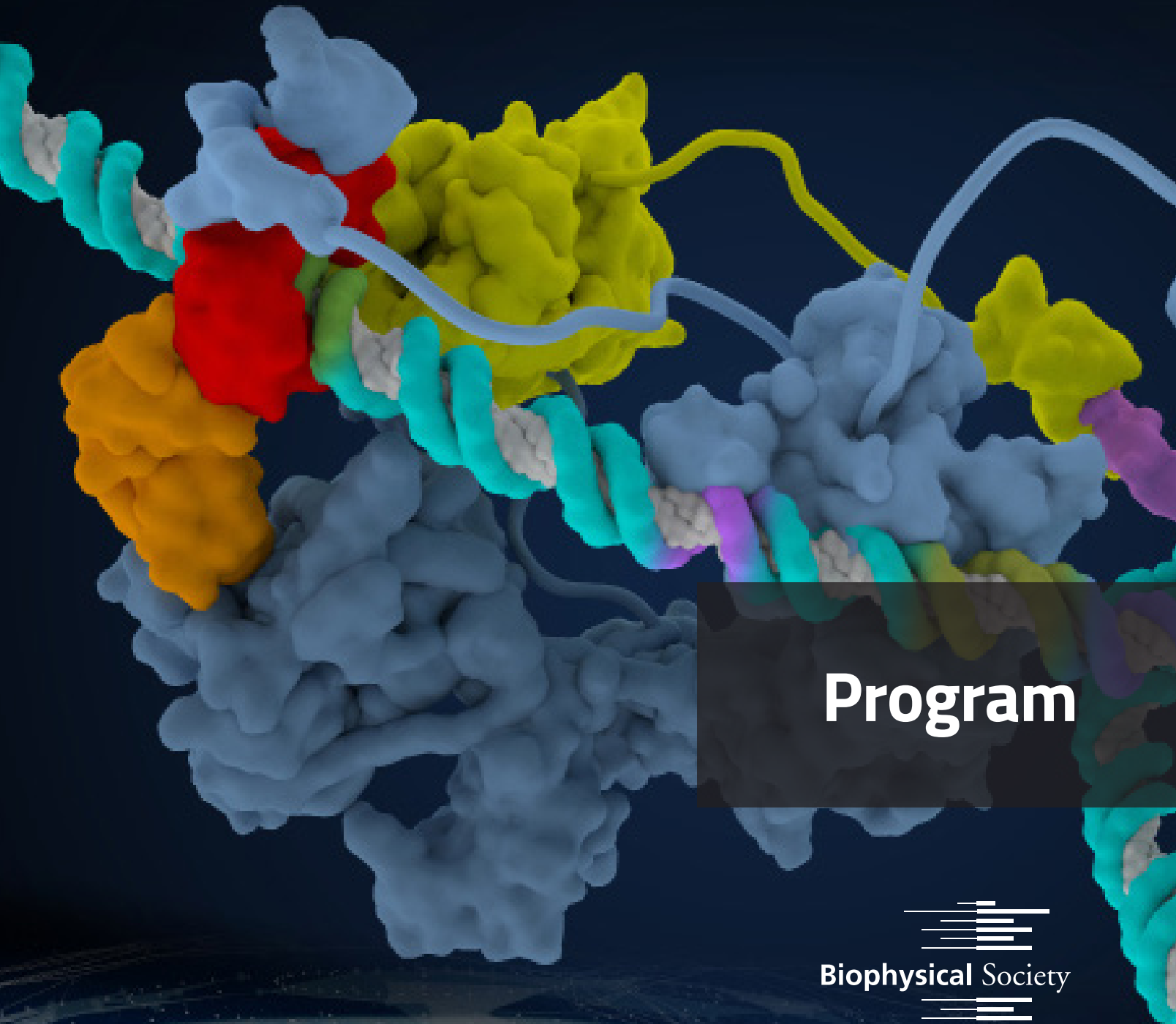


BPS2021

65th Biophysical Society Annual Meeting
February 22–26, 2021



Program

BPS2021

65th Biophysical Society Annual Meeting
February 22–26, 2021

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2021 Biophysical Society Lecturer

Eva Nogales

University of California, Berkeley, USA

Visualizing Structure, Dynamics and Interactions of Complex Macromolecular Assemblies

About the Image

The 2021 image featured on the cover is Structure of human transcription factor IID (TFIID) bound to core promoter DNA obtained using cryo-EM.

The Biophysical Society would like to thank the following companies for their generous support of the Annual Meeting:

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As of February 3, 2021.

Biophysical Society Virtual Event Code of Conduct, Anti-Harassment Policy

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, whether virtual or in-person, promote an environment that is free of inappropriate behavior and harassment by or toward all attendees and participants of Society events, including speakers, organizers, students, guests, media, exhibitors, staff, vendors, and other suppliers. If you experience harassment or hear of any incidents of unacceptable behavior, you can make a report through BPS's secure website (<https://biophysics.ethicspoint.com/>) or via a dedicated hotline (phone numbers listed on the website (<https://biophysics.ethicspoint.com/>)) which will collect and relay information in a secure and sensitive manner. Or you may inform either Jennifer Pesanelli, Executive Officer, at jpesanelli@biophysics.org or 240-290-5613 or Dorothy Chaconas, Director of Meetings, at dchaconas@biophysics.org or 240-290-5605.

Disruption of presentations during sessions, in the exhibit hall, or at other events organized by BPS throughout the event are not tolerated. All participants must comply with the instructions of the moderator and any BPS virtual event staff.

Audio or visual recordings of the meeting are not permitted in any form. Taking or distributing pictures of or copying any research posters or presentation materials is strictly prohibited unless explicit permission is granted.

BPS reserves the right to take any action deemed necessary and appropriate, including immediate removal from the meeting without warning or refund, in response to any incident of unacceptable behavior, and BPS reserves the right to prohibit attendance at any future meeting, virtually or in person.

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Sorting and Programming of 2021 Abstracts

Sorting and programming of the 2021 Annual Meeting abstracts into poster and platform sessions was completed by: Patricia Bassereau, Patricia Clark, Michelle A. Digman, Erin C. Dueber, Marta Filizola, Bertrand Garcia-Moreno, Teresa Giraldez, Ruben Gonzalez, Gilad Haran, Kumiko Hayashi, Kalina Hristova, William Kobertz, Elizabeth Komives, Francesca M. Marassi, Joseph A. Mindell, Carolyn A. Moores, Anna Moroni, Arthur Palmer, David W. Piston, Jennifer Ross, Catherine A. Royer, James Sellers, Frances Separovic, Erin Sheets, David Stokes, and Joanna Swain.

General Information

BPS Virtual Annual Meeting Dates

The Annual Meeting will be held Monday, February 22 – Friday, February 26, 2021.

Virtual Annual Meeting Time Zone

The Annual Meeting will be held in USA Eastern time.

Certificates of Attendance

Certificates of Attendance may be obtained by emailing society@biophysics.org.

Virtual Event 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 virtual event code of conduct policy (<https://biophysics.ethicspoint.com/>) that all meeting participants must follow.

Virtual Exhibits

The Virtual Exhibit Hall features the most advanced equipment, products, services, and publications available. A list of exhibitors as of February 1, 2021, can be found beginning on page 128.

Tuesday	10:00 AM–5:00 PM
Wednesday	10:00 AM–5:00 PM
Thursday	10:00 AM–5:00 PM
Friday	10:00 AM–5:00 PM

Virtual Exhibitor Scavenger Hunt

Light up the Leaderboard! Join your fellow BPS attendees on an interactive Scavenger Hunt with exhibitors. Visit the exhibitors, scan the QR code in each company's profile, answer the question to score points, and climb the leaderboard! Top two scoring participants will receive a Samsung Galaxy Tablet or a Fitbit Versa. The Scavenger Hunt ends on Friday, February 26, at 5:00 PM. Winners will be notified and announced on BPS' social media accounts on Friday, February 26, at 5:00 PM.

Content Sharing

The virtual meeting platform does not allow downloading or sharing of content and it is strictly prohibited. The Biophysical Society asks – When sharing information about what you see and hear in meeting sessions, please refrain from capturing or sharing full detail of the material presented in order to respect the intellectual property of the presenters. Some presenters may request, verbally or in writing, that attendees not digitally capture or share information about their presentations and content; please honor those requests so that we can maintain a professional, respectful environment.

Any attendees who do not comply with this request will have their access to the virtual meeting revoked.

Poster Sessions

Posters will be presented in a digital format online that include high resolution images and an audio presentation. Attendees will be able to hear an audio description of the poster upon viewing and connect with the presenter about their research.

Presenters will be available for questions through live chat during their formal presentation time. You can also e-mail the presenter directly to coordinate a meeting time to ask your questions. On the day of presentation, Tuesday and Thursday presenting authors with odd-numbered poster boards will present from 12:00 PM – 12:45 PM, USA Eastern and presenting authors with even-numbered poster boards will present from 12:45 PM–1:30 PM, USA Eastern.

On Wednesday and Friday, presenting authors with odd-numbered poster boards will present from 2:00 PM–2:45 PM, USA Eastern and presenting authors with even-numbered poster boards will present from 2:45 PM–3:30 PM, USA Eastern.

Social Media

The Biophysical Society welcomes the use of social media to share information from the 65th Biophysical Society Virtual Annual Meeting and to engage with the biophysics community. Please use the Annual Meeting hashtag #bps2021 when posting to help others follow along.

We encourage you to share highlights from the meeting, suggest sessions to attend, discuss stand-out presentations and posters, and connect with your fellow biophysicists, as well as our sponsors and exhibitors.

When sharing information about what you see and hear in meeting sessions, please refrain from capturing or sharing full detail of the material presented in order to respect the intellectual property of the presenters. Some presenters may request, verbally or in writing, that attendees not digitally capture or share information about their presentations and content; please honor those requests so that we can maintain a professional, respectful environment.

Presenters: If you do not wish to have your research shared via social media, please make an announcement before and during your presentation. BPS strongly encourages compliance with speaker requests regarding social media sharing but cannot guarantee it.

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

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Facebook:	facebook.com/biophysicalsociety
Instagram:	@biophysicalsociety
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Blog:	biophysics.org/blog

Virtual Travel Grant Awardees

Tuesday, February 23

Trishit Banerjee, Tohoku University, Japan
424-Pos, BOARD B358
ENGINEERING OF GENOME EDITING PROTEIN CAS9 THAT SLIDES ALONG DNA FASTER AND MIGHT ENABLE EFFICIENT TARGET SEARCH.

Alexandra Brown, Dalhousie University, Canada
29-PLAT
INVESTIGATING THE STRUCTURE AND FUNCTION OF COACTIVATOR RECRUITMENT BY THE MELANOGENIC TRANSCRIPTION FACTOR MITF.

Anuska Das, Florida State University, USA
78-Pos, BOARD B12
STRUCTURAL AND BIOCHEMICAL ANALYSIS OF A METHYLATION SENSITIVE CAS9.

Anirban Das, Tata Institute of Fundamental Research, India
70-Pos, BOARD B4
FACTORS THAT AFFECT THE BINDING OF THE N-TERMINAL HELIX OF HUMAN ACE2 TO SPIKE PROTEIN OF SARS-COV2.

Hammad Faizi, Northwestern University, USA
203-Pos, BOARD B137
SHAPE FLUCTUATIONS OF GIANT UNILAMELLAR VESICLES AND ITS APPLICATIONS TO STUDY ELECTRIFIED MEMBRANES AND MEMBRANE VISCOSITY.

Ankita Gupta, Indian Institute of Technology Kanpur
356-Pos, BOARD B290
STRUCTURAL DYNAMICS AND ENERGETICS OF GLUCOSE TRANSPORT VIA RICE SWEET SUGAR TRANSPORTER.

Pankaj Jadhav, Indian Institute of Science
84-Pos, BOARD B18
2.09 Å RESOLUTION STRUCTURE OF E. COLI HIGBA TOXIN-ANTITOXIN COMPLEX REVEALS AN ORDERED DNA-BINDING DOMAIN AND INTRINSIC DYNAMICS IN ANTITOXIN.

Sarah Hyun Ji Kim, University of Pennsylvania, USA
324-Pos, BOARD B258
INTEGRIN CROSSTALK MODULATES STIFFNESS-INDEPENDENT MOTILITY IN CD4+ T LYMPHOCYTES.

Julene Madariaga Marcos, Universität Leipzig, Germany
453-PLAT
DISSECTING THE TARGET RECOGNITION BY CRISPR/CAS EFFECTOR COMPLEXES WITH ULTRAFAST TWIST MEASUREMENTS.

Shankar Mandal, University of Michigan, USA
473-PLAT
SINGLE-MOLECULE FRET BASED INTRA-MOLECULAR KINETIC FINGERPRINTING FOR ULTRAFAST AND HIGH-CONFIDENCE COUNTING OF MUTANT DNA.

Guillermo Moreno Pescador, University of Copenhagen, Denmark
221-Pos, BOARD B155
INVESTIGATING PLASMA-MEMBRANE REPAIR EMPLOYING THERMOPLASMONICS.

Fiona Naughton, Arizona State University, USA
357-Pos, BOARD B291
ENERGETICS OF SUBSTRATE BINDING AND CONFORMATIONAL CHANGE OF THE BILE ACID TRANSPORTER ASBT_{NM}.

Abhilash Sahoo, University of Maryland, USA
138-Pos, BOARD B72
EFFECTS OF MEMBRANE CURVATURE ON AMYLOID-BETA AGGREGATION.

Jenaro Soto, University of California, Irvine, USA
81-Pos, BOARD B15
DYNAMIC CONSEQUENCES OF SPECIFICITY WITHIN THE CYTIDINE REPRESSOR DNA-BINDING DOMAIN.

Robert Wiener, Icahn School of Medicine at Mount Sinai, USA
306-Pos, BOARD B240
NANOINDENTATION OF IPSC-DERIVED AORTIC SMOOTH MUSCLE CELLS REVEALS A BIOMECHANICAL AND DEVELOPMENTAL BASIS FOR ANEURYSM LOCALIZATION IN MARFAN SYNDROME.

Wednesday, February 24

Santosh Adhikari, University of Minnesota, USA
880-Pos, BOARD B331
QUANTITATIVE LIVE-CELL PALM REVEALS NANOSCOPIC FAA4 REDISTRIBUTIONS AND DYNAMICS ON LIPID DROPLETS DURING METABOLIC TRANSITIONS IN YEAST.

Andrea Basciu, University of Cagliari, Italy
554-Pos, BOARD B5
IN SILICO GENERATION OF HOLO-LIKE CONFORMATIONS OF VERY FLEXIBLE ALLOSTERIC PROTEINS BEARING MULTIPLE BINDING SITES.

Nicholas Castaneda, University of Central Florida, USA
773-Pos, BOARD B224
COUNTERACTIVE EFFECTS OF ELECTROSTATICS AND MACROMOLECULAR CROWDING ON ACTIN BUNDLE MECHANICS AND SECONDARY STRUCTURE.

Fathima Doole, University of Arizona, USA
683-Pos, BOARD B134
ANTIMICROBIAL PEPTIDE-MEMBRANE INTERACTIONS: INSIGHTS FROM MOLECULAR SIMULATIONS.

Steven Fried, University of Arizona, USA
630-Pos, BOARD B81
HYDRATION AND PROTONATION EFFECTS ON ACTIVATION OF G-PROTEIN-COUPLED RECEPTORS.

Jenisha Ghimire, Tulane University, USA
691-Pos, BOARD B142
SYNTHETIC MOLECULAR EVOLUTION TO IDENTIFY HEMOCOMPATIBLE ANTIMICROBIAL PEPTIDES EFFECTIVE AGAINST DRUG-RESISTANT, BIOFILM-FORMING BACTERIA.

Fatlum Hajredini, City University of New York, USA
615-Pos, BOARD B66
ALLOSTERIC REGULATION OF THE ACTIVITY OF BY-KINASES, A UNIQUE FAMILY OF BACTERIAL PROTEIN TYROSINE KINASES.

Rachel Hutchinson, University of Wisconsin-Madison, USA
478-PLAT
A NOVEL APPROACH COMBINING FLUORESCENCE-ANISOTROPY DECAYS AND MICROVISCOMETRY TO EXPLORE THE COTRANSLATIONAL COMPACTION OF NASCENT PROTEINS.

Shobhna Kapoor, Indian Institute of Technology Bombay
488-PLAT
MEMBRANE BIOPHYSICS AND CHEMICAL BIOLOGY PLATFORM TO MAP THE LANDSCAPE OF VIRULENT LIPID-INDUCED EFFECTS ON HOST CELL MEMBRANE AND SIGNALING.

Sai Li, Rockefeller University, USA
652-Pos, BOARD B103
NONRECIPROCAL AND CONDITIONAL COOPERATIVITY DIRECTS THE PIONEER ACTIVITY OF PLURIPOTENCY TRANSCRIPTION FACTORS.

Haixing Li, Columbia University, USA

526-PLAT

THE ROLE TRNA-MEDIATED REGULATION OF RIBOSOME DYNAMICS PLAYS IN FRAMESHIFTING BY +1 FRAMESHIFT-INDUCING TRNAS.

Louisa Mezache, The Ohio State University, USA

743-Pos, BOARD B194

TARGETING THE VASCULAR ENDOTHELIAL BARRIER TO PREVENT NANOSCALE CARDIAC REMODELING: A NOVEL STRATEGY TO PREVENT ATRIAL FIBRILLATION.

Molly Mollica, University of Washington, USA

811-Pos, BOARD B262

MEASURING SINGLE-CELL PLATELET FORCES VIA MICROCONTACT-PRINTED, REFERENCE-FREE TRACTION FORCE MICROSCOPY REVEALS RELATIONSHIPS BETWEEN CELL SHAPE, F-ACTIN LOCALIZATION, AND FORCE.

Sara Osorio Valencia, Loyola University Chicago, USA

534-PLAT

TRPP1 CHANNEL CALCIUM SIGNALING AS A KEY DETERMINANT OF MYOGENESIS.

Jinho Park, University of Central Florida, USA

774-Pos, BOARD B225

CROWDING TUNES THE ORGANIZATION AND MECHANICS OF ACTIN BUNDLES INDUCED BY ACTIN CROSSLINKING PROTEINS.

Maria Queralt-Martin, Universitat Jaume I, Spain

750-Pos, BOARD B201

ASSESSING THE ROLE OF ELECTROSTATIC INTERACTIONS IN THE MECHANISM OF BETA-BARREL CHANNEL GATING.

Priti Roy, Indian Institute of Science Education and Research- Kolkata

619-Pos, BOARD B70

DISULFIDE REDUCTION ALLOSTERICALLY DESTABILIZES THE B-LADDER SUB-DOMAIN ASSEMBLY WITHIN THE NS1 DIMER OF ZIKV.

Michelle Sahai, University of Roehampton, United Kingdom

594-Pos, BOARD B45

USING COMPUTATIONAL AND NEUROBIOLOGICAL METHODS TO CHARACTERISE THE STIMULANT PROPERTIES OF NOVEL PSYCHOACTIVE SUBSTANCES (NPS) AT THE DOPAMINE TRANSPORTER.

Prakash Shrestha, Boston Children's Hospital, USA

906-Pos, BOARD B357

SINGLE MOLECULE SHAPE DETERMINATION OF BIOMOLECULES USING DNA NANOSWITCH CALIPERS.

Yaqiang Wang, University of California, Los Angeles, USA

669-Pos, BOARD B120

A STRUCTURALLY CONSERVED HUMAN AND TETRAHYMENA TELOMERASE CATALYTIC CORE.

Shiyong Zhu, Bio21 Institute, Australia

689-Pos, BOARD B140

C-TERMINUS AMIDATION INFLUENCES BIOLOGICAL ACTIVITY AND MEMBRANE INTERACTION OF MACULATIN 1.1.

Thursday, February 25

Wooyoung Choi, Van Andel Institute, USA

1018-Pos, BOARD B68

STRUCTURE BASIS AND GATING MECHANISM OF CALCIUM HOMEOSTASIS MODULATOR 2 CHANNEL.

Bojian Ding, Stony Brook University, USA

1352-PLAT

STRUCTURAL PERSPECTIVE INTO ACTIVATION OF ARP2-3 COMPLEX FOR NUCLEATING LINEAR AND BRANCHED ACTIN ASSEMBLIES.

Anneliese Faustino, Johns Hopkins University, USA

953-Pos, BOARD B3

MAPPING STRUCTURAL INTERMEDIATES DURING CO-TRANSLATIONAL FOLDING OF HSP70 WITH CROSSLINKING MASS SPECTROMETRY.

Valeria Guzman Luna, University of Wisconsin-Madison, USA

954-Pos, BOARD B4

INTERACTION BETWEEN RIBOSOME-BOUND NASCENT PROTEINS AND A SPECIFIC REGION OF THE RIBOSOMAL SURFACE.

Soonwoo Hong, University of Texas at Austin, USA

1308-Pos, BOARD B358

CORRELATION BETWEEN SPECTROSCOPIC AND STRUCTURAL FEATURES OF DIMERIC DNA-TEMPLATED SILVER NANOCCLUSERS USING MASS SPECTROMETRY.

Wen Ma, University of California, San Diego, USA

1208-Pos, BOARD B258

MOLECULAR MECHANISM OF FORCE GENERATION BY THE ACTIN-MYOSIN COMPLEX DURING CARDIAC MUSCLE CONTRACTION.

Abigail Nagle, University of Washington, USA

1224-Pos, BOARD B274

A NOVEL METHOD TO MEASURE MYOFIBRIL STRAIN IN INTACT HUMAN STEM CELL DERIVED CARDIOMYOCYTES.

James Osei-Owusu, Johns Hopkins University, USA

930-PLAT

STRUCTURES OF HUMAN PROTON-ACTIVATED CHLORIDE CHANNEL (PAC) REVEAL MECHANISM OF PH SENSING AND GATING.

Lara Scofano, University of Oxford, United Kingdom

1196-Pos, BOARD B246

THE MOLECULAR BASIS OF THE REGULATION OF THE TMEM16A Ca^{2+} -ACTIVATED Cl^{-} CHANNEL BY THE LYSOSOMAL NPC1 PROTEIN.

Pamela Swiatlowska, New York University, USA

1221-Pos, BOARD B271

MEMBRANE YOUNG'S MODULUS AS A FUNCTION OF PLAKOPHILIN-2 EXPRESSION: IMPLICATIONS TO ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY.

Philip To, Johns Hopkins University, USA

1333-PLAT

PROBING THE IMPACT OF MOLECULAR CHAPERONES ON THE REFOLDABILITY OF THE *E. COLI* PROTEOME.

Qi Wang, New Mexico Institute of Mining and Technology, USA

1094-Pos, BOARD B144

EXAMINATION OF BREAST-CANCER-ASSOCIATED LIPID TAIL LENGTH EFFECTS ON BILAYER OXYGEN PERMEABILITY.

Xiaoan Wu, University of Miami, USA

1169-Pos, BOARD B219

NON-CANONICAL MECHANISM OF THE VSD-PD COUPLING IN KCNQ1/KCNE1 CHANNELS.

Friday, February 26

Mac Kevin Braza, University of California, San Diego, USA

1443-Pos, BOARD B45

IN SILICO INSIGHTS ON THE ALLOSTERIC MODULATION OF THE MU-OPIOID RECEPTOR AND G PROTEIN COMPLEX IN THE PRESENCE OF AGONIST LIGAND BU72 AND POTENTIAL POSITIVE ALLOSTERIC MODULATOR BMS-986121.

Mandy Erkelens, Leiden University, the Netherlands

1531-Pos, BOARD B133

(A)SPECIFIC DNA BINDING OF ARCHAEL HISTONES, THE FORMATION AND POSITIONING OF HYPERNUCLEOSOMES.

Kirin Gada, Northeastern University, USA

1639-Pos, BOARD B241

PKC MODULATION BY GIRK CHANNELS IS INVOLVED IN THE PATHOPHYSIOLOGY OF ATRIAL FIBRILLATION.

Francesco Garzella, Istituto Italiano di Tecnologia, Italy

1751-Pos, BOARD B353

DEVELOPMENT AND CHARACTERIZATION OF NOVEL PROBES FOR PHOTOACOUSTIC MICROSCOPY.

Ashwini Hariharan, University of Maryland Baltimore, USA

1580-Pos, BOARD B182

CAPILLARY PERICYTE K_{ATP} CHANNEL ACTIVATION DRIVES THE DILATION OF UPSTREAM CEREBRAL ARTERIOLES.

Taranpreet Kaur, University at Buffalo, State University of New York, USA

1488-Pos, BOARD B90

DECIPHERING MULTIPHASIC STRUCTURE OF PROTEIN-RNA CONDENSATES.

Zhaowei Liu, University of Basel, Switzerland

1745-Pos, BOARD B347

MAPPING MECHANOSTABLE PULLING GEOMETRIES OF PROTEIN-LIGAND COMPLEXES.

Fatema Zahra Rashid, Leiden Institute of Chemistry, the Netherlands

1534-Pos, BOARD B136

REGULATION OF *PROVWX* TRANSCRIPTION BY LOCAL CHROMATIN REMODELLING.

