens

**3023-Pos BOARD B400**

TRPM3 EXHIBITS SLIGHT TEMPERATURE SENSITIVITY IN THE PLANAR LIPID BILAYER SYSTEM AND REQUIRES THE PRESENCE OF PIP<sub>2</sub>. **Lusine Demirkhanyan**, Kunitoshi Uchida, Swapna Asuthkar, Alejandro Cohen, Makoto Tominaga, Eleonora Zakharian

**3024-Pos BOARD B401**

ROLE OF THE KINASE DOMAIN IN TRPM7 CHANNEL ACTIVITY AND FUNCTION. **Ceredwyn E. Hill**, Mustafa D. Ahmadzai

**3025-Pos BOARD B402**

TESTOSTERONE IS A HIGHLY POTENT AND SPECIFIC AGONIST OF TRPM8. Zahir Hussain, Lusine Demirkhanyan, Swapna Asuthkar, **Eleonora Zakharian**

**3026-Pos BOARD B403**

UBIQUITIN-MEDIATED TRPM8 PROTEIN DEGRADATION IN THE PATHOGENESIS OF PROSTATE CANCER. **Swapna Asuthkar**, Alejandro Cohen, Lusine Demirkhanyan, Eleonora Zakharian

**3027-Pos BOARD B404**

COMPETITIVE PIRT AND PI(4,5)P<sub>2</sub> INTERACTIONS MODULATE TRPM8. Nicholas J. Sisco, Parthasarathi Rath, **Wade D. Van Horn**

**3028-Pos BOARD B405**

IMPLICATIONS OF HUMAN TRPM8 CHANNEL GATING FROM SENSING DOMAIN AND MENTHOL BINDING STUDIES. **Parthasarathi Rath**

**3029-Pos BOARD B406**

BIOPHYSICAL CHARACTERIZATION OF HUMAN TRANSIENT RECEPTOR POTENTIAL MELASTATIN 8 (TRPM8) ION CHANNEL MODULATION BY PHOSPHOINOSITIDE REGULATOR OF TRP (PIRT). **Jacob K. Hilton**, Nicholas J. Sisco, Parthasarathi Rath, Wade D. Van Horn

**3030-Pos BOARD B407**

TARGETING SEQUENCE AND FUNCTION-DEPENDENCE OF SUBCELLULAR LOCALIZATION OF TRANSIENT RECEPTOR POTENTIAL MUCOLIPIN CHANNELS. **Jian Xiong**, Xinghua Feng, Michael X. Zhu

## Myosins (Boards B408 - B420)

**3031-Pos BOARD B408**

STRUCTURAL COORDINATION OF THE MYOSIN POWERSTROKE. **Joseph Muretta**, John Rohde, David D. Thomas

**3032-Pos BOARD B409**

MECHANISM OF COOPERATIVE FORCE GENERATIONS BETWEEN SKELETAL MYOSINS. **Motoshi Kaya**, Yoshiaki Tani, Takumi Washio, Toshiaki Hisada, Hideo Higuchi

**3033-Pos BOARD B410**

β-MYHC MUTATIONS LINKED TO EARLY-ONSET HCM AND DCM SHOW DIFFERENCES IN PRE-STEADY AND STEADY STATE KINETIC PARAMETERS. **Carlos D. Vera Velazquez**, Jonathan Walklate, Michael A. Geeves, Leslie A. Leinwand

**3034-Pos BOARD B411**

ARACHIDONIC ACID DIRECTLY BINDS AND ACTIVATES BETA-CARDIAC MYOSIN IN THE REGULATED CARDIAC ACTOMYOSIN COMPLEX. **Manuel H. Taft**, Giulia Falorsi, Michael B. Radke, Salma Pathan-Chhatbar, Nikolas Hundt, Claudia Thiel, Mirco Müller, Vincenzo Lombardi, Dietmar J. Manstein

**3035-Pos BOARD B412**

MODELLING OF DOUBLE HIT MUTATIONS IN THORACIC AORTIC ANEURYSM DISEASE THAT HAVE VARIABLE IMPACT ON PHENOTYPE. **Brett D. Hambly**, Elizabeth Robertson, Stefanie S. Portelli, Yaxin Lu, Murat Kekic, Richmond Jeremy

**3036-Pos BOARD B413**

ELECTROSTATICS OF ACTOMYOSIN INTERFACE AND THE RATE OF RIGOR BINDING. **Jinghua Ge**, Bhavana Ambil, Furong Huang, Yuri E. Nesmelov

**3037-Pos BOARD B414**

MYOSIN II HEAD INTERACTION IN PRIMITIVE SPECIES. Kyoungwan Lee, Shixin Yang, Xiong Liu, Edward D. Korn, Floyd Sarsoza, Sanford I. Bernstein, Luther Pollard, Matthew J. Lord, Kathleen M. Trybus, **Roger Craig**

**3038-Pos BOARD B415 EDUCATION TRAVEL AWARDEE**

CHARACTERIZATION OF A UNIQUE MYOSIN IIIA DEAFNESS MUTATION WHICH ENHANCES ACTIN-SLIDING VELOCITY BUT ABOLISHES FILOPODIA TIP LOCALIZATION. **Manmeet H. Raval**, Lina Jamis, William Unrath, Omar A. Quintero, M'hamed Grati, Jasmine Crenshaw, Xue Zhong Liu, Christopher M. Yengo

**3039-Pos BOARD B416**

LARGE VESICLE MOVES IN ROLLING MANNER BY MYOSIN 5C ALONG ACTIN TRACKS. **Justin J. Raupp**, Alexander Pattyn, Laura K. Gunther, Xuequn Chen, Takeshi Sakamoto

**3040-Pos BOARD B417**

MYOSIN 19 IS AN OUTER MITOCHONDRIAL MEMBRANE MOTOR AND EFFECTOR OF STARVATION INDUCED FILOPODIA WITH UNIQUE KINETIC FEATURES. **Arnon Henn**, Boris Shneyer, Marko Usaj

**3041-Pos BOARD B418**

COMPARING THE MOTILITY OF MYOSIN X WITH PARALLEL AND ANTI-PARALLEL DIMERIZATION DOMAINS. **Matthew A. Caporizzo**, Claire E. Fishman, Osamu Sato, Mitsuo Ikebe, Yale E. Goldman

**3042-Pos BOARD B419**

DYNAMIC ACTIN NETWORKS UTILIZED TO SUPPORT SIMULTANEOUS PROGRESSIVE MOTILITY OF TWO DIFFERENT MYOSIN MOTOR CLASSES. **Alicja Santos**, Ronald S. Rock

**3043-Pos BOARD B420 EDUCATION TRAVEL AWARDEE**

FLUORESCENCE INTERFERENCE CONTRAST MICROSCOPY (FLIC) - A NEW TOOL TO STUDY THE COLLECTIVE MOTOR DYNAMICS. **Agata K. Krenc**, Jagoda Rokicka, Ronald S. Rock

## Cytoskeletal Assemblies and Dynamics (Boards B421 - B437)

**3044-Pos BOARD B421**

MEASURING THE ON-RATE OF MEMBRANE-CYTOSKELETON BONDS AT THE NEAR-EQUILIBRIUM REGION. **Vivek Rajasekharan**, Varun K. A. Sreenivasan, Jeffrey N. Myers, Fred A. Pereira, Brenda Farrell

**3045-Pos BOARD B422 INTERNATIONAL TRAVEL AWARDEE**  
DYNAMIC INSTABILITY EMERGES FROM MICROMECHANICS AND CHEMICAL KINETICS OF MICROTUBULE PROTOFILAMENTS. **Ishutesh Jain**, Ranjith Padinhateeri

**3046-Pos BOARD B423 INTERNATIONAL TRAVEL AWARDEE**  
EFFECT OF BRANCHING ON FORCE-VELOCITY CURVES AND LENGTH FLUCTUATIONS OF ACTIN NETWORKS. **Deepak K. Hansda**, Shamik Sen, Ranjith Padinhateeri

**3047-Pos BOARD B424**  
GLASSY DYNAMICS OF PASSIVE AND ACTIVE NETWORK MATERIALS: A MICROSCOPIC THEORY. **Shenshen Wang**, Peter Wolynes

**3048-Pos BOARD B425**  
BOUNDARY EFFECTS ON ACTIVE ACTIN GELS. **Felix Keber**, Andreas Bausch

**3049-Pos BOARD B426**  
FROM NANOSCALE TO MESOSCALE: INTEGRATING ADVANCED MICROSCOPY TECHNIQUES TO REVEAL THE ULTRASTRUCTURE AND COORDINATED DYNAMICS OF MECHANOSENSORY PODOSOMES. Koen van den Dries, Marjolein BM Meddens, Elvis Pandzic, Ben Joosten, Johan A. Slotman, Leila Nahidiazar, Kees Jalink, Adriaan B. Houtsmuller, Paul W. Wisemann, **Alessandra Cambi**

**3050-Pos BOARD B427**  
STRUCTURE AND DYNAMICS OF FILOPODIA STUDIED BY ELECTRON CRYOTOMOGRAPHY AND SINGLE MOLECULE FLUORESCENCE IMAGING. Andrew Howe, James Streetley, Michelle Peckham, Peter B. Rosenthal, **Justin E. Molloy**

**3051-Pos BOARD B428**  
ACTIN FILAMENTS BUNDLING MECHANISMS BY FASCIN IN FILOPODIA WERE REVEALED WITH CRYO-ET. **Shinji Aramaki**, Kouta Mayanagi, Kazuhiro Aoyama, Takuo Yasunaga

**3052-Pos BOARD B429**  
SUBSTRATE REGULATION OF CYTOSKELETAL ORDER AND BEATING STRAIN DYNAMICS OF CARDIOMYOCYTES. Kinjal Dasbiswas, Ohad Cohen, **Sam Safran**

**3053-Pos BOARD B430**  
A MISSENSE MUTATION IN THE OBSCURIN GENE LEADS TO HYPERTROPHIC CARDIOMYOPATHY DUE TO DEREGULATED CALCIUM CYCLING. Li-Yen R. Hu, Maegen Ackermann, Peter Hecker, Benjamin Prosser, Brendan King, Kelly O'Connell, Larry Asico, Pedro Jose, Nathan Wright, Jonathan Lederer, **Aikaterini Kontrogianni-Konstantopoulos**

**3054-Pos BOARD B431**  
TWO ISOFORMS OF MYOSIN-II ACCOUNT FOR THE TENSION OF THE FISSION YEAST CYTOKINETIC RING. **Shuyuan Wang**, Harvey F. Chin, Erdem Karatekin, Thomas D. Pollard, Ben O'Shaughnessy

**3055-Pos BOARD B432**  
FULL T-CELL ACTIVATION BUT NOT EARLY SIGNALING REQUIRES ACTIN REMODELING. **Marco Fritzsche**, Christian Eggeling

**3056-Pos BOARD B433**  
3-D TOPOLOGICAL ARRANGEMENT OF CYTOSKELETON MODULATED BY ENVIRONMENTAL MECHANICS. **Chiao-Yu Tseng**, Emilio Sanchez, Chin-Lin Guo

**3057-Pos BOARD B434**  
STORAGE AND ABRUPT RELEASE OF ELASTIC ENERGY IN THE MICROTUBULE-EG5 NETWORK. Takayuki Torisawa, Daisuke Taniguchi, Shuji Ishihara, **Kazuhiro Oiwa**

**3058-Pos BOARD B435**  
QUANTIFYING THE EFFECT OF ELECTRIC FIELDS IN THE FREQUENCY RANGE OF 100-500 KHZ ON MITOTIC SPINDLE STRUCTURES. **Zeev Bormzon**, Cornelia Wenger, Moshe Giladi, Noa Urman, Rosa S. Schneiderman, Tali Voloshin Sela, Ya'ara Porat, Mijal Munster, Roni Blat, shay sherbo, Uri Weinberg, Eilon Kirson, Pedro C. Miranda, Yoram Wasserman, Yoram Palti

**3059-Pos BOARD B436**  
BRIGHTNESS CHARACTERIZATION OF SUN1 AND SUN2 BY Z-SCAN FLUORESCENCE FLUCTUATION SPECTROSCOPY. Cosmo A. Saunders, Jared Hennen, Elizabeth M. Smith, Joachim D. Mueller, **GW Gant Luxton**

**3060-Pos BOARD B437**  
DYNAMIC FORCE PATTERNS PROMOTE COLLECTIVE CELL MIGRATION. **Teresa Zulueta-Coarasa**, Rodrigo Fernandez-Gonzalez

## Cell Mechanics, Mechanosensing, and Motility III (Boards B438 - B463)

**3061-Pos BOARD B438**  
THE VINCULIN D1 DOMAIN STABILIZES  $\alpha$ E-CATENIN IN A STRONG ACTIN BINDING STATE. **Nicolas A. Bax**

**3062-Pos BOARD B439**  
MECHANOSENSITIVITY OF ACTIN TURNOVER ALLOWS CELLS TO MAINTAIN HOMEOSTASIS AGAINST MYOSIN-II CONTRACTILE FLUCTUATIONS IN THE CYTOSKELETON. Shuyuan Wang, **Sathish Thiyagarajan**, Mark A. Smith, Elizabeth Blankman, Laura M. Chapin, Mary C. Beckerle, Ben O'Shaughnessy

**3063-Pos BOARD B440**  
MODELING MECHANICALLY-INDUCED GROWTH CONE ADVANCE REVEALS THE IMPORTANCE OF MICROMETER-SCALE ELASTIC ADHESION STRUCTURES IN RIGIDITY SENSING. **Ahmad I M Athamneh**, Rodolfo Amezcua, Arvind Raman, Daniel M. Suter

**3064-Pos BOARD B441**  
BINDING FORCES OF SINGLE  $\alpha$ M $\beta$ 2 INTEGRIN-FIBRINOGEN INTERACTIONS ON LIVING CELLS. **Wayne B. Christenson**

**3065-Pos BOARD B442**  
THE MECHANICAL PROPERTIES OF TALIN ROD DOMAIN. **Mingxi Yao**, Benjamin T. Goult, Michael P. Sheetz, Jie Yan

**3066-Pos BOARD B443**  
FRUSTRATED PHAGOCYTOTIC SPREADING DYNAMICS END IN DISTINCT NON-MUSCLE MYOSIN II DEPENDENT CONTRACTION. **Daniel T. Kovari**, Wenbin Wei, Jan-Simon Toro, Ruth E. Fogg, Karen Porter, Jennifer E. Curtis

**3067-Pos BOARD B444**  
ROLE OF TOPOGRAPHIC CUES ON CANCER CELL PROLIFERATION. **Parthiv Kant Chaudhuri**

**3068-Pos BOARD B445**  
CELL MECHANICAL PROPERTIES AND CANCER METASTASIS: EFFECTS OF CANCER DRUGS AND RADIOTHERAPY. Sruti V. Prathivadhi-Bhayankaram, Carolyn E. Taylor, Jianhao Ning, Michael Nichols, **Andrew E. Ekpenyong**

**3069-Pos BOARD B446**  
EVALUATING BREAST CANCER CELL MORPHOLOGY AS A PREDICTOR OF INVASIVE CAPACITY. **Michelle J. Ziperstein**, Asja Guzman, Laura J. Kaufman

**3070-Pos BOARD B447**  
THE ROLE OF HETEROGENEITY IN CANCER CELL MIGRATION. **Christoph Mark**, Claus Metzner, Julian Steinwachs, Lena Lautscham, Ben Fabry

**3071-Pos BOARD B448**  
MECHANICAL INDUCTION OF THE TUMORIGENIC  $\beta$ -CATENIN PATHWAY BY TUMOUR GROWTH PRESSURE IN VIVO. **Emmanuel Farge**



**3072-Pos BOARD B449**

SEGREGATION OF MOBILE NUCLEAR PROTEINS AWAY FROM CHROMATIN WHEN THE NUCLEUS IS CONSTRICTED. **Charlotte R. Pfeifer**, Jerome Irianto, Dennis E. Discher

**3073-Pos BOARD B450**

A CHEMO-MECHANICAL MODEL FOR EXTRACELLULAR MATRIX AND NUCLEAR RIGIDITY REGULATED SIZE OF FOCAL ADHESION PLAQUES. **Xuan Cao**, Yuan Lin, Tristian P. Driscoll, Janusz Franco-Barraza, Edna Cukierman, Robert L. Mauck, Vivek Shenoy

**3074-Pos BOARD B451**

SPINDLE MICRO-FLUCTUATIONS OF LENGTH REVEAL ITS DYNAMICS OVER CELL DIVISION. **Benjamin Mercat**, Xavier Pinson, Jonathan Fouchard, Hadrien Mary, Sylvain Pastezeur, Zahraa Alayan, Yannick Gachet, Sylvie Tournier, Hélène Bouvrais, Jacques Pécréaux

**3075-Pos BOARD B452 CPOW TRAVEL AWARDEE**

ACTOMYOSIN NETWORK CONTRACTILITY TRIGGERS A STOCHASTIC TRANSFORMATION INTO HIGHLY MOTILE AMOEBOID CELLS. **Verena Ruprecht**, Stefan Wieser, Andrew Callan-Jones, Michael Smutny, Hitoshi Morita, Keisuke Sako, Vanessa Barone, Monika Ritsch-Martel, Michael Sixt, Raphael Voituriez, Carl-Philipp Heisenberg

**3076-Pos BOARD B453**

CYTOSKELETAL AND ADHESION DYNAMICS ARE COUPLED TO MATRIX DEFORMATION IN 3D CELL MIGRATION. **Leanna M. Owen**, Arjun S. Adhikari, Mohak Patel, Natascha Leijnse, Min Cheol Kim, Christian Franck, Alexander R. Dunn

**3077-Pos BOARD B454**

HOMEOSTASIS OF PLASMA MEMBRANE TENSION THROUGH SURFACE AREA REGULATION IN EPITHELIAL CELLS. **Andreas Janshoff**, Bastian Brueckner, Stefan Nehls

**3078-Pos BOARD B455**

CELL MOTILITY AND GROWTH FACTORS ACCORDING TO DIFFERENTIALLY VARIATIONAL SURFACES. **David V. Svintrazde**

**3079-Pos BOARD B456**

CELLULAR ADHESION: EVALUATING THE EFFECT OF RECEPTOR-LIGAND CHEMISTRIES, DISTRIBUTION OF RECEPTORS, AND SPREAD VERSUS SPHERICAL CELL GEOMETRY. **Aravind R. Rammohan**, Mathew Mckenzie, Ravi Radhakrishnan, Natesan Ramakrishnan

**3080-Pos BOARD B457**

CELL FORMATION AND COMPETITION IN THREE DIMENSIONS. Anqi Huang, Jianmin Yin, Weimiao Yu, **Timothy E. Saunders**

**3081-Pos BOARD B458**

MECHANICAL PROPERTIES OF DIFFERENTIATING STEM CELLS ON PEPTIDE NANOFIBERS. **Ahmet E. Topal**, Ayse B. Tekinay, Mustafa O. Guler, Aykutlu Dana

**3082-Pos BOARD B459 INTERNATIONAL TRAVEL AWARDEE**

COHERENT MOTION OF MONOLAYER SHEETS UNDER ACTIVE AND PASSIVE CONFINEMENT: FROM BUILD-UP TO CONSEQUENCE. **SS Soumya**, Dibyendu Das, Shamik Sen, Mandar M. Inamdar

**3083-Pos BOARD B460**

MECHANOBIOLOGICAL INDUCTION OF LONG-RANGE CONTRACTILITY AND SIZE SCALING IN CELL ASSEMBLIES. **Kinjal Dasbiswas**, Samuel Safran

**3084-Pos BOARD B461**

CORTICAL FLOW-DRIVEN SHAPES OF NON-ADHERENT CELLS. **Andrew Callan-Jones**, Verena Ruprecht, Stefan Wieser, Carl-Philipp Heisenberg, Raphaël Voituriez

**3085-Pos BOARD B462**

AN ACTIVE CONTRACTION MODEL OF VALVULAR INTERSTITIAL CELLS. Yusuke Sakamoto, **Michael S. Sacks**

**3086-Pos BOARD B463**

MULTI-CELLULAR MECHANICAL REGULATION OF ENDOTHELIAL PERMEABILITY. **Corey Hardin**, Ramaswamy Krishnan, Emanuela Del Gado

## Membrane Pumps, Transporters, and Exchangers II (Boards B464 - B490)

**3087-Pos BOARD B464**

THE MECHANICAL INSIGHTS INTO PROTON/ELECTRON TRANSFER IN CYTOCHROME C OXIDASE REVEALED BY DIRECT MODELING OF VOLTAGE CHANGES IN RESPONSE TO CHARGE SEPARATION. **Ilsoo Kim**, Arie H Warshel

**3088-Pos BOARD B465**

WHAT KEEPS TOLC CLOSED? INSIGHTS FROM MOLECULAR DYNAMICS SIMULATIONS. **Fabio Grassi**, Vassilij N. Bavro, Ulrich Kleinekathöfer

**3089-Pos BOARD B466**

SPONTANEOUS INWARD OPENING OF THE DOPAMINE TRANSPORTER IS TRIGGERED BY PIP2-REGULATED DYNAMICS OF THE N-TERMINUS. **George Khelashvili**, Nathaniel Stanley, Michelle Sahai, Jaime Medina, Michael V. LeVine, Lei Shi, Gianni De Fabritiis, Harel Weinstein

**3090-Pos BOARD B467**

COMPUTATIONAL INVESTIGATION OF THE TRANSPORT MECHANISM OF NEUROTRANSMITTER SODIUM SYMPORTERS USING A PHYSIOLOGICAL ION GRADIENT. **Emily M. Benner**, Jeffrey D. Madura

**3091-Pos BOARD B468**

TOWARDS IDENTIFYING BIOLOGICALLY RELEVANT INTERMEDIATE CONFORMATIONAL STATES IN DOPAMINE TRANSPORTER. **Ara M. Abramyan**, Nicholas Taro, Sebastian Stolzenberg, Lei Shi

**3092-Pos BOARD B469**

KEEPING SECONDARY TRANSPORTERS UNDER CONTROL: LESSONS FROM A  $Na^+/Ca^{2+}$  EXCHANGER. **Fabrizio Marinelli**, José Faraldo-Gómez

**3093-Pos BOARD B470 CID TRAVEL AWARDEE**

COMBINED QM/MM DYNAMICS SIMULATIONS OF PROTON TRANSFER IN E. COLI CLC CHLORIDE/PROTON ANTIporter. **Christina Garza**

**3094-Pos BOARD B471**

COMPUTATIONAL STUDIES OF ELEVATOR-LIKE MOVEMENTS IN SECONDARY TRANSPORT. Cristina Fenollar-Ferrer, Claudio Anselmi, Ariela Vergara Jaque, Hossein Ali Karimi-Verzaneh, Horacio Poblete-Vilches, Christopher Mulligan, Ian C. Forster, Joseph A. Mindell, José D. Faraldo-Gómez, **Lucy R. Forrest**

**3095-Pos BOARD B472**

DISSECTING FUNCTIONAL CORRELATES OF A DOUBLE MUTATION ENHANCING GLTPH TRANSPORT EFFICIENCY USING ALCHEMICAL FREE ENERGY CALCULATIONS. **Michel A. Cuendet**, Harel Weinstein

**3096-Pos BOARD B473**

HIGH-RESOLUTION STRUCTURES AND MOLECULAR DYNAMICS SIMULATIONS OF THERMUS THERMOPHILUS NAPA REVEAL A LARGE-SCALE CONFORMATIONAL CHANGE FOR ION TRANSLOCATION. **David L. Dotson**, Mathieu Coincon, Povilas Uzdaviny, Emmanuel Nji, Iven Winkelmann, Saba Abdul-Hussein, Alexander D. Cameron, David Drew, Oliver Beckstein

**3097-Pos BOARD B474**

STRUCTURAL CHARACTERIZATION OF SUBSTRATE TRANSPORT SELECTIVITY OF THE SLC13 FAMILY OF  $Na^+$ /DICARBOXYLATE COTransporters. **Claire Colas**, Ana M. Pajor, Avner Schlessinger

**3098-Pos BOARD B475**

A MOLECULAR DYNAMICS BASED MODEL OF THE OUTWARD-FACING STATE AND TRANSPORT MECHANISM OF THE HUMAN NACT HOMOLOG VCINDY. **Noah Trebesch**, Joshua V. Vermaas, Emad Tajkhorshid

**3099-Pos BOARD B476**  
MOLECULAR DYNAMICS OF THE MTRE EFFLUX GATE FROM N. GONOR-RHOEAE. **Giulia Tamburrino**, Owen N. Vickery, Alexander Krahl, Anthony G. Hope, Ulrich Zachariae

**3100-Pos BOARD B477**  
ELECTROSTATIC LOCK CONTROLLING STRUCTURAL TRANSITION IN THE EMRE POLYAROMATIC CATION TRANSPORTER. **Joshua V. Vermaas**, Emad Tajkhorshid

**3101-Pos BOARD B478 INTERNATIONAL TRAVEL AWARDEE**  
RESCUE OF NA<sup>+</sup> AFFINITY IN ASPARTATE-928 MUTANTS OF NA<sup>+</sup>,K<sup>+</sup>-ATPASE BY SECONDARY MUTATION OF GLUTAMATE-314. **Rikke Holm**, Anja P. Einholm, Jens P. Andersen, Pablo Artigas, Bente Vilsen

**3102-Pos BOARD B479**  
ENZYMATIC REQUIREMENTS FOR NON-CANONICAL PROTON IMPORT BY NA/K PUMPS. **Kevin Stanley**, Craig Gatto, Pablo Artigas

**3103-Pos BOARD B480**  
BINDING SITE PROTONATION AND UPHILL OCCLUSION CONTROL THE NA<sup>+</sup>/K<sup>+</sup>-PUMP SELECTIVITY. **Huan Rui**, Benoît Roux

**3104-Pos BOARD B481**  
CONFORMATIONAL TRANSITIONS AND ALTERNATIVE ACCESS MECHANISM IN ATP-DRIVEN CALCIUM PUMP SERCA. **Avisek Das**, Benoit Roux

**3105-Pos BOARD B482**  
KINETICS BY X-RAY CRYSTALLOGRAPHY: SEQUENTIAL SUBSTITUTION OF K<sup>+</sup> BOUND TO NA<sup>+</sup>,K<sup>+</sup>-ATPASE. **Haruo Ogawa**, Flemming Cornelius, Ayami Hirata, Chikashi Toyoshima

**3106-Pos BOARD B483**  
MOLECULAR MECHANISM BY WHICH TWO LYSINE SUBSTITUTIONS ALTER NA/K-PUMP STOICHIOMETRY TO CONFER HIGH-SALINITY ADAPTATION IN BRINE SHRIMP. **Dylan J. Meyer**, Jessica Eastman, Huan Rui, Kevin Stanley, Craig Gatto, Benoit Roux, Pablo Artigas

**3107-Pos BOARD B484**  
NANOSECOND FLUORESCENCE AND MICROSECOND SIMULATION OF SERCA REGULATORY INTERACTIONS WITH SARCOLIPIN AND PHOSPHOLAMBAN. **Joseph M. Autry**, Michel Espinoza-Fonseca, Kurt C. Peterson, Bengt Svensson, David D. Thomas

**3108-Pos BOARD B485**  
IN VITRO DEMONSTRATION OF LIGHT-DRIVEN NA<sup>+</sup>/H<sup>+</sup> PUMPING BY A MICROBIAL RHODOPSIN. **Hai Li**, Oleg A. Sineshchekov, Giordano F. Z. da Silva, John L. Spudich

**3109-Pos BOARD B486**  
THE DIVERSITY OF LIGHT-DRIVEN ION PUMPS AND THEIR CONVERSION INTO ION CHANNELS. **Arend Vogt**, Christiane Grimm, Peter Hegemann

**3110-Pos BOARD B487**  
LOCALIZATION OF A SODIUM BINDING SITE IN THE SODIUM TRANSLOCATING NADH:UBIQUINONE OXIDOREDUCTASE. **Katherine G. Mezc**, Blanca Barquera

**3111-Pos BOARD B488**  
CHARACTERIZING NANOPORE-POLYMER INTERACTIONS AND CYS-LOOP PROTEIN RECEPTOR GATING. **Nicholas B. Guros**, Jeffery B. Klauda

**3112-Pos BOARD B489**  
KEY DIFFERENCES IN MOLECULAR TRANSPORT MECHANISMS OF UNCOUPLING PROTEINS. **Gabriel Macher**, Melanie Köhler, Anne Rupprecht, Peter Hinterdorfer, Elena Pohl

**3113-Pos BOARD B490**  
WATER PATHWAY ANALYSIS OF MULTI-DRUG EFFLUX TRANSPORTER ACRB. **Tsutomu Yamane**, Ryotaro Koike, Motonori Ota, Satoshi Murakami, Akinori Kidera, Mitsunori Ikeguchi

## Computational Neuroscience (Boards B491 - B497)

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MODELING THE OSCILLATING DIPOLE PROPERTIES OF ELECTRIC ORGAN DISCHARGE IN THE WEAKLY ELECTRIC FISH, EIGENMANNIA. **Bela Joos**, Michael R. Markham, Yanna Steimle, John E. Lewis, Morris E. Catherine

**3115-Pos BOARD B492**  
RESONANCES AND SPECTRAL CHARACTERISTICS OF A NEURAL NETWORK FOR THE SONG MOTOR PATHWAY IN BIRDS. **Cristiano Giordani**, Hector Fabio Rivera-Gutierrez, Ruggero Micheletto

**3116-Pos BOARD B493**  
NOISE-DRIVEN SYNCHRONIZATION OF COUPLED NEURAL NETWORKS. **Anis Yuniati**, Te-Lun Mai, Chi-Ming Chen

**3117-Pos BOARD B494**  
A UNIFIED FRAMEWORK FOR NEURONAL SPIKES, SEIZURES, SPREADING DEPRESSION, AND ISCHEMIA-INDUCED ANOXIC DEPOLARIZATION. **Ghanim Ullah**, Yina Wei, Steven J. Schiff

**3118-Pos BOARD B495**  
CELL VOLUME IN BRAIN PATHOLOGIES: ANIONS-CONTROLLED NEURAL AND GLIAL SWELLING IN SPREADING DEPOLARIZATION AND INCREASED NEURONAL SUSCEPTIBILITY TO ISCHEMIC INJURY DUE TO LARGE EXTRACELLULAR SPACE. **Niklas Hubel**

**3119-Pos BOARD B496**  
MULTI-SCALE SPATIAL SIMULATIONS REVEAL THE EFFECT OF DOPAMINE TRANSPORTER LOCALIZATION ON DOPAMINE NEUROTRANSMISSION. **Cihan Kaya**, Ethan R. Block, Alexander Sorokin, James R. Faeder, Ivet Bahar

**3120-Pos BOARD B497**  
SYNTHETIC PERSONS. **Otto E. Rossler**

## Single-Molecule Spectroscopy (Boards B498 - B537)

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ADVANCING 3D SINGLE MOLECULE TRACKING BY TIME-GATING AND FAST SIMULTANEOUS SPINNING DISK IMAGING FOR CONTEXTUAL INFORMATION. **Dominik G. Stich**, Matthew S. DeVore, Cédric Cleyrat, Mary L. Phipps, Bridget S. Wilson, Peter M. Goodwin, James H. Werner

**3122-Pos BOARD B499**  
PHOTON-HDF5: AN OPEN FILE FORMAT FOR TIMESTAMP-BASED SINGLE-MOLECULE FLUORESCENCE DATA. Antonino Ingargiola, **Robert Boutelle**, Ted Laurence, Shimon Weiss, Xavier Michalet

**3123-Pos BOARD B500**  
A 16 CHANNEL SPAD ARRAY FOR HIGH-THROUGHPUT TCSPC MEASUREMENTS OF SINGLE-MOLECULE FRET OF FREELY DIFFUSING MOLECULES. **Antonino Ingargiola**, Pietro Peronio, Ivan Rech, Angelo Gulinatti, Massimo Ghioni, Shimon Weiss, Xavier Michalet

**3124-Pos BOARD B501**  
THE NEXT GENERATION OF NANOPHOTONIC STANDING-WAVE ARRAY TRAPS FOR PRECISION MANIPULATION. **Jun Lin**, Fan Ye, Ryan Badman, James Inman, Michelle Wang

**3125-Pos BOARD B502**  
IMPROVING Z-TRACKING ACCURACY IN TWO-PHOTON SINGLE-PARTICLE TRACKING MICROSCOPE. **Cong Liu**, Evan Perillo, Yen-Liang Liu, Ajay Rastog, Andrew Dunn, Tim Yeh

**3126-Pos BOARD B503 INTERNATIONAL TRAVEL AWARDEE**  
ON ARTIFACTS IN SINGLE-MOLECULE FORCE SPECTROSCOPY. **Pilar Cossio**, Gerhard Hummer, Attila Szabo

**3127-Pos BOARD B504**

OPEN COMPUTATIONAL TOOLS FOR FREELY DIFFUSING SINGLE-MOLECULE FLUORESCENCE ANALYSIS. **Antonino Ingargiola**, Ted Laurence, Robert Boutelle, Shimon Weiss, Xavier Michalet

**3128-Pos BOARD B505**

QUANTITATIVE THREE-COLOR FRET FOR THE STUDY OF COORDINATED INTRAMOLECULAR MOTION. **Anders Barth**, Lena Voith von Voithenberg, Ganesh Agam, Don C. Lamb

**3129-Pos BOARD B506**

BIO-AVAILABILITY OF HEAVY METALS IN WILD PLANTS FOUND IN AN ABANDONED BATTERY WASTE SITE. **Sarah Oni**, Olumuyiwa Ogunlaja, Olusola Ladokun

**3130-Pos BOARD B507**

DNA HAIRPIN DYNAMICS UNDER MOLECULAR CROWDING CONDITIONS. **Laura E. Baltierra-Jasso**, Michael J. Morten, Linda Laflör, Steven D. Quinn, Steven W. Magennis

**3131-Pos BOARD B508**

SINGLE MOLECULE FLUORESCENCE STUDIES OF TRANSITION PATHS IN DNA HAIRPIN FOLDING. **Katherine Truex**, Hoi Sung Chung, John M. Louis, William A. Eaton

**3132-Pos BOARD B509**

A COMPARATIVE STUDY ON G-QUADRUPLEX UNFOLDING ACTIVITY OF RECQ HELICASES. **Jagat B. Budhathoki**, Hamza Balci, Jaya G. Yodh, Pavel Janscak, Parastoo Maleki, William Roy

**3133-Pos BOARD B510**

A HYBRID SINGLE MOLECULE METHOD TO INVESTIGATE SUB-NANOMETER DYNAMICS OF DNA AND PROTEIN AT A SUB-MS RESOLUTION. Sijie Wei, Jongseong Kim, Jaehyoun Lee, **Tae-Hee Lee**

**3134-Pos BOARD B511**

A SINGLE MOLECULE STUDY OF G-QUADRUPLEX AND TELOMESTATIN INTERACTIONS. **Parastoo Maleki**, Y MA, K Iida, Kazuo Nagasawa, Hamza Balci

**3135-Pos BOARD B512**

MULTIPLEXED FORCE SPECTROSCOPY USING DNA NANOSWITCH A CENTRIFUGE. **Darren Yang**, Andrew R. Ward, Ken Halvorsen, Wesley P. Wong

**3136-Pos BOARD B513**

THE EFFECT MAGNESIUM CATIONS TO THE FORMATION OF G-QUADRUPLEX STUDIED BY SINGLE-MOLECULE SPECTROSCOPY. **I-Ren Lee**, Hao-Yi Hsu, Jia-Yu Wu

**3137-Pos BOARD B514**

SINGLE-MOLECULE STUDIES OF FLUORESCENTLY-LABELLED POLYSACCHARIDES. **Steven D. Quinn**, Charlotte E. Dalton, Robin A. Jeanneret, John M. Gardiner, Steven W. Magennis

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PROTEIN FOLDING DRIVES MUSCLE CONTRACTION. **Jaime A. Rivas Pardo**, Edward C. Eckels, Ionel Popa, Pallav Kosuri, Wolfgang A. Linke, Julio M. Fernandez

**3139-Pos BOARD B516**

ON-RATE SWITCHING UNDER FORCE INCREASES THE BINDING OF VON WILLEBRAND FACTOR A1 TO GPIIb/IIIa. **Nathan Hudson**, Jongseong Kim, Timothy A. Springer

**3140-Pos BOARD B517**

UNFOLDING/FOLDING OF A MULTI-DOMAIN PROTEIN UNTANGLED BY SINGLE-MOLECULE FRET. **Antonie Schöne**, Daryan Kempe, Michele Cerminara, Matteo Gabba, Tina Züchner, Jörg Fitter

**3141-Pos BOARD B518**

STRUCTURAL DYNAMICS OF THE FULL-LENGTH METABOTROPIC GLUTAMATE RECEPTORS BY SINGLE-MOLECULE FRET. **Anne-Marinette Cao**, Fataneh Fatemi, Philippe Rondard, Jean-Philippe PinN, Emmanuel Margeat

**3142-Pos BOARD B519**

QUANTIFYING MEMBRANE BINDING OF THE GTPASE SAR1 BY DUAL-COLOR FLUORESCENCE CROSS-CORRELATION SPECTROSCOPY. Daniela Kruger, Jan Ebenhan, Stefan Werner, Sebastian Daum, **Kirsten Bacia**

**3143-Pos BOARD B520**

SINGLE MOLECULE LIGAND BINDING FRET AT HCN2 CHANNEL DOMAINS IN ZERO-MODE WAVEGUIDES. **Marcel P. Goldschen-Ohm**, Vadim Klénchin, Randall Goldsmith, Baron Chanda

**3144-Pos BOARD B521**

SINGLE-MOLECULE FRET REVEALS ALTERNATIVE LIGAND AND OSMOLYTE-DEPENDENT  $\alpha$ -SYNUCLEIN FOLDING. **Mahdi M. Moosa**, Allan Chris M. Ferreón, Ashok Deniz

**3145-Pos BOARD B522**

BIOPHYSICAL CHARACTERIZATION OF MECHANOSENSORS WITHIN THE PLASMA PROTEIN VON WILLEBRAND FACTOR AND ITS RECEPTOR PLATELET GLYCOPROTEIN IB-IX. **Xiaohui Zhang**, Wei Zhang, Matthew Dragovich, Wei Deng, Renhao Li

**3146-Pos BOARD B523**

STOICHIOMETRIC ANALYSIS OF PROTEIN COMPLEXES BY CELL FUSION AND SINGLE MOLECULE IMAGING. **Avtar Singh**, Maria Sirenko, Alexander Song, Paul J. Kammermeier, Warren R. Zipfel

**3147-Pos BOARD B524**

THE SECRETED SIGNALING PROTEIN WNT3 RESIDES IN PLASMA MEMBRANE LIPID DOMAINS IN VIVO: A SPIM-FCS STUDY. **Thorsten Wohland**, Xue Wen Ng, Cathleen Teh, Vladimir Korzh