Rosa Romero, University of Michigan, USA

1505-Pos, BOARD B107

SINGLE-MOLECULE INVESTIGATION OF COOPERATIVITY WITHIN THE GLYCINE TANDEM RIBOSWITCH.

Honglue Shi, Duke University, USA

1517-Pos, BOARD B119

RAPID AND ACCURATE DETERMINATION OF ATOMISTIC RNA DYNAMIC ENSEMBLE MODELS USING NMR AND STRUCTURE PREDICTION.

Shwetha Srinivasan, Massachusetts Institute of Technology, USA

1594-Pos, BOARD B196

CONFORMATIONAL COUPLING ACROSS THE MEMBRANE BILAYER OF EPIDERMAL GROWTH FACTOR RECEPTOR.

Prince Tiwari, University of Massachusetts Medical School, USA

1665-Pos, BOARD B267

NEAR-ATOMIC STRUCTURE OF THE 10S FORM OF MYOSIN II: IMPLICATIONS FOR INHIBITION, ACTIVATION AND DISEASE.

Kathleen Vergunst, Dalhousie University, Canada

1413-Pos, BOARD B15

EXPLORING THE STRUCTURAL STABILITY AND ASSEMBLY MECHANISM OF HYDROPHOBIN PROTEINS.

Lili Wang, Vanderbilt University Medical Center, USA

1606-Pos, BOARD B208

THYROID AND DEXAMETHASONE TREATMENT ENHANCES THE EXPRESSION OF REPOLARIZING POTASSIUM CURRENTS AND IMPROVE ELECTROPHYSIOLOGICAL MATURATION OF HUMAN IPSC-DERIVED CARDIOMYOCYTES.

Natalie Weber, Hannover Medical School, Germany

1646-Pos, BOARD B248

EFFECTS OF CARDIAC MYOSIN HEAVY CHAIN ISOFORM COMPOSITION ON CONTRACTION KINETICS AND CALCIUM TRANSIENTS IN ADULT RAT CARDIOMYOCYTES.

Oscar Zabala-Ferrera, University of Massachusetts Amherst, USA

1559-Pos, BOARD B161

ELECTROSTATIC EFFECTS ON MODEL MEMBRANE COMPRESSIBILITY AND VESICLE ADHESION.

Xianwei Zhang, University of California, Davis, USA

1619-Pos, BOARD B221

QUANTIFYING THE ARRHYTHMOGENIC EFFECTS OF SUBCELLULAR STRUCTURAL VARIATIONS IN A THREE-DIMENSIONAL MODEL OF THE HUMAN ATRIAL MYOCYTE.

Mark Your Calendars! Future BPS Annual Meetings

66th Annual Meeting

February 19–23, 2022
San Francisco, California

67th Annual Meeting

February 18–22, 2023
San Diego, California

68th Annual Meeting

February 10–14, 2024
Philadelphia, Pennsylvania

69th Annual Meeting

February 15–19, 2025
Los Angeles, California

Monday, February 22, 2021

Daily Program Summary

9:00 AM-10:00 AM	Bioenergetics, Mitochondria, and Metabolism Subgroup Business Meeting
9:00 AM-10:00 AM	Biopolymers in vivo Subgroup Business Meeting
9:00 AM-10:00 AM	Intrinsically Disordered Proteins Subgroup Business Meeting
10:00 AM-2:00 PM	Bioenergetics, Metabolism, and Mitochondria Symposium
10:00 AM-2:00 PM	Biopolymers in vivo Symposium
10:00 AM-2:00 PM	Channels, Receptors, and Transporters Symposium
10:00 AM-2:00 PM	Mechanobiology Symposium
10:00 AM-2:00 PM	Membrane Fusion, Fission, and Traffic Symposium
10:00 AM-2:00 PM	Multiscale Genome Organization Symposium
10:00 AM-2:00 PM	Nanoscale Approaches to Biology Symposium
10:00 AM-2:00 PM	Physical Cell Biology Symposium
2:00 PM-5:40 PM	Membrane Transport Symposium
2:00 PM-6:00 PM	Bioengineering Symposium
2:00 PM-6:00 PM	Biological Fluorescence Symposium
2:00 PM-6:00 PM	Cryo-EM Symposium
2:00 PM-6:00 PM	Intrinsically Disordered Proteins Symposium
2:00 PM-6:00 PM	Macromolecular Machines and Assemblies Symposium
2:00 PM-6:00 PM	Membrane Structure and Function Symposium
2:00 PM-6:00 PM	Motility and Cytoskeleton Symposium
3:00 PM-5:00 PM	Undergraduate Mixer and Poster Award Competition
5:40 PM-6:15 PM	Membrane Transport Subgroup Business Meeting
6:00 PM-6:30 PM	Bioengineering Subgroup Business Meeting
6:00 PM-6:30 PM	Macromolecular Machines and Assemblies Subgroup Business Meeting
6:00 PM-7:00 PM	Cryo-EM Subgroup Business Meeting and Virtual Happy Hour
6:00 PM-7:00 PM	Mechanobiology Subgroup Business Meeting
6:00 PM-7:00 PM	Membrane Structure and Function Subgroup Business Meeting

Monday, February 22

Bioenergetics, Mitochondria, and Metabolism Subgroup Business Meeting

9:00 AM - 10:00 AM

Subgroup Co-Chairs

Miguel A. Aon, Johns Hopkins University, USA

Gyorgy Csordas, Thomas Jefferson University, USA

Biopolymers in vivo Subgroup Business Meeting

9:00 AM - 10:00 AM

Subgroup Chair

Daniel Harries, Hebrew University of Jerusalem, Israel

Intrinsically Disordered Proteins Subgroup Business Meeting

9:00 AM - 10:00 AM

Subgroup Chair

Nicolas Fawzi, Brown University, USA

Bioenergetics, Metabolism, and Mitochondria Symposium

10:00 AM - 2:00 PM

Subgroup Co-Chairs

Miguel A. Aon, Johns Hopkins University, USA

Gyorgy Csordas, Thomas Jefferson University, USA

Program Co-Chairs

Sonia Cortassa, National Institute on Aging, NIH, USA

Miguel A. Aon, Johns Hopkins University, USA

10:00 AM INTRODUCTION

NO ABSTRACT 10:10 AM
MITOCHONDRIAL ADAPTATIONS TO BIOENERGETIC STRESS.
Deborah M. Muoio

NO ABSTRACT 10:45 AM
MITOCHONDRIAL METABOLISM AND THE EPIGENOME. John Denu

NO ABSTRACT 11:20 AM
COQ HOMEOSTASIS IN METABOLIC AND MITOCHONDRIAL DISORDERS.
Placido Navas

11:55 AM BREAK

12:15 PM YOUNG BIOENERGETICIST AWARD ANNOUNCEMENT

12:20 PM YOUNG BIOENERGETICIST AWARD PRESENTATION

NO ABSTRACT 12:40 PM
THE IMPACT OF NAD(P)H: QUINONE OXIDOREDUCTASE 1 (NQO1) ON
HEALTH AND MITOCHONDRIAL, GLUCOSE AND LIPID METABOLISM.
Rafael de Cabo

NO ABSTRACT 1:15 PM
MITOCHONDRIAL FUNCTION IN CARDIAC AGING AND HEALTHSPAN.
Ann Chiao

1:50 PM CLOSING REMARKS

Biopolymers in vivo Symposium

10:00 AM - 2:00 PM

Subgroup Chair

Daniel Harries, Hebrew University of Jerusalem, Israel

Program Co-Chairs

Silvia Cavagnero, University of Wisconsin, USA

Bin Zhang, Massachusetts Institute of Technology, USA

10:00 AM INTRODUCTION

NO ABSTRACT 10:05 AM
MITOCHONDRIA HEALTH AND DETERIORATION UNDER NUTRIENT STRESS
DEPEND ON LIPID TRAFFICKING PATHWAYS SET UP AND CONTROLLED BY
VACUOLAR PHASE-SEPARATED, STEROL-RICH MICRODOMAINS. Jennifer
Lippincott-Schwartz

1-SUBG 10:45 AM
IMAGING BIOPOLYMERS IN VIVO DIRECTLY WITH CRYO-ET: TRIM5 NETS
AND IRE-1 HELICES. Grant Jensen

11:10 AM BREAK

NO ABSTRACT 11:20 AM
CONDENSATION OF A PLANT TRANSCRIPTION FACTOR DRIVEN BY AN
OLIGOMERIZATION DOMAIN AND IDR. Lucia Strader

11:45 AM JUNIOR INVESTIGATOR AWARD PRESENTATION

12:10 PM BREAK

12:20 PM STUDENT/POSTDOCTORAL FELLOW TALK

2-SUBG 12:40 PM
OPTOGENETIC CONTROL OF SPINDLE MICROTUBULE CROSSLINKERS RE-
VEALS THAT BRIDGING FIBERS PROMOTE CHROMOSOME ALIGNMENT BY
OVERLAP LENGTH-DEPENDENT FORCES. Mihaela Jagric, Patrik Risteski,
Iva M. Tolic

NO ABSTRACT 1:05 PM
ENERGY LANDSCAPES, ORDER AND DISORDER, AND PROTEIN SEQUENCE
COEVOLUTION: FROM PROTEINS TO CHROMOSOME STRUCTURE. Jose
Onuchic

1:45 PM CONCLUDING REMARKS

Channels, Receptors, and Transporters Symposium

10:00 AM - 2:00 PM

Subgroup Chair

Lucia Sivilotti, University College London, United Kingdom

3-SUBG 10:00 AM
THE STRUCTURAL BASIS FOR LIPID-SENSING IN PENTAMERIC LIGAND-
GATED ION CHANNELS. John E. Baenziger, Mackenzie J. Thompson

4-SUBG 10:30 AM
JOSTLING FOR POSITION: DEFINING HOW MULTIPLE LIPID SPECIES IN-
TERACT WITH INWARD RECTIFIER POTASSIUM (KIR) CHANNELS. Anna L.
Duncan, Robin A. Corey, Mark S.P. Sansom

5-SUBG 11:00 AM
STRUCTURE AND FUNCTION OF THE HUMAN SODIUM LEAK CHANNEL
NALCN. Han Chow Chua

NO ABSTRACT 11:30 AM
STRUCTURE AND FUNCTION OF TRPV CHANNELS. **Kirill Nadezhdin**

12:00 PM BREAK

12:05 PM SUBGROUP BUSINESS MEETING

12:35 PM BREAK

12:45 PM COLE AWARD LECTURE

Mechanobiology Symposium

10:00 AM - 2:00 PM

Subgroup Chair

Michael Sheetz, University of Texas Medical Branch, USA

10:00 AM OPENING REMARKS

NO ABSTRACT 10:05 AM
MECHANICAL MULTITASKING: THE FORCES THAT ENABLE EPITHELIA TO FOLD, MIGRATE, DIVIDE AND DIE. **Xavier Trepap**

10:30 AM Q&A WITH XAVIER TREPAT

NO ABSTRACT 10:35 AM
INVITED SUBGROUP SPEAKER. **Amid Pathak**

11:00 PM Q&A WITH AMID PATHAK

6-SUBG 11:05 AM
MECHANICAL FORCES AND THE NUCLEUS: REGULATION OF CELL FATE AND INTEGRITY. **Sara A. Wickstrom**

11:30 AM Q&A WITH SARA WIKSTROM

NO ABSTRACT 11:35 AM
HOW TO BUILD AN EPITHELIAL TREE. **Celeste Nelson**

12:00 PM Q&A WITH CELESTE NELSON

NO ABSTRACT 12:05 PM
INVITED SUBGROUP SPEAKER. **Valerie Weaver**

12:20 PM Q&A WITH VALERIE WEAVER

NO ABSTRACT 12:23 PM
GEOMETRIC SIGNATURES OF HETEROTYPIC CELL-CELL INTERACTIONS IN CONFLUENT TISSUES. **Lisa Manning**

12:38 PM Q&A WITH LISA MANNING

NO ABSTRACT 12:41 PM
CONTROL OF MEMBRANE MORPHOLOGICAL TRANSITIONS BY THE GLY-COCALYX. **Matthew J. Paszek**

12:56 PM Q&A WITH MATTHEW J. PASZEK

NO ABSTRACT 12:59 PM
THE MOLECULAR BASIS OF MECHANICALLY ACTIVATED ION CHANNELS OSCAS. **Swetha Murthy**

1:14 PM Q&A WITH SWETHA MURTHY

NO ABSTRACT 1:17 PM
COLLECTIVE BEHAVIOR OF SALMONELLA IN PERSISTENT INFECTIONS. **Stuti Desai**

1:27 PM Q&A WITH STUTI DESAI

7-SUBG 1:29 PM
MAPPING TRANSMEMBRANE BINDING PARTNERS FOR E-CADHERIN ECTODOMAINS. **Omer Shafraz, Bin Xie, Soichiro Yamada, Sanjeevi Sivasankar**

1:39 PM Q&A WITH OMER SHAFRAZ

NO ABSTRACT 1:41 PM
DYNAMIC REAL-TIME DEFORMABILITY CYTOMETRY: TIME-RESOLVED MECHANICAL SINGLE CELL ANALYSIS AT 100 CELLS. **Bob Fregin**

1:51 PM Q&A WITH BOB FREGIN

1:53 PM CLOSING REMARKS

Membrane Fusion, Fission, and Traffic Symposium

10:00 AM - 2:00 PM

Subgroup Chair

Jenny Hinshaw, NIDDK, NIH, USA

10:00 AM OPENING REMARKS

NO ABSTRACT 10:05 AM
MECHANISMS UNDERLYING THE DIVERSITY OF CALCIUM-DEPENDENT SYNAPTIC VESICLE FUSION DYNAMICS. **David DiGregorio**

8-SUBG 10:30 AM
A PHASE OF SYNAPSIN AND SYNAPTIC VESICLES RECRUITS ALPHA-SYNUCLEIN. **Christian Hoffman, Roberto Sanseverino, Giuseppe Morabito, Chinyere Logan, Marcelo Ganzella, Dragomir Milovanovic**

NO ABSTRACT 10:55 AM
MECHANICAL TENSION DRIVES CELL-CELL FUSION. **Elizabeth Chen**

11:20 AM BUSINESS MEETING / BREAK

9-SUBG 11:35 AM
INHIBITION OF VIRAL FUSION BY INTERFERON-INDUCED TRANSMEMBRANE PROTEINS. **Xiangyang Guo, Jan Steinkühler, Mariana Marin, Rumi-ana Dimova, Gregory Melikian**

NO ABSTRACT 12:00 PM
MEMBRANE MECHANICS: NEW INSIGHTS FROM CRYOEM AND CRYOEM-GUIDED SIMULATIONS. **Adam Frost**

10-SUBG 12:25 PM
HIGH-SPEED ATOMIC FORCE MICROSCOPY: MEMBRANE DEFORMATION PROTEIN COMPLEXES IN ACTION. **Simon Scheuring, Grigory Tagiltsev, Nebojsa Jukic, Alma P. Perrino**

NO ABSTRACT 12:50 PM
EXTRACELLULAR VESICLES AS KEY REGULATORS OF DICTYOSTELIUM AND NEUTROPHILS CHEMOTAXIS. **Carole Parent**

NO ABSTRACT 1:15 PM
THE PATHWAY FOR MEMBRANE FUSION AND FISSION IN EXOCYTOSIS AND VIRAL ENTRY. **Joshua Zimmerberg**

Multiscale Genome Organization Symposium

10:00 AM - 2:00 PM

Subgroup Co-Chairs

Tom Connor Bishop, Louisiana Tech University, USA

Tamar Schlick, New York University, USA

10:00 AM WELCOME

NO ABSTRACT 10:05 AM
CHROMATIN SIGNALING: THE IMPORTANCE OF HISTONE TAIL CONFORMATION. **Catherine Musselman**

10:25 AM Q&A WITH CATHERINE MUSSELMAN

NO ABSTRACT 10:30 AM
 NUCLEOSOMAL PHYSICS FROM ELECTROSTATICS TO ELASTICITY. **Garegin Papoian**

10:50 AM Q&A WITH GAREGIN PAPOIAN

NO ABSTRACT 10:55 AM
 STRUCTURE AND DYNAMICS OF TELOMERIC CHROMATIN. **Lars Nordenskiöld**

11:15 AM Q&A WITH LARS NORDENSKIÖLD

NO ABSTRACT 11:20 AM
 DEMULTIPLEXING INFORMATION WRITTEN ALONG DNA MOLECULES. **Helmut Schiessel**

11:40 AM Q&A WITH HELMUT SCHIESEL

11-SUBG 11:45 AM
 NUCLEOSOME CONTRIBUTION TO EPIGENETIC GENOME REGULATION. **Hitoshi Kurumizaka**

12:05 PM Q&A WITH HITOSHI KURUMIZAKA

NO ABSTRACT 12:10 PM
 BUNGEE JUMPING INTO FRAGILE SITES IN THE HUMAN CANCER GENOME: MAPPING NANO-ELASTICITY OF VARIANT CHROMATIN STRUCTURE. **Yamini Dalal**

12:30 PM Q&A WITH YAMINI DALAL

NO ABSTRACT 12:35 PM
 ACROSS SPACE AND ALONG POLYMERS: EPIGENETICS' CONFLICTING MEANS OF SHAPING CHROMOSOMES. **Michele Di Pierro**

12:55 PM Q&A WITH MICHELE DI PIERRO

NO ABSTRACT 1:00 PM
 TOPOLOGICAL ANALYSIS OF CHROMOSOMAL TRACINGS, OBTAINED BY SERIAL FLUORESCENT IN SITU HYBRIDIZATION METHOD, SUGGESTS THAT HUMAN CHROMOSOMES ARE UNKNOTTED. **Andrzej Stasiak**

1:20 PM Q&A WITH ANDRZEJ STASIAK

1:25 PM BUSINESS MEETING

Nanoscale Approaches to Biology Symposium

10:00 AM - 2:00 PM

Subgroup Chair
Frederik Westerlund, Chalmers University, Sweden

10:00 AM OPENING REMARKS

NO ABSTRACT 10:05 AM
 CORRELATIVE 3D MICROSCOPY OF SINGLE CELLS USING SUPER-RESOLUTION AND SCANNING ION-CONDUCTANCE MICROSCOPY. **Aleksandra Radenovic**

12-SUBG 10:35 AM
 DYNAMICS AND BINDING STRENGTH OF THE SPIKE PROTEIN OF SARS-COV-2 PROBED BY HIGH-SPEED ATOMIC FORCE MICROSCOPY. **Fidan Sumbul, Claire Valotteau, Ignacio Fernandez, Analisa Meola, Eduard Baquero, Dorota Kostrz, Charlie Gosse, Terence R. Strick, Felix Rey, Felix Rico**

11:05 AM STUDENT/POSTDOC TALK

NO ABSTRACT 11:25 AM
 3D OPTICAL NANOSCOPY IN LIVING CELLS. **Ilaria Testa**

11:55 AM BREAK

13-SUBG 12:10 PM
 HUMAN FACT PROTEINS FACILITATE BOTH DISASSEMBLY AND REASSEMBLY OF NUCLEOSOMES. **Micah J. McCauley, Ran Huo, Emily C. Navarrete, Nicole Becker, Qi Hu, Ioulia Rouzina, Georges Mer, Louis J. Maher, Nathan Israeloff, Mark Williams**

12:40 PM STUDENT/POSTDOC TALK

1:00 PM STUDENT/POSTDOC TALK

NO ABSTRACT 1:20 PM
 NANOSCALE STRUCTURES MODULATING CELL SIGNALING AT THE NANO-BIO INTERFACE. **Bianxiao Cui**

1:50 PM NANOSCALE APPROACHES TO BIOLOGY SUBGROUP BUSINESS MEETING

Physical Cell Biology Symposium

10:00 AM - 2:00 PM

Subgroup Chair
Melike Lakadamyali, University of Pennsylvania, USA

Program Chair
Johan Elf, Uppsala University, Sweden

10:00 AM WELCOME

NO ABSTRACT 10:10 AM
 DISORDER REGION GUIDE TRANSCRIPTION FACTOR TO SPECIFIC GENOMIC SITES. **Naama Barkai**

10:40 AM DISCUSSION

10:50 AM SELECTED ABSTRACT TALK 1

NO ABSTRACT 11:05 AM
 SPATIAL GENOMICS IN SITU ANALYSIS BY SEQFISH. **Long Cai**

11:35 AM DISCUSSION

11:45 AM SELECTED ABSTRACT TALK 2

12:00 PM BREAK

NO ABSTRACT 12:15 PM
 DESIGN FOR INFERENCE AND THE POWER OF RANDOM EXPERIMENTS IN BIOLOGY. **Aviv Regev**

12:45 PM DISCUSSION

12:55 PM SELECTED ABSTRACT TALK 3

NO ABSTRACT 1:10 PM
 IMAGING HOW CELLS CHOOSE THEIR FATE, SHAPE AND POSITION TO FORM THE MAMMALIAN EMBRYO. **Nicholas Plachta**

1:40 PM DISCUSSION

1:50 PM BUSINESS MEETING & CLOSING REMARKS

Membrane Transport Symposium

2:00 PM - 5:40 PM

Subgroup Chair
Ming Zhou, Baylor College of Medicine, USA

2:00 PM OPENING REMARKS

14-SUBG 2:05 PM
 THE TRANSPORT CYCLE OF A SODIUM/PROTON ANTIporter. **Oliver Beckstein**

NO ABSTRACT 2:30 PM
 INVITED SUBGROUP SPEAKER. **Nancy Carrasco**

15-SUBG 2:55 PM
 MECHANISTIC INSIGHTS FROM MOLECULAR DYNAMICS SIMULATIONS OF LARGE-SCALE CONFORMATIONAL TRANSITIONS IN THE INDY TRANSPORT CYCLE. **Noah Trebesch**, David B. Sauer, Da-Neng Wang, Emad Tajkhorshid

NO ABSTRACT 3:10 PM
 STRUCTURAL INSIGHT INTO TOXIN SECRETION BY CONTACT DEPENDENT GROWTH INHIBITION OF TRANSPORTERS. **Susan K. Buchanan**

3:35 PM COFFEE BREAK

16-SUBG 4:10 PM
 THE MOLECULAR DETERMINANTS FOR UNLOCKING SUBSTRATE TRANSLOCATION IN GLUT TRANSPORTERS. **David Drew**

NO ABSTRACT 4:35 PM
 ION PERMEATION IN NON-SELECTIVE CATION CHANNELS. **Han Sun**

NO ABSTRACT 5:00 PM
 CRYO-EM AND FUNCTIONAL STUDIES OF RYRS CARRYING MUTATIONS LEADING TO "LEAKY" PHENOTYPE. **Kavita Iyer**, Yifan Hu, Ashok R. Nayak, Takashi Murayama, Nagomi Kurebayashi, Montserrat Samsó

NO ABSTRACT 5:15 PM
 ARCHITECTURE AND FUNCTION OF NEURONAL MACHINERY.
Hiro Furukawa

Bioengineering Symposium

2:00 PM - 6:00 PM

Subgroup Chair
Samir Iqbal, University of Texas Rio Grande Valley, USA

NO ABSTRACT 2:00 PM
 FLEXIBLE MULTIFUNCTIONAL FIBERS FOR BRAIN INTERFACING. **Xiaoting Jia**

17-SUBG 2:45 PM
 RECONSTRUCTING PROTEIN STRUCTURE AND DYNAMICS FROM EXPERIMENTAL OBSERVABLES. **Andrew Ferguson**

3:30 PM POSTDOC RECOGNITION

4:15 PM BREAK

NO ABSTRACT 4:30 PM
 ENGINEERING MINIATURE HUMAN TISSUES FOR DISEASE MODELING AND DRUG DEVELOPMENT. **Salman Khetani**

NO ABSTRACT 5:15 PM
 INVITED SUBGROUP SPEAKER. **Ahmad Khalil**.