**3148-Pos BOARD B525**

SINGLE MOLECULE FLUORESCENCE STUDIES ON NUCLEOSOME DYNAMICS. **Kathrin Tegeler**, Johanna Mehl, Martin Würtz, Alexander Gansen, Katalin Toth, Yaakov Levy, Jörg Langowski

**3149-Pos BOARD B526 EDUCATION TRAVEL AWARDEE**

DYNAMICS OF EGFR TRAFFICKING FROM MEMBRANE INTO DEEP CYTOPLASM REVEALED BY A SPATIOTEMPORALLY MULTIPLEXED 3D TRACKING MICROSCOPE. **Yen-Liang Liu**, Evan P. Perillo, Cong Liu, Peter M. Yu, Chao-Kai Chou, Mien-Chie Hung, Andrew K. Dunn, Tim Yeh

**3150-Pos BOARD B527**

OPTICAL BIOSENSORS TO EXPLORE BIOLOGICAL SYSTEMS. **Marta Espina Palanco**, Klaus Bo Mogensen, Nils H. Skovgaard Andersen, Kirstine Berg-Sørensen, Claus Hélix-Nielsen, Katrin Kneipp

**3151-Pos BOARD B528**

STUDYING THE HSP90 MACHINERY IN LIVING CELLS BY SINGLE MOLECULE FRET. **Philipp Wortmann**, Fernando Aprile-Garcia, Ritwick Sawarkar, Thorsten Hugel

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DIFFUSION AND BIOCHEMICAL REACTIONS IN INHOMOGENEOUS CROWDED FLUIDS. **Olivia Stiehl**, Matthias Weiss

**3153-Pos BOARD B530**

SINGLE-MOLECULE MASSPIC ANALYSIS OF SHORT-CHAIN PEG. **Siyun Chen**, Chan Cao, Yi-tao Long

**3154-Pos BOARD B531**

SINGLE-MOLECULE ASSAY DEVELOPMENT FOR STUDYING HUMAN RNA POLYMERASE II PROMOTER-PROXIMAL PAUSING. **Yazan K. Alhadid**, Benjamin L. Allen, SangYoon Chung, Dylan J. Taatjes, Shimon Weiss

**3155-Pos BOARD B532**  
DESIGN AND DEVELOPMENT OF A TELOMERE SENSOR BASED ON FLUORESCENCE ENERGY TRANSFER. **Haitao Li**

**3156-Pos BOARD B533**  
BEYOND AN 'ON-OFF' ACTIVATION MODEL OF G-PROTEIN-COUPLED RECEPTORS. **Julia Wagner**, Mike Friedrich, Martin J. Lohse, Katrin G. Heinze

**3157-Pos BOARD B534**  
DETERMINING THE STOICHIOMETRY OF EGFR AND ADR $\beta$ 2 USING CELL FUSION AND SINGLE MOLECULE IMAGING. **Maria Sirenko**, Avtar Singh, Alexander Song, Paul Kammermeier, Warren Zipfel

**3158-Pos BOARD B535**  
BIFUNCTIONAL RHODAMINE LINKER SIMPLIFIES COLOCALIZATION STUDIES IN SINGLE-MOLECULE IMAGING. **Richard A. Haack**, Patrick J. Macdonald, Qiaoqiao Ruan, Richard J. Himmelsbach, Sergey Y. Tetin

**3159-Pos BOARD B536**  
SINGLE-MOLECULE APPROACHES TO MEMBRANE NANOTUBES. **Minhyeok Chang**, Jungsic Oh, Ryangguen Lee, Jong-Bong Lee

**3160-Pos BOARD B537**  
INVESTIGATING THE KINETICS AND SPECIFICITY OF TRANSCRIPTION ACTIVATOR-LIKE EFFECTOR BINDING USING HIGH THROUGHPUT SINGLE MOLECULE IMAGING. **Alexander L. Van Slyke**, Avtar Singh, Fabio Cupri Rinaldi, Adam J. Bogdanove, John T. Lis, Warren R. Zipfel

## Molecular Dynamics II (Boards B538 - B567)

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GNEIMOSIM: MULTISCALE INTERNAL COORDINATES MOLECULAR DYNAMICS FOR PROTEINS. **Saugat Kandel**, Adrien B. Larsen, Abhinandan Jain, Nagarajan Vaidehi

**3162-Pos BOARD B539**  
LOOS: A TOOLKIT FOR ANALYZING MOLECULAR SIMULATIONS AND MAKING NEW TOOLS. Tod D. Romo, **Alan Grossfield**

**3163-Pos BOARD B540**  
CHARMM-GUI INPUT GENERATOR FOR NAMD, GROMACS, AMBER, OPENMM, AND CHARMM/OPENMM SIMULATIONS USING THE CHARMM36 ADDITIVE FORCE FIELD. **Jumin Lee**, Xi Cheng, Sunhwan Jo, Alexander D. MacKerell Jr., Jeffery B. Klauda, Wonpil Im

**3164-Pos BOARD B541**  
EASY AND FAST SETUP OF MOLECULAR DYNAMICS SIMULATIONS: COMBINING VMD AND NAMD FOR EXPERIMENTALISTS. **Joao V. Ribeiro**, Rafael C. Bernardi, Till Rudack, Klaus Schulten

**3165-Pos BOARD B542**  
ACCELERATING ORTHOGONAL SPACE SAMPLING WITH REPLICA EXCHANGE WITH SOLUTE TEMPERING (REST2) THROUGH A GENERIC IMPLEMENTATION IN NAMD. **Wei Jiang**, Sunhwan Jo

**3166-Pos BOARD B543**  
IMPROVED ESTIMATION OF LONG-TIME KINETICS USING NON-MARKOVIAN ANALYSIS OF TRAJECTORY SEGMENTS: APPLICATION TO PROTEIN FOLDING AND UNFOLDING. **Ernesto Suarez**, Daniel M. Zuckerman

**3167-Pos BOARD B544**  
HDGB IMPLICIT MEMBRANE MODEL WITH A VAN DER WAALS DISPERSION TERM. **Bercem Dutagaci**, Maryam Sayadi, Michael Feig

**3168-Pos BOARD B545**  
OBTAINING BINDING FREE ENERGY FROM A PATH SAMPLING WITHOUT FORCE BIAS. **Duy Phuoc Tran**, Akio Kitao

**3169-Pos BOARD B546**  
A MULTISCALE APPROACH TO UNDERSTANDING PROTEIN LIGAND BINDING PROCESS. **Tohru Terada**, Tatsuki Negami, Kentaro Shimizu

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**3171-Pos BOARD B548**  
A RIEMANNIAN FRAMEWORK FOR TACKLING LARGE-SCALE CONFORMATIONAL CHANGES OF PROTEINS USING ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS. **Mahmoud Moradi**

**3172-Pos BOARD B549**  
ESTIMATING THE RUGGEDNESS OF PROTEIN FREE ENERGY LANDSCAPES FROM MOLECULAR DYNAMICS SIMULATIONS. **Andreas Volkhardt**, Helmut Grubmüller

**3173-Pos BOARD B550**  
ON THE EFFECT OF MAPPING IN THE COARSE GRAINING OF ELASTIC NETWORKS. **Patrick M. Diggins**, Changjiang Liu, Potestio Raffaello, Markus Deserno

**3174-Pos BOARD B551**  
A QUANTITATIVE COARSE-GRAINED MODEL OF SUGARS. **James A. Graham**, Syma Khalid, Jonathan Essex

**3175-Pos BOARD B552**  
EXPLORING N-GLYCAN CONFORMERS: ASSESSMENT OF ENHANCED SAMPLING ALGORITHMS. **Raimondas Galvelis**, Suyong Re, Yuji Sugita

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EXTENDING THE ADDRESS MULTISCALE SCHEME FOR PROTEIN AND BILAYER APPLICATIONS. **Manuel N. Melo**, Julija Zavadlav, Matej Praprotnik, Siewert J. Marrink

**3177-Pos BOARD B554**  
UNIVERSAL METRICS OF INTERSTRUCTURE DISTANCE FOR FLEXIBLE AND INTRINSICALLY DISORDERED PROTEINS. **Timothy G. Connolly**, David Ando, Shawn D. Newsam, Ajay Gopinathan, Michael E. Colvin

**3178-Pos BOARD B555** CID TRAVEL AWARDEE  
STRUCTURAL-FUNCTION STUDY OF MEMBRANE PROTEINS WITH RESTRAINED-ENSEMBLE AND DUMMY SPIN-LABEL MOLECULAR DYNAMICS SIMULATIONS. **Shahidul M. Islam**, Giacomo Florin, Yifei Qi, Rong Shen, Wei Han, Richard A. Stein, Klaus Schulten, Hassane S. Mchaourab, Wonpil Im, Benoit Roux

**3179-Pos BOARD B556**  
PEPTIDE BOND ISOMERIZATION IN HIGH-TEMPERATURE SIMULATIONS. **Chris Neale**, Régis Pomès, Angel E. García

**3180-Pos BOARD B557**  
MECHANICAL ASPECTS OF PROTEIN THERMOSTABILITY. **Guillaume Stirnemann**, Fabio Sterpone

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MD MODELING OF OXIDATIVE FOLDING IN PEPTIDES AND PROTEINS. **Sergei A. Izmailov**, Ivan S. Podkorytov, Nikolai R. Skrynnikov

**3182-Pos BOARD B559**  
SEQUENCE-SPECIFIC BINDING AND DIFFUSION OF TRF1 ON TELOMERIC DNA STUDIED BY MOLECULAR DYNAMICS. **Milosz Wieczor**, Jacek Czub

**3183-Pos BOARD B560**  
SIMULATION STUDIES OF TWIST-STRETCH COUPLING IN NUCLEIC ACIDS. **Anupam Chatterjee**

**3184-Pos BOARD B561**  
SOLVATION STRUCTURE AND QUASIDYNAMICS OF BIOMOLECULES STEERED WITH EFFECTIVE SOLVATION FORCES OBTAINED FROM MOLECULAR THEORY OF SOLVATION. **Andriy Kovalenko**

**3185-Pos BOARD B562**  
EFFECT OF DMSO ON WATER MOLECULES NEAR PHOSPHOLIPID BILAYER SURFACES. **Yuno Lee**, Changbong Hyeon

**3186-Pos BOARD B563**  
PROTEINS NEAR SOLID SURFACES AND AT AIR-WATER INTERFACES. **Marek Cieplak**, Grzegorz Nawrocki

**3187-Pos BOARD B564**  
VIBRATIONS OF WATER MOLECULES IN MONOSACCHARIDE HYDRATION SHELL BY DFT-MD STUDIES. **Katsufumi Tomobe**, Takashi Iijima, Eiji Yamamoto, Masato Yasui, Kenji Yasuoka

**3188-Pos BOARD B565**  
INCLUSION OF PH EFFECTS IN MOLECULAR DYNAMICS SIMULATIONS OF MEMBRANES AND MEMBRANE PROTEINS. **Brian K. Radak**, Abhishek Singharoy, Klaus Schulten, Benoit Roux

**3189-Pos BOARD B566**  
IMPROVED PARAMETERIZATION OF AMINE-CARBOXYATE, AMINE-PHOSPHATE, AND ALIPHATIC CARBON-CARBON INTERACTIONS FOR MOLECULAR DYNAMICS SIMULATIONS USING THE CHARMM AND AMBER FORCE FIELDS. **Jejoong Yoo**, Aleksei Aksimentiev

**3190-Pos BOARD B567**  
IMPROVED LENNARD-JONES PARAMETERS FOR ACCURATE MOLECULAR DYNAMICS SIMULATIONS. **Eliot Boulanger**, Lei Huang, Alexander D. MacKerell Jr., Benoit Roux

## Optical Microscopy and Super-Resolution Imaging III (Boards B568 - B591)

**3191-Pos BOARD B568**  
INVESTIGATING THE DYNAMICS OF VIBRIO CHOLERAE VIRULENCE INITIATION BY STICS AND SINGLE MOLECULE TRACKING. **Josh Karlake**, David J. Rowland, Chanrith Siv, Victor J. DiRita, Julie S. Biteen

**3192-Pos BOARD B569 EDUCATION TRAVEL AWARDEE**  
SUPER-RESOLUTION IMAGING OF DNA REPLISOME DYNAMICS IN LIVE BACILLUS SUBTILIS. **Yilai Li**, Jeremy W. Schroeder, Yi Liao, Lyle A. Simmons, Julie S. Biteen

**3193-Pos BOARD B570**  
ELUCIDATING MEMBRANE-BOUND TRANSCRIPTION REGULATION IN VIBRIO CHOLERAE VIA SINGLE-MOLECULE IMAGING. **Chanrith Siv**, Victor J. DiRita, Julie S. Biteen

**3194-Pos BOARD B571**  
LIVE-CELL SINGLE-MOLECULE IMAGING OF ENDOGENOUS MRNA IN STRESS GRANULES. **Ko Sugawara**, Kohki Okabe, Takashi Funatsu

**3195-Pos BOARD B572**  
MAGNETOGENETIC MANIPULATION OF INTRACELLULAR SIGNALING USING FERRITIN NANOPARTICLES. **Chiara Vicario**, Domenik Liße, Cornelia Monzel, Albert Ikramov, Jacob Piehler, Mathieu Copepy, Maxime Dahan

**3196-Pos BOARD B573**  
FRET REVEALS AN INTERPLAY OF THE HIV-1 INTEGRASE SUBUNITS DURING ITS JOURNEY FROM THE CYTOPLASM INTO THE NUCLEUS. Doortje Borrenberghs, Lieve Dirix, Susana Rocha, Johan Hofkens, Zeger Debyser, **Jelle Hendrix**

**3197-Pos BOARD B574**  
SUPERCRITICAL ANGLE LOCALIZATION MICROSCOPY. **Joran Deschamps**, Markus Mund, Jonas Ries

**3198-Pos BOARD B575 INTERNATIONAL TRAVEL AWARDEE**  
3D MULTICOLOR STED NANOSCOPE A SUPER-RESOLUTION APPROACH TO MAMMALIAN PHOTORECEPTOR. **Michele Oneto**, Chiara Peres, Francesca D'Autilia, Daniela Calzia, Isabella Panfoli, Alberto Diaspro, Paolo Bianchini

**3199-Pos BOARD B576 INTERNATIONAL TRAVEL AWARDEE**  
BOOST YOUR MICROSCOPE BY EXPLORING NEW DIMENSIONS. **Marco Castello**, Giorgio Tortarolo, Colin J.R. Sheppard, Alberto Diaspro, Giuseppe Vicidomini

**3200-Pos BOARD B577**  
A NOVEL FAST VOLUMETRIC LIGHT SHEET MICROSCOPY. **Giuseppe Santicataldo**, Paolo Bianchini, Peter Saggau, Paola Ramoino, Alberto Diaspro, Martì Duocastella

**3201-Pos BOARD B578**  
THE EFFECTS OF GLUCAGON-INHIBITING FACTORS ON SECOND MESSENGERS IN A PANCREATIC  $\alpha$ -CELL LINE. **Alessandro Ustione**, Troy Hutchens, David W. Piston

**3202-Pos BOARD B579**  
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A STUDY OF SEQA SUBCELLULAR LOCALIZATION IN ESCHERICHIA COLI USING PHOTO-ACTIVATED LOCALIZATION MICROSCOPY. **Jacek T. Mika**, Aster Vanhecke, Peter Dedecker, Toon Swings, Jeroen Vangindertael, Bram Van den Bergh, Jan Michiels, Johan Hofkens

**3204-Pos BOARD B581**  
HIGH-SPEED SINGLE PARTICLE TRACKING ON MODEL LIPID MEMBRANES. **Susann Spindler**, Jens Ehrig, Hannah Stein, Vahid Sandoghdar

**3205-Pos BOARD B582**  
THREE-CHANNEL FLUORESCENCE LIFETIME IMAGING OF ENDOGENOUS FLUOROPHORES. **Zdenek Svindrych**, Horst Wallrabe, Shagufta Rehman, Meghan J. O'Melia, Ammasi Periasamy

**3206-Pos BOARD B583**  
VISUALIZING SPECIFIC GENOMIC LOCI USING FLUORESCENTLY LABELED TRANSCRIPTION ACTIVATOR-LIKE EFFECTORS. **Juan Wang**, Avtar Singh, Fabio Cupri Rinaldi, John Lis, Adam Bogdanove, Warren Zipfel

**3207-Pos BOARD B584**  
STRUCTURAL AND DYNAMIC STUDY OF CAVEOLIN-1 MEMBRANE NANODOMAINS IN RESPONSE TO INFLAMMATORY PATHWAY SIGNALING. **Ramunas Stanciasukas**, Fabien Pinaud

**3208-Pos BOARD B585**  
POLARIZED LOCALIZATION MICROSCOPY DETECTS MEMBRANE CURVATURE AND REVEALS THE INTERPLAY BETWEEN MEMBRANE ORIENTATION AND PROTEIN DYNAMICS. **Abir Kabbani**, XinXin Woodward, Christopher V. Kelly

**3209-Pos BOARD B586**  
PROTEIN ORDER IN THE DESMOSOME INVESTIGATED WITH FLUORESCENCE POLARIZATION MICROSCOPY. **Emily I. Bartle**, Siddharth Raju, Alexa L. Mattheyses

**3210-Pos BOARD B587**  
CULTURED NEURONS ON FIDUCIARY MARKERS AND SMALL QUANTUM DOTS WITH MONOMERIC STREPTAVIDIN FOR SUPER-RESOLUTION MICROSCOPY. **Sang Hak Lee**, Kai Wen Teng, Pinghua Ge, Duncan Nall, William N. Green, Sheldon Park, Paul R. Selvin

**3211-Pos BOARD B588**  
COMBINING DSTORM WITH PROXIMITY LIGATION ASSAYS FOR MULTICOLOR COLOCALIZATION. **Nafiseh Rafiei**, Aoife Taylor, Amir Mazouchi, Joshua Milstein

**3212-Pos BOARD B589**  
MORPHOLOGICAL CHANGES IN HEALTHY AND MALARIA INFECTED ERYTHROCYTES PROBED BY HIGH PRESSURE MICROSCOPY. Silki Arora, Jennifer Mauser, Debopam Chakrabarti, **Alfons Schulte**

**3213-Pos BOARD B590**  
IDENTIFICATION OF GLIOBLASTOMA SUBPOPULATIONS BY FLIM. **Andrew Trinh**, Yi-Hong Zhou, Michelle A. Digman

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EMPLOYING PEPTIDE NUCLEIC ACIDS FOR ENHANCED SUPER-RESOLVED IMAGING OF BACTERIAL DNA. **Daniel Nino**

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**3215-Pos BOARD B592**  
SILICON NANOWIRES PROMOTE NEURON-LIKE DIFFERENTIATION OF MESENCHYMAL STEM CELLS. Hyunju Kim, Ilsoo Kim, Heon-Jin Choi, **So Yeon Kim**, Eun Gyeong Yang

**3216-Pos BOARD B593**  
CHARGE INDUCED RECTIFICATION IN SINGLE NANOPORES. **Crystal Yang**, Justin Menestrina, Preston Hinkle, Ivan Vlasiouk, Zuzanna Siwy

**3217-Pos BOARD B594**  
NANO PATTERNED SURFACE EMBEDDED MICROFLUIDIC DEVICE TO STUDY CUTANEOUS WOUND HEALING PROCESS. **Insu Lee**

**3218-Pos BOARD B595**  
NAVY<sub>4</sub>:YB<sup>3+</sup>/ER<sup>3+</sup> UPCONVERSION NANOPARTICLES FOR INFRARED PHOTODYNAMIC THERAPY OF TUMORS. **Petr Jezek**, Hana Engstová, Katarina Smolkova, Milos Nekvasil, Pavla Pouckova, Uliana Kostiv, Miroslav Slouf, Nikolay Kotov, Daniel Horak

**3219-Pos BOARD B596**  
SPATIOTEMPORAL CONTROL OF T CELL STIMULATION USING JANUS PARTICLES. **Kwahun Lee**, Yi Yi, Yan Yu

**3220-Pos BOARD B597**  
DETERMINATION OF RESTRICTION ENZYME ACTIVITY WHEN CUTTING FLUOROCHROME LABELED DNA MOLECULES. **April R. Maschmann**, Kristy L. Kounovsky-Shafer

**3221-Pos BOARD B598**  
DEVELOPMENT OF 3D PRINTED DEVICES TO EXTRACT DNA MOLECULES FOR GENOME ANALYSIS. **Jocelyn Dolphin**, Matt Moore, April Maschmann, Kristy Kounovsky-Shafer

**3222-Pos BOARD B599**  
BEHAVIOR ANALYSIS OF C.ELEGANS TO ELECTRICAL STIMULUS IN A HIGHLY CONTROLLED MICROFLUIDIC CHIP. **Sunhee Yoon**, Hailing Piao, Tae-Joon Jeon, Sun Min Kim

**3223-Pos BOARD B600**  
DIAGNOSING SICKLE CELL DISEASE. Christopher Brown, Alexey Aprelev, **Frank A. Ferrone**

**3224-Pos BOARD B601**  
ELECTRON TRANSFER IN HEME PROTEIN-CDSECDs NANOROD COMPLEXES. **Bryant Chica**, Jie gu, Ekaterina Pletneva, Brian Dyer

**3225-Pos BOARD B602**  
ASYMMETRIC SALT PROFILES EXPAND REACTION CONDITIONS FOR NANOPORE SEQUENCING WITH MSPA. **Ian C. Nova**, Ian M. Derrington, Benjamin I. Tickman, Jonathan M. Craig, Matthew Noakes, Jens Gundlach

**3226-Pos BOARD B603**  
HIGH-THROUGHPUT COMPOUND SCREENING USING DNA NANO-SWITCHES. **Clinton H. Hansen**

**3227-Pos BOARD B604**  
NOVEL MICROSYSTEM TO MEASURE VOLTAGE-DRIVEN MEMBRANE TRANSPORTER ACTIVITY. **Rikiya Watanabe**, Naoki Soga, Hiroyuki Noji

**3228-Pos BOARD B605**  
IDENTIFYING OLIGOMERS AND LIPID VESICLES EFFECTS DURING  $\alpha$ -SYNUCLEIN FIBRIL FORMATION THROUGH A SOLID-STATE NANOPORE. Rui Hu, Jiajie Diao, **Qing Zhao**

**3229-Pos BOARD B606**  
CONTROLLABLE PLASMONIC ENHANCEMENT AND HOT SPOTS OF METALLIC NANOCCLUSERS ASSEMBLED BY GREEN FLUORESCENT PROTEINS. **Taerin Chung**, Tugba Koker, Fabien Pinaud

**3230-Pos BOARD B607**  
DNA NANOSTRUCTURES FOR SINGLE MOLECULE PROTEIN SENSING WITH NANOPORES. **Nicholas A W Bell**, Jinglin Kong, Ulrich F. Keyser

**3231-Pos BOARD B608**  
SINGLE-SITE RESOLUTION DETECTION OF METHYLATION IN DNA WITH GRAPHENE NANOPORES. **Aditya Sarathy**, Hu Qiu, Klaus Schulten, Jean-Pierre Leburton

**3232-Pos BOARD B609**  
CONDUCTANCE MODULATION IN SILICON-ON-INSULATOR SOLID-STATE NANOPORES COATED WITH ELECTROACTIVE POLYMERS. Xiaofeng Wang, **Michael Goryll**

**3233-Pos BOARD B610**  
SINGLE OLIGONUCLEOTIDE DISCRIMINATION WITH AEROLYSIN NANOPORE. Chan Cao, Yi-Lun Ying, **Yi-Tao Long**

**3234-Pos BOARD B611**  
IONIC TRANSPORT THROUGH UNCHARGED NANOPORES. **Sébastien Balme**, Fabien Picaud, Manoel Manghi, John Palmeri, Mikhael Bechelany, Emmanuel Balanzat, Jean-Marc Janot

**3235-Pos BOARD B612**  
COMBINED OPTICAL AND CHEMICAL CONTROL OF A MICRO-SIZED JANUS PARTICLE. **Sabrina Simoncelli**, Johannes Summer, Spas Nedev, Paul Kühler, Jochen Feldmann

**3236-Pos BOARD B613**  
TIME IRREVERSIBILITY OF PARTICLES PASSAGE THROUGH A CORRUGATED MICROPORE. **Zuzanna S. Siwy**, Yinghua Qiu, Thomas P. Hinkle, Ivan Vlasiouk, Eugenia M. Toimil-Molares, Alex J. Levine

**3237-Pos BOARD B614**  
PROBING DNA TRANSLOCATIONS IN NANOPIPETTES USING HIGH-SPEED DETECTION ELECTRONICS. **Raquel L. Fraccari**, Pietro Ciccarella, Azadeh Bahrami, Marco Carminati, Giorgio Ferrari, Tim Albrecht

**3238-Pos BOARD B615**  
BIO-FUNCTIONALIZED POLYMERIC VESICLES ENCAPSULATED WITHIN HYDROGEL MATRIX FOR THE ENHANCEMENT OF BIOLOGICAL ACTIVITIES. **Huisoo Jang**, Sungho Jung, Sun Min Kim, Tae-Joon Jeon

**3239-Pos BOARD B616**  
SINGLE NUCLEOTIDE DISCRIMINATION WITH ELECTRO-OPTICAL NANOPORE. **Chan Cao**, Yi-Tao Long

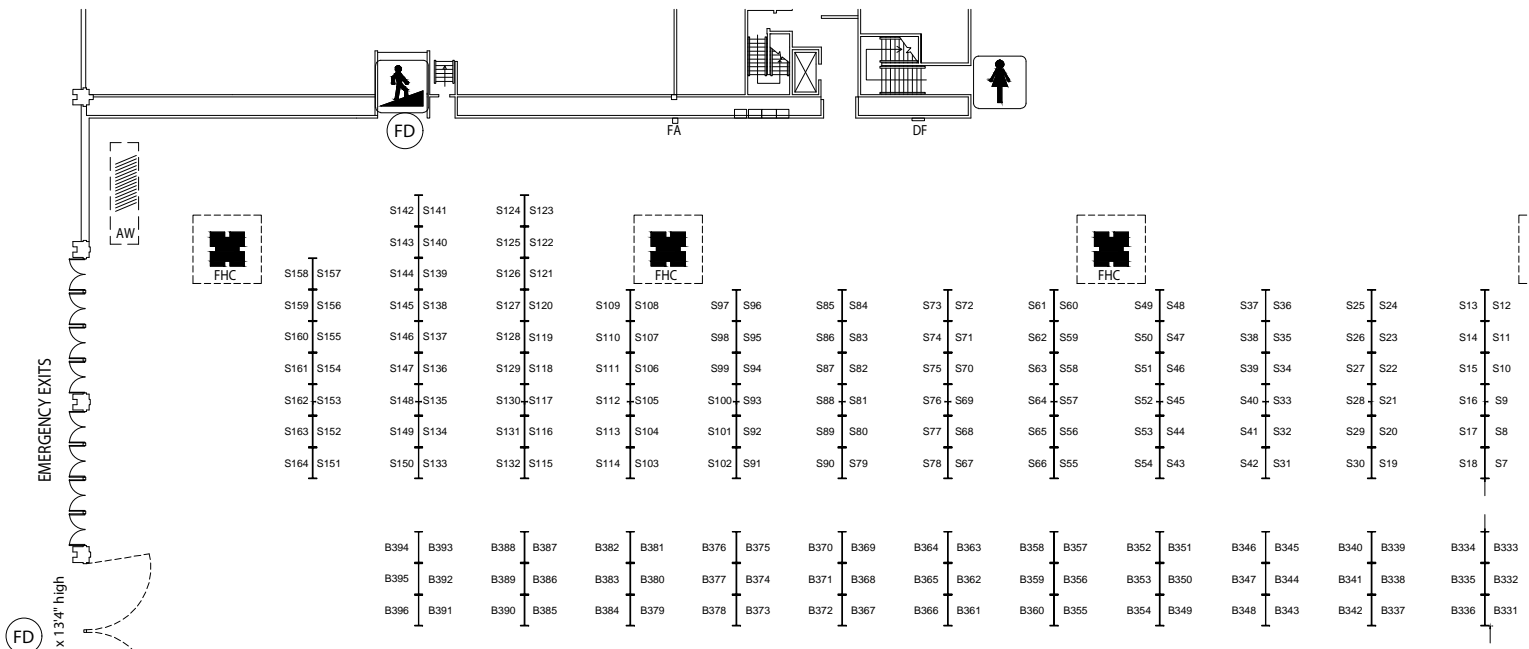
**3240-Pos BOARD B617**  
ENTROPICALLY CONTROLLED NANOMECHANICAL DNA ORIGAMI DEVICES. Michael W. Hudoba, Yi Luo, Randy Patton, Michael G. Poirier, **Carlos Castro**

## Notes

## Exhibitor List and Booth Numbers

Booth Number/Exhibitor	Booth Number/Exhibitor	Booth Number/Exhibitor
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804 AAT Bioquest Inc	715 Elements SRL	434 Onefive GmbH <b>NEW 2016</b>
809 Agilent Technologies Inc	215 ELSEVIER	623 Pacer Scientific
310 AIP Publishing	825 Fluicell	802 Park Systems Inc
324 ALA Scientific Instruments	300 Garland Science	532 PCO-TECH Inc
422 Alembic Instruments Inc	822 Gene Tools LLC	404 Photometrics
731 ALVEOLE <b>NEW 2016</b>	409 Hamamatsu Corporation	303 Physics Today
808 Anasys Instruments	423 HEKA Elektronik	400 PI (Physik Instrumente)
529 Anatrace	709 Hellma USA	201 PicoQuant Photonics North America Inc
625 Andor Technology	103 Hinds Instruments <b>NEW 2016</b>	125 Prior Scientific Inc
1010 Anton Paar USA	801 HORIBA Scientific	901 Quantum Northwest Inc
710 App Nano <b>NEW 2016</b>	535 IonOptix	1002 Rainin Instrument LLC
923 Applied Photophysics	435 Ionovation GmbH	722 Rapp OptoElectronic GmbH
531 ASI/Applied Scientific Instrumentation	309 IOP Publishing	115 Rayonix LLC
609 Asylum Research, An Oxford Instruments Company	635 ISS Inc	603 Renishaw Inc
636 Aurora Scientific Inc	437 JASCO	828 Rigaku Oxford Diffraction
508 Avanti Polar Lipids Inc	908 JPK Instruments AG	308 Rockefeller University Press
1012 Aviv Biomedical Inc	323 Keysight Technologies	305 Royal Society Publishing
214 Aviva Systems Biology Corporation <b>NEW 2016</b>	428 KinTek Corporation	433 RPMC Lasers Inc
922 Axiogenesis AG	704 Laboratory for Fluorescence Dynamics	815 SciMeasure
1014 Beckman Coulter Life Sciences <b>NEW 2016</b>	534 Larodan <b>NEW 2016</b>	415 SciMedia/BrainVision <b>NEW 2016</b>
913 Biolin Scientific	1000 LUMICKS	1024 Seahorse Bioscience, a part of Agilent Technologies
514 BioLogic USA	501 Mad City Labs Inc	723 Semrock Inc
812 BiOptix	711 Malvern Instruments Ltd	123 Sensapex OY
724 Bitplane Inc	605 Matreya LLC	1008 SensiQ Technologies Inc
700 Bruker Nano Surfaces	811 Maxcyte Inc <b>NEW 2016</b>	708 Siskiyou Corporation
912 Caliber Imaging & Diagnostics Inc <b>NEW 2016</b>	823 Mightex Systems	312 Society for Neuroscience
205 Cambridge University Press	714 Minus K Technology Inc	909 Sophion Bioscience
101 Carl Zeiss Microscopy LLC	608 Molecular Devices LLC	302 Springer
800 Cedarlane	522 Multi Channel Systems	600 Sutter Instrument
622 Cell MicroControls	813 Namiki Precision Jewel Co Ltd	200 TA Instruments
313 Cell Press	509 Nanion Technologies	729 TgK Scientific Ltd
424 Charles River	910 NanoAndMore USA Inc	314 The Journal of Physiology
728 Chroma Technology Corporation	810 Nanolive SA <b>NEW 2016</b>	401 Thorlabs
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301 CRC Press/Taylor & Francis	1022 Narishige International USA Inc	725 Tokai Hit Co Ltd
222 Creoptix <b>NEW 2016</b>	536 NeoBiosystems Inc	634 TOPTICA Photonics Inc <b>NEW 2016</b>
412 De Novo Software	624 NIC@IIT	814 UVP LLC
223 DRV Technologies <b>NEW 2016</b>	523 Nikon Instruments Inc	427 Warner Instruments
630 Ecocyte Bioscience US LLC	322 npi electronic GmbH	712 WITec Instruments
612 Edinburgh Instruments	903 Olis Inc	414 World Precision Instruments
		601 Wyatt Technology Corporation





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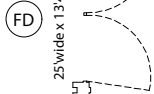
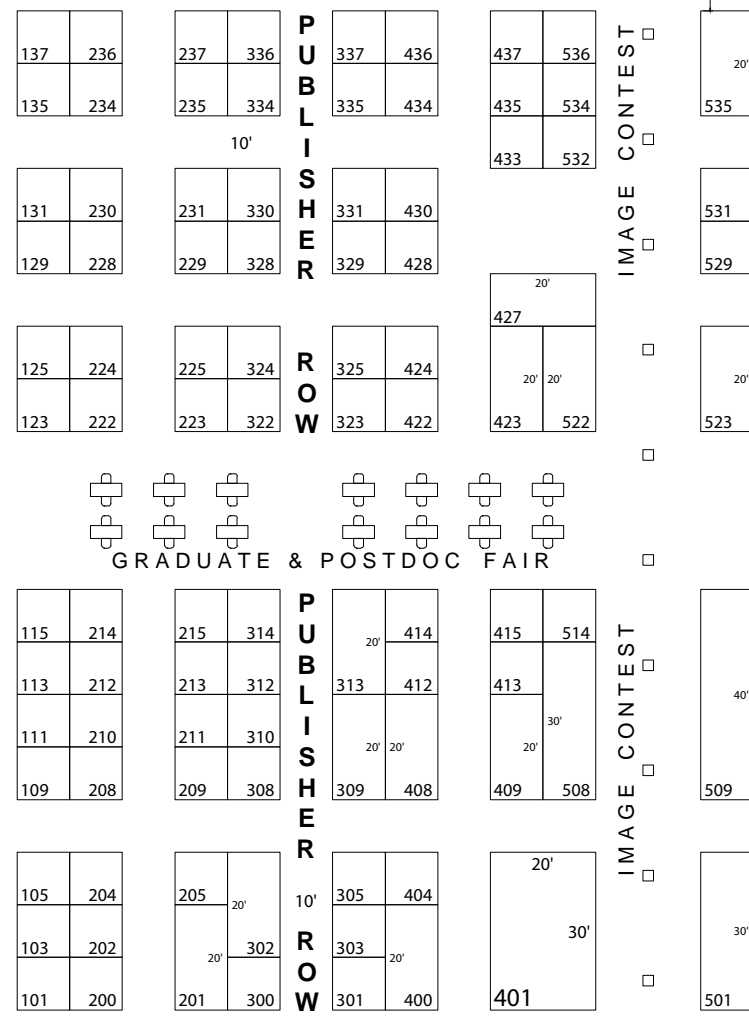
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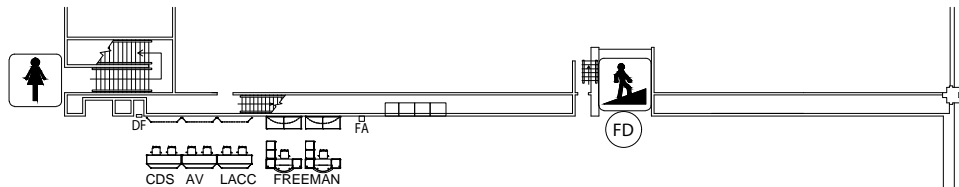
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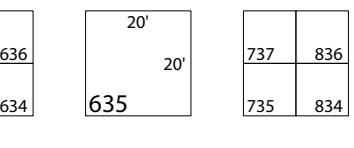
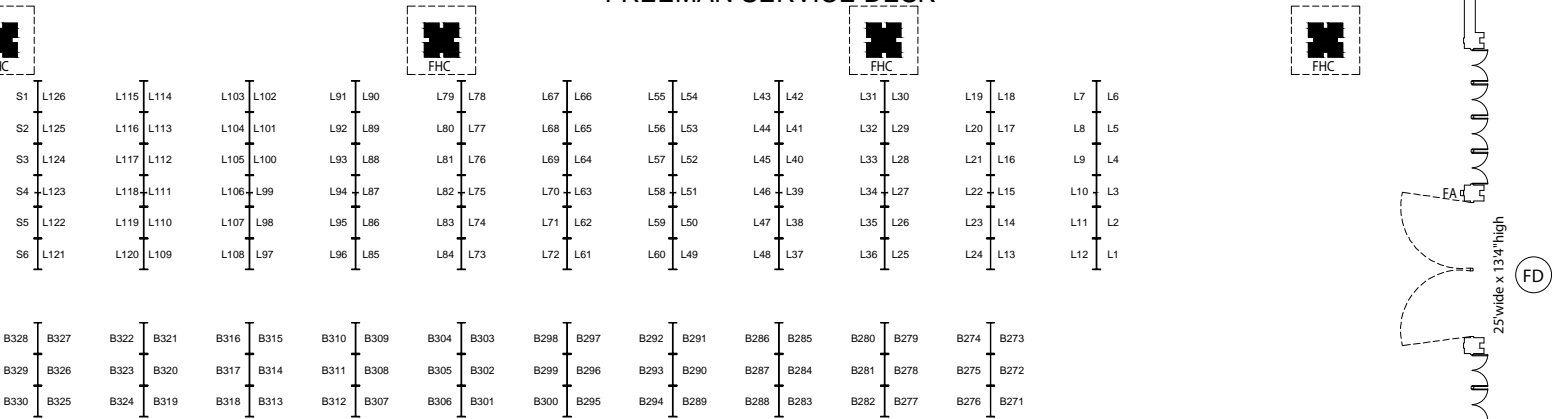
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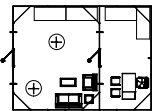
LOBBY C  
**ENTRANCE**



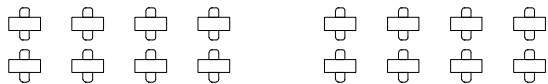
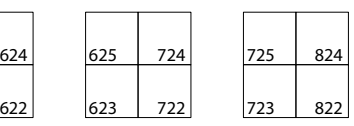
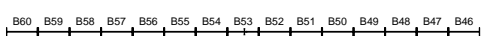
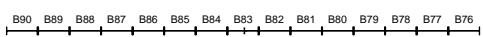
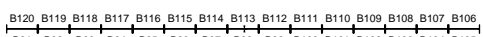
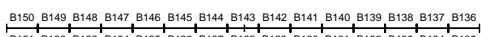
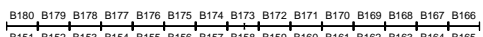
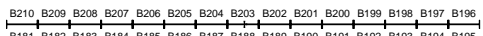
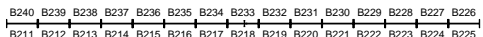
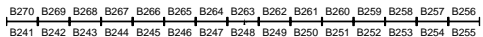
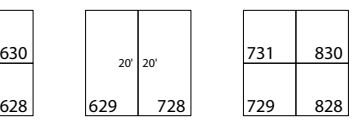
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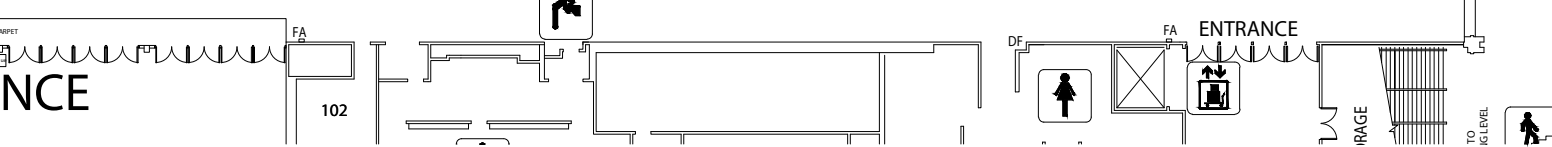
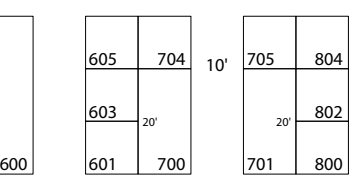
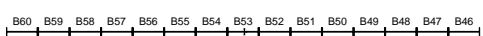
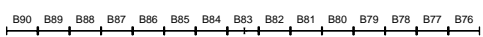
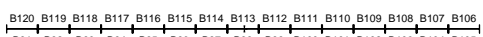
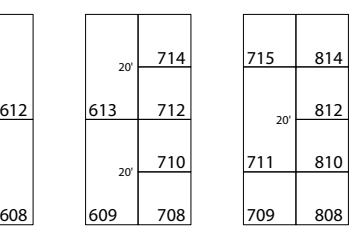
**Exhibit Management Office/  
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**HALL A**



**GRADUATE & POSTDOC FAIR**



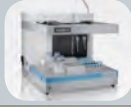
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Monday February 29  
12:30 – 2:00 PM  
Room 513  
LA Convention Center

Ion Channel Drug Discovery:  
Beyond the Bottleneck and Ready  
for CiPA  
Live experiments!