Biological Fluorescence Symposium

2:00 PM - 6:00 PM

Subgroup Chair
Jay Knutson, NHLBI, NIH, USA

2:00 PM INTRODUCTION

2:05 PM TRIBUTE TO ARTHUR G. SZABO

NO ABSTRACT 2:15 PM
 THROUGH THE LOOKING-GLASS: IMAGING-BASED CHROMOSOME CONFORMATION CAPTURE IN SINGLE CELLS. **Marcelo Nollman**

18-SUBG 2:45 PM
 COHERENT RAMAN SCATTERING MICROSCOPY FOR QUANTITATIVE LABEL-FREE BIOIMAGING. **Paola Borri**

3:15 PM SUBGROUP BUSINESS MEETING

NO ABSTRACT 3:30 PM
 LASER-SCANNING MICROSCOPY WITH SINGLE-PHOTON DETECTOR ARRAY: DECONSTRUCTING THE PHOTON STREAM FROM YOUR FLUORESCENCE SAMPLE. **Giuseppe Vicidomini**

19-SUBG 4:00 PM
 BEYOND IMAGING FCS - MULTIPARAMETRIC FLUORESCENCE MICROSCOPY. **Thorsten Wohland**

4:30 PM RAPID FIRE SPEAKERS SELECTED FROM POSTERS

4:55 PM YOUNG FLUORESCENCE INVESTIGATOR AWARDEE

5:20 PM PRESENTATION OF WEBER AWARD

5:25 PM WEBER AWARDEE

5:50 PM CONCLUDING REMARKS

Cryo-EM Symposium

2:00 PM - 6:00 PM

Subgroup Chair
Charles (Chuck) Sindelar, Yale University, USA

Program Co-Chairs
Andres Leschziner, University of California, San Diego, USA
Michael Cianfrocco, University of Michigan, USA

2:00 PM OPENING REMARKS

NO ABSTRACT 2:05 PM
 CRYO EM OF DYNAMIC COMPLEXES. **Helen Saibil**

NO ABSTRACT 2:35 PM
 REVEALING MITOCHONDRIAL ARCHITECTURE IN VITRIFIED CELLS BY CRYOSTEM TOMOGRAPHY. **Sharon G. Wolf**

NO ABSTRACT 2:57 PM
 RESOLVING PROTEIN DYNAMICS IN SITU WITH DEEP LEARNING. **Dimitry Tegunov**

NO ABSTRACT 3:19 PM
 ISOLDE: AN INTERACTIVE MOLECULAR DYNAMICS APPROACH TO MACROMOLECULAR MODEL BUILDING IN EXPERIMENTAL MAPS. **Tristan Croll**

NO ABSTRACT 3:37 PM
 MECHANISTIC INSIGHTS INTO MOLECULAR MACHINES THAT REGULATE GENE EXPRESSION. **Lori A. Passmore**

3:59 PM COFFEE BREAK

NO ABSTRACT 4:14 PM
 TUNNELS FOR LIPID TRANSPORT ACROSS THE BACTERIAL CELL ENVELOPE. **Gira Bhabha**

NO ABSTRACT 4:36 PM
 MONOLAYER GRAPHENE GRIDS ENABLE 2.6-Å RECONSTRUCTION OF 52-KDA STREPTAVIDIN. **Yimo Han**

NO ABSTRACT 4:54 PM
 VISUALIZING THE SARS-COV-2 SPIKE IN COMPLEX WITH NEUTRALIZING ANTIBODIES. **Lexi Walls**

NO ABSTRACT 5:12 PM
 INVITED SUBGROUP SPEAKER. **Katerina Naydenova**

NO ABSTRACT 5:30 PM
 PUSHING THE LIMITS OF CRYO-EM FOR G PROTEIN-COUPLED RECEPTORS. **Radostin Danev**

5:52 PM CLOSING REMARKS

Intrinsically Disordered Proteins Symposium

2:00 PM - 6:00 PM

Subgroup Chair

Nicolas Fawzi, Brown University, USA

Program Co-Chairs

Robert Best, NIDDK, NIH, USA

Alessandro Borgia, St. Jude Childrens Research Hospital, USA

NO ABSTRACT 2:00 PM

ON THE EVOLUTION OF IDRS, IDDS, AND IDPS. **Keith Dunker**

NO ABSTRACT 2:35 PM

LIQUID-LIKE CHROMATIN ORGANIZATION FROM MULTISCALE MODELING. **Rosana Collepardo**

NO ABSTRACT 3:00 PM

DYNAMIC CONTROL MECHANISMS OF LOCAL CHROMATIN ACCESS. **Beat Fierz**

NO ABSTRACT 3:25 PM

ALLOSTERY THROUGH DNA DRIVES PHENOTYPE SWITCHING. **Hagen Hofmann**

3:50 PM POSTDOC TALK #1

NO ABSTRACT 4:05 PM

THE THERMODYNAMICS OF MISFOLDING INTO AMYLOID FIBRILS. **Alexander K. Buell**

NO ABSTRACT 4:30 PM

MECHANISMS OF COMPETITION BETWEEN DISORDERED PROTEINS IN VITRO AND IN VIVO. **Rebecca Berlow**

4:55 PM POSTDOC TALK #2

NO ABSTRACT 5:10 PM

DESIGN OF PROTEIN-BASED COMPLEX COACERVATES IN CELLS. **Allie Obermeyer**

20-SUBG 5:35 PM

COMPUTATIONAL MODELS FOR LIQUID-LIQUID PHASE SEPARATION OF INTRINSICALLY DISORDERED PROTEINS. **Wenwei Zheng, Gregory Dignon, Youngchan Kim, Robert B. Best, Jeetain Mittal**

Macromolecular Machines and Assemblies Symposium

2:00 PM - 6:00 PM

Subgroup Chair

Catherine Musselman, University of Colorado, Anschutz, USA

2:00 PM OPENING REMARKS

NO ABSTRACT 2:05 PM

LONG NONCODING RNAs: NEW GUARDIANS OF GENOME INTEGRITY DURING THE CELL CYCLE. **Lovorka Stojic**

2:30 PM Q&A WITH LOVORKA STOJIC

NO ABSTRACT 2:35 PM

FUNCTION AND MECHANISMS OF UBQLN2-MEDIATED PHASE TRANSITIONS IN PROTEIN QUALITY CONTROL. **Carlos Castaneda**

3:00 PM Q&A WITH CARLOS CASTANEDA

NO ABSTRACT 3:05 PM

VIRAL MANIPULATION OF TRANSLATION AND RNA TURNOVER. **Anna-Lena Steckelberg**

3:30 PM Q&A WITH ANNA-LENA STECKELBERG

3:35 PM

SELECTED ABSTRACT TALK #1

3:47 PM

Q&A FROM SELECTED ABSTRACT TALK #1

3:50 PM

BREAK

NO ABSTRACT 4:00 PM

STRUCTURAL INSIGHTS INTO THE REGULATION OF GENE SILENCER PRC2. **Vignesh Kasinath**

4:25 PM

Q&A WITH VIGNESH KASINATH

21-SUBG

4:30 PM

USING SINGLE MOLECULES TO MAP THE PATHWAYS OF SPLICEOSOME ACTIVE SITE FORMATION. **Aaron Hoskins, Xingyang Fu, Harpreet Kaur, Margaret L. Rodgers**

4:55 PM

Q&A WITH AARON HOSKINS

NO ABSTRACT 5:00 PM

DIVERSITY, STRUCTURE, FUNCTION, ASSEMBLY AND ENGINEERING OF PRIMITIVE PROTEIN-BASED ORGANELLES: BACTERIAL MICROCOMPARTMENTS. **Cheryl Kerfeld**

5:25 PM

Q&A WITH CHERYL KERFELD

5:30 PM

SELECTED ABSTRACT TALK #2

5:42 PM

Q&A FROM SELECTED ABSTRACT TALK #2

5:45 PM

FLASH TALKS FROM SELECTED ABSTRACTS

5:55 PM

CLOSING REMARKS

Membrane Structure and Function Symposium

2:00 PM - 6:00 PM

Subgroup Chair

Sarah Veatch, University of Michigan, USA

2:00 PM

INTRODUCTIONS AND CELEBRATIONS

22-SUBG

2:10 PM

CAN WE DISPENSE WITH SPHINGOLIPIDS? CORRELATION BETWEEN MEMBRANE LIPID COMPOSITION AND BIOPHYSICAL PROPERTIES IN SPHINGOLIPID-RESTRICTED MAMMALIAN CELLS. **Félix M. Goñi, Bingen G. Monasterio, Noemi Jimenez-Rojo, Aritz B. Garcia-Arribas, Howard Riezman, Alicia Alonso**

2:25 PM

DISCUSSION: CELEBRATING FOUNDATIONS

NO ABSTRACT 2:30 PM

INTERPLAY BETWEEN THE CELLULAR MACHINERY FOR APOPTOSIS AND MITOCHONDRIAL DIVISION. **Ana J. Garcia-Saéz**

NO ABSTRACT 2:45 PM

IMMUNE RECEPTORS AND THE MEMBRANE MICROENVIRONMENT. **Sarah Shelby**

3:00 PM

DISCUSSION: DOMAINS IN SIGNALING

3:15 PM

BREAK

NO ABSTRACT 3:30 PM

DYNAMIC REGULATION OF THE CHEMICAL POTENTIAL OF PLASMA MEMBRANE CHOLESTEROL BY GROWTH FACTORS. **Fredric Cohen**

23-SUBG

3:45 PM

INSIGHTS INTO REGULATION OF CELL MEMBRANES THROUGH REGULATED ENSEMBLES. **Martin Girard, Tristan Bereau**

NO ABSTRACT 4:00 PM

CHOLESTEROL ACCESSIBILITY IN MEMBRANES. **Kristen A. Johnson**

4:15 PM **DISCUSSION: CHEMICAL ACTIVITY OF MEMBRANE COMPONENTS**

NO ABSTRACT **4:30 PM**
(PRE)WETTING OF PROTEIN DROPLETS TO CRITICAL MEMBRANES.
Benjamin Machta

24-SUBG **4:45 PM**
MEMBRANE BENDING BY PROTEIN PHASE SEPARATION. **Feng Yuan**

5:00 PM **DISCUSSION: PROTEIN PHASE SEPARATION AT MEMBRANES**

5:15 PM **BREAK**

5:30 PM **PRESENTATION OF THOMPSON AWARD**

5:35 PM **THOMPSON AWARD LECTURE: MARKUS DESERNO**

5:55 PM **CLOSING REMARKS**

Motility and Cytoskeleton Symposium

2:00 PM - 6:00 PM

Subgroup Co-Chairs

Sanford (Sandy) Bernstein, San Diego State University, USA
Kenneth (Ken) Campbell, University of Kentucky, USA

2:00 PM **OPENING REMARKS**

NO ABSTRACT **2:05 PM**
SARS-COV-2 INFECTS HUMAN ENGINEERED HEART TISSUES AND MODELS COVID-19 MYOCARDITIS. **Michael J. Greenberg**

25-SUBG **2:25 PM**
PROBING HIERARCHICAL CYTOSKELETAL ENSEMBLES USING OPTICAL TWEEZERS. **Nikki Reinemann**

26-SUBG **2:45 PM**
THE N-TERMINAL LOBE OF THE MYOSIN REGULATORY LIGHT CHAIN IS PART OF A SARCOMERIC LENGTH SENSOR IN CARDIAC MUSCLE. **Thomas Kampourakis**

NO ABSTRACT **3:05 PM**
A TUG-OF-WAR AT THE PLUS-END: KINESIN-14 MOTORS AND PLUS-END MICROTUBULE DYNAMICS. **Melissa Gardner**

NO ABSTRACT **3:25 PM**
STRUCTURAL BASIS OF NONMUSCLE MYOSIN-2 REGULATION. **Krishna Chinthalapudi**

27-SUBG **3:45 PM**
THE MECHANISM OF SELECTIVE KINESIN INHIBITION BY KINESIN BINDING PROTEIN. **Joseph Atherton**, Jessica J. Hummel, Natacha Olieric, Michel O. Steinmetz, Anna Akhmanova, Casper Hoogenraad, Carolyn A. Moores

NO ABSTRACT **4:05 PM**
CRYO-EM STRUCTURE OF DROSOPHILA THICK FILAMENTS. **Nadia Daneshparvar**

28-SUBG **4:25 PM**
CHOLESTEROL IN CARGO MEMBRANE AMPLIFIES INHIBITORY EFFECT OF MAP TAU ON KINESIN-1. Qiaochu Li, John O. Wilson, James Ferrare, Jonathan E. Silver, Weihong Qiu, Michael Vershinin, Stephen J. King, Keir C. Neuman, Jing Xu

NO ABSTRACT **4:45 PM**
A QUICK TAIL: LARVAL ZEBRAFISH MUSCLES ARE A SEE-THROUGH WINDOW INTO MECHANISMS OF CONTRACTILE MODULATION. **Andrew Mead**

5:05 PM **BUSINESS MEETING**

NO ABSTRACT **5:20 PM**
DYNAMIC ARCHITECTURE OF THE MICROTUBULE CYTOSKELETON: UNDERSTANDING BY BUILDING. **Marija Zanic**

Membrane Transport Subgroup Business Meeting

5:40 PM - 6:15 PM

Subgroup Chair

Ming Zhou, Baylor College of Medicine, US

Undergraduate Mixer and Poster Award Competition

3:00 PM-5:00 PM

If you're an undergraduate student, plan on attending this virtual social and scientific event! Come meet other undergraduates and learn about their research projects. For undergraduate students who will be presenting during the standard scientific sessions, the event provides an opportunity to hone presentation skills before the general poster session begins. Undergraduates listed as co-authors on posters are welcome to practice their poster presentation skills in a less formal setting, even if not listed as the presenting author. Additionally, undergrads presenting as first or second author on a poster may participate and be recognized for their work. Selected students will receive a \$100 award and recognized by the BPS meeting attendees prior to the 2021 Biophysical Society Lecture. Winners will be selected based on the quality and scientific merit of their research, knowledge of the research problem, contribution to the project, and overall presentation for the poster.

Pre-registration was required to participate in the competition.

Bioengineering Subgroup Business Meeting

6:00 PM - 6:30 PM

Subgroup Chair

Samir Iqbal, University of Texas Rio Grande Valley, USA

Macromolecular Machines and Assemblies Subgroup Business Meeting

6:00 PM - 6:30 PM

Subgroup Chair

Catherine Musselman, University of Colorado, Anschutz, USA

Cryo-EM Subgroup Business Meeting and Virtual Happy Hour

6:00 PM - 7:00 PM

Subgroup Chair

Charles Sindelar, Yale University, USA

Mechanobiology Subgroup Business Meeting

6:00 PM - 7:00 PM

Subgroup Chair

Michael Sheetz, University of Texas Medical Branch, U

Membrane Structure and Function Subgroup Business Meeting

6:00 PM - 7:00 PM

Subgroup Chair

Sarah Veatch, University of Michigan, USA

Tuesday, February 23, 2021

Daily Program Summary

9:00 AM-10:00 AM	General Networking
10:00 AM-11:30 AM	<p>Symposium: Future of Biophysics Co-chairs: <i>Patricia Bassereau, Institut Curie, France, Bertrand Garcia-Moreno, Johns Hopkins University, USA</i></p> <p>COMBINING PHYSICS-BASED AND KNOWLEDGE-BASED COMPUTATIONAL METHODS FOR THE STUDY OF MEMBRANE PROTEINS. <i>Chen Song</i> DECIPHERING A SMART MATERIAL - A NEW METHOD TO MEASURE ACTIN CORTEX MECHANICS AND MECHANOSENSITIVITY. <i>Elisabeth Fischer-Friedrich</i> VIROLOGY UNDER THE BIOPHYSICAL LENS: FROM VIRAL MECHANISMS TO PREDICTING AND PREVENTING THE NEXT PANDEMIC. <i>Tijana Ivanovic</i> THE DAWN OF IN-VIVO MOLECULAR DYNAMICS SIMULATIONS. <i>Abhishek Singharoy</i></p>
10:00 AM-11:30 AM	Platform: Protein Structure and Conformation: Interactions
10:00 AM-11:30 AM	Platform: Protein Prediction, Design, and Stability I
10:00 AM-11:30 AM	Platform: DNA Structure and Dynamics
10:00 AM-11:30 AM	Platform: Membrane Physical Chemistry
10:00 AM-11:30 AM	Platform: Voltage-gated Channels
10:00 AM-11:30 AM	Platform: Microtubules, Structure, Dynamics, and Associated Proteins
10:00 AM-11:30 AM	Platform: Optical Microscopy and Superresolution Imaging I
10:00 AM-11:30 AM	Platform: Biophysics Education
10:00 AM-5:00 PM	Exhibits
11:30 AM-12:00 PM	<p>Exhibitor Presentation: Mad City Labs Inc From iSCAT to SCATTIRSTORM: Adventures in Single-Molecule Microscopy</p>
11:30 AM-12:00 PM	Break

12:00 PM-1:30 PM	Poster Presentations and Late Posters
1:00 PM-2:00 PM	General Networking
1:30 PM-2:00 PM	Exhibitor Presentation: Bruker Introduction to Super-Resolution Multiplexed Imaging Applications Using the Vutara VXL Platform for Single-Molecule and Widefield Imaging
1:30 PM-2:00 PM	Break
2:00 PM-3:30 PM	Live Q&A: Careers in Industry
2:00 PM-3:30 PM	Platform: Membrane Protein Structures
2:00 PM-3:30 PM	Platform: Intrinsically Disordered Proteins (IDP) and Aggregates I
2:00 PM-3:30 PM	Platform: Protein-Nucleic Acid Interactions and Chromatin I
2:00 PM-3:30 PM	Platform: Membrane Receptors and Signal Transduction
2:00 PM-3:30 PM	Platform: Membrane Traffic
2:00 PM-3:30 PM	Platform: Muscles I
2:00 PM-3:30 PM	Platform: Molecular Dynamics and Bioinformatics I
2:00 PM-3:30 PM	Platform: Biosensors and Nanotechnology
3:30 PM -4:00 PM	Exhibitor Presentation: Nikon Instruments Inc Using the Nikon Ti2 Inverted Platform as an Optical Bench
3:30 PM -6:30 PM	Student Research Achievement Awards (SRAA) Poster Competition
4:00 PM-4:30 PM	Exhibitor Presentation: Horiba Scientific Rapid, Optical Technique for Sensitive Characterization and Differentiation of OTC Canine Vaccines

Tuesday, February 23

General Networking

9:00 AM-10:00 AM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Symposium Future of Biophysics

10:00 AM - 11:30 AM

Support Contributed By The Burroughs Wellcome Fund

Co-chairs

Patricia Bassereau, Institut Curie, France

Bertrand Garcia-Moreno, Johns Hopkins University, USA

NO ABSTRACT 10:00 AM

COMBINING PHYSICS-BASED AND KNOWLEDGE-BASED COMPUTATIONAL METHODS FOR THE STUDY OF MEMBRANE PROTEINS. **Chen Song**

NO ABSTRACT 10:22 AM

DECIPHERING A SMART MATERIAL - A NEW METHOD TO MEASURE ACTIN CORTEX MECHANICS AND MECHANOSENSITIVITY. **Elisabeth Fischer-Friedrich**

NO ABSTRACT 10:44 AM

VIROLOGY UNDER THE BIOPHYSICAL LENS: FROM VIRAL MECHANISMS TO PREDICTING AND PREVENTING THE NEXT PANDEMIC. **Tijana Ivanovic**

NO ABSTRACT 11:06 AM

THE DAWN OF IN-VIVO MOLECULAR DYNAMICS SIMULATIONS. **Abhishek Singharoy**

Platform Protein Structure and Conformation: Interactions

10:00 AM - 11:30 AM

Chair

Rafael Brüschweiler, The Ohio State University, USA

NO ABSTRACT 10:00 AM

NANOPARTICLE-ASSISTED NMR SPIN RELAXATION FOR STUDYING THE DYNAMICS AND INTERACTIONS OF FOLDED AND INTRINSICALLY DISORDERED PROTEINS. **Rafael Brüschweiler**

29-PLAT 10:30 AM

INVESTIGATING THE STRUCTURE AND FUNCTION OF COACTIVATOR RECRUITMENT BY THE MELANOGENIC TRANSCRIPTION FACTOR MITF.

Alexandra D. Brown, Kathleen Vergunst, Denis J. Dupré, David N. Lange-
laan

30-PLAT 10:45 AM

CRYO-EM STRUCTURE OF CGAS-NUCLEOSOME COMPLEX REVEALS MECHANISM OF NUCLEOSOME-DEPENDENT CGAS INHIBITION. **Cathy J. Spangler**, Joshua A. Boyer, Joshua D. Strauss, Andrew P. Cesmat, Pengda Liu, Robert K. McGinty, Qi Zhang

31-PLAT 11:00 AM

CRYSTAL STRUCTURE REVEALS THE FULL RAS: RAF INTERFACE AND ADVANCES MECHANISTIC UNDERSTANDING OF RAF ACTIVATION. **Trinity Cookis**, Carla Mattos

32-PLAT 11:15 AM

STRUCTURAL AND FUNCTIONAL STUDIES OF THE EFFECTS OF PHOSPHORYLATION ON EPHRIN RECEPTOR TYROSINE KINASE, EPHA2, AND THE RELATIONSHIP WITH ITS SAM DOMAIN AS AN AUTOINHIBITOR.

Pravesh Shrestha, Zen-lu Li, Amita Rani Sahoo, Xiaojun Shi, Fatima Razelle Javier, Deanna Bowman, Jeannine Mueller-Greven, Belinda Willard, Bing-Cheng Wang, Adam W. Smith, Matthias Buck

Platform Protein Prediction, Design, and Stability I

10:00 AM - 11:30 AM

Chair

Rebecca Wade, Heidelberg Institute for Theoretical Studies, Germany

33-PLAT 10:00 AM

PREDICTION OF THE STRUCTURE AND DYNAMICS OF PROTEIN COMPLEXES IN MEMBRANES. **Rebecca Wade**

34-PLAT 10:30 AM

NEAR-NATIVE ENTANGLED PROTEIN CONFORMATIONS ARE THE MOLECULAR BRIDGE CONNECTING SYNONYMOUS MUTATIONS TO LONG-TIMESCALE CHANGES IN PROTEIN STRUCTURE AND FUNCTION. **Edward P. O'Brien**

35-PLAT 10:45 AM

OBSERVING THE REGULATION OF THE HSP90 CHAPERONE BY CO-CHAPERONES AND NUCLEOTIDES. **Katarzyna M. Tych**, Markus Jahn, Hannah Girstmair, Thorsten Hugel, Johannes Buchner, Matthias Rief

36-PLAT 11:00 AM

CONTRIBUTION OF NASCENT POLYPEPTIDES OF INCREASING LENGTH TO THE APPARENT STABILITY OF THE BACTERIAL RIBOSOME. **Meranda Masse**, Angela Varela, Aniruddha Srivastava, Wanting Wei, Silvia Cavag-
nero

37-PLAT 11:15 AM

FOLDING, FOLD SWITCHING AND ENERGY LANDSCAPE OF REGULATORY PROTEIN RFAH. **Bahman Seifi**, Adekunle Aina, **Stefan Wallin**

Platform DNA Structure and Dynamics

10:00 AM - 11:30 AM

Chair

G.V. Shivashankar, ETH Zurich and Paul Scherrer Institute, Switzerland

38-PLAT 10:00 AM

MECHANICAL CONTROL OF CHROMATIN ORGANIZATION AND CELL-FATE DECISIONS. **G.V. Shivashankar**

39-PLAT 10:30 AM

PROBING THE CONTRIBUTIONS TO DNA HYBRIDIZATION DYNAMICS WITH TIME-RESOLVED INFRARED SPECTROSCOPY. **Brennan Ashwood**, Paul J. Sanstead, Qing Dai, Chuan He, Andrei Tokmakoff

40-PLAT 10:45 AM

HOOGSTEN BASE PAIRS INCREASE THE SUSCEPTIBILITY OF DOUBLE-STRANDED DNA TO CYTOTOXIC DAMAGE. **Akanksha Manghrani**, Yu Xu, Emily Cannistraci, Hashim M. Al-Hashimi

41-PLAT 11:00 AM

RAPID (SUB-20 μ S) INTRINSIC DNA FLUCTUATIONS AT DAMAGED SITES IMPLICATED IN STALLING RAD4/XPC DNA REPAIR PROTEIN DURING DAMAGE SENSING. **Saroj Baral**, Sagnik Chakraborty, Debamita Paul, Jung-Hyun Min, Anjum Ansari

42-PLAT 11:15 AM

CHARACTERIZATION OF LOCUS SPECIFIC CHROMATIN STRUCTURE AND DYNAMICS USING CORRELATIVE CONVENTIONAL SUPER RESOLUTION CRISPR DCAS9/MS2 IMAGING. **Dushyant Mehra**, Chiranjib Banerjee, Santosh Adhikari, Jacob M. Ritz, Angel Mancebo, Elias M. Puchner

Platform Membrane Physical Chemistry

10:00 AM - 11:30 AM

Chair

Tobias Walther, Harvard University, USA

43-PLAT 10:00 AM

THE PHASE OF FAT: MECHANISMS AND REGULATION OF LIPID STORAGE. Robert V. Farese, **Tobias Walther**

44-PLAT 10:30 AM

CLATHRIN SENSES MEMBRANE CURVATURE. **Wade F. Zeno**, Jacob B. Hochfelder, Ajay S. Thatte, Liping Wang, Avinash K. Gadok, Carl Hayden, Eileen M. Lafer, Jeanne C. Stachowiak

45-PLAT 10:45 AM

ALPHA-SYNUCLEIN AFFECTS DIFFERENTLY THE INTERNAL AND EXTERNAL LEAFLET OF THE LIPID MEMBRANES. **Samira Jadavi**, Silvia Dante, Alberto Diaspro, Claudio Canale

46-PLAT 11:00 AM

INSERTING SMALL MOLECULES ACROSS MEMBRANE MIXTURES: INSIGHT FROM THE POTENTIAL OF MEAN FORCE. **Tristan Beraud**

47-PLAT 11:15 AM

TAKING A COOLER BREATH: MODERATE HYPOTHERMIA BOOSTS LUNG SURFACTANT ACTIVITY. **Chiara Autilio**, Mercedes Echaide, Emilie Da Silva, Jorid Birkelund Sørli, Jesus Perez-Gil

Platform Voltage-gated Channels

10:00 AM - 11:30 AM

Chair

Teresa Giraldez, University of La Laguna, Spain

48-PLAT 10:00 AM

INSIGHTS INTO THE FUNCTION OF BK-CA MULTI-CHANNEL COMPLEXES. **Teresa Giraldez**

49-PLAT 10:30 AM

FUNCTIONAL CHARACTERIZATION OF DISEASE-CAUSING MUTATIONS IN THE SODIUM LEAK CHANNEL NALCN. **Claudia Weidling**, Aishat O. Ameen, Han Chow Chua, Stephan A. Pless

50-PLAT 10:45 AM

COTRANSLATIONAL COMPLEXES ENCODING ION CHANNELS IN THE HEART. **Margaret B. Jameson**, Catherine A. Eichel, Fang Liu, Erick B. Rios Perez, David K. Jones, Gail A. Robertson

51-PLAT 11:00 AM

SINGLE-MOLECULE RESOLUTION OF MULTIVALENT LIGAND BINDING IN PACEMAKER CHANNELS. **David S. White**, Sandipan Chowdhury, Ruohan Zhang, Scott T. Retterer, Randall H. Goldsmith, Baron Chanda

52-PLAT 11:15 AM

INFLUENCE OF PHOSPHOLIPID BINDING ON VOLTAGE SENSOR-PORE COUPLING IN THE KAT1 POTASSIUM CHANNEL. **Bernardo I. Pinto**, Michael D. Clark, Eduardo Perozo, Francisco Bezanilla

Platform Microtubules, Structure, Dynamics, and Associated Proteins

10:00 AM - 11:30 AM

Chair

Samara Reck-Peterson, University of California, San Diego, USA

53-PLAT 10:00 AM

MECHANISM OF PARKINSON'S DISEASE-LINKED LRRK2'S INTERACTION WITH MICROTUBULES. **Samara L. Reck-Peterson**, David Snead, Mariusz Matyszewski, Andrea M. Dickey, Yu Xuan Lin, Andres Leschziner

54-PLAT 10:30 AM

AUTOREGULATORY CONTROL OF MICROTUBULE BINDING IN DOUBLE-CORTIN-LIKE KINASE 1. Melissa Rogers, Tracy Tan, Amrita Ramkumar, Ashlyn Downing, Hannah Bodin, Julia Castro, Dan W. Nowakowski, **Kassandra M. Ori-McKenney**

55-PLAT 10:45 AM

LOAD-BEARING INTERACTIONS BETWEEN THE NDC80 AND DAM1 COMPLEXES DIFFER ON GROWING AND SHORTENING MICROTUBULE TIPS. **Rachel L. Flores**, Zachary Peterson, Charles L. Asbury, Trisha Davis

56-PLAT 11:00 AM

CLASPS DEPOLYMERIZE MICROTUBULES IN A NUCLEOTIDE-DEPENDENT MANNER. **Elizabeth J. Lawrence**, Marija Zanic

57-PLAT 11:15 AM

GTP-DEPENDENT FORMATION OF STRAIGHT OLIGOMERS LEADS TO NUCLEATION OF MICROTUBULES. **Etsuko Muto**, Rie Ayukawa, Seigo Iwata, Hiroshi Imai, Shinji Kamimura, Ken Sekimoto, Gigant Benoît

Platform Optical Microscopy and Superresolution Imaging I

10:00 AM - 11:30 AM

Chair

Erdinc Sezgin, Karolinska Institute, Sweden

NO ABSTRACT 10:00 AM

UNDERSTANDING PLASMA MEMBRANE WITH SUPERRESOLUTION IMAGING AND SPECTROSCOPY. **Erdinc Sezgin**

58-PLAT 10:30 AM

DIRECTIONALITY OF LIGHT ABSORPTION AND EMISSION IN FLUORESCENT PROTEINS. Jitka Myskova, Olga Rybakova, Jiri Brynda, Petro Khoroshyy, Alexey Bondar, **Josef Lazar**

59-PLAT 10:45 AM

QUANTITATIVE SUPERRESOLUTION IMAGING OF EFFLUX PUMPS IN BIOFILM-ASSOCIATED BACTERIA. **Lucia Gardini**, Tiziano Vignolini, Marco Capitanio, Francesco S. Pavone

60-PLAT 11:00 AM

FLUOROGENIC PROBE FOR FAST 3D WHOLE-CELL DNA-PAINT. **Kenny K.H. Chung**, Zhao Zhang, Phylcia Kidd, Yongdeng Zhang, Nathan D. Williams, Bennett Rollins, Yang Yang, Chenxiang Lin, David Baddeley, Joerg Bewersdorf

61-PLAT 11:15 AM

HIGH-THROUGHPUT SUPER-RESOLUTION MICROSCOPY OF VIRAL PARTICLES REVEALS INSIGHTS INTO THEIR MORPHOLOGY AND ORGANISATION. **Andrew McMahon**, Christof Hepp, Nicole C. Robb

Platform Biophysics Education

10:00 AM - 11:30 AM

Chair

Samuel Safran, Weizmann Institute of Science, Israel

62-PLAT 10:00 AM

INTRODUCTORY MODELS OF THE COVID-19 PANDEMIC IN THE UNITED STATES. **Peter H. Nelson**

63-PLAT 10:18 AM

DIGITAL EDUCATIONAL RESOURCES IN SCIENCES FOR VISUAL IMPAIRED STUDENTS IN TIMES OF COVID - 19. **Yuly E. Sánchez, Angie V. Rodriguez**

64-PLAT 10:36 AM

STRATEGIES FOR ENHANCING REMOTE BIOPHYSICAL EDUCATION: DEVELOPMENT OF A MODULE BASED TRAINING SERIES. **Amanda K. Sharp, Anne M. Brown**

65-PLAT 10:54 AM

CLINICAL APPLICATIONS OF BIOPHYSICS-CLINICAL BIOPHYSICS. **Semire Uzun Göçmen**

66-PLAT 11:12 AM

THE NATIONAL CENTER FOR CRYOEM ACCESS AND TRAINING: NATION-WIDE ACCESS TO CRYOEM TECHNOLOGY AND CURRICULA. **Edward T. Eng, Elina Kopylov, Cathleen Castello, Clinton S. Potter, Bridget Carragher**

Exhibits

10:00 AM - 5:00 PM

Exhibitor Presentation Mad City Labs Inc

11:30 AM - 12:00 PM

From iSCAT to SCATTIRSTORM: Adventures in Single-Molecule Microscopy

I will describe the design and application of two multi-modal microscopes built around the Mad City Labs RM21[®] single molecule microscope. The first system combines Interferometric Scattering (iSCAT) microscopy, developed by Philipp Kukura's lab, together with Total Internal Reflection Dark-Field (TIRDM). By labeling kinesin-1 motors on one head with a 30-nm gold nanoparticle, we were able to track motor stepping at 1 kHz temporal resolution and 1-2 nm spatial precision. This allowed us to clarify previously uncovered features of kinesin stepping. In collaboration with Luke Rice, we extended this system to understanding microtubule dynamics by labeling tubulin dimers with 20-nm gold nanoparticles and observing these tubulin reversibly binding at the plus-ends of growing microtubules. These tools have the potential to be applied broadly to single-molecule studies to increase the temporal resolution beyond what is traditionally accessible by fluorescence, while still maintaining the spatial resolution provided by point-spread function fitting. In the second part of the talk, I will describe our progress on a multi-modal microscope that we are using for a DOE-funded project to study the mechanism of cellulose degradation by cellulases for bioenergy applications. In particular, we have optimized the ability to combine Interference Reflection Microscopy (IRM) to image cellulose micro- and nanofibers with TIRF to simultaneously image fluorescently-labeled cellulase enzymes degrading the cellulose.

Speaker

William Hancock, Department of Biomedical Engineering, Pennsylvania State University

Break

11:30 AM - 12:00 PM

Poster Presentations and Late Posters

12:00 PM - 1:30 PM

General Networking

1:00 PM-2:00 AM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Exhibitor Presentation

Bruker

1:30 PM - 2:00 PM

Introduction to Super-Resolution Multiplexed Imaging Applications Using the Vutara VXL Platform For Single-Molecule and Widefield Imaging

This talk will introduce the next generation of the Vutara imaging platform, the VXL. While the VXL has been designed and optimized for single molecule localization microscopy, most current methods for super resolution microscopy are limited due to the limited number of dyes compatible with single molecule based super resolution techniques. This talk presents methods for imaging a series of consecutive targets within a sample using single molecule localization microscopy integrated with a software-controlled automated microfluidics system for probe multiplexing. Probe multiplexing allows for the imaging of more than four different targets within a cell. During this talk we will show examples using oligoSTORM and DNA-PAINT methods. OligoSTORM allows for the direct tracing of chromosomes within cells. We will show the three-dimensional trajectory of a multiplexed oligoPAINT labeled chromosome in individual human fibroblast cells using the Vutara platform. We will also show DNA-PAINT based single molecule localization data for antibody labeled targets in cell culture. We will also show how the Vutara can be used for ORCA, a widefield imaging technique that has been developed for high throughput sequential labelling of chromosome targets for generating 3D image data and single cell chromosome conformation maps (similar to Hi-C type data). The VXL with integrated fluidics and SRX software provides a powerful suite of tools for simultaneous imaging, localization, visualization and statistical analysis of multiplexed data.

Speaker

Robert Hobson, Applications Scientist, Bruker

Break

1:30 PM - 2:00 PM

Live Q&A

Careers in Industry

2:00 PM - 3:30 PM

Join us for a Q&A discussion about scientific careers in industry. Industry panelists will answer audience questions and share their career experiences. Hear from professionals and get tangible advice for identifying and pursuing a career in industry.

Chair

Erin Dueber, Genentech, USA

Speakers

Muneera Beach, Malvern Panalytical, USA
Jeff Hirsch, Confluence Discovery Technologies, USA
Aysegul Ozen, Scorpion Therapeutics, USA
Jeremy Wilbur, Relay Therapeutics, USA

Platform Membrane Protein Structures

2:00 PM - 3:30 PM

Chair

José Faraldo-Gómez, NIH, NHLBI, USA

NO ABSTRACT 2:00 PM

LIPID BILAYER MORPHOLOGY AS A DRIVING FORCE FOR MEMBRANE PROTEIN ORGANIZATION. **José Faraldo-Gómez**

441-PLAT 2:30 PM

OLIGOMERIZATION OF THE HUMAN ADENOSINE A_{2A} RECEPTOR IS DRIVEN BY THE INTRINSICALLY DISORDERED C-TERMINUS. **Khanh D. Nguyen**, Michael Vigers, Eric Sefah, Susanna Seppala, Jennifer Hoover, Blake Mertz, Michelle A. O'Malley, Songi Han

442-PLAT 2:45 PM

VIRUS-HOST PROTEIN INTERACTIONS IN THE DEGRADATION PATHWAY OF HUMAN SERINC5 BY NEF. **Joana Paulino**, Alisa Bowen, Phuong Nguyen, Lucas Liu, Janet Finer-Moore, Robert M. Stroud

443-PLAT 3:00 PM

BAMB STABILIZES BAMA'S LATERALLY OPEN AND CLOSED STATES. **David Ryo**, Katie M. Kuo, Zijian Zhang, Yui Tik Pang, James C. Gumbart

444-PLAT 3:15 PM

TOWARDS MECHANISTIC UNDERSTANDING OF MITOCHONDRIAL B-BARREL BIOGENESIS: STRUCTURAL STUDIES OF THE SORTING AND ASSEMBLY MACHINERY. **Kathryn A. Diederichs**, Xiaodan Ni, Sarah E. Rollauer, Istvan Botos, Xiaofeng Tan, Martin S. King, Edmund Kunji, Jiansen Jiang, Joseph A. Mindell, Susan K. Buchanan

Platform Intrinsically Disordered Proteins (IDP) and Aggregates I

2:00 PM - 3:30 PM

Chair

Yuri Lyubchenko, University of Nebraska Medical Center, USA

445-PLAT 2:00 PM

MISFOLDING AND AGGREGATION OF AMYLOID PROTEINS AT PHYSIOLOGICALLY RELEVANT CONCENTRATIONS AT THE LIQUID-MEMBRANE INTERFACE. **Yuri L. Lyubchenko**, Mohtadin Hashemi, Siddhartha Banerjee

446-PLAT 2:30 PM

AMPHIPHILIC PROTEINS COAT MEMBRANELESS ORGANELLES AND ACT AS BIOLOGICAL SURFACTANTS. **Fleurie Kelley**, Benjamin S. Schuster

447-PLAT 2:45 PM

PHYSICAL THEORY OF CONCENTRATION BUFFERING IN MULTI-COMPONENT, PHASE-SEPARATING SYSTEMS. **Dan Deviri**, Samuel Safran

448-PLAT 3:00 PM

HIDDEN COMPLEXITIES IN THE PHASE BEHAVIOR OF LOW-COMPLEXITY DISORDERED PROTEINS. **Anne Bremer**, Mina Farag, Wade M. Borchers, Rohit V. Pappu, Tanja Mittag

449-PLAT 3:15 PM

PROBING THE HIDDEN SENSITIVITY OF INTRINSICALLY DISORDERED PROTEINS TO THEIR CHEMICAL ENVIRONMENT. **David Moses**, Karina Guadalupe, Shahar Sukenik

Platform Protein-Nucleic Acid Interactions and Chromatin I

2:00 PM - 3:30 PM

Chair

Karolin Luger, University of Colorado, Boulder, USA

NO ABSTRACT 2:00 PM

UNFINISHED BUSINESS: NUCLEOSOMES IN TRANSITION. **Karolin Luger**

450-PLAT 2:30 PM

FORCE-DEPENDENT STIMULATION OF RNA UNWINDING BY SARS-COV-2 NSP13 HELICASE. **Keith J. Micolajczyk**, Patrick M. Shelton, Michael Grasso, Xiaocong Cao, Sara E. Warrington, Amol Aher, Shixin Liu, Tarun M. Kapoor

451-PLAT 2:45 PM

INVESTIGATING HOW THE RESTRICTION ENDONUCLEASE BCNI FLIPS ON DNA. **Nirmala Shrestha**, Kyle Russell, Nooshin Shatery Nejad, **Candice M. Etson**

452-PLAT 3:00 PM

UNCOVERING THE PHYSICAL BASIS FOR SELECTIVE MIXING VERSUS UNMIXING OF PROTEIN-RNA CONDENSATES. **Andrew Z. Lin**, **Ammon E. Posey**, Furqan Dar, Amy S. Gladfelter, Rohit V. Pappu

453-PLAT 3:15 PM

DISSECTING THE TARGET RECOGNITION BY CRISPR/CAS EFFECTOR COMPLEXES WITH ULTRAFAST TWIST MEASUREMENTS. **Julene Madariaga Marcos**, Dominik J. Kauert, Marius Rutkauskas, Alexander Wulfken, Inga Songaliene, Tomas Sinkunas, Virginijus Siksnys, Ralf Seidel

Platform Membrane Receptors and Signal Transduction

2:00 PM - 3:30 PM

Chair

Scott Hansen, University of Oregon, USA

NO ABSTRACT 2:00 PM

PHOSPHATIDYLINOSITOL LIPID MODIFYING ENZYMES IN CELL SIGNALING. **Scott Hansen**

454-PLAT 2:30 PM

IDENTIFICATION OF LIGAND-SPECIFIC G-PROTEIN COUPLED RECEPTOR STATES AND PREDICTION OF DOWNSTREAM EFFICACY VIA DATA-DRIVEN MODELING. **Oliver Fleetwood**, **Lucie Delemotte**

455-PLAT 2:45 PM

EFFECTS OF SOFT MATTER ON G-PROTEIN-COUPLED RECEPTOR ACTIVATION. **Kushani S.K. Hewage**, Shifat Hossain, Steven D.E. Fried, Helen F. Mann, Benjamin H.C. Cabrera, Zizhao Yu, David B. Jurkowitz, Andrey V. Struts, Suchithranga M.D.C. Perera, Michael F. Brown

456-PLAT 3:00 PM

A SINGLE-MOLECULE APPROACH TO STUDY B CELL ANTIGEN RECOGNITION AND AFFINITY DISCRIMINATION. **Anna T. Bajur**, Hannah Reed, Maro Iliopoulou, Katelyn M. Spillane

457-PLAT 3:15 PM

PLASMA MEMBRANE ORGANIZATION IS POISED FOR RECEPTOR-MEDIATED TRANSMEMBRANE SIGNALING. **Nirmalya Bag**, David A. Holowka, Barbara A. Baird

Platform Membrane Traffic

2:00 PM - 3:30 PM

Chair

Sandra Schmid, University of Texas, Southwestern Medical Center, USA

NO ABSTRACT 2:00 PM

THE PLASTICITY AND ROBUSTNESS OF CLATHRIN-MEDIATED ENDOCYTOSIS. **Sandra Schmid**

458-PLAT 2:30 PM

MECHANISMS OF ACTIN FORCE PRODUCTION IN CLATHRIN-MEDIATED ENDOCYTOSIS REVEALED BY INTEGRATING MATHEMATICAL MODELING WITH IN SITU CRYO-ELECTRON TOMOGRAPHY. **Matthew Akamatsu**, Daniel Serwas, Amir Moyaed, Ritvik Vasan, Karthik Vegesna, Jennifer Hill, Johannes Schoeneberg, Padmini Rangamani, David G. Drubin

459-PLAT 2:45 PM

STRESSES WITHIN THE ENDOCYTIC ACTIN MESHWORK CONTROLS THE TURNOVER OF FIMBRIN. **Xiaobai Li**, Julien Berro

460-PLAT 3:00 PM

MECHANOREGULATION OF EXOCYTOSIS RATES BY VESICLE-MEMBRANE MERGING KINETICS. **Rui Su**, Ben O'Shaughnessy

461-PLAT 3:15 PM

SUBCELLULAR MAGNETIC CONTROL OF PHAGOSOME MATURATION IN LIVING CELLS. **Zihan Zhang**, Yanqi Yu, Glenn Walpole, Yan Yu

Platform Muscles I

2:00 PM - 3:30 PM

Chair

Zhen Ma, Syracuse Biomaterials Institute, USA

462-PLAT 2:00 PM

CONTRACTILE DEFICITS OF HIPSC-DERIVED CARDIAC MICROTISSUES INDUCED BY SYNERGISTIC OUTCOME OF MYBPC3 MUTATION AND MECHANICAL OVERLOADING. **Zhen Ma**

463-PLAT 2:30 PM

STEP SIZE AND KINETICS OF CARDIAC MYOSIN CROSSBRIDGES ARE NOT AFFECTED BY TROPONIN AND TROPOMYOSIN. **Sarah R. Clippinger**, William Stump, Thomas Blackwell, Michael J. Greenberg

464-PLAT 2:45 PM

THE ROLE OF SEPTIN7 IN SKELETAL MUSCLE REGENERATION. **Mónika Gönczi**, János Fodor, Andrea Telek, Nóra Dobrosi, Zsolt Ráduly, László Szabó, Peter Szentesi, Beatrix Dienes, **Laszlo Csernoch**

465-PLAT 3:00 PM

STRUCTURAL CHANGES IN THE MYOSIN FILAMENT INDUCED BY COOLING ISOLATED CARDIAC TRABECULAE. **Jesus G. Ovejero**, Luca Fusi, So-Jin Park-Holohan, Andrea Ghisleni, Theyencheri Narayanan, Malcolm Irving, **Elisabetta Brunello**

466-PLAT 3:15 PM

FIBERSIM, AN OPEN-SOURCE SPATIALLY-EXPLICIT MODEL OF THE HALF-SARCOMERE. **Sarah Kosta**, Dylan F. Colli, **Kenneth S. Campbell**

Platform Molecular Dynamics and Bioinformatics I

2:00 PM - 3:30 PM

Chair

Qiang Cui, Boston University, USA

NO ABSTRACT 2:00 PM

ELECTROSTATICS IN ATOMISTIC AND COARSE-GRAINED MOLECULAR SIMULATIONS: FROM BURIED ION-PAIRS TO MEMBRANE REMODELING. **Qiang Cui**

467-PLAT 2:30 PM

KINETICS AND FREE ENERGY OF PROTEIN LIGAND INTERACTION USING WEIGHTED ENSEMBLE MILESTONING (WEM). **Dhiman Ray**, Trevor Gokey, David L. Mobley, Ioan Andricioaei

468-PLAT 2:45 PM

PEPTIDE GAUSSIAN ACCELERATED MOLECULAR DYNAMICS (PEP-GAMD) ENHANCED SAMPLING AND FREE ENERGY AND KINETICS CALCULATIONS OF PEPTIDE BINDING. **Jinan Wang**, Yinglong Miao

469-PLAT 3:00 PM

LIGAND GAUSSIAN ACCELERATED MOLECULAR DYNAMICS (LIGAMD) FOR CHARACTERIZATION OF LIGAND BINDING THERMODYNAMICS AND KINETICS. **Yinglong Miao**, Apurba Bhattarai, Jinan Wang

470-PLAT 3:15 PM

FREE ENERGY ALONG TRANSITION PATHWAYS FROM STRUCTURE REFINEMENT SIMULATIONS. **Emmi Pohjolainen**, Andrea C. Vaiana, Maxim Igaev, Helmut Grubmuller

Platform Biosensors and Nanotechnology

2:00 PM - 3:30 PM

Chair

Hendrik Dietz, Technische Universität München, Germany

NO ABSTRACT 2:00 PM

PROGRAMMABLE ICOSAHEDRAL SHELL SYSTEM FOR VIRUS TRAPPING. **Hendrik Dietz**

471-PLAT 2:30 PM

DECODING DIGITAL INFORMATION STORED IN POLYMER BY NANOPORE. **Chan Cao**, Lucien Krapp, Abdelaziz Ouahabi, Aleksandra Radenovic, Jean-François Lutz, Matteo Dal Peraro

472-PLAT 2:45 PM

NOVEL SYNTHETIC NANOPORES FOR SINGLE-MOLECULE BIOSENSING APPLICATIONS. **Mehrnaz Mojtavavi**, Meni Wanunu

473-PLAT 3:00 PM

SINGLE-MOLECULE FRET BASED INTRA-MOLECULAR KINETIC FINGER-PRINTING FOR ULTRAFAST AND HIGH-CONFIDENCE COUNTING OF MUTANT DNA. **Shankar Mandal**, Kunal Khanna, Muneesh Tewari, Alexander Johnson-Buck, Nils G. Walter

474-PLAT 3:15 PM

DIRECT AND ACCURATE DETECTION OF DNA METHYLATION POSITIONS USING BIOLOGICAL NANOPORE. **Ping Liu**

Exhibitor Presentation Nikon Instruments Inc

3:30 PM - 4:00 PM

Using the Nikon Ti2 Inverted Platform as an Optical Bench

Flexibility and modularity are core principles underlying Nikon's imaging systems and components. In this presentation, we will discuss innovative solutions from Nikon that are designed to maximize flexibility and enable easy customization of both home-built microscopes and fully turn-key commercial systems. Learn how the Eclipse Ti2 with its expandable structure, multiple input and output ports, and easy access to the back-aperture plane can be used as an optical bench. Furthermore, Nikon's wide range of modular illumination devices from TIRF to photo-stimulation can be custom-combined for your unique application. For those requiring full access to the optical path, Nikon also offers the Ti2-Hardware Development Kit for introducing completely custom components. We will also discuss Nikon's latest objectives utilizing new immersion media and featuring industry-leading numerical aperture and working distance.

Speaker

Ian Ross, Senior Biosystems Applications Manager, Nikon Instruments Inc

Student Research Achievement Awards (SRAA) Poster Competition

3:30 PM-5:30 PM

This poster competition features graduate and PhD students who are presenting posters at the Annual Meeting and have indicated at the time of abstract submission that they wish to participate in the competition. During the competition, students' one-to-three minute oral presentations of their posters will be reviewed by one or more judges, followed by a live question and answer period. Winners will be recognized on Friday prior to the Biophysical Society Lecture.

Exhibitor Presentation Horiba Scientific

4:00 PM - 4:30 PM

Rapid, Optical Technique For Sensitive Characterization and Differentiation of OTC Canine Vaccines

The pharmaceutical industry increasingly relies on spectroscopy for quality assurance and has established, and conforms to, USP (United States Pharmacopeia) regulations. While some spectroscopic approaches (NIR, FT-IR and Raman) are common, the adoption of fluorescence spectroscopy has lagged, even though it has high specificity and sensitivity in many analyses in demand, and is conveniently amenable to chemometrics analysis.