Tuesday March 1  
12:30 – 2:00 PM  
Room 513  
LA Convention Center

Measure More Membrane:  
Cells and Bilayers on the Port-a-Patch,  
Orbit16 and Orbit mini  
Live experiments!

Six cardiac channels in one run:



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# Exhibit Dates and Times

Sunday, February 28 10:00 AM–5:00 PM  
Monday, February 29 10:00 AM–5:00 PM  
Tuesday, March 1 10:00 AM–4:30 PM

Coffee Served Daily 10:15 AM–11:00 AM

Afternoon Snack Served Daily 1:45 PM–3:00 PM

## Exhibit Raffle

Enter to win an Samsung Galaxy Tablet in the Exhibit Hall. Visit with exhibitors to pick up raffle tickets for your chance to win. The more booths you visit, the greater your chances of winning. Drop off your raffle tickets at the Society Booth, outside the Exhibit Hall by 2:30 PM on Tuesday, March 1. The drawing will take place on Tuesday, March 1 at 3:00 PM and announced in the Exhibit Hall — you must be present at the Meeting to win!

## Exhibitor Presentations

Exhibitor Presentations will take place in Rooms 505 and 513 of the Los Angeles Convention Center.  
See pages 166–170 for detailed abstracts.

### Room 505

#### Sunday, February 28

5:30 PM – 7:00 PM: HEKA Electronic + Multi Channel Systems

#### Monday, February 29

9:30 AM–11:00 AM: Sophion together with Biolin Scientific  
11:30 AM–1:00 PM: Asylum Research, an Oxford Instruments Company  
1:30 PM–3:00 PM: KinTek Corp  
3:30 PM–5:00 PM: Bruker Nano Surfaces  
5:30 PM–7:00 PM: Sutter Instrument

#### Tuesday, March 1

11:30 PM–1:00 PM: Bruker Nano Surfaces

### Room 513

#### Sunday, February 28

10:30 AM–12:00 PM: Carl Zeiss Microscopy LLC

#### Monday, February 29

10:30 AM–12:00 PM: Wyatt Technology Corporation  
12:30 PM–2:00 PM: Nanion Technologies GmbH  
2:30 PM–4:00 PM: Renishaw Inc  
4:30 PM–6:00 PM: Molecular Devices

#### Tuesday, March 1

12:30 PM–2:00 PM: Nanion Technologies GmbH

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Renishaw Inc  
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Sutter Instrument  
The Journal of Physical Chemistry  
Wyatt Technology Corporation

*\*As of January 19, 2016*

## Exhibitor Presentations

Rooms 505, 513, Los Angeles Convention Center

### Room 505: Sunday, February 28

5:30 PM–7:00 PM

#### **HEKA Elektronik + Multi Channel Systems**

##### **PATCHMASTER and PatchServer: Solutions for Patch Clamp**

Presentation 1: Combined Patch Clamp and Imaging with PATCHMASTER and SmartLUX

SmartLUX is the new imaging extension for PATCHMASTER software synchronizing image acquisition and patch clamp data recordings. Image based data such as fluorescence intensities form ROIs that are stored as traces together with current and voltage traces in the PATCHMASTER data file. A link between data points of the trace and the images enables convenient automatic display of the corresponding images when replaying the patch clamp data.

Presentation 2: Multi-Patch Experiments with EPC 10 Quadro and PATCHMASTER

PATCHMASTER software allows the user to control up to 8 patch clamp amplifiers (2 x EPC 10 USB Quadro) in parallel, making it an ideal platform for either conventional multi-patch experiments or automated patch clamping. The Multi-Cell extension of PATCHMASTER allows easy setup and execution of acquisition sequences and analysis methods for operating all amplifiers in parallel. Conventional patch clamping with multiple electrodes can be facilitated by automating processes using the Protocol Editor.

Presentation 3: PatchServer: A Pipette-Based Automatic Patch Clamp System

PatchServer is Multi Channel Systems' new automated patch-clamp system that adds on to a manual patch-clamp setup. It is able to establish single-channel and whole-cell recording configurations using standard glass electrodes. The automation includes sealing on suspended cells, establishing recording configurations, and moving to application bays for solution exchange – all under visual control. PatchServer comes in a one channel version for performing single experiments, as well as a four channel version for recording from four cells in parallel using the EPC 10 Quadro from HEKA. A piezo-driven ultra-fast solution exchanger (UFA tool) is available as an option and can be easily integrated.

##### **Speakers**

Christian Heinemann, Head of Engineering at HEKA Elektronik  
Juergen Rettinger, Product Manager – Ion Channel Product Line at Multi Channel Systems

### Room 505: Monday, February 29

9:30 AM–11:00 AM

#### **Sophion together with Biolin Scientific**

##### **Pioneering Ion Channels - Expanding the Boundaries of Automated Patch Clamp**

Recent advances in automated patch clamp for voltage and ligand gated ion channels with emphasis on NMDA, cardiac safety and induced pluripotent stem cells

##### **Speakers**

Timm Danker, NMI, Germany  
Automated Patch Clamp on Cardiac Ion Channels and Multiwell MEA Recordings on Human iPSC-derived Cardiomyocytes: a Complementary Approach for Predictable Proarrhythmia Assessments

Caterina Virginio, Aptuit  
NMDA Receptors: Meaningful Biophysical and Pharmacological Studies to Redefine Ligands Properties

Denise Franz, University of Rostock, Germany  
Electrophysiological Characterization of Human Induced Pluripotent Stem Cell-derived Dopaminergic Neurons on the QPatch

11:30 AM–1:00 PM

#### **Asylum Research, an Oxford Instruments Company**

##### **Soft, Sticky, and Viscous: Practical Considerations for Measuring Cell Mechanics with AFM**

The atomic force microscope (AFM) has found broad use in the investigation of cell mechanics, with numerous studies of cell stiffness and modulus dating back over a decade. Because AFM can quantitatively measure the mechanical properties of individual live cells, novel insights to cell function and to cell-substrate interactions have been realized. This is pertinent for cell biology, as it has been demonstrated that the geometrical and mechanical properties of the extracellular microenvironment are important in such processes as cancer, cardiovascular disease, muscular dystrophy, and even the control of cell life and death. Indeed, the ability to control and quantify these external geometrical and mechanical parameters now arises as a key issue in the field and AFM seems poised to play a prominent role in building that understanding.

The use of AFM in this field presents unique challenges and opportunities. Some of the most important considerations are because many of the AFM techniques used here have largely been borrowed from those first developed for materials science. This is simultaneously a success of interdisciplinary research and an opportunity to further tailor measurements to cells and biological materials, which have some fundamentally different characteristics compared to polymers. Most dramatically, cells are far “softer” than polymers, usually at least 100× lower in modulus than even soft rubbers and easily 10,000× lower in modulus than some common plastics. Further, cells are usually quite “sticky,” leading to large adhesion to the AFM tip that can complicate measurements. Finally, cells are often strongly viscoelastic, exhibiting not just elastic deformation described by the elastic modulus but also a viscous response that depends on

the velocity of the deformation- and this mechanical component can sometimes be lost or ignored in certain experimental setups and techniques. In fact, this viscous response may prove just as enlightening to cell mechanics as the elastic response more commonly measured alone until recently. This talk will discuss these important issues that must be considered when AFM techniques are applied to cells and other biological materials.

**Speaker**

Sophia Hohlbauch, Asylum Research, an Oxford Instruments Company

**1:30 PM–3:00 PM**

## **KinTek Corporation**

### **Why You Should Fit Kinetic and Equilibrium Binding Data Using Kintek Explorer Software**

*KinTek Explorer* software offers the fastest, most dynamic and robust method of fitting kinetic or equilibrium binding data. Based on fast numerical integration of rate equations, data are fit without the often-inaccurate approximations needed to derive equations. Rather than fitting data to extract “observed rates” or Eigenvalues, which must be then interpreted in second step, *KinTek Explorer* yield rate and equilibrium constants directly while accounting for both the rate and amplitude of observable reactions. By modeling the experiments exactly as performed, all details of the experimental setup are included, eliminating errors in interpretation. Moreover, multiple experiments can be fit simultaneously to a single unifying model. Fast dynamic simulation using proprietary methods for numerical integration allows you to explore parameter space and learn kinetics. Don’t be fooled by other vendors pretending to do the same. Only *KinTek Explorer* offers such robust and dynamic data fitting.

In this presentation, Professor Johnson will introduce the theory and operation of the software to show you how easy it is to fit data to any model you care to input. Examples of experiments that can be fit include: transient and single turnover stopped-flow kinetics, steady state kinetics, slow onset inhibition, equilibrium titrations, rapid-quench-flow kinetics, temperature dependence, voltage-dependent rate constants. In addition time-resolved absorbance or fluorescence and pH-dependent spectra can be analyzed by singular value decomposition to yield spectra and time- or pH-dependence of each species. In addition to describing *KinTek Explorer’s* basic features, Dr. Johnson will introduce new features and will be available to help you to fit your own data. Learn about what you are missing in your own data fitting. See [www.kintek-corp.com](http://www.kintek-corp.com) for more information.

**Speaker**

Kenneth A Johnson, President, KinTek Corporation; Professor of Biochemistry, University of Texas at Austin

**3:30 PM–5:00 PM**

## **Bruker Nano Surfaces**

### **Advances in Live Super-resolution Imaging Using the Vutara 352 Microscope**

Super-resolution microscopy has made a significant impact in the field of biological imaging by enabling a ten-fold improvement in spatial resolution over traditional light microscopy techniques. Most of the imaging has been so far targeted at fixed specimens with a few live cell applications. The Vutara 352 microscope has been engineered towards live-cell imaging by enhancing spatial and temporal resolution in single molecule localization super-resolution. The sCMOS detector in the Vutara 352 enables imaging at 800 fps at full ROI and at video frame rates at reduced ROI. Two color simultaneous imaging can be applied in both super-resolution live cell and 3D particle tracking experiments. The biplane based detection path enables imaging thicker samples such as whole mount *Drosophila* and offers deeper penetration into tissues. The Vutara 352 also includes real time localization along with several statistical and live cell analysis features for processing data. In summary, the Vutara 352 microscope is a powerful super-resolution imaging and analysis tool.

**Speaker**

Manasa Gudheti, Applications Scientist at Bruker – Fluorescence Microscopy Business

**5:30 PM–7:00 PM**

## **Sutter Instrument**

### **Scientists Empowering Scientists**

Patch clamp electrophysiology has matured from a highly specialized scientific technique to a recognized method used to address a variety of experimental questions. Sutter Instrument introduces a highly flexible, intuitive patch clamp instrumentation and software package that enables the experimenter to quickly set up and perform routine tasks, yet remains highly configurable to meet the demands of the experienced electrophysiologist.

We will demonstrate how the IPA™ Integrated Patch Amplifier and SutterPatch™ software can be used for a variety of commonly performed assays, including the characterization of an ionic current and the recording of synaptic events in tissue slices. We will also highlight how the IPA and SutterPatch software provide easy access and flexibility to perform and fine-tune the most challenging acquisition and analysis scenarios.

Building on the basic pipette pulling tutorials presented at the 2015 user meeting and a mid-year webinar, we will further teach advanced techniques that enable the user to create specialized pipette morphologies for unique applications.

There will be plenty of opportunity for discussion with hosts and speakers from the Sutter Instrument Tech Support Team.

Who should attend?

- Electrophysiologists who use amplifiers, micropipettes and micro-manipulators for patch clamp, sharp electrode or extracellular recordings.
- Researchers who perform microinjections, including nuclear transfer, sperm injection and application of substances into cell cultures or intact organisms.

**Speakers**

Jan Dolzer, Tech Support and Product Development, Sutter Instrument  
Gregory Hjelmstad, Tech Support and Product Development, Sutter Instrument

## Room 505: Tuesday, March 1

11:30 AM–1:00 PM

### **Bruker Nano Surfaces**

#### **BioScope Resolve BioAFM – Unrivalled AFM Biomechanics and Resolution**

In this presentation we will introduce new capabilities for cell mechanobiology and highest resolution cell and molecular imaging available on the BioScope Resolve BioAFM. We will explain how innovations in force control and instrument design have enabled BioScope Resolve to be the first AFM to image microvilli on live cells and to consistently resolve the double helix of DNA, while on the inverted microscope. To enable highest resolution and accurate cell mechanics data, the entire AFM mechanical loop of BioScope Resolve has been designed for stability, specifically on biological samples, with biological sample carriers, and when mounted on the inverted microscope. Designed for Bruker's exclusive PeakForce Tapping, BioScope Resolve eliminates the need for fluid cantilever tuning entirely with ScanAsyst and provides quantifiable pN force control for imaging and force mapping. The combination of PeakForce Tapping and FASTForce Volume provides the broadest range of frequencies for mechanical characterization, with a new no-touch calibration method guaranteeing accurate calibration. As we will show in the presentation, BioScope Resolve also features synchronization of these unique mechanical measurements with fluorescence, enabling new kinds of correlative studies.

#### **Speaker**

Marcin Walkiewicz, PhD, Applications Scientist, Bruker – Atomic Force Microscopy Business

## Room 513: Sunday, February 28

10:30 AM–12:00 PM

### **Carl Zeiss Microscopy LLC**

#### **Technology Innovations: ZEISS LSM 880 Confocal with Airyscan and ZEISS Lightsheet Z.1**

These microscopes from ZEISS address both ends of the spectrum of samples, live high speed imaging with superresolution and high speed imaging of large live and fixed tissues. Learn how ZEISS LSM 880 with Airyscan maintains the mantra that each photon of emission light is precious, while expanding the triangle of sensitivity, resolution and speed of acquisition.

ZEISS LSM 880 with Airyscan allows you to use multicolor samples with any label and get image quality like you have never seen before. With Airyscan you are always able to select the optimal acquisition strategy for your sample: Simply decide whether you want to gain 1.7x higher resolution in all three dimensions – resulting in a 5x smaller confocal volume. Or push the sensitivity beyond the limits of all conventional confocal microscopes; or use the increase in signal-to-noise ratio to speed up your image acquisition.

Traditionally, deeply imaging into intact tissue typically requires multiphoton excitation to penetrate deeper than near the surface of a tissue. Using a "clearing" method to remove the light obstructing opaque molecules from a tissue has been another technique for deep imaging. Techniques such as SCALE, CLARITY, ClearT, SeeDB, CUBIC and others have allowed researchers to image deeper than a millimeter into cleared animal model brains and organs.

ZEISS Lightsheet Z.1 features high speed image acquisition and greatly reduced photo damage making imaging of live developmental samples and fixed and cleared tissues easier than ever before. Come learn about using the innovative ZEISS Lightsheet Z.1 microscope for imaging of fixed and cleared tissues.

#### **Speaker**

Joseph Huff, Product Marketing Manager, Laser Scanning and Superresolution Microscopy, Carl Zeiss Microscopy LLC

Scott Olenych, Product Marketing Manager, Imaging Products, Carl Zeiss Microscopy LLC

## **Room 513: Monday, February 29**

**10:30 AM–12:00 PM**

### **Wyatt Technology Corporation**

#### **Get it Right the First Time - Enhancing Protein Binding and Structural Studies with the Light-Scattering Toolkit**

Biophysical binding studies utilizing surface plasmon resonance (SPR), bio-layer interferometry (BLI), isothermal titration calorimetry (ITC), and related techniques are central to the study of protein-protein, protein-DNA and similar biomolecular interactions. Though these are well-established techniques, in a variety of circumstances, binding measurements may be ambiguous or even fail to provide useful data. Wasted measurements can end up being costly in terms of consumables and time.

Small-angle X-ray scattering (SAXS) and small-angle neutron scattering (SANS) are powerful techniques for studying biomolecular structure. SAXS and SANS usually require precious beam time at large facilities, leaving little room for error where the sample preparation is concerned. Poor samples provide poor SAXS/SANS data, but the opportunity to utilize the X-ray or neutron beam may never be recovered.

One thing that SAXS and SANS have in common with SPR, BLI and ITC, is the urgent need to verify sample quality and aggregation state in solution prior to carrying out structural or binding measurements. This seminar discusses a suite of complementary techniques, all based on light scattering, that are useful in assessing and troubleshooting many of the underlying characterization issues. Multi-angle light scattering (MALS) and dynamic light scattering (DLS) can help researchers assess solution quality prior to running binding or structural experiments, qualify aggregation behavior of analytes, and characterize complex interactions that may not be amenable to standard characterization methodology. Judicious use of the biophysical light-scattering toolkit is essential for robust and reliable interaction and structure studies.

#### **Speaker**

Sophia Kenrick, Application Specialist, Wyatt Technology Corporation

**12:30 PM–2:00 PM**

### **Nanion Technologies GmbH**

#### **Ion Channel Drug Discovery - Beyond the Bottlenecks and Ready for CiPA**

Nanion Technologies is one of the leading providers of automated patch clamp systems, offering a diverse product portfolio ranging from single channel recordings to HTS-compatible ion channel drug discovery. During this workshop, we will show how to push the boundaries of patch clamp-based ion channel high throughput screening projects of various voltage- and ligand gated targets, and how to get ready for CiPA-compliant safety screening going well beyond hERG.

Cardiac arrhythmic risk assessment is a hot topic these days calling for new screening strategies. With the CiPA-initiative, the panel of cardiac ion channels to consider have drastically expanded, consequently requiring increased data throughput for early compound safety prediction.