We present identification and validation of "unknown" samples with 100% certainty based on A-TEEM fluorescence analysis of Solo-Jec brand canine vaccines from Boehringer Ingelheim VetMedica: Spectra-5, Spectra-6, Spectra-9, and Spectra-10, containing 5, 6, 9 and 10 vaccine combinations, respectively of coronavirus, hepatitis, adenovirus, parainfluenza, leptospirae, parvovirus, etc. A key consideration upon an established vaccine product release is specificity. Analytical techniques need to characterize the final product, and must also differentiate between it and all others made at the facility. The 3-D fluorescence molecular fingerprints of these vaccines were subjected to chemometric analysis through PARAFAC classification as well as XGBOOST discriminant analysis. The "most probable prediction" of unknown samples with 100% certainty was substantiated by the generated *confusion matrix* supporting the A-TEEM fluorescence claim to be a powerful addition to the arsenal of validation techniques. Two lots for each vaccine were measured on one instrument and were validated with a different lot, instrument and operator. The data analysis approaches used were each able to differentiate between the vaccine products. Even Spectra-9 and Spectra-10, that differ ONLY by a coronavirus component based on publicly available SDS data, were readily distinguished.

Fluorescence EEMs (Excitation-Emission Matrix) solve the longstanding issue of imperfect quantification (a result of the Inner Filter Effect) by directly incorporating a UV spectrophotometer in the fluorometer. This allows the *simultaneous acquisition in situ* of a UV/VIS/NIR-absorbance spectrum for the real-time Inner Filter Effect (IFE) correction of the fluorescence spectrum, improving quantification accuracy and extending the usable range of concentrations over which quantification can be performed. A-TEEM (Absorbance Transmission Excitation Emission Matrix) is fully validatable using United States Pharmacopeia monograph USP <853>, given that the novel aspect of simultaneous acquisition of the UV/VIS/NIR absorbance spectrum for IFE correction is fully compatible with validation protocols. This spectroscopic approach provides a complete and traceable optical fingerprint for liquid samples that performs a similar role to chromatographic methods, and compared to other spectroscopic methodologies is faster, less expensive and can operate in production environments.

Speaker

Karoly Csatorday, Business Development Manager, Horiba Scientific

TUESDAY POSTER SESSIONS

12:00 PM–1:30 PM

*Below is the list of poster presentations for Tuesday of abstracts submitted by October 1.
The list of late abstracts scheduled for Tuesday is available on page 105.*

ODD-NUMBERED BOARDS 12:00 PM–12:45 PM | EVEN-NUMBERED BOARDS 12:45 PM–1:30 PM

Board Numbers	Category
B1 - B21	Protein Structure and Conformation I
B22 - B37	Protein Structure, Prediction, and Design
B38 - B50	Protein Assemblies I
B51 - B65	Membrane Protein Structures I
B66 - B87	Intrinsically Disordered Proteins (IDP) and Aggregates I
B88 - B95	DNA Replication, Recombination, and Repair
B96 - B117	Protein-Nucleic Acid Interactions I
B118 - B146	Membrane Physical Chemistry
B147 - B164	Membrane Dynamics I
B165 - B174	Protein-Lipid Interactions: Structures
B175 - B187	Exocytosis and Endocytosis
B188 - B199	Calcium Signaling
B200 - B218	Ligand-gated Channels I
B219 - B224	Other Channels
B225 - B240	Skeletal and Smooth Muscle Mechanics, Structure, and Regulation
B241 - B264	Cell Mechanics, Mechanosensing, and Motility I
B265 - B271	Bacterial Mechanics, Cytoskeleton, and Motility
B272 - B299	Membrane Pumps, Transporters, and Exchangers
B300 - B305	EPR and NMR: Spectroscopy and Imaging
B306 - B328	Molecular Dynamics I
B329 - B350	Computational Methods and Bioinformatics I
B351 - B367	Bioengineering
B368 - B374	Biophysics Education

Protein Structure and Conformation I (Boards B1 - B21)

67-Pos BOARD B1

THE INFLUENCE OF GLYCOSYLATION ON THE INTERACTION OF THE SARS-COV-2 SPIKE PROTEIN RECEPTOR BINDING DOMAIN WITH THERAPEUTIC CANDIDATES. Bradley Harris, Yihan Huang, Giovanni Lara, Shiaki Minami, Matthew Kenaston, Seongwon Jung, Yongao Xiong, Karen McDonald, Somen Nandi, Priya Shah, **Roland Faller**

68-Pos BOARD B2

RAPID CHARACTERIZATION OF SARS COV2 PROTEINS WITH SCATTERING METHODS. **Greg L. Hura**

69-Pos BOARD B3

EXPLORING THE ROLE OF GLYCANS IN THE INTERACTION OF SARS-COV-2 RBD AND HUMAN RECEPTOR ACE2. **Kien Nguyen**, Srirupa Chakraborty, Rachael A. Mansbach, Pedro D. Manrique, Bette Korber, Sandrasegaram Gnanakaran

70-Pos BOARD B4

FACTORS THAT AFFECT THE BINDING OF THE N-TERMINAL HELIX OF HUMAN ACE2 TO SPIKE PROTEIN OF SARS-COV2. **Anirban Das**, Vicky Vishvakarma, Ankur Gupta, Simli Dey, Arpan Dey, U S. Sandra, Ullas Kolthur, Mitradip Das, Krishna K. Vishwakarma, Ravindra Venkatramani, Sudipta Maiti

71-Pos BOARD B5

TOPOGRAPHY, SPIKE DYNAMICS AND NANOMECHANICS OF INDIVIDUAL NATIVE SARS-COV-2 VIRIONS. Balint Kiss, Zoltán Kis, Bernadett Pályi, **Miklós S. Kellermayer**

72-Pos BOARD B6

ENERGETICS OF OPENING FOR THE GLYCOSYLATED AND UNGLYCOSYLATED FORMS OF THE SARS-COV-2 S-PROTEIN TRIMER. **Yui Tik Pang**, Atanu Acharya, Diane L. Lynch, James C. Gumbart

73-Pos BOARD B7

CORONAVIRUS PATHOGENICITY IS DETERMINED BY STABILITY OF THE SPIKE PROTEIN OPEN CONFORMATION. **Josiah Bones**, Ben Corry

74-Pos BOARD B8

AN INTEGRATIVE MD SIMULATION AND NETWORK ANALYSIS APPROACH TO STUDY GLYCOSYLATION OF SPIKE IN SARS-COV-2. **Mahdi Ghorbani**, Bernard R. Brooks, Jeffery B. Klauda

75-Pos BOARD B9

STRUCTURES OF CAPSID AND CAPSID-ASSOCIATED TEGUMENT COMPLEX INSIDE THE EPSTEIN-BARR VIRUS. **Wei Liu**, Yanxiang Cui, Caiyan Wang, Zihang Li, Danyang Gong, Xinghong Dai, Guo-Qiang Bi, Ren Sun, Hong Zhou

76-Pos BOARD B10

A COMBINED HDX-MS AND MD SIMULATION APPROACH TO IDENTIFY POTENTIAL DRUGGABLE REGIONS IN THE NS5 PROTEIN OF THE DENGUE VIRUS SEROTYPE 2. **Juliet O. Obi**, Daniel J. Deredge

77-Pos BOARD B11

COOPERATIVE DYNAMICS OF REC-NUC LOBES PRIME CAS12A FOR DNA PROCESSING. **Aakash Saha**, Pablo R. Arantes, Rohaine Hsu, Yogesh B. Narkhede, Martin Jinek, Giulia Palermo

78-Pos BOARD B12

STRUCTURAL AND BIOCHEMICAL ANALYSIS OF A METHYLATION SENSITIVE CAS9. **Anuska Das**

79-Pos BOARD B13

DNA-INDUCED ALLOSTERIC CONTROL REGULATES ACTIVATION OF CAS12A. **Pablo R. Arantes**, Aakash Saha, Martin Jinek, Giulia Palermo

80-Pos BOARD B14

DYNAMICAL BEHAVIOR OF THE CAT DOMAIN FROM CRE RECOMBINASE, IN THE ABSENCE OF AND WITH THE *CIS* INTERACTION OF THE N HELIX. **Marco A. Ramírez**

81-Pos BOARD B15

DYNAMIC CONSEQUENCES OF SPECIFICITY WITHIN THE CYTIDINE REPRESSOR DNA-BINDING DOMAIN. **Jenaro Soto**, Colleen Moody, Donald F. Senear, Melanie J. Cocco

82-Pos BOARD B16

A BIOPHYSICS UNDERGRADUATE RESEARCH STORY FROM THE UNIVERSITY FOR THE DEAF AND HARD OF HEARING. **Tugba G. Kucukkal**

83-Pos BOARD B17

NOVEL ANTI-REPRESSION MECHANISM OF H-NS PROTEINS BY PHAGE'S "EARLY PROTEINS". **Fredj Ben Bdira**, Liang Qing, Alexander N. Volkov, Mandy Erkelens, Remus T. Dame

84-Pos BOARD B18

2.09 Å RESOLUTION STRUCTURE OF E. COLI HIGBA TOXIN-ANTITOXIN COMPLEX REVEALS AN ORDERED DNA-BINDING DOMAIN AND INTRINSIC DYNAMICS IN ANTITOXIN. **Pankaj Jadhav**

85-Pos BOARD B19

ENSEMBLE SWITCHING OF THE DNA-BINDING DOMAIN OF HUMAN FOXP1. **Narendar Kolimi**, Exequiel Medina, César Ramírez-Sarmiento, Hugo Sanabria, Jorge Babul

86-Pos BOARD B20

STRUCTURE OF THE ATP-FREE MRE11-RAD50 DNA DAMAGE REPAIR COMPLEX BOUND TO DNA SUBSTRATES. **Mahtab Beikzadeh**, Marella Canny, Michael Latham

87-Pos BOARD B21

STUDYING THE INTERACTION MECHANISM OF AZURIN-DERIVED PEPTIDE P28 AND TUMOR SUPPRESSOR P53. **Jing Yang**, Yifan Zeng, Junwen Xiong, Meng Gao, Yongqi Huang

Protein Structure, Prediction, and Design (Boards B22 - B37)

88-Pos BOARD B22

THE TRADE-OFF BETWEEN THERMOSTABILITY AND FUNCTION IN DESIGNED DNA-BINDING PROTEINS. Lauren A. Verheyden, Lily A. Schumacher, Andrew Bigler, Natali A. Gonzalez, Emily Hamlin, Parwana Z. Khazi, **Michelle E. McCully**

89-Pos BOARD B23

PREDICTION OF AMPHIPATHIC HELIX - MEMBRANE INTERACTIONS WITH ROSETTA. **Alican Gulsevin**, Jens Meiler

90-Pos BOARD B24

HIGH RESOLUTION CRYO-EM STRUCTURE OF THE ESPA FILAMENT FROM EPEC. **Bronwyn Lyons**

91-Pos BOARD B25

COMPLETING THE PARTIALLY RESOLVED COMPLEX CRYSTAL STRUCTURE OF AURORA KINASE A / N-MYC BY MOLECULAR MODELING. **Pinar Altiner**, Suleyman Selim Çinaroglu, Emel Timucin

92-Pos BOARD B26

EVOLUTIONARY MODELS OF FOLD-SWITCHING PROTEINS. **Layne B. Frechette**, Robert B. Best

93-Pos BOARD B27
BIOINFORMATICS ANALYSIS OF PROTEINS INVOLVED IN BACTERIAL CURL ASSEMBLY INDICATE CONSERVED AMINO ACIDS THAT MAY PLAY A ROLE IN STRUCTURE/FUNCTION. **Karen Guerrero**, Shruti Sunder Rajkumar, Zachary Cairo, Jonathan Adame, Jenny Tran, Renad Rawas, Ranim Rawas, Jasmin Aquino, Melissa Spring, Ananya Ranaraja, Sajith A. Jayasinghe

94-Pos BOARD B28
DEVELOPING WEB SITES THAT INTEGRATE DATA AND DIVERSE APPROACHES. **Daniel Kool**

95-Pos BOARD B29
REFINEMENT OF PROTEIN HOMOLOGY MODEL BY ENHANCED DIRECTIONAL SAMPLING GUIDED BY BIOINFORMATICS. **Rajat Punia**, Gaurav Goel

96-Pos BOARD B30
DISULPHIDE LOCK-PROBING FIBRILLOGENESIS TRIGGER IN ACINIFORM SPIDER SILK. **Anamika Sulekha**, Lingling Xu, Paul X-Q. Liu, Jan K. Rainey

97-Pos BOARD B31
EXPLORING THE SPECIFICITY OF 3-KETOSTEROID- Δ 1-DEHYDROGENASE BY USE OF SITE-DIRECTED MUTAGENESIS. **Shikui Song**, Xiyao Cheng, Xin Li, Zhengkun Kuang, Yongqi Huang, Zhengding Su

98-Pos BOARD B32
PREDICTING THE ABILITY OF SARS-COV-2 TO UTILIZE THE ACE2 RECEPTOR FOR CELL ENTRY IN NORTH AMERICAN RODENTS. **Peik K. Lund-Andersen**, Jeremy R. Ellis, James T. Van Leuven, Jagdish Patel

99-Pos BOARD B33
RATIONALLY DESIGNED CHIMERIC ANTIBODIES FOR COVID-19 AND FUTURE CORONAVIRUS VARIANTS. **Ching-chung Hsueh**, Steven S. Plotkin

100-Pos BOARD B34
COMBINING COMPUTATIONAL MODELING WITH LIBRARY SCREENING TO ADAPT SARS-COV-2 NEUTRALIZING ANTIBODY 80R TO SARS-COV-2. **Michael S. Kent**, Maxwell Stefan, Kenneth Sale, Corey Hudson, Daniella Martinez, Miranda Juarros, Brooke Harmon, Daniel Gelperin, Valerie Duva, Alyssa Wynne, Valeria Busygina

101-Pos BOARD B35
AUTOMATED COMPUTATIONAL TECHNIQUE TO IMPROVE THE QUALITY OF SARS-COV-2 PROTEINS. **Joseph P. Farrell**, Esmael J. Haddadian

102-Pos BOARD B36
CHARACTERIZING BINDING KINETICS AND THERMODYNAMICS OF COMPUTER-DESIGNED NANOBODIES TARGETING SARS-COV-2 RBD. **Matheus Ferraz**, Roberto Lins

103-Pos BOARD B37
STRUCTURAL BASES FOR THE DEGRADATION SELECTIVITY OF C2H2 ZINC FINGER BY THALIDOMIDE METABOLITE. **Hirotake Furihata**, Satoshi Yamanaka, Toshiaki Honda, Norio Shibata, Masaru Tanokura, Tatsuya Sawasaki, Takuya Miyakawa

Protein Assemblies I (Boards B38 - B50)

104-Pos BOARD B38
COMPARATIVE ANALYSIS OF THE STRUCTURE AND FIBRILLOGENESIS OF AB₁₁₋₂₈ PEPTIDE AND THE INVERSE SEQUENCE. Nabin Kandel, Gregory Hammock, **Faisal Abedin**, Suren A. Tatulian

105-Pos BOARD B39
BIOPHYSICAL STUDIES OF INTERACTION BETWEEN MYCOBACTERIAL SEPF AND FTSZ. **Jagrity Choudhury**, Lucky Singh, Barnali Chaudhuri

106-Pos BOARD B40
EFFECT OF ATPASE-DEFECTIVE MUTANT DOPING ON FUNCTIONALITY AND DYNAMICS OF SINGLE BACTERIOPHAGE T4 DNA PACKAGING MOTORS. **Suoang Lu**, Vishal I. Kottadiel, Li Dai, Digvijay Singh, Taekjip Ha, Venigalla B. Rao, Yann R. Chemla

107-Pos BOARD B41
CHARACTERIZATION OF SCF LIGASE INHIBITION BY TUMOR SUPPRESSOR HINT1. **Calvin P. Lin**, Nathan Lee, Elizabeth A. Komives

108-Pos BOARD B42
DOMAIN-DOMAIN INTERACTIONS IN THE SELF-ASSEMBLY OF NON-STRUCTURAL PROTEIN 1 FROM INFLUENZA A VIRUS. **James E. Gonzales**, Jie Shi, Jae-Hyun Cho, Wonmuk Hwang

109-Pos BOARD B43
YORKIE-WARTS COMPLEXES ARE AN ENSEMBLE OF INTERCONVERTING CONFORMERS FORMED BY MULTIVALENT INTERACTIONS. **Kasie Baker**, Ethiene Kwok, Diego Rodriguez, Amber Rolland, Jesse Wilson, James Prell, Patrick Reardon, Afua Nyarko

110-Pos BOARD B44
ANS FLUORESCENT PROBE INDUCES CLUSTERING OF AMYLOID FIBERS. **Anna I. Sulatskaya**, Maksim I. Sulatsky, Olga I. Povarova, Irina M. Kuznetsova, Konstantin K. Turoverov

111-Pos BOARD B45
MODELING MULTIVALENT PROTEIN PHASE SEPARATIONS WITH NETWORK-FREE RULE-BASED MODELING. **Aniruddha Chattaraj**, Michael L. Blinov, Leslie M. Loew

112-Pos BOARD B46
STRUCTURAL INSIGHTS INTO THE MULTIVALENT BINDING OF AMOTL1, YAP, AND KIBRA. **Amber Vogel**, Afua Nyarko

113-Pos BOARD B47
THE EFFECT OF GENOME SIZE ON THE STRUCTURE OF VIRAL SHELLS. **Sanaz Panahandeh**, Siyu Li, Roya Zandi

114-Pos BOARD B48
MODULATION OF MICROTUBULE SYSTEMS BY INTENSE NANOSECOND ELECTRIC PULSES. **Michal Cifra**, Daniel Havelka

115-Pos BOARD B49
THE PENTAMER VS HEXAMER ASSEMBLY OF RETROVIRAL CAPSID PROTEIN IS CONTROLLED BY THE FLEXIBLE LINKER. **Bo Chen**, Xin Qiao, Tyrone Thames, Alexander J. Bryer, Jaekyun Jeon, Ivan Hung, Peter Gorkov, Zhehong Gan, Juan R. Perilla

116-Pos BOARD B50
CAN 3D-DOMAIN-SWAPPING HELP UNDERSTAND POLYQ SEQUENCES? **Manjula Ramu**, Ramaswamy Subramanian, Shachi Gosavi

Membrane Protein Structures I (Boards B51 - B65)

117-Pos BOARD B51
THE RELATIONSHIP BETWEEN STRUCTURAL SYMMETRY AND FUNCTION IN MEMBRANE PROTEINS. **Emily L. Yaklich**, Antoniya A. Aleksandrova, Lucy R. Forrest

118-Pos BOARD B52
IMPLICATIONS OF SP-C OLIGOMERIZATION IN MEMBRANE FRAGMENTATION AND PULMONARY SURFACTANT HOMEOSTASIS. **Juranny Mishelle Moran Lalangui**, Alejandro Barriga, Ismael Mingarro, Jesus Perez-Gil, Begoña Garcia-Alvarez

119-Pos BOARD B53
BIOPHYSICAL AND COMPUTATIONAL STUDIES OF HUMAN DISEASE RELATED PROTEINS WITH A SINGLE-PASS TRANSMEMBRANE HELIX. **Youngee Park**, Jens Meiler

120-Pos BOARD B54
CHARACTERIZING KRAS MEMBRANE STRUCTURES BY DATA-DRIVEN MOLECULAR DOCKING. **Christopher B. Stanley**, Que N. Van, Frank Heinrich, Mathias Losche, Debsindhu Bhowmik, Arvind Ramanathan, Cesar A. Lopez, Sandrasegaram Gnanakaran, Dwight V. Nissley, Andrew G. Stephen

121-Pos BOARD B55
STRUCTURE PREDICTION OF THE TRANSMEMBRANE REGION OF ALPHA- AND BETA- SECRETASES USING REPLICA-EXCHANGE MOLECULAR DYNAMICS SIMULATIONS, AND THE INTERACTION BETWEEN AMYLOID PRECURSOR PROTEIN AND THEM. **Kaori Yanagino**, Naoyuki Miyashita

122-Pos BOARD B56
WORKING TOWARDS CRYO-EM STRUCTURES OF MITOCHONDRIAL DYNAMIN-LIKE GTPASES. **Melissa R. Mikolaj**, Sarah Nyenhuis, Jenny E. Hinshaw

123-Pos BOARD B57
MODELLING LONG LOOPS OF MEMBRANE PROTEINS USING PRETZEL. **Manisha Barse**, Alan Perez-Rathke, Jie Liang

124-Pos BOARD B58
MOLECULAR MECHANISM OF POTASSIUM (K⁺) ION SENSING HISTIDINE KINASE INVOLVED IN BIOFILM FORMATION. **Rachael M. Lucero**, Randy Stockbridge

125-Pos BOARD B59
INVESTIGATING SARS-COV-2 ORF7B HOMODIMERIZATION BY MOLECULAR DYNAMICS SIMULATIONS. **Min-Kang Hsieh**, Jeffery B. Klauda

126-Pos BOARD B60
INTERPLAY BETWEEN LEAKAGE AND FUSION OF PHOSPHATIDYLCHOLINE LIPOSOMES INDUCED BY THE MACROLITTINS, A SYNTHETICALLY EVOLVED FAMILY OF PORE-FORMING PEPTIDES. **Leisheng Sun**, Kalina Hristova, William C. Wimley

127-Pos BOARD B61
DECIPHERING THE ROLES OF *YERSINIA PESTIS* OUTER MEMBRANE PROTEINS IN THEIR NATIVE ENVIRONMENT. **James E. Kent**, Lynn M. Fujimoto, Kyungsoo Shin, Chandan Singh, Yong Yao, Gregory V. Plano, Francesca M. Marassi

128-Pos BOARD B62
STRUCTURAL INSIGHTS AND CLASSIFICATION OF THE DISEASE-CAUSING MUTATIONS IN HUMAN NA⁺- COUPLED CITRATE TRANSPORTER (NACT) USING A HOMOLOGUE MODELING APPROACH.
Valeria Jaramillo-Martinez, Vadivel Ganapathy, Ina Urbatsch

129-Pos BOARD B63
RATIONAL DESIGN OF SMALL MOLECULAR GLP-1R AGONISTS. **Zixin Yang**, Zhengkun Kuang, Rui Wang, Ni Pi, Xiyao Cheng, Yongqi Huang, Zhengding Su

130-Pos BOARD B64
MODULATION OF THE ACYLATION OF THE C-TERMINAL SEGMENT OF GRK1 DRASTICALLY INFLUENCES ITS SOLUBILITY AND MEMBRANE-BINDING PROPERTIES. **Marc-Antoine Millette**, Camille Gagnon, Christian Saless

131-Pos BOARD B65
COMPARING THE DYNAMIC DIFFERENCES BETWEEN X-RAY AND CRYO-EM STRUCTURES OF CANNABINOID RECEPTOR 1 USING MOLECULAR DYNAMICS SIMULATIONS. **Ugochi Isu**, Vivek Govind Kumar, Adithya Polasa, Mahmoud Moradi

Intrinsically Disordered Proteins (IDP) and Aggregates I (Boards B66 - B87)

132-Pos BOARD B66
REENTRANT LIQUID CONDENSATE PHASE OF PROTEINS IS STABILIZED BY HYDROPHOBIC AND NON-IONIC INTERACTIONS. **Georg Krainer**, Timothy J. Welsh, Jerelle A. Joseph, Peter St George-Hyslop, Anthony A. Hyman, Rosana Collepardo-Guevara, Simon Alberti, Tuomas P.J. Knowles

133-Pos BOARD B67
CHARACTERIZING STRUCTURAL AND DYNAMIC FEATURES OF SOLUBLE IAPP OLIGOMERS. **Bryan A. Bogin**, Zachary Levine

134-Pos BOARD B68
A 4BPA COARSE-GRAINED MOLECULAR DYNAMICS STUDY ON THE AGGREGATION OF POLYGLUTAMINE. **Mark van der Kloek**, Maurice Dekker, Erik Van der Giessen, Patrick R. Onck

135-Pos BOARD B69
DOXORUBICIN INDUCES ABERRANT SELF-ASSEMBLY OF P53 BY PHASE SEPARATION. **Ankush Garg**, Sharmistha Sinha

136-Pos BOARD B70
THERMODYNAMIC STABILITY OF HNRNP A1 LOW COMPLEXITY DOMAIN REVEALED BY HIGH-PRESSURE NMR. Jeffrey D. Levengood, Jake Peterson, Blanton S. Tolbert, **Julien Roche**

137-Pos BOARD B71
HOW DO EVOLUTIONARILY ENCODED COMPOSITIONAL BIASES INFLUENCE THE PHASE BEHAVIORS OF INTRINSICALLY DISORDERED LOW COMPLEXITY DOMAINS OF PROTEINS? **Mina Farag**, Anne Bremer, Wade Borcherds, Tanja Mittag, Rohit V. Pappu

138-Pos BOARD B72
EFFECTS OF MEMBRANE CURVATURE ON AMYLOID-BETA AGGREGATION. **Abhilash Sahoo**

139-Pos BOARD B73
BOTTOM-UP COARSE-GRAINED MODELS FOR INTRINSICALLY DISORDERED PROTEINS. **Thomas P. Dannenhoffer-Lafage**, Robert B. Best