The *SyncoPatch 384/768PE*, an automated patch clamp platform recording from up to 768 cells simultaneously, allows the highest data throughput on the market supporting HTS of ion channel active compounds and early safety assessment on cardiac channels. Examples will be shown, where six different cardiac channels were recorded using one single plate, in one single run.

*Patchliner*, a medium-throughput APC platform, supports automated current clamp recordings, experiments at physiological temperatures, and a minimal cell usage, making it the ideal partner for safety testing on stem cell derived cardiomyocytes. Additionally, the CardioExcyte 96, a hybrid system combining impedance-based and EFP recordings from beating cardiomyocyte networks from 96 recording wells in parallel, has proven a versatile tool for safety and toxicity screening applications serving as a powerful tool complementing APC.

The *SURFE2R* technology allows direct and functional measurements electrogenic transporter. Hands-on experiments on the SURFE2R will be shown. Also membrane fragments from Chantest, a Charles River company, will be used.

Join our workshop to learn more about new safety screening strategies and how to keep up with the increasing demands on cardiac safety and toxicity screening.

#### **Speakers**

Maria Barthmes, Nanion Technologies GmbH  
Andrea Brüggemann, Nanion Technologies GmbH  
Niels Fertig, Nanion Technologies GmbH  
Markus Rapedius, Nanion Technologies GmbH



**2:30 PM–4:00 PM**

## **Renishaw Inc**

### **Innovative Raman Imaging in the Life Sciences**

When light illuminates a sample, most of it scatters without changing. A tiny fraction of the light however is Raman scattered. The Raman scattered light excites the phonons in the samples and produces a spectrum. This spectrum tells us how the atoms are vibrating, providing a chemical fingerprint which allows identification of the sample. Raman spectroscopy produces chemical and structural information to help us understand more about the material being analyzed. The ability to probe the chemical and molecular structure of biological materials is obtained directly without the need for any dyes or markers. These systems can be utilized to generate chemical images of cells, tissue, bone and biocompatible materials with very high spatial resolution. It has been employed for cancer diagnosis, stem cell differentiation, skin treatments, protein structure analysis, bio-diagnostics and bacterial identification.

Renishaw's inVia confocal Raman microscope can be integrated with other instruments, such as atomic force microscopy (AFM) and scanning electron microscopy (SEM), to provide Raman analysis from the same point on the sample. This talk will provide an introduction to Raman microscopy with biological materials, the instrumentation required for these techniques and will highlight some applications where Raman microscopy is making the biggest impact with biological materials.

#### **Speakers**

Tim Prusnick, USA Sales Manager SPD, Renishaw Inc  
Andrew King, Regional Sales Manager - West Coast, Renishaw Inc  
Mark Canales, Field Applications Specialist (Life Science) Spectroscopy Products Division, Renishaw Inc

**4:30 PM–6:00 PM**

## **Molecular Devices LLC**

### **Pushing the Performance Envelope: Evaluation of the NMDA receptor using Automated Electrophysiology and Fast Fluidics**

Ligand gated ion channels (LGICs) mediate fast synaptic transmission in the nervous system and are highly attractive drug targets due to the pivotal role they play in many physiological functions. The N-Methyl-D-Aspartate (NMDA) receptor is a LGIC that is activated by glutamate, the primary excitatory neurotransmitter in the nervous system. Functional impairment or over-excitation of the NMDA receptor occurs in a variety of disease states, however efficient screening for compounds that target the NMDA receptor remains elusive.

Over the last decade, automated electrophysiology has become an indispensable tool for analyzing ion channel activities. Here data will be presented evaluating the fluidic performance of automated patch clamp and its impact on measurement of NMDA receptor activity. We examine channel biophysics both in the presence and absence of extracellular  $Mg^{2+}$ , calculate the EC50 of glutamate and the IC50s of antagonists D-AP5 and Ifenprodil, and explore use-dependent blockage by MK801. We also examine differences between competitive and non-competitive inhibition models. Our studies demonstrate the robust fluidics performance of our automated electrophysiology system and its successful application to high-throughput screens and compound profiling assays targeting LGICs.

#### **Speaker**

Jeff Webber, Product Manager, Molecular Devices LLC

## **Room 513: Tuesday, March 1**

**12:30 PM–2:00 PM**

## **Nanion Technologies GmbH**

### **Measure More Membrane: Cells, Bilayers and Transporter Activity**

As the title suggests, this workshop has one common denominator: membranes and the measurements thereof. We will showcase four versatile products: the Port-a-Patch, the world's smallest patch clamp rig, the Orbit product family, for parallel lipid bilayer recordings of reconstituted ion channels, and the SURFE2R product family, for label-free and direct measurements of transporter protein activity.

The *Port-a-Patch*, on the market since 2003, is still the smallest patch clamp rig in the world, and supports high quality patch clamp recordings; attainable without months or years of training. Giga-seal recordings and the excellent voltage-clamp of the cellular membrane ensure high quality data, and the versatile add-ons allow unprecedented experimental freedom, way beyond the possibilities of conventional patch clamping.

The *Orbit 16* supports the parallel formation of and recordings from up to 16 lipid bilayers, accommodating reconstituted ion channels or nanopores. Using Micro Electrode Cavity Array (MECA, Ionera) recording substrates, containing a 4 x 4 array of circular micro-cavities, the bilayers are automatically formed by remotely actuated painting (Ionera-SPREAD), which will be demonstrated during this session. Relying on the same principle, however with the possibility of active cooling and heating, the recently introduced Orbit mini, a minimal footprint, turn-key system, allows 4 parallel lipid bilayer recordings, also using MECA-chips.

Join this workshop for hands-on experiments and information about three outstanding platforms: Port-a-Patch, Orbit 16, and Orbit mini.

#### **Speakers**

Andrea Brüggemann, Nanion Technologies GmbH  
Niels Fertig, Nanion Technologies GmbH  
Gerhard Baaken, Ionera  
Ekaterina Zaitseva, Ionera

## Exhibitor List

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
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### 89 North

1 Mill Street, Unit 285  
Burlington, VT 05401  
www.89north.com

89 North provides innovative solutions to fluorescence imaging market, including the PhotoFluor LM-75, a direct-mount metal-halide illuminator and the LDI, a state-of-the-art 7-line laser system with up to 1 watt of power per channel. 89 North also sells emission splitting systems, optogenetics solutions, high speed filter wheels and laser combiners from Cairn Research and confocal/super resolution imaging systems from CrestOptics. We also offer engineering and manufacturing expertise to customize existing products or to create new solutions for systems integration.

### AAT Bioquest Inc

923 Thompson Place  
Sunnyvale, CA 94085  
www.aatbio.com

AAT Bioquest develops, manufactures and markets bioanalytical reagents and assay kits for life science research and drug discovery. We specialize in absorption, fluorescence and luminescence-based biological detection technologies. Our products include the outstanding Fluo-8<sup>®</sup>, Cal-520<sup>™</sup>, Cal-590<sup>™</sup>, Cal-630<sup>™</sup> and FLIPR calcium assay kits, fluorescent ion indicators, fluorescent labeling reagents, cell and in vivo imaging probes. AAT Bioquest also offer a full spectrum of apoptosis and fluorescence imaging probes and assay kits.

### 629 Agilent Technologies

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Chandler, CA 95051  
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Agilent Technologies is a leading provider of sample preparation, chromatography, mass spectrometry, elemental analysis, molecular spectroscopy, and laboratory information systems as well as support services, columns and consumables that enable you to analyze, confirm and quantify substances of interest with confidence from sample preparation to final report. Learn more [www.agilent.com](http://www.agilent.com)

### AIP Publishing LLC

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Melville, NY 11747  
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AIP Publishing's portfolio has 19 highly regarded, peer-reviewed journals, including Applied Physics Letters, Journal of Applied Physics, and The Journal of Chemical Physics.

### ALA Scientific Instruments 324

60 Marine St.  
Farmingdale, NY 11735  
www.alascience.com

As manufacturers (fluidics, chambers, etc) and distributors (MultiChannel, npi, HEKA, Sutter, Narishige, TMC) of instruments for patch/cellular and multielectrode electrophysiology, our scientists/engineers have decades of experience assembling systems and building custom setups. We focus on your equipment needs so you can focus on your research

### Alembic Instruments Inc 422

3285 Cavendish Blvd., Suite 570  
Montreal, QC H4B 2L9  
Canada  
www.alembicinst.com

Alembic Instruments makes patch clamps amplifiers with 100% Rs Compensation! Our patented Rs Compensator<sup>™</sup> completely eliminates series resistance errors rapidly, easily, and with full stability. Only the Rs Compensator<sup>™</sup> can voltage clamp the largest, fastest ionic currents, under physiologic conditions - currents that are simply out of reach without it.

### 809 ALVEOLE

68, boulevard de Port-Royal  
Paris 75005  
France  
www.alveolelab.com

NEW  
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### Anasys Instruments

121 Gray Avenue, Suite 100  
Santa Barbara, CA 93101  
www.anasysinstruments.com

Anasys Instruments and our scientific collaborators pioneered the field of nanoscale infrared absorption spectroscopy and imaging. Our team is focused on providing robust chemical analysis with nanometer scale spatial resolution. With a researcher's productivity always in mind, we deliver integrated hardware and software solutions that clear the path to your next discovery. Nanoscale IR spectroscopy complemented with thermal and mechanical analysis add a special dimension to AFM imaging.

# anatrace

### Anatrace

434 West Dussel Drive  
Maumee, OH 43537  
www.anatrace.com

Detergents, Lipids, Protein Purification and Crystallization... For 30+ years, Anatrace has worked with the membrane protein structural biology community to become the leader in high-purity detergents. With the highest batch-to-batch consistency, we are the most trusted detergent source for extracting, solubilizing, stabilizing, and/or crystallizing macromolecules. Additionally, we also sell purification (FPLC prepacked columns and protein concentrators) and crystallization products (MCSG Suite). We demand high standards so you can too!

**Andor Technology 625**

425 Sullivan Ave., Suite 3  
S Windsor, CT 06074  
www.andor.com

Andor Technology is a global leader in the pioneering and manufacturing of high performance scientific imaging cameras, spectroscopy solutions and microscopy systems for research and OEM markets. Andor continues to innovate ground-breaking products that improve the world in which we live. Andor Technology is part of Oxford Instruments plc, a leading provider of high technology tools and systems for industry and research.

**Anton Paar USA 1010**

10215 Timber Ridge Drive  
Ashland, VA 23005  
www.anton-paar.com

Anton Paar is a major supplier of small-angle X-ray equipment and offers a range of precision instruments for particle characterization, rheological studies and material science

**App Nano 710**

415 Clyde Ave #102  
Mountain View, CA 94043  
www.appnano.com

AppNano makes the world's highest quality and affordable AFM/SPM probes. They are compatible with all major AFM/SPM equipment. We offer custom MEMS, characterization and nano fabrication services.

**Applied Photophysics 923**

21 Mole Business Prk  
Leatherhead, KT22 7BA  
United Kingdom  
www.photophysics.com

At Applied Photophysics, we are committed to progress. Everything we do is done because we believe it will make a difference, that in the hands of our customers, it will advance scientific knowledge and understanding, and have a wider societal impact. We challenge entrenched views, encourage fresh ideas and incorporate this in our products. Since its creation in 1971 by The Royal Institution of Great Britain under Nobel Prize-winning Lord Porter, Applied Photophysics has remained at the forefront of the technologies of circular dichroism, stopped-flow kinetics and laser flash photolysis.

**ASI/Applied Scientific Instrumentation 531**

29391 West Enid Road  
Eugene, OR 97402  
www.asiimaging.com

Applied Scientific Instrumentation, Inc. (ASI) manufactures top-of-the-line products for Super-resolution microscopy including DC servomotor stages, stages with integrated piezos that provide high-speed nano meter resolution, LED based focus feedback systems for maintaining focus stability, and our Rapid Automated Modular Microscope (RAMM) system that provides a rock solid, fully configurable microscope platform. Our new Dual Inverted Selective Plane Microscopy system (diSPIM) offers several advantages over confocal & other microscopy systems including:

- Use conventional mounting /glass cover slips
- Generate 3D volumes with isotropic resolution (330 nm in all directions)
- Axial resolution is ~2x better than confocal- or spinning disk systems
- Achieve a ~7-10 fold reduction in photobleaching
- Acquisition rates up to 200 images per second or 2-5 volumes per second
- Microscope has multicolor capability, and has been tested successfully on cells on cover slips, and embryos

NEW  
2016

**Asylum Research, an Oxford Instruments Company 609**

6310 Hollister Ave  
Santa Barbara, CA 93117  
www.asylumresearch.com

Oxford Instruments Asylum Research is the AFM technology leader. We offer the best AFMs available for biophysics research, whether your focus is on high resolution imaging of samples like biomolecules, fibrils, and membranes or you are working in mechanobiology, tissue engineering, or cell biology. There is no other AFM like Cypher™, the highest resolution fast scanning AFM. Exceptional, hassle-free environmental control makes measurements in liquid at controlled temperatures simpler than ever before. Exclusive ease-of-use features, including GetStarted™, and blueDrive™ for fluid imaging help you get your results faster and easier. We'll also feature the MFP-3D-BIO™ for uncompromised AFM integrated with optical microscopy. The MFP-3D-BIO excels at live cell imaging, combined with AFM and optical measurements, force spectroscopy and has the widest variety of accessories for biophysics and multi-disciplinary research. No other AFM is better at accurately measuring the rheology (elastic modulus and viscous response) of soft and stick biological samples. Learn more about all the latest AFM advances at our Lunch and Learn Exhibitor Technical Presentation: "Soft, Sticky, and Viscous: Practical Considerations for Measuring Cell Mechanics with AFM" on Monday 2/29, 11:30-1:00, Room 505.

**Aurora Scientific Inc 636**

25 Industry Street  
Aurora, ON L4G 1X6  
Canada  
www.aurorascientific.com

Aurora Scientific provides solutions for measuring the dynamic physical properties of muscle and connective tissue. Muscle mechanics systems cover the range from single myocyte to whole large-animal in-situ. Products: Muscle Lever Systems, Force Transducers, High-Current Stimulators, Test Apparatus and Software. New Products: Dynamic Muscle Analysis Software with high throughput module.

**Avanti Polar Lipids Inc** **508**  
 700 Industrial Park Dr.  
 Alabaster, AL 35007  
 www.avantilipids.com

Avanti Polar Lipids, with an unparalleled reputation for purity, is clearly established as World Leader in the production of phospholipids, sphingolipids, and sterols. Exciting new products for the Research Chemist and cGMP lipids for Pharmaceutical Production. Recent developments include Adjuvants, Glycosylated Sphingolipids, new Fluorescent and Deuterated lipids; plus Analytical Services.

**Aviv Biomedical Inc** **1012**  
 750 Vassar Avenue, Suite 2  
 Lakewood, NJ 08701-6929  
 www.avivbiomedical.com

Aviv Biomedical Inc manufactures scientific and clinical instruments. Products include a fluorescence accessory (AU-FDS) for the Beckman Analytical Ultracentrifuge, model XLA/XLI and Circular Dichroism Spectrometers. Sales, service and support of Aviv Spectrometers, Aviv Spectrophotometers and Aviv Fluorometers.

**Aviva Systems Biology Corporation** **214**  
 5754 Pacific Center Blvd, Suite 201  
 San Diego, CA 92121  
 www.avivasysbio.com



Aviva Systems Biology Corporation specializes in providing polyclonal and monoclonal antibodies for research needs. Unlike other companies, we design, manufacture and validate our own antibodies. We currently offer over 40,000 antibodies to the most popular protein targets. The company has an extensive list of antibodies for the following research areas: transcription factors, cancer, cardiovascular, cell biology, DNA damage and repair, epigenetics, signal transduction, cell differentiation, and stem cell biology. We also offer recombinant proteins, ELISA Kits, peptides and cell lysates

**Axiogenesis AG** **922**  
 Nattermannallee 1 / S20  
 Cologne NRW 50829  
 Germany  
 www.axiogenesis.com

Axiogenesis is a leading provider of unlimited volumes of pure human cell types derived from induced pluripotent stem cells (iPSC) along with assays validated on all relevant commercial platforms. Key products include cardiomyocytes used in applications from single cell analysis to HTS in early cardiac safety and efficacy, as well as several neuronal subtypes. We also offer services for in vitro toxicology, safety pharmacology and drug discovery. A strong IP position and key licenses enable us to offer FTO in the use of iPSC derived cells including disease models like cardiac hypertrophy (HCM).

**Beckman Coulter Life Sciences** **1014**  
 5350 Lakeview Parkway South Drive  
 Indianapolis, IN 46268  
 www.beckmancoulter.com



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**Biolin Scientific** **913**  
 215 College Road, Suite 300  
 Paramus, NJ 07652  
 www.biolinscientific.com

At Biolin Scientific our instruments help discover better drugs faster, develop better solutions for energy and materials, and perform research at the frontiers of science and technology



**Biologic USA** **514**  
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 Knoxville, TN 37923  
 www.bio-logic.us

Bio-Logic USA is the leading manufacturer of stopped flow, quench flow, and freeze quench mixers for examining reaction kinetics in biochemistry, molecular biology, and biophysics. The SFM-4000 series of mixers deliver dead times of 200microseconds or faster, with asymmetrical mixing, modular design, and unsurpassed performance. They can be connected to spectrometers, x-ray and neutron lines, and EPR systems. The MOS-500 spectro-polarimeter delivers auto-optimized performance from near IR to UV in CD, LD, absorbance, fluorescence, and anisotropy modes. Sample handling options include cuvette, dry powder, magnetic CD, peltier temperature control, and more. The MOS-500 can be used standalone or with the SFM-4000 series stopped flow mixers.

**BiOptix** **812**  
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 www.bioptix.com

BiOptix offers an affordable and powerful solution for drug discovery scientists that require label-free, real-time detection of bio-molecular interactions. The unique SPR-enhanced instrumentation offers precise measurement of kinetics, affinity constants and concentration, modern, easy-to-use analytical software, and two operating modes for higher throughput and experimental flexibility.

**Bitplane Inc** **724**  
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 Concord, MA 01742  
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Bitplane is the world's leading interactive 3D/4D microscopy image analysis software company. Bitplane (imaris) actively shapes the way scientists process multi-dimensional microscopic images.


**Bruker Corporation 700, 701**

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www.bruker.com

Bruker offers solutions for biophysical applications: atomic force microscopes, super-resolution, multipoint confocal and multiphoton fluorescence microscopes.

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Cambridge University Press is a not-for-profit organization that advances learning, knowledge and research worldwide. It is an integral part of the University of Cambridge and for centuries has extended its research and teaching activities through a remarkable range of academic and educational books, journals, and digital products. Visit our stand for 20% off all titles on display.


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**Cell MicroControls 622**

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Cell MicroControls develops temperature controllers, perfusion, fluid switching devices, tissue chambers & accessories for electrophysiology research. Thin glass heaters, miniature perfusion devices.

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**Chroma Technology** **728**  
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 Bellows Falls, VT 05101  
 www.chroma.com

Chroma Technology designs and manufactures optical interference filters using advanced sputtering technologies. Our high performance filters are intended for imaging applications ranging from widefield and confocal fluorescence microscopy, TIRF and super-resolution techniques to flow cytometry, high content screening, multi-photon and Raman spectroscopy. Chroma also provides comprehensive technical and applications support.