140-Pos BOARD B74
QUANTIFICATION OF THE ONSET OF CONDENSATION IN NEGATIVE ELONGATION FACTORS. **Chenyang Lan**, Prashant Rawat, Ritwick Sawarkar, Thorsten Hugel

141-Pos BOARD B75
DE NOVO COMPUTATIONAL DESIGN OF DISORDERED FG-NUCLEOPORINS. **Henry de Vries**, Alessio Fragasso, Tegan Otto, Nils Klughammer, John Andersson, Eli van der Sluis, Anton Steen, Andreas Dahlin, Liesbeth Veenhoff, Cees Dekker, Erik Van der Giessen, Patrick Onck

142-Pos BOARD B76
INTEGRATING NMR, SAXS AND SINGLE-MOLECULE FRET DATA TO INFER CONFORMATIONAL ENSEMBLES OF THE YEAST SIC1 PROTEIN. **Claudiu C. Gradinaru**, Gregory W. Gomes, Tanja Mittag, Teresa L. Head-Gordon, Julie D. Forman-Kay

143-Pos BOARD B77
EFFECTS OF FAMILIAL MUTATION AND C-TERMINAL TRUNCATION ON NUCLEATION AND FIBRIL ELONGATION OF A-SYNUCLEIN. **Takashi Ohgita**, Norihiro Namba, Hiroki Kono, Hiroyuki Saito

144-Pos BOARD B78
REAL-TIME OBSERVATION OF STRUCTURAL AND DYNAMICAL CHANGES OF THE FUS LOW-COMPLEXITY DOMAIN DURING LIQUID-TO-SOLID PHASE TRANSITIONS. **Raymond F. Berkeley**, Maryam Kashefi, Galia T. Debelouchina

145-Pos BOARD B79
ENVIRONMENT DEPENDENT SECONDARY STRUCTURE OF A RIBOSOME STALLING PEPTIDE. **Gabor Nagy**, Michal H. Kolar, John D. Kunkel, Sara M. Vaiana, Helmut Grubmuller

146-Pos BOARD B80
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147-Pos BOARD B81
CURVATURE SENSING MEDIATED BY F-BAR DOMAIN AND AN INTRINSICALLY DISORDERED REGION OF FBP17. **Maohan Su**, Yinyin Zhuang, Wenting Zhao, Min Wu

148-Pos BOARD B82
TAU FORMS OLIGOMERIC COMPLEXES ON MICROTUBULES THAT ARE DISTINCT FROM PATHOLOGICAL OLIGOMERS IN DISEASE. **Melina Theoni Gyparaki**, Arian Arab, Elena M. Sorokina, Adriana N. Santiago-Ruiz, Christopher H. Bohrer, Jie Xiao, Melike Lakadamyali

149-Pos BOARD B83
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150-Pos BOARD B84
ACCELERATED AMYLOID BETA PATHOGENESIS BY BACTERIAL AMYLOID FAPC. **Zhenzhen Zhang**, Feng Ding

151-Pos BOARD B85
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152-Pos BOARD B86
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153-Pos BOARD B87
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155-Pos BOARD B89
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156-Pos BOARD B90
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157-Pos BOARD B91
SINGLE-MOLECULE INVESTIGATION OF RAD-51 PRESYNAPTIC FILAMENT ASSEMBLY AND THE ROLE OF MEDIATOR PROTEINS. **Ondrej Belan**, Consuelo Barroso, Artur Kaczmarczyk, Roopesh Anand, Stefania Federico, Nicola O'Reilly, Matt D. Newton, Radoslav Enchev, Enrique Martinez-Perez, David S. Rueda, Simon Boulton

158-Pos BOARD B92
SINGLE MOLECULE EXPERIMENTS DEFINE THE ROLE OF NBS1 AND XRS2 IN DNA TETHERING BY MRN AND MRX IN DSB REPAIR. **Carl Möller**, Rajhans Sharma, Robin Öz, Giordano Reginato, Elda Cannavò, Sriram KK, Petr Cejka, Fredrik Westerlund

159-Pos BOARD B93
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160-Pos BOARD B94
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161-Pos BOARD B95
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163-Pos BOARD B97
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164-Pos BOARD B98
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165-Pos BOARD B99
SINGLE MOLECULE INVESTIGATIONS OF PROTEIN AND SMALL MOLECULE INTERACTIONS WITH G-QUADRUPLEXES AND THEIR IMPACT ON TELOMERE STRUCTURE. **Hamza Balci**, Golam Mustafa, Prabesh Gyawali, Parastoo Maleki, Sajad A. Shiekh

166-Pos BOARD B100
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167-Pos BOARD B101
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168-Pos BOARD B102
LINE-1 ORF1P REORGANIZES AND PACKAGES SINGLE-STRANDED NUCLEIC ACIDS THROUGH WRAPPING AND INTERPROTEIN INTERACTIONS. **Benjamin A. Cashen**, M. Nabuan Naufer, Michael D. Morse, Charlie E. Jones, Anthony V. Furano, Mark C. Williams

169-Pos BOARD B103
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170-Pos BOARD B104
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171-Pos BOARD B105
E. COLI SINGLE STRANDED BINDING PROTEIN (SSB) BINDING MEASURED USING FORCE SPECTROSCOPY AND STRUCTURAL MUTANTS. **Gudfridur B. Moller**, M. Nabuan Naufer, Michael Morse, James McIsaac, Ioulia F. Rouzina, Penny Beuning, Mark C. Williams

172-Pos BOARD B106
CRITICAL ROLE OF N AND C TERMINAL DOMAINS OF BACTERIOPHAGE T4 SINGLE-STRANDED BINDING PROTEIN (GP32) IN TRANSIENT BINDING CONFORMATIONS AND REORGANIZATION MEASURED USING FORCE SPECTROSCOPY. Benjamin Cashen, **Michael Morse**, Richard L. Karpel, Ioulia F. Rouzina, Mark C. Williams

173-Pos BOARD B107
THE T4 BACTERIOPHAGE PROTEIN MOTB REMODELS HOST DNA. Jennifer P. West, Revathy Ramachandran, **Emilios K. Dimitriadis**, Deborah M. Hinton

174-Pos BOARD B108
FUNCTION OF A VIRAL GENOME PACKAGING MOTOR FROM BACTERIOPHAGE T4 IS INSENSITIVE TO DNA SEQUENCE. **Douglas E. Smith**, Youbin Mo, Nick Keller, Damian delToro, Neeti Ananthaswamy, Stephen C. Harvey, Venigalla B. Rao

175-Pos BOARD B109
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176-Pos BOARD B110
METAL IONS AND NUCLEIC ACIDS' PROCESSING, NOVEL INSIGHTS FROM RNASE-H1 MOLECULAR DYNAMICS. **Jacopo Manigrasso**, Giulia Palermo, Marco De vivo

177-Pos BOARD B111
WHAT THE FORK? A STRUCTURAL BIOINFORMATICS APPROACH TO DECRYPTER PATTERNS IN ARGININE-FORK MEDIATED RNA RECOGNITION. **Sai Shashank Chavali**, Chapin E. Cavender, David H. Mathews, Joseph E. Wedekind

178-Pos BOARD B112
INVESTIGATING THE RNA BINDING SPECIFICITY THROUGH THE CSTF-64 RRM-RNA STRUCTURAL ENSEMBLE. **Elahe Masoumzadeh**, Michael P. Latham

179-Pos BOARD B113
PROBING STRUCTURAL DYNAMICS OF THE CLOSED-LOOP MODEL IN TRANSLATION INITIATION. **Jacopo Airapetyan**

180-Pos BOARD B114
WATCHING U4 SNRNA RELEASE DURING SPLICEOSOME ACTIVATION WITH MANGO RNA APTAMERS. **Karli Lipinski**, Peter J. Unrau, Aaron A. Hoskins

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METHYLTRANSFERASE ENZYME RSMC ACT AS AN RNA CHAPERONE DURING BACTERIAL RIBOSOME BIOGENESIS. **Keshav G C**, Prabesh Gyawali, Hamza Balci, Sanjaya Abeyirigunawardena

182-Pos BOARD B116
DIVALENT CATIONS DRIVE TUNABLE PHASE SEPARATION OF HOMOPOLYMERIC RNA SEQUENCES. **Paulo Onuchic**, Anthony Milin, Ibraheem Alshareedah, Priya R. Banerjee, Ashok Deniz

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PROTOCELL FORMATION IS ENHANCED BY INNATE SOLID SURFACES. **Elif S. Koksals**, Inga Pölsalu, Henrik Friis, Irep Gozen

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FLOCCULATION OF FATTY ACID MEMBRANES DOES NOT DISRUPT ENCAPSULATION: IMPLICATIONS FOR THE ORIGIN OF CELLS IN EVAPORATIVE LAKE ENVIRONMENTS. **Zachary R. Cohen**, Caitlin E. Cornell, David C. Catling, Roy A. Black, Sarah L. Keller

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188-Pos BOARD B122
LIPID SPONGE PHASE AS A MATRIX FOR ENZYME ENCAPSULATION: STRUCTURE AND DYNAMICS. Jennifer Gilbert, Maria Valldeperas Badell, Inna Ermilova, Michihiro Nagao, Susana Cristina Marujo Teixeira, Najet Mahmoudi, Jan Swenson, **Tommy Nylander**

189-Pos BOARD B123
COUPLING OF LEAFLET PHASE BEHAVIOR IN ASYMMETRIC GIANT UNILAMELLAR VESICLES PREPARED BY HEMIFUSION: INVESTIGATING THE INFLUENCE OF THE LOW-METLING LIPID. **Kristen Kennison**, Frederick A. Heberle, Thais A. Enoki

190-Pos BOARD B124
COUPLING BETWEEN LATERAL AND TRANSVERSE ORGANIZATION IN THREE-COMPONENT LIPID MIXTURES INVESTIGATED WITH ASYMMETRIC GUVS PREPARED BY HEMIFUSION. **James R. Baker**, Thais A. Enoki, Frederick A. Heberle

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193-Pos BOARD B127
DYNAMIC MEMBRANE ASYMMETRY INDUCED BY CERAMIDE-RICH DOMAINS UNDER ENZYMIC REACTION. **Hyun-Ro Lee**, Siyoung Choi

194-Pos BOARD B128
SUPER-RESOLUTION MICROSCOPY WITH A MECHANOSENSITIVE MEMBRANE TENSION PROBE. **Jimmy Maillard**, José Garcia-Calvo, Karolina Strakova, Naomi Sakai, Stefan Matile, Alexandre Fuerstenberg

195-Pos BOARD B129
PROBING THE RELATIONSHIP BETWEEN CHOLESTEROL CONCENTRATION AND CHEMICAL POTENTIAL IN MODEL MEMBRANES. **Fiona Gaffney**, Kathleen Wisser, Sarah L. Veatch

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197-Pos BOARD B131
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199-Pos BOARD B133
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- 200-Pos BOARD B134**
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- 201-Pos BOARD B135**
ARRANGEMENT OF SPHERICAL NANOPARTICLES ON LIPID VESICLES. **Eric J. Spangler**, Mohamed Laradji
- 202-Pos BOARD B136**
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- 204-Pos BOARD B138**
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- 205-Pos BOARD B139**
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- 206-Pos BOARD B140**
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- 207-Pos BOARD B141**
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- 208-Pos BOARD B142**
COUNTERION PHENOMENA NEAR CHARGED SURFACES IN FINITE VOLUMES. **Joel A. Cohen**
- 209-Pos BOARD B143**
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- 210-Pos BOARD B144**
THE MECHANISMS OF LIPID-MEDIATED REGULATION OF THE ACTIVITY OF ANTIMICROBIAL PEPTIDES OF DIFFERENT SECONDARY STRUCTURE. Svetlana S. Efimova, **Anastasiia A. Zakharova**, Olga S. Ostroumova
- 211-Pos BOARD B145**
INTERACTION OF A HOMOLOGOUS SERIES OF AMPHIPHILES WITH P-GLYCOPROTEIN CONTAINING MEMBRANES. Susana V. Cunha, Hugo L. Filipe, Cristiana V. Ramos, Patricia A. Martins, Biebele Abel, Suresh V. Ambudkar, Luis M. Loura, **Maria Joao Moreno**
- 212-Pos BOARD B146**
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INFLUENCE OF FULLERENES ON PEROXIDIZED LIPID MEMBRANES. **Gülsah Gül**, Nazar Ileri-Ercan
- 214-Pos BOARD B148**
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- 215-Pos BOARD B149**
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- 216-Pos BOARD B150**
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- 217-Pos BOARD B151**
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- 218-Pos BOARD B152**
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- 219-Pos BOARD B153**
SPHINGOLIPID-ENRICHED DOMAINS IN YEAST: BIOPHYSICAL PROPERTIES AND ANTIFUNGAL INTERACTION. **Rodrigo F.M. De Almeida**, Joaquim T. Marquês, Liana C. Silva, H. Susana Marinho, M. L. Corvo, Francesca Fedeli, Catarina Faria-Silva, Filipa C. Santos, Andreia Bento-Oliveira
- 220-Pos BOARD B154**
A CONTINUUM MODEL FOR SIMULATION OF LARGE BIOLOGICAL LIPID MEMBRANES. **Timothy S. Carpenter**
- 221-Pos BOARD B155**
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- 222-Pos BOARD B156**
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- 223-Pos BOARD B157**
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- 224-Pos BOARD B158**
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- 225-Pos BOARD B159**
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236-Pos BOARD B170
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243-Pos BOARD B177
TRIGGERING FUSION AND EXPANDING THE FUSION PORE: DUAL ROLES FOR THE SECOND C2 DOMAIN OF SYNAPTOTAGMIN 1. **Sarah B. Nyenhuis**, Nakul Karandikar, Volker Kiessling, Alex J.B. Kreutzberger, Anusa Thapa, Binyong Liang, Lukas K. Tamm, David S. Cafiso

244-Pos BOARD B178
THE NANOSCALE ANATOMY OF EXOCYTIC DENSE-CORE VESICLES IN NEUROENDOCRINE CELLS. **Bijeta Prasai**, Gideon Haber, John Ciemniecki, Marie-Paule Strub, Kem A. Sochacki, Justin W. Taraska

245-Pos BOARD B179
CRYO-EM STUDIES OF DYNAMIN ASSEMBLED ON MEMBRANES IN VITRO AND WITHIN CELLS. **John Jimah**, Nidhi Kundu, Kem A. Sochacki, Abigail Stanton, Lieza M. Chan, Justin W. Taraska, Jenny E. Hinshaw

246-Pos BOARD B180
DISTINCT INSULIN GRANULE SUBPOPULATIONS CONTRIBUTE TO THE SECRETORY PATHOLOGY OF DIABETES TYPES 1 AND 2. **Volker Kiessling**, Alex J.B. Kreutzberger, Catherine A. Doyle, Noah Schenk, Clint M. Upchurch, Margaret M. Elmer-Dixon, Amanda E. Ward, Julia Preobraschen-ski, Syed Saad Hussain, Weronika Tomaka, Patrick Seelheim, Megan Harris, Binyong Liang, J. D. Castle, Lukas K. Tamm

247-Pos BOARD B181
VESICLE MEMBRANE ORDER CONTROLS FUSION BY DETERMINING SYN-APTOSOMAL CONFORMATION. **Chase Amos**, Volker Kiessling, Binyong Liang, Lukas K. Tamm

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249-Pos BOARD B183
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251-Pos BOARD B185
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252-Pos BOARD B186
ENDOCYTOSIS AGAINST HIGH TURGOR PRESSURE IS MADE EASIER BY PARTIAL PROTEIN COATING AND A FREELY ROTATING BASE. **Rui Ma**, Julien Berro

253-Pos BOARD B187
PLC_ε ACTIVITY IS ESSENTIAL FOR PACAP-STIMULATED SECRETION FROM CHROMAFFIN CELLS. **Alina Chapman-Morales**, Shreeya Bakshi, Ramkumar Mohan, Mounir Bendahmane, Alan Smrcka, Arun Anantharam

Calcium Signaling (Boards B188 - B199)

254-Pos BOARD B188
IPSCS-BASED MODELS OF POLYGLUTAMINE SPINOCEREBELLAR ATAXIAS OF TYPE 1 AND 17 HAVE DIFFERENT IMPAIRMENTS OF CALCIUM SIGNALING. **Dmitry Grekhnyov**, Vladimir Vigont, Elena Kaznacheyeva

255-Pos BOARD B189
QUANTIFICATION OF INSULIN VESICLE DYNAMICS, FUSION EVENTS AND CALCIUM ACTIVITY IN INTACT MOUSE ISLETS. **Xue Wen Ng**, Michael R. DiGrucchio, David W. Piston

256-Pos BOARD B190
LOCAL SYNTHESIS OF SARCOLEMMMA AND SARCOPLASMIC RETICULUM MEMBRANE PROTEINS IN CARDIAC MYOCYTES. **Vladimir Bogdanov**, Andrew M. Soltisz, Marina Ivanova, Ivan Andreev, Galina Sakuta, Jonathan P. Davis, Rengasayee Veeraraghavan, Sandor Gyorke

257-Pos BOARD B191
A NOVEL METHOD FOR SINGLE MOLECULE VISUALIZATION OF ACTIVE PROTEIN SYNTHESIS IN CARDIAC MYOCYTES REVEALS SERCA2A MRNA TRANSLATION IS SARCOPLASMIC RETICULUM CA²⁺ LOAD DEPENDENT. **Vladimir Bogdanov**, Andrew M. Soltisz, Marina S. Ivanova, Ivan S. Andreev, Rengasayee Veeraraghavan, Jonathan P. Davis, Sandor Gyorke

258-Pos BOARD B192
THE ROLE OF S-ACYLATION IN THE REGULATION OF STORE-OPERATED CALCIUM ENTRY. **Savannah J. West**, Qiaochu Wang, Goutham Kodakan-dla, Michael X. Zhu, Darren Boehning, Askar M. Akimzhanov

259-Pos BOARD B193
TOBACCO HORNWORM (*MANDUCA SEXTA*) CATERPILLAR HEMOLYMPH MODULATES REACTIVE OXYGEN SPECIES AND CALCIUM GENERATION IN TOMATO PROTOPLASTS. Akanksha Gandhi, Rupesh Kariyat, **Nirakar Sahoo**

260-Pos BOARD B194
A MODELING FRAMEWORK FOR INVESTIGATING THE ROLE OF HUMAN ATRIAL FIBROBLAST CALCIUM SIGNALING IN FIBROGENESIS. **Alex Fogli Isepe**, Stefano Morotti, Marcel Tekook, Dennis Hoffmann, Andrew G. Edwards, Dobromir Dobrev, Eleonora Grandi

261-Pos BOARD B195
JUPITER MICROTUBULE ASSOCIATED HOMOLOG 2 IS A NICOTINIC ACID ADENINE DINUCLEOTIDE PHOSPHATE (NAADP) BINDING PROTEIN REQUIRED FOR NAADP-EVOKED INTRACELLULAR CALCIUM RELEASE. **Gihan S. Gunaratne**, Eugen Brailoiu, Shijun He, Sandip Patel, James T. Slama, Timothy Walseth, Jonathan S. Marchant

262-Pos BOARD B196
IDENTIFICATION OF A STIM1 SPLICING VARIANT THAT PROMOTES TUMOR GROWTH. **Guolin Ma**, Lian He, Yubin Zhou

263-Pos BOARD B197
GADOLINIUM DIFFERENTIALLY AFFECTS MEMBRANE PERMEABILIZATION AND CA²⁺ INFLUX INDUCED BY NANOSECOND ELECTRIC PULSES IN BOVINE ADRENAL CHROMAFFIN CELLS. **Lisha Yang**, Sophia Pierce, Gale L. Craviso, Normand Leblanc

264-Pos BOARD B198
DUAL IMPACT OF HEART RATE VARIABILITY AND SUBCELLULAR CALCIUM HETEROGENEITY ON CARDIAC ALTERNANS. **Vrishti Phadumdeo**, Seth H. Weinberg

265-Pos BOARD B199
EXPLORING THE EFFECTS OF MUTATIONS AND THICK FILAMENT PROTEINS ON MYOFILAMENT CALCIUM KINETICS VIA STOPPED-FLOW. **Matthew M. Klass**, Rhye-Samuel Kanassatega, Sarah Lehman, Jil C. Cardiff, Brett A. Colson, Jonathan P. Davis

Ligand-gated Channels I (Boards B200 - B218)

266-Pos BOARD B200
HERITABLE MUTATIONS TO THE B3 SUBUNIT OF GABA-A RECEPTOR ALTER THE RECEPTOR FUNCTION AND SYNAPTIC LOCALISATION. **Nela I. Durisic**, Joseph W. Lynch, Ned Cotter, Dejan Gagoski, Parnayan Syed, Pankaj Sah, Duka Skalamera

267-Pos BOARD B201
TWO-PHOTON PHOTOACTIVATION OF RUBI-GABA FOR STUDYING THE ROLE OF THE ANTISECRETORY FACTOR IN THE MODULATION OF THE GABA_A RECEPTOR IN RAT CEREBELLAR GRANULE CELLS *IN VITRO*. **Virginia Bazzurro**, Elena Gatta, Elena Angeli, Aroldo Cupello, Stefan Lange, Mauro Robello, Alberto Diaspro

268-Pos BOARD B202
INFLUENCE OF GABA-A RECEPTOR INTRACELLULAR DOMAIN ON CHANNEL ACTIVATION AND DESENSITIZATION. **Anton J. Tung**, Lucas M. Blecker, Cynthia Czajkowski

269-Pos BOARD B203
A CONSERVED ARGININE WITH NON-CONSERVED FUNCTION IS A KEY DETERMINANT OF AGONIST SELECTIVITY IN ALPHA7 NICOTINIC ACETYLCHOLINE RECEPTORS. **Teresa Minguez Vinas**, A. Sofia F. Oliveira, B. Elizabeth Nielsen, Cecilia Gotti, Adrian J. Mulholland, Timothy Gallagher, Isabel Bermudez

270-Pos BOARD B204
STRUCTURAL INVESTIGATION INTO GATING AND MODULATION OF ALPHA1 GLYCINE RECEPTOR IN LIPID NANODISCS. **Arvind Kumar**, Sandip Basak, Shanlin Rao, Mark S. Sansom, Sudha Chakrapani

271-Pos BOARD B205
WHEN A GAIN BECOMES A LOSS: GAIN-OF-FUNCTION GLYCINE RECEPTORS AND HYPERKPLEXIA. **James P. Dilger**, Mohammed A. Shanawaz

272-Pos BOARD B206
CONFORMATIONAL LANDSCAPE OF AN AGONIST-BINDING DOMAIN OF A FULL-LENGTH HETEROMERIC KAINATE RECEPTOR GLUK2/K5 DISPLAYING PARTIAL AGONISM. **Nabina Paudyal**, Elisa Carrillo, Vladimir Berka, Vasanthi Jayaraman

273-Pos BOARD B207
FATTY ACIDS INHIBIT A PENTAMERIC LIGAND-GATED ION CHANNEL THROUGH ONE OF TWO BINDING SITES. Noah Dietzen, John T. Petroff, Douglas F. Covey, **Wayland W. Cheng**

274-Pos BOARD B208
SOLUTION STRUCTURE OF THE GLOEOBACTER VIOLACEUS LIGAND-GATED ION CHANNEL PROBED BY SMALL-ANGLE NEUTRON SCATTERING. **Marie Lycksell**, Urska Rovsniak, Cathrine C. Bergh, Nicolai T. Johansen, Anne Martel, Lionel Porcar, Lise Arleth, Rebecca J. Howard, Erik Lindahl

275-Pos BOARD B209
AGONIST EFFICIENCY ESTIMATED FROM CONCENTRATION RESPONSE CURVE. **Dinesh Indurthi**, Anthony Auerbach

276-Pos BOARD B210
INVESTIGATION OF CATION PERMEATION THROUGH AMPA RECEPTORS BY MOLECULAR DYNAMICS SIMULATIONS. **Johann Biedermann**, Andrew J. Plested, Han Sun, Sebastian Braunbeck

277-Pos BOARD B211
INHIBITION OF AMPA RECEPTORS BY Zn^{2+} . **Elisa Carrillo**, Nidhi Kaur Bhatia, Askar M. Akimzhanov, Vasanthi Jayaraman

278-Pos BOARD B212
STOICHIOMETRY OF GLUA1/GLUA2 HETEROMER OF AMPA RECEPTOR. **Antara Mukhopadhyay**, Chenlu Yu, Maximilian H. Ulbrich

279-Pos BOARD B213
A STATE-SPECIFIC INTERACTION STABILIZES NMDA RECEPTOR OPENING. **Gary J. Iacobucci**, Han Wen, Matthew Helou, Beiyang Liu, Wenjun Zheng, Gabriela K. Popescu

280-Pos BOARD B214
SINGLE MOLECULE FRET INVESTIGATIONS OF THE NMDA RECEPTOR. **Ryan J. Durham**, Nabina Paudyal, Elisa Carrillo, Nidhi Kaur Bhatia, David M. MacLean, Vladimir Berka, Drew M. Dolino, Alemayehu A. Gorfe, Vasanthi Jayaraman

281-Pos BOARD B215
DIRECT M3-M4 INTERACTIONS CONTROL NMDA RECEPTOR GATING AND DESENSITIZATION. **Hannah Premo**, Beiyang Liu, Gary J. Iacobucci, Gabriela K. Popescu

282-Pos BOARD B216
PROBING ALLOSTERIC NETWORKS IN LIGAND-GATED ION CHANNEL GATING BY ELECTROPHYSIOLOGY AND MOLECULAR DYNAMICS IN THE MODEL RECEPTOR GLIC. **Rebecca J. Howard**, Yuxuan Zhuang, Sabina Gutheim, Luise Zeckey, Stephanie A. Heusser, Erik R. Lindahl

283-Pos BOARD B217
THE ROLE OF THE OUTER LIPID-FACING HELIX IN CATIONIC PLGICS IS DEPENDENT ON THE CELLULAR CONTEXT. **Susanne M. Mesoy**, Sarah C.R. Lummis

284-Pos BOARD B218
CONFORMATIONAL LANDSCAPES OF LIGAND-GATED ION CHANNEL GLIC FROM MARKOV STATE MODELING. **Cathrine Bergh**, Stephanie A. Heusser, Rebecca J. Howard, Erik R. Lindahl

Other Channels (Boards B219 - B224)

285-Pos BOARD B219
CENTRAL ROLE OF THE LOWEST PART OF S4 OF CI-VSP IN COUPLING MECHANISM. **Natsuki Mizutani**, Akira Kawanabe, Yasushi Okamura

286-Pos BOARD B220
EVOLUTION OF INVERTED REPEATS IN MEMBRANE TRANSPORTERS. **Christian B. Macdonald**, Troy Cao, Randy Stockbridge

287-Pos BOARD B221
EXPLORING THE PROTON-TRANSFER MECHANISM IN HV1 BY MULTISCALE SIMULATIONS. **William B. Stone**, Adam W. Duster, Ashley L. Bennett, I. Scott Ramsey, Hai Lin

288-Pos BOARD B222
ALPHA-HEMOLYSIN CHANNEL INTERACTION WITH NEUTRAL POLYMERS. **Vicente M. Aguilera**, Marcel Aguilera-Arzo

289-Pos BOARD B223
PERMUTATION OF THE AMINO ACID AT THE CYTOSOLIC ENTRY TO THE CAVITY ALTERS CONDUCTANCE AND GATING OF K^+ CHANNEL IN AN AMINO SPECIFIC MANNER. **Kerri Kukovetz**, Matea Cartolano, Jonas Stein, Oliver Rauh, Alessandro Porro, Anna Moroni, Gerhard Thiel

290-Pos BOARD B224
INFLUENCE OF HYDROPHOBICITY ON ANION SELECTIVITY. **Linda X. Phan**, Charlotte I. Lynch, Jason Crain, Stephen J. Tucker, Mark S. Sansom

Skeletal and Smooth Muscle Mechanics, Structure, and Regulation (Boards B225 - B240)

291-Pos BOARD B225
COLLECTIVE FORCE GENERATOR MODEL OF MUSCLE CONTRACTION. **Vidya Murthy**, Travis J. Stewart, Josh E. Baker

292-Pos BOARD B226
SATURATION OF ACTIN-MYOSIN KINETICS AND MECHANICS. **Josh E. Baker**

293-Pos BOARD B227
MECHANICAL FORCE RATHER THAN STRONG BINDING INTERMEDIATES EXTENDS ACTIVATION OF REGULATED ACTIN. **Henry G. Zot**, Prescott B. Chase, Javier E. Hasbun, J. Renato D. Pinto

294-Pos BOARD B228
TIRASEMTIV AND DATP SYNERGISTICALLY REVERSE THE ACIDOSIS-INDUCED DEPRESSION OF MYOSIN'S FORCE AND MOTION GENERATING CAPACITY. **Christopher P. Marang**, Brent D. Scott, Mike K. Woodward, Edward P. Debold

295-Pos BOARD B229
CONTRACTILITY DEFICIENCY OF TPNT-CD70 FLY MUSCLES UNDERLYING THE HOMOZYGOUS LETHALITY. **Gabriela Aires Moragas**

296-Pos BOARD B230
THE ATOMIC MODEL FOR MYOSIN II COILED-COIL SHOWS NOVEL OBSERVATIONS AND INSIGHTS INTO MUSCLE CONTRACTION. **Hamidreza Rahmani**, Nadia Daneshparvar, Dianne W. Taylor, Wen Ma, Kenneth A. Taylor

297-Pos BOARD B231
TWO ATP ENERGY-SAVING MECHANISMS IN RELAXED TARANTULA SKELETAL MUSCLE. **Raul Padron**, Weikang Ma, Sebastian Duno-Miranda, Thomas C. Irving, Roger W. Craig

298-Pos BOARD B232
DYNAMICS OF STRUCTURAL CHANGES IN MYOSIN-CONTAINING FILAMENTS OF INTACT MOUSE EDL DURING TWITCH AND TETANIC CONTRACTIONS. **Cameron Hill**, Elisabetta Brunello, Luca Fusi, Jesus G. Ovejero, Malcolm Irving

299-Pos BOARD B233
GRADED TITIN CLEAVAGE UNCOVERS THE PROTEIN'S ROLE FOR SARCOMERE STRUCTURE AND FORCE GENERATION OF CONTRACTING MUSCLE. **Anthony L. Hessel**, Yong Li, Andreas Unger, David Ing, Franziska Koser, Jannik Recker, Johanna K. Freundt, Wolfgang A. Linke

300-Pos BOARD B234
SARCOMERIC PROTEIN FATZ FORMS A TIGHT FUZZY COMPLEX WITH A-ACTININ AND PHASE-SEPARATES IN VITRO. Antonio Sponga, Joan L. Arolas, Thomas C. Schwarz, Cy M. Jeffries, Julius Kostan, Anton A. Polyansky, Bojan Zagrovic, Dmitri Svergun, Bettina Warscheid, Robert Konrat, Mathias Gautel, **Kristina Djinovic-Carugo**

301-Pos BOARD B235
THE COMPLIANCE-INDUCED SLOWDOWN OF STRESS RELAXATION IN ACTIVE SARCOMERES. **Khoi D. Nguyen**, Madhusudhan Venkadesan

302-Pos BOARD B236
STRETCH-ACTIVATION IN DROSOPHILA JUMP MUSCLE FIBERS IS DESCRIBED BY A MINIMAL CROSS-BRIDGE MODEL THAT INCLUDES FORCE-DEPENDENT WEAKLY-BOUND CROSS-BRIDGES AND SERIES ELASTICITY. **Katelyn Jarvis**, Kaylyn Bell, Amy K. Loya, Douglas M. Swank, Sam Walcott

303-Pos BOARD B237
 MANDIBULAR MUSCLE TROPONIN OF THE FLORIDA CARPENTER ANT *CAMPONOTUS FLORIDANUS*: EXTENDING OUR INSIGHTS INTO INVERTEBRATE CA²⁺ REGULATION. **Yun Shi**, Julia P. Bethea, Hannah L. Hetzel-Ebben, Maicon Landim-Vieira, Ross J. Mayper, Regan L. Williams, Lauren E. Kessler, Amanda M. Ruiz, Kathryn Gargiulo, Jennifer S.M. Rose, Grayson Platt, J. Renato D. Pinto, Brian K. Washburn, Prescott B. Chase

304-Pos BOARD B238
 TIME-RESOLVED X-RAY DIFFRACTION STUDIES ON TWITCHING RAT SOLEUS AND EDL MUSCLE. Henry Gong, Weikang Ma, Michael Regnier, **Thomas C. Irving**

305-Pos BOARD B239
 EMBRYONIC MYOSIN MUTATIONS T178I AND R672C DEVELOP MECHANICAL DYSFUNCTION WHEN EXPRESSED IN HIPSC DERIVED SKELETAL MYOTUBES. **Saffie Mohran**, Shawn M. Luttrell, Kati Buckingham, Alec S.T. Smith, Michael J. Bamshad, David L. Mack, Michael Regnier

306-Pos BOARD B240
 NANOINDENTATION OF IPSC-DERIVED AORTIC SMOOTH MUSCLE CELLS REVEALS A BIOMECHANICAL AND DEVELOPMENTAL BASIS FOR ANEURYSM LOCALIZATION IN MARFAN SYNDROME. **Robert J. Wiener**, Christoph Schaniel, Francesco Ramirez, Kevin D. Costa

Cell Mechanics, Mechanosensing, and Motility I (Boards B241 - B264)

307-Pos BOARD B241
 EPITHELIAL CELLS RECOVER SUBSTRATE ADHESION THROUGH RETRACTION FIBER-GUIDED LAMELLIPODIA. **Elgin Korkmazhan**, Carlos O. Garzon Coral, Claudia G. Vasquez, Alexander R. Dunn

308-Pos BOARD B242
 FIBROBLASTS CLOSE A VOID IN FREE SPACE BY A PURSE-STRING MECHANISM. **Avelino D.S. Da Costa**

309-Pos BOARD B243
 CELL MONOLAYER DEFORMATION MICROSCOPY - A NEW METHOD TO MEASURE THE RHEOLOGY OF CELL MONOLAYERS REVEALS MECHANICAL FRAGILITY OF THE CELL NETWORK IN THE EPITHELIAL TO MESENCHYMAL TRANSITION. **Amy A. Sutton**, Allen J. Ehrlicher, Clayton W. Molter, Ali Amini, Johanan Idicula, Max Furman, Pouria Tirgar Bahnamiri, Yuanyuan Tao, Ajinkya Ghagre, Newsha Koushki, Adele Khavari

310-Pos BOARD B244
 ACTIVE VOLUME REGULATION IN ADHERED CELLS. **Ram M. Adar**, Samuel Safran

311-Pos BOARD B245
 GLYCOLYSIS INHIBITION REGULATES ENDOTHELIAL JUNCTIONS BY PERTURBING ACTIN AND FOCAL ADHESIONS. **Gregory Schwarz**, Priyanka Gajwani, Jalees Rehman, Deborah E. Leckband

312-Pos BOARD B246
 MECHANO-ACTIVATION OF MESENCHYMAL STEM CELLS BY AVOIDING INTRACELLULAR TENSIONAL EQUILIBRIUM ON MATRIX WITH STIFFNESS-HETEROGENEITY. **Satoru Kidoaki**, Hiroyuki Ebata, Kousuke Moriyama, Thasaneeya Kuboki, Yukie Tsuji, Rumi Sawada, Ken Kono, Kazusa Tanaka

313-Pos BOARD B247
 VERTEX MODEL INSTABILITIES IN EPITHELIAL TISSUES SUBJECT TO CELLULAR ACTIVITY OR APPLIED STRESS. **Fernanda L. Pérez**

314-Pos BOARD B248
 MACROPHAGES SUPPORT THE AGGRESSIVE MECHANICAL PHENOTYPE OF CIRCULATING TUMOR CELLS IN PROSTATE CANCER. **Pawel A. Osmulski**, Alessandra Cunsolo, Yusheng Qian, Meizhen Chen, Chun-Lin Lin, Chia-Nung Hung, Devalingam Mahalingam, Nameer Kirma, Chun-Liang Chen, Josephine Taverna, Michael Liss, Ian M. Thompson, Tim H.-. Huang, Maria Gaczynska

315-Pos BOARD B249
 ON THE ADHESION-VELOCITY RELATION AND LENGTH ADAPTION OF MOTILE CELLS ON STEPPED FIBRONECTIN LANES. **Behnam Amiri**, Christoph Schreiber, Johannes Heyn, Martin Falcke, Joachim O. Rädler

316-Pos BOARD B250
 MEDIO-APICAL TENSIONS REGULATE TIGHT JUNCTIONS OF WELL-POLARIZED MADIN-DARBY CANINE KIDNEY CELLS. Chia-hsuan Lu, **Keng-hui Lin**

317-Pos BOARD B251
 PATTERN-BASED CONTRACTILE SCREENING (PACS), A REFERENCE-FREE TRACTION FORCE MICROSCOPY METHODOLOGY, REVEALS CONTRACTION TILE DIFFERENCES IN BREAST CANCER CELLS. **Ajinkya Ghagre**, Ali Amini, Luv Kishore Srivastava, Pouria Tirgar Bahnamiri, Adele Khavari, Newsha Koushki, Allen J. Ehrlicher

318-Pos BOARD B252
 KINETICS OF CELLULAR AGGREGATION MEDIATED THROUGH DIFFERENT KIND OF INTERACTION MECHANISMS. **Rumi De**, Debangana Mukhopadhyay

319-Pos BOARD B253
 DISRUPTING ELKIN1-DEPENDENT MECHANOELECTRICAL TRANSDUCTION MODULATES CELL-CELL INTERACTIONS IN ORGANOTYPIC TUMOUR SPHEROIDS. **Amrutha Patkunarajah**, Lioba Schroeter, Georgina Sander-son, Maté Biro, Kate Poole

320-Pos BOARD B254
 MULTIMODAL MICROSCALE MECHANICAL MAPPING OF SINGLE CELLS AS A FUNCTION OF ENVIRONMENT GEOMETRY. **Milos Nikolic**, Giuliano Scarcelli, Kandice Tanner

321-Pos BOARD B255
 MECHANICAL COMPETITION TRIGGERED BY INNATE IMMUNE SIGNALING DRIVES THE COLLECTIVE EXTRUSION OF BACTERIALLY-INFECTED EPITHELIAL CELLS. **Effie Bastounis**, Francisco Serrano Alcalde, Prathima Radhakrishnan, Patrik Engström, Maria Gómez Benito, Mackenzi Oswald, Jason Smith, Matthew Welch, José M. García Aznar, Julie Theriot

322-Pos BOARD B256
 WHICH CHEMOTHERAPY DRUGS ALTER CELL MECHANICAL PROPERTIES WITH IMPACT ON METASTASIS? Ashley Abraham, Mackenzie McCuddin, Chisom Nwakama, Megha Jacob, Gargee Khaparde, Scott Baumel, Spencer Mckinley, Jack Lewison, Sukhman Viridi, Destiny Jordan, Harry Kramer, **Andrew E. Ekpenyong**

323-Pos BOARD B257
 FORCE MEASUREMENT DETERMINES THE DIRECTION OF CELL MIGRATION BY THE TRACTION FORCE MICROSCOPY. **Takeshi Sakamoto**, Yuwen Mei, Justin J. Raupp

324-Pos BOARD B258
 INTEGRIN CROSSTALK MODULATES STIFFNESS-INDEPENDENT MOTILITY IN CD4+ T LYMPHOCYTES. **Sarah Hyun Ji Kim**, Daniel A. Hammer

325-Pos BOARD B259
 DEPENDENCE OF NEUTROPHIL PHAGOCYTOSIS MECHANICS ON EXTRA- AND INTRACELLULAR CALCIUM. **Emmet A. Francis**, Volkmar Heinrich

326-Pos BOARD B260
 STRATEGIES OF MECHANICAL ADAPTATION OF CTCs TO BLOOD CIRCULATION. **Yusheng Qian**, Alessandra Cunsolo, Meizhen Chen, Chia-Nung Hung, Nameer B. Kirma, Michael Liss, Tim H. Huang, Pawel A. Osmulski, Maria E. Gaczynska

327-Pos BOARD B261
 ROLE OF MICROGLIA IN POLARIZATION GUIDED COLLECTIVE MIGRATION OF GLIOMAS - A BIOPHYSICAL APPROACH. **Megha Jhunjunwala**, Yi-Hsuan Tsai, Chi-Shuo Chen

328-Pos BOARD B262

INTRACELLULAR CALCIUM CONCENTRATION-INDEPENDENT CARDIOMYOCYTE CONTRACTION TRIGGERED BY HIGH HYDROSTATIC PRESSURE. **Yohei Yamaguchi**, Masayoshi Nishiyama, Gentaro Iribe, Keiji Naruse, Masatoshi Morimatsu

329-Pos BOARD B263

CORTICAL DYNAMICS OF CONTACT EXPANSION. **Feyza Nur Arslan**, Martin Loose, Carl-Philipp Heisenberg

330-Pos BOARD B264

UNDERSTANDING THE ROLE OF MEMBRANE FLUCTUATION AND TENSION DURING CELL FUSION OF MYOGENESIS. **Madhura Chakraborty**

Bacterial Mechanics, Cytoskeleton, and Motility (Boards B265 - B271)

331-Pos BOARD B265

MODELING GROWTH-MEDIATED MOTILITY IN *CLOSTRIDIUM PERFRINGENS*. **Sean G. McMahon**, Stephen B. Melville, Jing Chen

332-Pos BOARD B266

COARSE-GRAINED UNFOLDING SIMULATIONS OF FTSZ AND DOCKING OF THERAPEUTIC COMPOUNDS. **Kelly E. Theisen**

333-Pos BOARD B267

A MULTISCALE MODEL OF FUNGAL IMPACT ON CHEMOTACTIC BEHAVIOR OF MYCORRHIZAL HELPER BACTERIA. **Jolene Britton**, Alireza Ramezani, Dale Pelletier, Mark Alber, William R. Cannon

334-Pos BOARD B268

MATHEMATICAL MODELLING OF CONTACT-DEPENDENT MOTILITY COORDINATION IN *MYXOCOCCUS XANTHUS*. **Yirui Chen**, Jing Chen

335-Pos BOARD B269

LIFE IN A TIGHT SPOT: MOTILITY OF BACTERIA IN HETEROGENEOUS ENVIRONMENTS. **Sujit S. Datta**, Tapomoy Bhattacharjee, Daniel B. Amchin, Jenna A. Ott, Felix Kratz

336-Pos BOARD B270

MECHANOBIOLOGY OF STATOR REMODELING IN THE BACTERIAL FLAGELLAR MOTOR. **Navish Wadhwa**, Yuhai Tu, Howard C. Berg

337-Pos BOARD B271

CO-ASSEMBLY OF MINC-MIND FROM *BACILLUS SUBTILIS* SUGGESTS A "CAPTURE-RELEASE" MODEL. **Yaodong Chen**, Na Wang, Mingyue Niu, Xiaoyu Wang, Tingting Zhang, Zhe Li

Membrane Pumps, Transporters, and Exchangers (Boards B272 - B299)

338-Pos BOARD B272

DRUG-BINDING TO DISTINCT SITES OF THE MULTIDRUG EXPORTER P-GLYCOPROTEIN. **Ina Urbatsch**, Anthony A. Bui, Joel Zapata, Douglas J. Swartz, Courtney Katz, Anukriti Singh, Joachim Weber

339-Pos BOARD B273

SIMULATION OF COPPER-DEPENDENT REGULATION DYNAMICS IN ATP7B. **Fredrik Orädd**, Magnus Andersson

340-Pos BOARD B274

PEPTIDE-BASED INHIBITION OF ACRB EFFLUX ACTIVITY. **Tyler Johnson**, Charles M. Deber

341-Pos BOARD B275

BIOPHYSICAL CHARACTERIZATION AND STRUCTURAL STUDIES OF SMALL MULTIDRUG RESISTANCE FAMILY OF TRANSPORTERS. **Ali A. Kermani**, Christian B. Macdonald, Randy Stockbridge

342-Pos BOARD B276

A BIPHASIC MOLECULAR MODEL FOR PROTON TRANSPORT IN TETRAMERIC UNCOUPLING PROTEINS. **Afshan Ardalan**, Habib Oduwoye, Shahin Sowlati-Hashjin, Mikko Karttunen, Matthew D. Smith, Masoud Jelokhani-Niaraki

343-Pos BOARD B277

MECHANISM OF SULFATE SELECTIVITY AND TRANSPORT IN A SLC26 FAMILY OF SULFATE TRANSPORTER. **Lie Wang**, Kehan Chen, Shuai Gao, Nieng Yan, Ming Zhou

344-Pos BOARD B278

DIRECT EVIDENCE FOR VOLTAGE-INDUCED CONFORMATIONAL CHANGES OF PRESTIN, THE ELECTROMECHANICAL TRANSDUCER IN OUTER HAIR CELLS. **Makoto F. Kuwabara**, Dominik Lenz, Thomas K. Berger, Dominik Oliver

345-Pos BOARD B279

THE REACTION CYCLE OF DASSCARBOXYLATE TRANSPORTERS. **David B. Sauer**, Noah Trebesch, Jennifer Marden, Nicolette Cocco, Jinmei Song, Akiko Koide, Shohei Koide, Emad Tajkhorshid, Da-Neng Wang

346-Pos BOARD B280

KNOCKOUT OF SLC26A6 PROTECTS THE HEART FROM ISCHEMIA/REPERFUSION INJURIES. **Phung N. Thai**, Lu Ren, Hannah A. Ledford, Richard Q. Ngo, Padmini Sirish, Valeriy Timofeyev, Yang Li, Xiaotian Zhou, Zhong Jian, Ye Chen-lzu, Nipavan Chiamvimonvat, Xiao-Dong Zhang

347-Pos BOARD B281

MECHANISM OF SUBSTRATE RECOGNITION AND TRANSPORT IN A SLC5 FAMILY OF MULTIVITAMIN TRANSPORTER WITH THREE NA⁺ BINDING SITES. **Lie Wang**, Eva G. Iturbe, Yaping Pan, Matthias Quick, **Ming Zhou**

348-Pos BOARD B282

NOVEL INSIGHTS INTO SUBSTRATE BINDING AND TRANSPORT BY THE SLC4 TRANSPORTERS. **Hristina R. Zhekova**, Alexander Pushkin, Gulru Kayik, Liyo Kao, Rustam Azimov, Natalia Abuladze, Debra Kurtz, Mirna Damergi, Sergei Y. Noskov, Ira Kurtz

349-Pos BOARD B283

STRUCTURAL BASIS OF ION TRANSPORT AND INHIBITION IN FERROPOR-TIN. **Yaping Pan**, Zhenning Ren, Shuai Gao, Jiemin Shen, Xiao Fan, Nieng Yan, Ming Zhou

350-Pos BOARD B284

ELUCIDATION OF ZN²⁺ BINDING IN THE ZN²⁺/H⁺ ANTIporter YIIP. **Shujie Fan**, Maria Lopez-Redondo, David L. Stokes, Oliver Beckstein

351-Pos BOARD B285

THE ENERGETICS OF CHOLESTEROL TRANSPORT THROUGH PATCHED1: MD SIMULATIONS AND FREE ENERGY CALCULATIONS. **T. Bertie Ansell**, Robin A. Corey, Christian Siebold, Mark S. Sansom

352-Pos BOARD B286

DISULFIDE CHAPERONE KNOCKOUTS FACILITATE DOUBLE SPIN LABELLING OF AN OUTER MEMBRANE TRANSPORTER FOR *IN VITRO* EPR STUDIES. **Viranga W. Wimalasiri**, Thushani D. Nilaweera, David S. Cafiso

353-Pos BOARD B287

STRUCTURAL BIOCHEMISTRY OF THE ZRT-/IRT-LIKE PROTEIN (ZIP) TRANSITION METAL TRANSPORTERS. **Jian Hu**

354-Pos BOARD B288

EVALUATING CANDIDATE MECHANISMS OF A DISEASE-CAUSING MUTATION IN THE LYSOSOMAL CHLORIDE TRANSPORTER CLC-7. **Kamsiyochukwu C. Nwangwu**, Alissa J. Becerril, Joseph A. Mindell

355-Pos BOARD B289

BIOPHYSICAL EFFECTS OF DISEASE MUTANTS IN THE LYSOSOMAL CL-/H⁺ EXCHANGER CLC-7. **Jacob K. Hilton**, Joseph A. Mindell

356-Pos BOARD B290
STRUCTURAL DYNAMICS AND ENERGETICS OF GLUCOSE TRANSPORT VIA RICE SWEET SUGAR TRANSPORTER. **Ankita Gupta**, Ramasubbu Sankaramakrishnan

357-Pos BOARD B291
ENERGETICS OF SUBSTRATE BINDING AND CONFORMATIONAL CHANGE OF THE BILE ACID TRANSPORTER ASBT^{NM}. **Fiona Naughton**, Patrick Becker, Alexander D. Cameron, Oliver Beckstein

358-Pos BOARD B292
IN VIVO AND *IN VITRO* CHARACTERIZATIONS OF NANOBODIES RAISED AGAINST THE MELIBIOSE PERMEASE MELB OF *SALMONELLA TYPHIMURIUM*. **Satoshi Katsube**, Katleen Willibal, Elena B. Tikhonova, Hariharan Parameswaran, Sangama Vemulapally, Els Pardon, H. Ronald Kaback, Jan Steyaert, Lan Guan

359-Pos BOARD B293
DRUG EFFECTS ON HUMAN NA(+)/CA(2+)EXCHANGER AND IMPLICATIONS FOR DRUG DEVELOPMENT. **Maria Barthmes**, Andre Bazzone, Marta Lemme, Sonja Stoelzle-Feix, Andrea Bruggemann, Michael George, Niels Fertig