**Cobolt Inc** **413**  
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 SE-171 54  
 Solna  
 Sweden  
 www.cobolt.se

Cobolt provides ultra low noise, CW, single mode solid-state lasers in the UV-Vis-NIR spectral range incl fiber pigtailed options; Q-switched DPSS lasers with the unique combination of high pulse rates and high pulse energy in the UV-NIR range; as well as tunable mid-IR sources. The lasers are manufactured using HTCure™ technology yielding unrivaled robustness and reliability. The combination of uncompromised optical performance with nonpareil tolerance to demanding environmental conditions has made Cobolt lasers the preferred choice by leading instrument manufacturers and scientists worldwide.

**Creoptix** **222**  
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 Switzerland  
 www.creoptix.com

Creoptix ushers in a new era in kinetics analysis. Its Creoptix™ WAVE system for label-free molecular interaction analysis provides unparalleled sensitivity and measurement of fast kinetics, e.g. off-rates of 5/sec. The WAVE is the ideal tool to analyze large drug targets and very weak and small binders at high accuracy but also long dissociation runs of high affinity binders. Its disposable microfluidics is extremely robust towards all kinds of challenging samples, such as membrane preps, supernatants or even 100% untreated blood serum and particles larger than 100 nm in diameter.

**De Novo Software** **412**  
 400 North Brand Blvd, Suite 850  
 Glendale, CA 91203  
 www.denovosoftware.com

FCS Express™, flow & image cytometry analysis software, is used by thousands of laboratories worldwide for research purposes, & dozens of clinical laboratories for high throughput clinical analysis.

**DRV Technologies** **223**  
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 Bellevue, WA 98008  
 www.drvtch.com



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**Ecocyte Bioscience US LLC** **630**  
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 Austin, TX 78744  
 ecocyte-us.com

Ecocyte Bioscience is a company that offers a weekly delivery service of "Xenopus laevis oocytes" for expression studies. Our oocytes are defolliculated via collagenase treatment and ready to use for cRNA or cDNA injections or we can preinject your oocytes with cDNA or cRNA for you. In addition, we offer contract services for electrophysiological measurements with Two Electrode Voltage Clamp (TEVC) recordings of our prepared oocytes. We also have recently opened a brand new online shop for your salt and solution needs at www.ecocyteshop.com.

**Edinburgh Instruments** **612**  
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 Livingston EH547DQ  
 United Kingdom  
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**Elements SRL** **715**  
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www.garlandscience.com

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**Hamamatsu Corporation****409**

360 Foothill Road  
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www.hamamatsu.com

Hamamatsu Corporation is the North American subsidiary of Hamamatsu Photonics K.K. (Japan), and offers cameras, low-light detectors, image sensors, and light sources for biological applications.

**HEKA Elektronik****423**

84 October Hill Rd  
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For decades HEKA provides the finest Patch Clamp Amplifier and acquisition system. Explore our workstations at the booth that combine HEKA patch clamp amplifier and our Warner instruments. Also a new small head stage will be presented. A specialist will provide basic training on PATCHMASTER. Visit us and see our latest updates and join our presentation on Sunday.

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**Ionovation** **435**  
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 Osnabrueck 49084  
 Germany  
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Ionovation represents a wealth of experience in the development and application of modern electrophysiological and fluorescence techniques. Our product line comprises automated benchtop workstations for the electrophysiological and optical single molecule recording, as well as unique optical tweezers for single particle manipulation, force spectroscopy and scanning probe microscopy. The primary mission of the company is to always provide state-of-the art technology and services for sophisticated research tasks to the scientific as well as industrial markets.

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ISS fluorescence division manufactures spectrofluorometers for time-resolved and steady-state measurements; FLIM/FCS confocal microscopes, lasers and upgrades for LSM microscopes.

**JASCO** **437**  
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 Easton, MD 21601  
 www.jascoinc.com

JASCO will be exhibiting a range of biophysical characterization tools including Circular Dichroism, Fluorescence and FTIR instrumentation. The new J-1000 Series is the latest achievement in CD which is also capable of simultaneously measuring LD, Absorbance & Fluorescence as well as stopped-flow in all 3 modes using the new SMP capability. Visit booth #437.

**JPK Instruments AG** **908**  
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 Berlin 12099  
 Germany  
 www.jpk.com

JPK Instruments AG is a world-leading manufacturer of nanoanalytic instruments - particularly atomic force microscope (AFM) systems and optical tweezers - for a broad range of applications reaching from soft matter physics to nano-optics, from surface chemistry to cell and molecular biology. The main product lines are the NanoWizard® AFM family (BioScience, NanoScience, ULTRA Speed and NanoOptics versions), the NanoTracker™ force-sensing optical tweezers system, the CellHesion® for cell adhesion and cell mechanics studies, and the ForceRobot® fully automated single-molecule force spectroscope.

**Keysight Technologies** **323**  
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**Laboratory for  
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The LFD is a national research resource center for biomedical fluorescence spectroscopy, supported by the National Institute of General Medical Sciences (NIGMS, 8P41GM103540) divisions of the National Institutes of Health (NIH) and the University of California, Irvine (UCI). We provide a state-of-the-art laboratory for fluorescence measurements, microscopy and spectroscopy. We design, test, and implement advances in the technology of hardware, software, and biomedical applications. We disseminate knowledge of fluorescence spectroscopic principles, instrumentation, and applications.

**Larodan** 534

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**Matreya LLC** 605

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Matreya is a manufacturer of high purity lipids for Life Science Research and offers excellent technical service, consistency, custom synthesis, and rapid delivery.

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**Mightex Systems****823**

1032 Serpentine Lane  
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**Minus K Technology Inc****714**

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Inglewood, CA 90301  
www.minusk.com

Manufacturer of vibration isolation systems for AFMs, SPMs, SEMs, metrology, microhardness testers, lasers and optics. They are low-cost, passive, vacuum adaptable and require no air or electricity. Products: tabletop platforms, workstations, floor platforms and custom systems. Guaranteed 1/2 Hz natural frequencies make them effective against low-frequency building vibrations. Isolation is typically 10 to 100 times better than air tables and even better than the higher-priced active systems.

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At Molecular Devices, we provide platforms for high-throughput screening, genomic and cellular analysis, colony selection and microplate detection.

**Multi Channel Systems****522**

Aspenhastrasse 21  
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Germany  
www.multichannelsystems.com

Multi Channel Systems provides scientific equipment for electrophysiology for academic and pharmaceutical industry like MEA or automated patch clamp systems.

**Namiki Precision Jewel Co Ltd****813****NEW  
2016**

282 Harbor Blvd.  
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www.namiki.net

Built on its core technology of "Cutting, Grinding and Polishing" to nano-level accuracy, Namiki Precision Jewel has developed DC motors, diaphragm pumps, vibration motors, optical isolators and sapphire wafers to supply to IT, semiconductor, and medical equipment industries. Now that there is a worldwide interest in developing bio-inspired products, we have begun focusing on developing robust tools to facilitate R&D and the manufacturing of such products. We will be showcasing a state-of-the-art tool to fully manipulate multiple cells and cell membranes placed on our micro hole substrate.

**Nanion Technologies****509**

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Munich 80636  
Germany  
www.nanion.de

Nanion Technologies is one of the leading providers of automated patch clamp systems. The Port-a-Patch, Patchliner, and the SyncroPatch 384/768PE cover the entire spectrum from high quality single channel recordings to ion channel HTS, at the same time supporting versatile features including current clamp, temperature control and internal perfusion. Nanion additionally provides platforms for cardiotoxicity screening, CardioExcyte 96, parallel bilayer recordings, Orbit 16 and Orbit mini, and parallel membrane transporter protein recordings, SURFE2R. Visit us and we'll tell you all about it!

**NanoAndMore USA Inc****910**

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Watsonville, CA 95076  
www.nanoandmore.com

Founded in 2005, NanoAndMore USA is based on the successful one-stop AFM probe shop concept that had already been proven in the European market by NanoAndMore GmbH. Available AFM probe brands include the budget conscious BudgetSensors™, MikroMasch® and OPUS™ lines, the premier NanoWorld™, NANOSENSORS™ and nanotools™ cantilevers and other brands. Functionalized AFM tips, Colloidal AFM probes and Plateau tips upon request. NanoAndMore AFM Probes fit all common AFM instruments. We also provide FREE AFM Technical Support and will Match the best probe for your application and budget requirements!

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Nanolive developed a groundbreaking microscope, the 3D Cell Explorer: a high speed, high resolution and non-invasive tool that allows for real-time exploration of living cells, fixed cells and tissues, in 3D and in 4D (time). By combining holography and rotational scanning the system detects changes to light as it propagates through the cell. The physical refractive index distribution within the cell is measured at each voxel and the researcher can decide which parts of the cell to visualize by digitally staining them in contrasting colors, without interfering with the cell's normal physiology.

**NanoTemper Technologies Inc****705**

395 Oyster Point, Suite 135  
South San Francisco, CA 94080  
www.nanotemper-technologies.com

NanoTemper Technologies is a globally operating company providing solutions for basic to pre-clinical research in studying binding affinities, kinetics, thermal and colloidal stability.

**Narishige International USA Inc** 1022

1710 Hempstead Turnpike  
East Meadow, NY 11554  
usa.narishige-group.com

Narishige offers the latest and most unique micromanipulation instruments available in the market. On display will be Patch Clamp Recording Micromanipulators, Isolation Systems, Microforges, Pipette Pullers, and our new "PC-21" Suction Pump which suitable for in vitro perfusion system. The compact and more affordable YOU manipulator series will be also on display. We specialize in custom-made products upon request.

**NeoBiosystems Inc** 536

1407 Heikman Way  
San Jose, CA 95129  
www.neobiosystems.com

NeoBiosystems designs and manufactures automated patch clamp and two electrode voltage clamp (TEVC) products. These products include automated manipulators, pressure controllers, and integrated patch clamp and TEVC systems for higher throughput. These computer-controlled systems improve the success rate of making seals in patch clamp and increase the throughput for two-electrode voltage clamps. The systems are also less expensive than the traditional method, and can reach high success rates in making gig ohm seals even for beginners. They can be used on any kind of cells and tissues.

**NIC@IIT** 624

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The Nikon Imaging Centre at Istituto Italiano di Tecnologia is a core lab for advanced light microscopy. The NIC@IIT is to provide to a wide community of scientists and professionals throughout Italy, Europe and the Rest of the World, a large number of up-to-date imaging methodologies to monitor the living cell activity at high spatial and temporal rate. The main expertise of the NIC@IIT is related to Super resolution and multiphoton microscopy, and it is developed in the multidisciplinary environment of IIT. NIC@IIT offers collaborations on newest advanced microscopes and training workshops.

**Nikon Instruments Inc** 523

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Nikon Instruments Inc. is a world leader in the development and manufacture of optical and digital imaging technology for biomedical applications. Now in its 98th year, Nikon provides complete optical systems that offer optimal versatility, performance and productivity with cutting-edge microscopes, digital imaging products and software

**npi electronic GmbH** 322

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npi electronic develops and produces equipment for research in physiological and pharmacological research sciences including patch and voltage clamp, extracellular and intracellular amplifiers, stimulus isolators, voltammetric-amperometric amplifiers, filters,  $\mu\text{m}$ -range drug application systems, temperature controllers and amplifiers for electroporation and transfection. npi electronic is expert in micro-electrode and patch clamp techniques.

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## Product Categories

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Rigaku Oxford Diffraction	828	JPK Instruments AG	908	<b>Cell Biology Products</b>	
<b>AFM/NSOM/Confocal Microscopes</b>		Keysight Technologies	323	AAT Bioquest Inc	804
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Ionovation GmbH	435	Park Systems Inc	802	Axiogenesis AG	922
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<b>Image Analysis</b>		Chroma Technology Corporation	728	Thorlabs	401
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Malvern Instruments Ltd	711	<b>Immunochemicals</b>		89 North	629
NIC@IIT	624	Aviva Systems Biology Corporation	214	Agilent Technologies Inc	809
PCO-TECH Inc	532	Incubators		ALVEOLE	731
Renishaw Inc	603	Aviv Biomedical Inc	1012	Anasys Instruments	808
<b>Image Analysis Software</b>		Tokai Hit Co Ltd	725	Andor Technology	625
Andor Technology	625	Warner Instruments	427	Applied Photophysics	923
Aurora Scientific Inc	636	<b>Infrared Spectroscopy</b>		Avanti Polar Lipids Inc	508
Bitplane Inc	724	Anasys Instruments	808	Axiogenesis AG	922
Carl Zeiss Microscopy LLC	101	BioLogic USA	514	Beckman Coulter Life Sciences	1014
De Novo Software	412	JASCO	437	Bitplane Inc	724
DRV Technologies	223	TgK Scientific Ltd	729	Chroma Technology Corporation	728
Laboratory for Fluorescence Dynamics	704	<b>Interferometers</b>		Garland Science	300
NanoAndMore USA Inc	910	Creoptix	222	Larodan	534
Nanolive SA	810	<b>Ion Channels</b>		LUMICKS	1000
Nikon Instruments Inc	523	Axiogenesis AG	922	Mightex Systems	823
SciMedia/BrainVision	415	Biolin Scientific	913	NanoAndMore USA Inc	910
<b>Image Analysis, High Resolution</b>		Charles River	424	NIC@IIT	624
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Ionovation GmbH	435	Maxcyte Inc	811	Photometrics	404
PCO-TECH Inc	532	Nanon Technologies	509	Rapp OptoElectronic GmbH	722
<b>Image Analyzers, High Resolution</b>		<b>Isotope-Labeled Compounds</b>		Renishaw Inc	603
SciMeasure	815	Larodan	534	Rigaku Oxford Diffraction	828
PCO-TECH Inc	532	<b>Label Free Sensing</b>		Seahorse Bioscience, a part of Agilent Technologies	1024
SciMeasure	815	Axiogenesis AG	922	Siskiyou Corporation	708
<b>Image Analyzers, Ratiometric Dyes</b>		BiOptix	812	TA Instruments	200
AAT Bioquest Inc	804	Creoptix	222	Thorlabs	401
<b>Image Intensifiers</b>		Nanolive SA	810	Tokai Hit Co Ltd	725
PCO-TECH Inc	532	NanoTemper Technologies Inc	705	<b>Light Sheet Microscopy</b>	
<b>Image Stabilization</b>		SensiQ Technologies Inc	1008	Andor Technology	625
Mad City Labs Inc	501	<b>Labeling Dyes</b>		ASI/Applied Scientific Instrumentation	531
<b>Imaging Chambers</b>		AAT Bioquest Inc	804	Carl Zeiss Microscopy LLC	101
ALA Scientific Instruments	324	Larodan	534	Mad City Labs Inc	501
Cell MicroControls	622	<b>Laboratory Apparatus &amp; Equipment</b>		NIC@IIT	624
Tokai Hit Co Ltd	725	Beckman Coulter Life Sciences	1014	Photometrics	404
Warner Instruments	427	Electron Microscopy Sciences	613	SciMeasure	815
<b>Imaging Systems</b>		Namiki Precision Jewel Co Ltd	813	<b>Light Sources</b>	
89 North	629	PicoQuant Photonics North America Inc	201	89 North	629
ASI/Applied Scientific Instrumentation	531	UVP LLC	814	Chroma Technology Corporation	728
Charles River	424	<b>Langmuir Troughs</b>		Cobolt AB	413
		Biolin Scientific	913	Hamamatsu Corporation	409
				HORIBA Scientific	801
				IonOptix	535
				ISS Inc	635
				Mightex Systems	823
				PicoQuant Photonics North America Inc	201
				Rapp OptoElectronic GmbH	722
				Sutter Instrument	600

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TgK Scientific Ltd	729	<b>Micromanipulators</b>		Carl Zeiss Microscopy LLC	101
<b>Lipids</b>		ASI/Applied Scientific Instrumentation	531	Hinds Instruments	103
Anasys Instruments	808	Electron Microscopy Sciences	613	Ionovation GmbH	435
Anatrace	529	Narishige International USA Inc	1022	LUMICKS	1000
Avanti Polar Lipids Inc	508	NeoBiosystems Inc	536	Mad City Labs Inc	501
Larodan	534	Pacer Scientific	623	Mightex Systems	823
Matreya LLC	605	Prior Scientific Inc	125	NanoAndMore USA Inc	910
<b>Liposome Preparation Equipment</b>		Sensapex OY	123	Nanolive SA	810
Avanti Polar Lipids Inc	508	Siskiyou Corporation	708	NIC@IIT	624
Nanion Technologies	509	Sutter Instrument	600	Nikon Instruments Inc	523
<b>Liquid Chromatography Instruments</b>		<b>Micropipette Pullers</b>		Olympus	408
Agilent Technologies Inc	809	HEKA Elektronik	423	Renishaw Inc	603
JASCO	437	Narishige International USA Inc	1022	SciMedia/BrainVision	415
Wyatt Technology Corporation	601	Pacer Scientific	623	Sutter Instrument	600
<b>Magnetic Resonance Imaging</b>		Siskiyou Corporation	708	Thorlabs	401
Charles River	424	Sutter Instrument	600	WITec Instruments	712
<b>Magnetic Stirrers</b>		<b>Micropipettes</b>		Microscopy Chambers	
Quantum Northwest Inc	901	Fluicell	825	ASI/Applied Scientific Instrumentation	531
<b>Mass Spectrometry</b>		<b>Micropositioners</b>		Cell MicroControls	622
Agilent Technologies Inc	809	ASI/Applied Scientific Instrumentation	531	Tokai Hit Co Ltd	725
Charles River	424	Mad City Labs Inc	501	Warner Instruments	427
<b>Micro Environmental Control</b>		NeoBiosystems Inc	536	<b>Molecular Biology Products</b>	
ALA Scientific Instruments	324	PI (Physik Instrumente)	400	Aviva Systems Biology Corporation	214
ALVEOLE	731	Sensapex OY	123	Cedarlane	800
<b>Microcalorimetry Systems</b>		Sutter Instrument	600	UVP LLC	814
Malvern Instruments Ltd	711	<b>Microscope Accessories</b>		<b>Monochromators</b>	
TA Instruments	200	89 North	629	HORIBA Scientific	801
<b>Microelectrode Holders</b>		ASI/Applied Scientific Instrumentation	531	<b>Nanopositioning Systems</b>	
ALA Scientific Instruments	324	Chroma Technology Corporation	728	ASI/Applied Scientific Instrumentation	531
Sensapex OY	123	Cobolt AB	413	Mad City Labs Inc	501
Warner Instruments	427	Electron Microscopy Sciences	613	PI (Physik Instrumente)	400
<b>Microelectrodes</b>		Mad City Labs Inc	501	Prior Scientific Inc	125
Ecocyte Bioscience US LLC	630	Minus K Technology Inc	714	<b>Near-Field Scanning Optical Microscopes (NSOM)</b>	
<b>Microfluidic Chambers</b>		NanoAndMore USA Inc	910	Mad City Labs Inc	501
ALA Scientific Instruments	324	Park Systems Inc	802	WITec Instruments	712
Creoptix	222	Prior Scientific Inc	125	<b>Nuclear Magnetic Resonance</b>	
Elements SRL	715	Rapp OptoElectronic GmbH	722	Charles River	424
Fluicell	825	Semrock Inc	723	<b>Particle Sizing Products</b>	
Hellma USA	709	Siskiyou Corporation	708	Anton Paar USA	1010
LUMICKS	1000	Thorlabs	401	Beckman Coulter Life Sciences	1014
<b>Microforges</b>		<b>Microscope Drift Correction</b>		Malvern Instruments Ltd	711
ALA Scientific Instruments	324	ASI/Applied Scientific Instrumentation	531	Wyatt Technology Corporation	601
Narishige International USA Inc	1022	Mad City Labs Inc	501	<b>Patch Clamp Instrumentation</b>	
<b>Microinjectors</b>		Nikon Instruments Inc	523	Alembic Instruments Inc	422
ASI/Applied Scientific Instrumentation	531	<b>Microscope Stages</b>		Biolin Scientific	913
Fluicell	825	ASI/Applied Scientific Instrumentation	531	HEKA Elektronik	423
Narishige International USA Inc	1022	Mad City Labs Inc	501	Ionovation GmbH	435
npi electronic GmbH	322	Narishige International USA Inc	1022	Multi Channel Systems	522
Sutter Instrument	600	Pacer Scientific	623	Nanion Technologies	509
Warner Instruments	427	PI (Physik Instrumente)	400	Narishige International USA Inc	1022
		Prior Scientific Inc	125	NeoBiosystems Inc	536
		Siskiyou Corporation	708	npi electronic GmbH	322
		<b>Microscopes</b>		Pacer Scientific	623
		ASI/Applied Scientific Instrumentation	531	Sensapex OY	123
		Asylum Research, an Oxford Instruments Company	609	Siskiyou Corporation	708
		Bruker Nano Surfaces	700/701	Sophion Bioscience	909
		Caliber Imaging & Diagnostics Inc	912	Warner Instruments	427

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Cedarlane	800	<b>Protein Structure Data</b>		Hamamatsu Corporation	409
<b>Perfusion Stepper System</b>		Anasys Instruments	808	SciMeasure	815
NeoBiosystems Inc	536	Anatrace	529	<b>Screening, High-Throughput</b>	
Warner Instruments	427	Applied Photophysics	923	Axiogenesis AG	922
<b>Perfusion Systems</b>		Charles River	424	Beckman Coulter Life Sciences	1014
ALA Scientific Instruments	324	Rayonix LLC	115	BiOptix	812
Cell MicroControls	622	Rigaku Oxford Diffraction	828	Charles River	424
Ecocyte Bioscience US LLC	630	<b>Publications</b>		Creoptix	222
Narishige International USA Inc	1022	AIP Publishing	310	Ecocyte Bioscience US LLC	630
Tokai Hit Co Ltd	725	Cambridge University Press	205	Mad City Labs Inc	501
Warner Instruments	427	Garland Science	300	Maxcyte Inc	811
<b>Pharmaceutical Development Equipment</b>		IOP Publishing	309	Multi Channel Systems	522
Malvern Instruments Ltd	711	Physics Today	303	Nanion Technologies	509
Maxcyte Inc	811	Rockefeller University Press	308	Nikon Instruments Inc	523
<b>Phospholipids</b>		Society for Neuroscience	312	SensiQ Technologies Inc	1008
Avanti Polar Lipids Inc	508	Springer	302	<b>Sensors</b>	
Larodan	534	The Journal of Physiology	314	Creoptix	222
Matreya LLC	605	<b>Pumps</b>		SensiQ Technologies Inc	1008
<b>Piezo Lens Positioners</b>		NeoBiosystems Inc	536	<b>Shutters</b>	
ASI/Applied Scientific Instrumentation	531	<b>Quartz Crystal Microbalance</b>		Prior Scientific Inc	125
Mad City Labs Inc	501	Biolin Scientific	913	<b>Signal Transduction Reagents</b>	
PI (Physik Instrumente)	400	<b>Reagents</b>		Matreya LLC	605
<b>Piezo Scanning Stages</b>		Avanti Polar Lipids Inc	508	<b>Software</b>	
ASI/Applied Scientific Instrumentation	531	Aviva Systems Biology Corporation	214	Bitplane Inc	724
Mad City Labs Inc	501	Cedarlane	800	De Novo Software	412
PI (Physik Instrumente)	400	Electron Microscopy Sciences	613	DRV Technologies	223
Prior Scientific Inc	125	Gene Tools LLC	822	<b>Solid State Lasers</b>	
<b>Piezo Stages</b>		Rigaku Oxford Diffraction	828	Cobolt AB	413
ASI/Applied Scientific Instrumentation	531	UVP LLC	814	<b>Spectrofluorometers</b>	
Mad City Labs Inc	501	<b>Recording Chambers</b>		Edinburgh Instruments	612
PI (Physik Instrumente)	400	ALA Scientific Instruments	324	ISS Inc	635
Prior Scientific Inc	125	Cell MicroControls	622	JASCO	437
Sensapex OY	123	Ecocyte Bioscience US LLC	630	Olis Inc	903
<b>Pipettes</b>		Warner Instruments	427	<b>Spectrometers</b>	
Electron Microscopy Sciences	613	<b>Rheometers/Viscometers</b>		Andor Technology	625
Rainin Instrument LLC	1002	Anton Paar USA	1010	Applied Photophysics	923
Probes		TA Instruments	200	Aviv Biomedical Inc	1012
Asylum Research, an Oxford Instruments Company	609	Wyatt Technology Corporation	601	BioLogic USA	514
NanoAndMore USA Inc	910	<b>Scanning Electron Microscope</b>		Edinburgh Instruments	612
Park Systems Inc	802	Keysight Technologies	323	JASCO	437
<b>Protein Binding Studies</b>		Mad City Labs Inc	501	Mightex Systems	823
Anasys Instruments	808	<b>Scanning Probe Microscopes</b>		WITec Instruments	712
Creoptix	222	App Nano	710	<b>Spectrophotometer Light Sources</b>	
NanoTemper Technologies Inc	705	Asylum Research, an Oxford Instruments Company	609	Hellma USA	709
SensiQ Technologies Inc	1008	JPK Instruments AG	908	<b>Spectrophotometers</b>	
TA Instruments	200	Keysight Technologies	323	Aviv Biomedical Inc	1012
<b>Protein Expression</b>		Mad City Labs Inc	501	BioLogic USA	514
Charles River	424	NanoAndMore USA Inc	910	HORIBA Scientific	801
Maxcyte Inc	811	Park Systems Inc	802	JASCO	437
		WITec Instruments	712	Olis Inc	903
				Quantum Northwest Inc	901
				TgK Scientific Ltd	729

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Cobolt AB	413	Charles River	424	Sutter Instrument	600
Hellma USA	709	Creoptix	222	<b>X-ray Diffraction Equipment</b>	
Olis Inc	903	SensiQ Technologies Inc	1008	Anton Paar USA	1010
Quantum Northwest Inc	901	<b>TCSPEC Components</b>		Olympus	408
Semrock Inc	723	Edinburgh Instruments	612	Rayonix LLC	115
<b>Sphingolipids</b>		ISS Inc	635	Rigaku Oxford Diffraction	828
Avanti Polar Lipids Inc	508	Mad City Labs Inc	501	<b>X-ray Imaging Equipment</b>	
Larodan	534	PicoQuant Photonics North America Inc	201	Andor Technology	625
Matreya LLC	605	<b>Temperature Controllers</b>		Carl Zeiss Microscopy LLC	101
<b>Stand Alone Stopped-Flow Unit</b>		ALA Scientific Instruments	324	Rayonix LLC	115
KinTek Corporation	428	Aurora Scientific Inc	636	<b>Zeta Potential</b>	
Olis Inc	903	Cell MicroControls	622	Anton Paar USA	1010
TgK Scientific Ltd	729	Nanon Technologies	509	Malvern Instruments Ltd	711
<b>Stepper Technology</b>		npi electronic GmbH	322	Wyatt Technology Corporation	601
Mad City Labs Inc	501	Warner Instruments	427		
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<b>Sterols</b>		Biolin Scientific	913		
Avanti Polar Lipids Inc	508	<b>Tomography</b>			
<b>Stimulators</b>		Nanolive SA	810		
Aurora Scientific Inc	636	Rayonix LLC	115		
IonOptix	535	<b>UV Spectroscopy</b>			
IonOptix	535	Agilent Technologies Inc	809		
Mightex Systems	823	BioLogic USA	514		
Pacer Scientific	623	Edinburgh Instruments	612		
Warner Instruments	427	Hellma USA	709		
<b>Stimulus Isolators</b>		HORIBA Scientific	801		
npi electronic GmbH	322	JASCO	437		
Warner Instruments	427	Olis Inc	903		
<b>Stopped-Flow Spectroscopy</b>		Quantum Northwest Inc	901		
Applied Photophysics	923	TgK Scientific Ltd	729		
Aviv Biomedical Inc	1012	<b>Vibration Isolation Systems</b>			
BioLogic USA	514	Electron Microscopy Sciences	613		
JASCO	437	Minus K Technology Inc	714		
KinTek Corporation	428	Narishige International USA Inc	1022		
Olis Inc	903	Pacer Scientific	623		
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<b>Super Resolution (SR) Microscopy</b>		IonOptix	535		
App Nano	710	Ionovation GmbH	435		
ASI/Applied Scientific Instrumentation	531	Nikon Instruments Inc	523		
Bitplane Inc	724	<b>Visible Spectroscopy</b>			
Carl Zeiss Microscopy LLC	101	Hellma USA	709		
Laboratory for Fluorescence Dynamics	704	KinTek Corporation	428		
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Mad City Labs Inc	501	Quantum Northwest Inc	901		
NIC@IIT	624	<b>Voltage Clamp Instrumentation</b>			
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 Mattes, B., 711-Pos  
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 Matthews, R. C., 1925-Pos  
 Mattheyses, A. L., 3209-Pos  
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 Prochaska, L. J., 1545-Pos  
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 Rice, C. M., 2540-Plat  
 Rice, L. M., 959-Plat  
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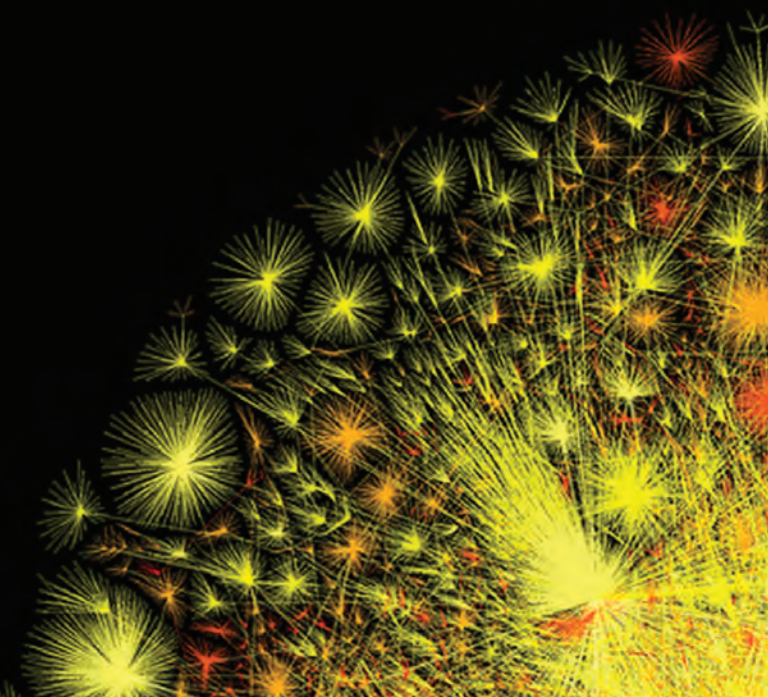
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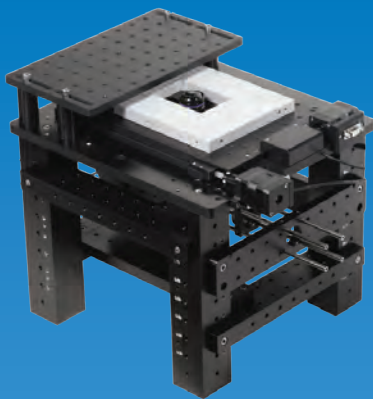


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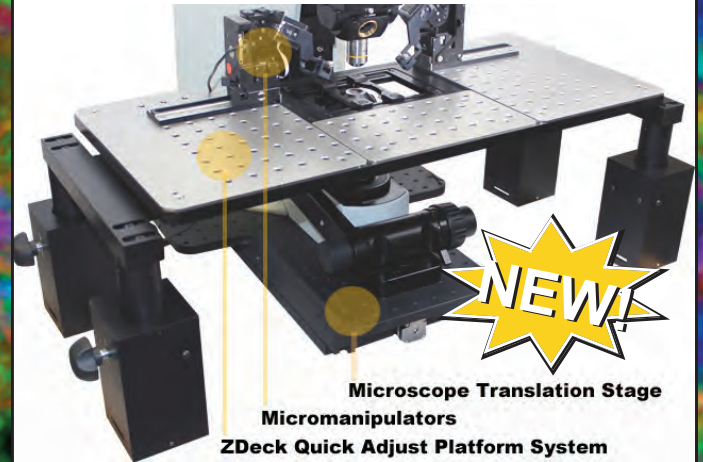
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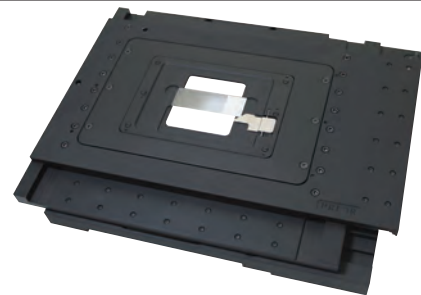
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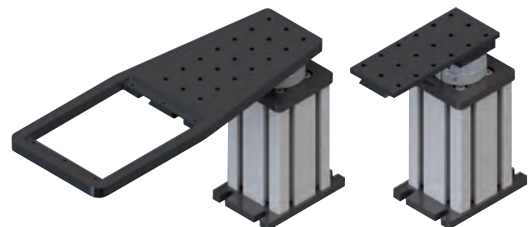
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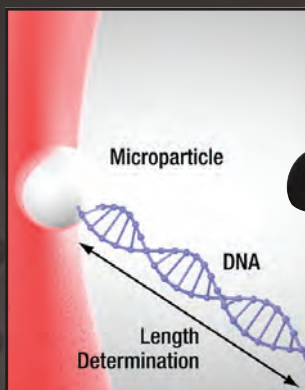
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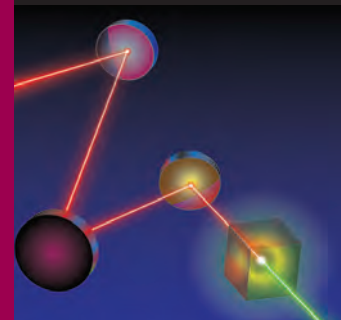
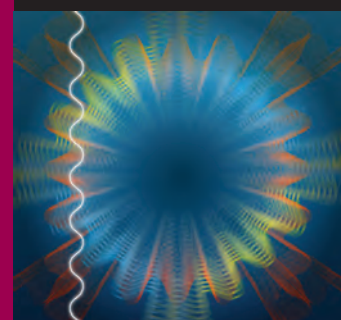
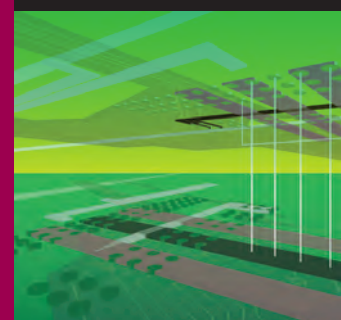
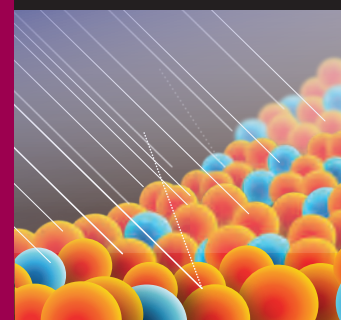
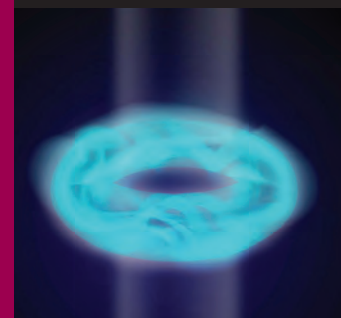
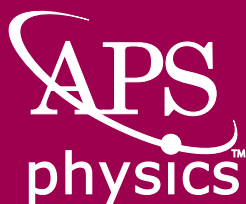
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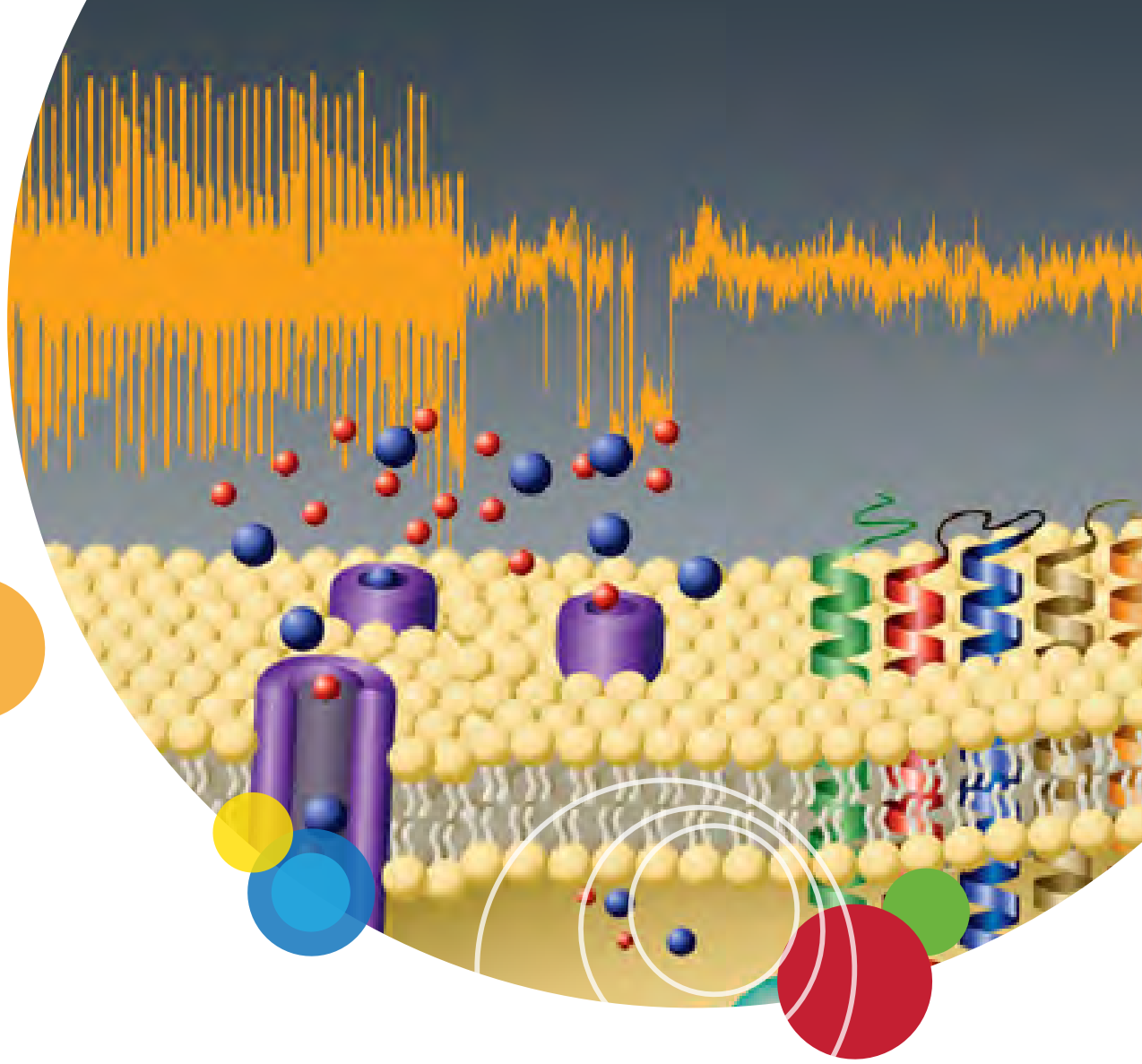
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