360-Pos BOARD B294
MECHANISTIC INSIGHT INTO PEPTIDE-BASED EFFLUX PUMP INHIBITORS AGAINST PATHOGENIC BACTERIA. **Chloe J. Mitchell**, Charles M. Deber

361-Pos BOARD B295
PUMP, REST AND REPEAT: SINGLE MOLECULE MEASUREMENTS REVEAL MODE-SWITCHING IN THE MAMMALIAN BRAIN V-ATPASE. **Eleftherios I. Kosmidis**, Julia Preobraschenski, Christopher Shuttle, Salome Veshaguri, Peter J. Johnson, Jesper L. Pedersen, Reinhard Jahn, Dimitrios Stamou

362-Pos BOARD B296
ALTERNATING BINDING OF PHOSPHOLAMBAN AND DWORF TO SERCA DURING TRANSIENT ELEVATIONS OF CYTOSOLIC CALCIUM. **Sean R. Cleary**, Marsha P. Pribadi, Ellen E. Cho, Xuan Fang, Jaroslava Seflova, Jordan R. Beach, Peter M. Kekenus-Huskey, Seth L. Robia

363-Pos BOARD B297
DISPLACEMENT OF THE NA⁺/K⁺-PUMP'S TRANSMEMBRANE DOMAINS DEMONSTRATE CONSERVED CONFORMATIONAL CHANGES IN P-TYPE 2 ATPASES. **Victoria C. Young**, Pablo Artigas

364-Pos BOARD B298
INSIGHT INTO SODIUM PUMP REGULATION BY FXD PROTEINS. **Jaroslava Seflova**, John Q. Yap, Christine E. Delligatti, Marsha P. Pribadi, Pablo Artigas, Julie Bossuyt, Seth L. Robia

365-Pos BOARD B299
THE USE OF THIOFLAVIN T TO ESTIMATE AND MEASURE THE PLASMA MEMBRANE POTENTIAL IN *SACCHAROMYCES CEREVISIAE*. **Antonio Peña**

EPR and NMR: Spectroscopy and Imaging (Boards B300 - B305)

366-Pos BOARD B300
"ONE STOP SHOP" FOR NMR-BASED BIOMOLECULAR RESEARCH. **Woong-hee Lee**

367-Pos BOARD B301
PARAMAGNETIC NMR SPECTROSCOPY OF A TRI-NUCLEAR COPPER CENTER FROM A MULTICOPPER OXIDASE, LACCASE. **Rubin Dasgupta**

368-Pos BOARD B302
STRUCTURE AND DYNAMICS OF FICOLL (POLYSUCROSE). **Venketesh Thrithamara Ranganathan**, Yun Liu, Anand Yethiraj

369-Pos BOARD B303
INVESTIGATING CHROMATIN DYNAMICS IN HETEROCHROMATIN ENVIRONMENTS BY SOLID-STATE NMR SPECTROSCOPY. **Nesreen Elathram**, Bryce Ackermann, Galia T. Debelouchina

370-Pos BOARD B304
¹⁵N BIFUNCTIONAL SPIN LABEL: PUSHING THE LIMITS OF ANGULAR RESOLUTION OF MUSCLE MYOSIN. **Yahor Savich**, Megan R. McCarthy, Stefan Stoll, David D. Thomas

371-Pos BOARD B305
HOW ACCURATE ARE PRE-DERIVED DISTANCES? COMBINED MD AND EXPERIMENTAL STUDY OF SPIN-LABELED GB1 DOMAIN. Olga Lebedenko, **Sergei A. Izmailov**, Dmitrii Luzik, Nikolai Skrynnikov

Molecular Dynamics I (Boards B306 - B328)

372-Pos BOARD B306
DEEP LEARNING BASED OPTIMIZATION OF LENNARD-JONES PARAMETERS FOR THE DRUDE GENERAL FORCE FIELD (DGENFF). **Payal Chatterjee**, Mert Y. Sengul, Alexander D. MacKerell

373-Pos BOARD B307
MASSIVELY PARALLEL MACHINE LEARNING DRIVEN MULTISCALE SIMULATIONS TO EXPLORE RAS-RAF BIOLOGY. **Helgi I. Ingólfsson**

374-Pos BOARD B308
PREDICTION OF ABSOLUTE BINDING AND UNBINDING KINETICS ON TIMESCALES OF A MINUTE FROM SUB-MICROSECOND MD SIMULATIONS. **Steffen Wolf**, Benjamin Lickert, Simon Bray, Gerhard Stock

375-Pos BOARD B309
HOOGSTEEN BASE PAIRING IN DNA: EFFECTS OF FORCE FIELD MODELS ON FREE ENERGY AND TRANSITION PATHWAYS. **Sharon E. Stone**, Dhiman Ray, Ioan Andricioaei

376-Pos BOARD B310
THE VARIATIONALLY DERIVED INTERMEDIATES METHOD TO CALCULATE FREE ENERGY DIFFERENCES. **Martin Reinhardt**, Helmut Grubmueller

377-Pos BOARD B311
HAMILTONIAN REPLICA EXCHANGE WITH SOLUTE TEMPERING AND BIASING POTENTIALS (HREST-BP): APPLICATIONS IN ANTIBODY GLYCOENGINEERING. **Gene Chong**, Alexander D. MacKerell

378-Pos BOARD B312
USING LAMBDA DYNAMICS TO STUDY PROTONATION STATES OF GLIC. **Paul Bauer**, Noora Aho, Anton Jansen, Rebecca J. Howard, Berk Hess, Gerrit Groenhof, Erik R. Lindahl

379-Pos BOARD B313
MD SIMULATION OF SOLVATED DAFP-1-ICE SURFACE BINDING USING UMBRELLA SAMPLING. **Benjamin M. Harless**

380-Pos BOARD B314
WAYPOINT GRAPH GENERATION WITH GROWING NEURAL GASES FOR PATHFINDING APPLICATIONS IN MOLECULAR DYNAMICS SIMULATIONS. **Moeen Meigooni**, Emad Tajkhorshid

381-Pos BOARD B315
ADAPTIVE SAMPLING USING A GEOMETRIC BROWNIAN MOTION MODEL TO PREDICT MD TRAJECTORY MOBILITY ON A FREE ENERGY SURFACE. **Ekaterina D. Kots**, Derek M. Shore, Harel Weinstein

382-Pos BOARD B316
AUTOMATED IDENTIFICATION OF COLLECTIVE VARIABLES AND METASTABLE STATES FROM MOLECULAR DYNAMICS DATA. Yasemin Bozkurt Varolgunes, Tristan Bereau, **Joseph F. Rudzinski**

383-Pos BOARD B317
IMPROVING REPRODUCIBILITY OF AUTOMATICALLY GENERATED MARKOV MODELS FROM MOLECULAR DYNAMICS TRAJECTORIES. **Andreas Volkhardt**, Nicolai Kozlowski, Malte Schäffner, Helmut Grubmuller

384-Pos BOARD B318
MEMBRANE BINDING OF FLAVIVIRAL NONSTRUCTURAL PROTEIN 1: COMPARATIVE SIMULATIONS OF ZIKA AND DENGUE VIRUS NS1 PROTEINS IN POPE BILAYERS. **Muthukumaran Rajagopalan**, Ramasubbu Sankaramakrishnan

385-Pos BOARD B319
MOLECULAR DYNAMICS STUDY OF MEMBRANE BINDING MECHANISM OF A PERIPHERAL MEMBRANE PROTEIN OSH4. **Sharmistha Das Karmakar**, Jeffery B. Klauda

386-Pos BOARD B320
ABOUT THE IMPACT ON MSMS OF PROTEIN MD SIMULATIONS BY THE RESEMBLANCE BETWEEN TICA PROJECTIONS AND COSINES. **Malte Schäffner**, Steffen Schultze, Nicolai Kozlowski, Andreas Volkhardt, Helmut Grubmuller

387-Pos BOARD B321
TOWARDS PROTEIN FUNCTION PREDICTION BASED ON MOLECULAR DYNAMICS SIMULATIONS. **Nicolai Kozlowski**, Malte Schäffner, Andreas Volkhardt, Helmut Grubmuller

388-Pos BOARD B322
ENHANCED SAMPLING MOLECULAR DYNAMICS TO DETERMINE FORCE RESPONSE IN PEPTIDE TENSION SENSORS. **Yuvraj Singh**, Glen M. Hocky

389-Pos BOARD B323
CG2AT2: RECOVERING ATOMISTIC DETAILS FROM COARSE GRAIN SIMULATIONS. **Owen N. Vickery**, Phillip J. Stansfeld

390-Pos BOARD B324
INHOMOGENEOUS SOLUBILITY-DIFFUSION MODEL GIVES INSIGHT IN EFFICACY OF COUNTING CROSSINGS METHOD TO CALCULATE THE MEMBRANE PERMEABILITY. **Samaneh Davoudi**, An Ghysels

391-Pos BOARD B325
A NOVEL GRID-BASED MOLECULAR DYNAMICS PROTOCOL TO SHUFFLE LIPIDS IN HETEROGENIOUS MEMBRANES. **Sepehr Dehghanighahnaviyeh**, Giuseppe Licari, Emad Tajkhorshid

392-Pos BOARD B326
ELECTROSTIMULATED TRANSMEMBRANE TRAFFIC — MOLECULAR SIMULATIONS OF LIPID PORE RESPONSE TO PICOSECOND FIELD REVERSAL. **Federica Castellani**, Tatiana Zvoraneva, Esin B. Sozer, P. Thomas Vernier

393-Pos BOARD B327
RNA-PROTEIN INTERACTIONS IN MOLECULAR LIFE AND HEALTH: A COMPUTATIONAL APPROACH. **Mark D. Driver**, Patrick R. Onck

394-Pos BOARD B328
HOW EFFECTIVE ARE RETRO-INVERSO PEPTIDES? INSIGHTS FROM MD SUPPORTED BY PARAMAGNETIC NMR DATA. **Dmitrii Luzik**, Olga Rogacheva, Nikolai Skrynnikov

Computational Methods and Bioinformatics I (Boards B329 - B350)

395-Pos BOARD B329
DETECTING PROTEIN AND DNA/RNA STRUCTURES IN CRYO-EM MAPS OF INTERMEDIATE RESOLUTION USING DEEP LEARNING. **Xiao Wang**, Eman Alnabati, Tunde W Aderinwale, Sai Raghavendra Maddhuri Venkata Subramaniya, Genki Terashi, Daisuke Kihara

396-Pos BOARD B330
ANALYSIS OF LENGTH BIASES IN SINGLE-CELL RNA SEQUENCING OF UNSPLICED MRNA BY MARKOV MODELING. **Gennady Gorin**, Lior Pachter

397-Pos BOARD B331
DEVELOPMENT AND EVALUATION OF THE SILCS METHODOLOGY FOR TARGETING RNA WITH SMALL MOLECULES. **Abhishek A. Kognole**, Alexander D. MacKerell

398-Pos BOARD B332
AUTOMATED LOCALIZATION AND QUANTIFICATION OF RNA TRANSCRIPTS FROM RNA-FISH IMAGE DATA. **Blythe G. Hospelhorn**, Benjamin K. Kesler, Gregor Neuert

399-Pos BOARD B333
PREDICTION OF MEMBRANE PERMEATION OF SMALL DRUG MOLECULES USING SILCS ENERGY PROFILE WITH MACHINE LEARNING. **Poonam Pandey**

400-Pos BOARD B334
THE EFFECT OF POINT MUTATIONS ON STRUCTURE AND DYNAMICS OF SARS-COV-2 MAIN PROTEASE MUTANTS. **Elizabeth M. Diessner**, Zixiao Zong, Thomas J. Cross, Gemma R. Takahashi, Marquise G. Crosby, Vesta Farahmad, Shannon Zhuang, Carter T. Butts, Rachel W. Martin

401-Pos BOARD B335
STRUCTURE PREDICTION AND MOLECULAR PHYLOGENETIC ANALYSIS OF MEMBRANE INTERACTIONS IN SYNAPTOTAGMIN-LIKE PROTEINS. **Nara L. Chon**, Sherleen Tran, Christopher Miller, Hai Lin, Jefferson Knight

402-Pos BOARD B336
EXTRACTING PROTEIN RECRUITMENT KINETICS TO DNA DAMAGE USING QFADD.PY. **Samuel Bowerman**, Jyothi Mahadevan, Philip Benson, Johannes Rudolph, Karolin Luger

403-Pos BOARD B337
ANTIBODY MODELING USING MOLECULAR DYNAMICS AND SILCS FRAGMAPS. **Asaminew H. Aytenfisu**, Daniel J. Deredge, Erik H. Klontz, Jonathan Du, Eric J. Sundberg, Alexander D. MacKerell

404-Pos BOARD B338
EXPLORING HOST-GUEST INTERACTIONS USING THE SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS) METHOD. **Wenbo Yu**, Alexander D. MacKerell

405-Pos BOARD B339
LIPID CONTACT PROBABILITY - AN ESSENTIAL AND PREDICTIVE PROPERTY FOR THE STRUCTURAL AND FUNCTIONAL STUDIES OF (MEMBRANE) PROTEINS. **Lei Wang**, Jiangguo Zhang, Dali Wang, Chen Song

406-Pos BOARD B340
COMPREHENSIVE 3D-RISM ANALYSIS OF THE HYDRATION OF SMALL MOLECULE BINDING SITES IN LIGAND-FREE PROTEIN STRUCTURES. **Takashi Yoshidome**, Mitsunori Ikeguchi, Masateru Ohta

407-Pos BOARD B341
EXTENSION OF THE UNRES PACKAGE FOR PHYSICS-BASED COARSE-GRAINED SIMULATIONS OF PROTEINS AND PROTEIN COMPLEXES TO VERY LARGE SYSTEMS. Adam K. Sieradzan, Cezary R. Czaplewski, Emilia A. Lubecka, Agnieszka G. Lipska, Agnieszka S. Karczynska, Artur P. Gieldon, Rafal Slusarz, Mariusz Makowski, Pawel Krupa, Mateusz Kogut, Anna Antoniak, Patryk A. Wesolowski, Antoni Augustynowicz, Henryk Leszczynski, Jozef A. Liwo

408-Pos BOARD B342
USING TACTICS TO FIND DRUGGABLE POCKETS IN SARS-COV2 PROTEINS. **Daniel J. Evans**, Remy A. Yovanno, Sanim Rahman, Afif Bandak, Albert Y. Lau

409-Pos BOARD B343
COMPARISON OF DEEP LEARNING MODELS FOR FULLY AUTOMATED SINGLE CHANNEL IDEALIZATION. **Sam Ball**, Numan Celik, Nathanael O'Neill, Fiona O'Brien, Richard Barrett-Jolley

410-Pos BOARD B344
VESPER: GLOBAL AND LOCAL CRYO-EM MAP ALIGNMENT AND DATA-BASE SEARCH USING LOCAL DENSITY VECTORS. **Genki Terashi**, Xusi Han, Charles Christoffer, Siyang Chen, Daisuke Kihara

411-Pos BOARD B345
MONTE CARLO PATHWAY SEARCH (MCPS) FOR EXPLORING PERMEATION PATHWAYS IN HIGH-DIMENSIONAL CONFORMATIONAL SPACE. **Archit K. Vasan**, Nandan Haloi, Po-Chao Wen, Emad Tajkhorshid

412-Pos BOARD B346
PREDICTING EPITHELIAL-MESENCHYMAL TRANSITION DYNAMICS UNDER SPECIFIC PERTURBATIONS USING DATA ASSIMILATION. **Mario J. Mendez**, Matthew J. Hoffman, Elizabeth M. Cherry, Christopher A. Lemmon, Seth H. Weinberg

413-Pos BOARD B347
CAN COMPLETE TRANSPORTER MECHANISMS BE INFERRED FROM EXPERIMENTAL DATA? **August George**, Nathan E. Thomas, Katherine A. Henzler-Wildman, Daniel M. Zuckerman

414-Pos BOARD B348
INTEGRATING MOLECULAR DYNAMICS AND SMFRET DATA TO STUDY THE CONFORMATIONAL ENSEMBLE OF THE C-TERMINUS OF ALBINO3 PROTEIN. **James Losey**, Vivek Govind Kumar, Dustin Baucom, Mercedes Furr, Colin D. Heyes, Suresh Kumar, Mahmoud Moradi

415-Pos BOARD B349
USING THE ENTROPY OF NON-EQUILIBRIUM SYSTEMS OF MOLECULES TO ESTIMATE THE INTERACTION MATRIX IN GRAPHICAL GAUSSIAN MODELS OF OMICS DATA. **Ahmad Borzou**, Rovshan G. Sadygov

416-Pos BOARD B350
QUANTITATIVE SPATIAL LOCALIZATION OF BIOMOLECULES FROM FLUORESCENCE MICROSCOPY DATA. **Andrew M. Soltisz**, Rengasayee Veer-araghavan

Bioengineering (Boards B351 - B367)

417-Pos BOARD B351
SINGLE-STEP, SINGLE-COLUMN PROTEIN PURIFICATION AND LABELLING FOR FLUORESCENCE STUDIES. **Arvi Puka**, Adrian Rotaru, Spencer Smyth, Andrew Beharry, Claudiu C. Gradinaru

418-Pos BOARD B352
NEAR-INFRARED FLOURESCENCE PROBES FOR VISUALIZATION OF TUMORS AND BLOOD VESSELS. **Michael DuPont**, Troy Crawford, Anna Moshnikova, Dhammika Weerakkody, Yana K. Reshetnyak, Oleg A. Andreev, John Shen

419-Pos BOARD B353
DEEP LEARNING IMAGE ANALYSIS MODEL OF PULMONARY ARTERIES. **Erica Pursell**, Yasser Aboelkassem

420-Pos BOARD B354
FIBRIN MOLECULAR STRUCTURE INDUCED BY SHEAR AND TENSION MECHANICAL STIMULI CAN BE A KEY FOR FIBRINOLYSIS. **Yujen Wang**, Sachin Kumar B, Mischa Bonn, Sapun H. Parekh

421-Pos BOARD B355
CALMODULINOPATHY CORRECTION USING CRISPR INTERFERENCE IN A CARDIAC MICROTISSUE MODEL. **Chenyu Huang**, Chin Siang Ong, Jingnan Han, Joseph Boktor, Roald Teuben, Ijala Wilson, Deborah DiSilvestre, Leslie Tung, Narutoshi Hibino, Daniel H. Reich, Gordon F. Tomaselli

422-Pos BOARD B356
APPLICATION OF NEXT-GENERATION SEQUENCING ANALYSIS IN THE DIRECTED EVOLUTION FOR CREATING ANTIBODY MIMIC. **Tomoyuki Ito**, Hafumi Nishi, Thuy Duong Nguyen, Yutaka Saito, Tomoshi Kameda, Hikaru Nakazawa, Koji Tsuda, Mitsuo Umetsu

423-Pos BOARD B357
SYNTHESIZING LONG AND REPETITIVE PROTEINS VIA A "LOOPABLE TRANSLATOR" SYSTEM. **Sea On Lee**, Stephen D. Fried

424-Pos BOARD B358
ENGINEERING OF GENOME EDITING PROTEIN CAS9 THAT SLIDES ALONG DNA FASTER AND MIGHT ENABLE EFFICIENT TARGET SEARCH. **Trishit Banerjee**, Dwiky Rendra Graha Subekti, Hiroto Takahashi, Satoshi Takahashi, Kiyoto Kamagata

425-Pos BOARD B359
MATHEMATICAL MODELS FOR LIVING FORMS IN MEDICAL PHYSICS SUBMODEL 2: INFORMATION CODING AND INFORMATION PROCESSING THROUGH NERVES. **Christina Pospisil**

426-Pos BOARD B360
MEASURING AND OPTIMIZING MG-63 OSTEOSARCOMA OSSEOINTEGRATION AND PROLIFERATION ON LASER ABLATED MEDICAL-GRADE TITANIUM. **Tara T. Hickman**

427-Pos BOARD B361
CELL PHENOTYPE DETERMINATION ON HYDROGEL SUBSTRATES USING RAMAN SPECTROSCOPY AND MULTIVARIATE ANALYSIS. **Apurva Godbole**, Sayani Majumdar, Isamar O. Pastrana, Brittney L. Gorman, Mary L. Kraft

428-Pos BOARD B362
BIOENGINEERING THE EXTRACELLULAR MATRIX TO IMPROVE THE CELLULAR AND MOLECULAR PHYSIOLOGY OF CELLS IN VITRO. **Hamed Ghazizadeh**, Elliot C. Fisher, Kevin Gray, Alec S. Smith, Deok-Ho Kim, Nicholas Geisse

429-Pos BOARD B363
LIPID COMPOSITION OF THE CELL MEMBRANE OUTER LEAFLET AFFECTS ENDOCYTOSIS AND INTRACELLULAR FATE OF NANOPARTICLES. **Saeed Nazemidashtarjandi**, Monica Burdick, Amir Farnoud

430-Pos BOARD B364
INHIBITION OF SARS-COV-2 SPIKE PROTEIN FUNCTION BY AMPHIPHILIC BLOCK COPOLYMERS. **Michelle X. Ling**, Michelle Nguyen, Kyle McCollum, Raphael C. Lee

431-Pos BOARD B365
ENGINEERING CRYSTALLINE PROTEIN ARRAYS FOR FUNCTIONALIZED 2D AND 3D BIOMATERIALS. **Behzad Rad**, Caroline M. Ajo-Franklin, Francesca Manea, Virginia G. Garda

432-Pos BOARD B366
SOLID TUMOR CURES BY COMPLETE DISRUPTION OF THE CD47:SIRPA MACROPHAGE CHECKPOINT, TUMOR OPSONIZATION, AND 'PHAGOCYTTIC FEEDBACK'. **Lawrence J. Dooling**, Jason C. Andrechak, Brandon H. Hayes, Siddhant Kadu, Ruby Pan, Michael P. Tobin, Manasvita Vashisth, Dennis E. Discher

433-Pos BOARD B367
PH RESPONSIVE UPCONVERSION MESOPOROUS SILICA NANOPARTICLES FOR TARGETED PHOTODYNAMIC AND PHOTOTHERMAL CANCER THERAPY. **Palanikumar Loganathan**, Mazin M. Magzoub

Biophysics Education (Boards B368 - B374)

434-Pos BOARD B368

BIOMOLECULAR CONDENSATE MINI-REVIEW: AN OUTCOME OF A JOURNAL CLUB INSPIRED PEDAGOGICAL MODEL ENHANCED BY THE COVID ERA LEARNING ENVIRONMENT. Liam Cheng, Keva Li, Griffin Prieto, Annabelle Song, Victoria Stepanyants, **Carolyn Fitch**

435-Pos BOARD B369

NANOCAPILLARY-BASED SENSORS FOR DETECTION OF COPPER IONS IN BIOLOGICAL SYSTEMS. **Roman Timoshenko**, Alexander Vaneev, Nikita Savin, Nelly Chmelyuk, Olga Krasnovskaya, Alexander Majouga, Petr Gorelkin, Alexander Erofeev

436-Pos BOARD B370

A USER-FRIENDLY COMPUTATIONAL TOOL FOR MARKOV MODELLING CHANNEL GATING AND TRANSPORT CYCLING. Giovanni Zifarelli, Paolo Zuccolini, Sara Bertelli, **Michael Pusch**

437-Pos BOARD B371

BONDS, CATCH BONDS, AND STATISTICS. **Philip C. Nelson**

438-Pos BOARD B372

A DYNAMIC, INTERACTIVE, 3-D MODEL OF PROTEIN FOLDING FOR UNDERGRADUATE BIOCHEMISTRY. **Kelly E. Theisen**

439-Pos BOARD B373

TOTAL INTERNAL REFLECTION FLUORESCENCE MICROSCOPY AND SINGLE-MOLECULE KINETICS MODULES FOR AN UNDERGRADUATE LAB COURSE. **Jefferson Knight**, Daniel T. Giardina, Thao N. Huynh, Noha Alan-sari, Anthony Urban

440-Pos BOARD B374

A BIOPHYSICS LABORATORY COURSE FOCUSED ON IMAGE PROCESSING AND PYTHON. Ravi Tavakley, Dametre Thunberg, **Benjamin L. Stottrup**

Student Research Achievement Award (SRAA) Poster Competition

These posters marked S1–S116 will be reviewed by judges on Tuesday, February 23, 3:30 PM–6:30 PM EST, on a virtual platform. The posters will also be presented during the regular daily sessions as programmed below. Note that only the student applicant's name is listed. Please refer to the full abstract for all authors.

Bioenergetics, Mitochondria and Metabolism (Boards S1 - S3)

BOARD S1

STRUCTURAL AND FUNCTIONAL INSIGHTS OF AN UNPRECEDENTED MULTIHEME CYTOCHROME FROM *GEOBACTER SULFURREDUCTENS*
Tomás M. Fernandes (572-Pos / B23)

BOARD S2

MECHANISM OF ELECTRON TRANSPORT IN MAMMALIAN STEAROYL-COA DESATURASE 1
Jiemín Shen (1470-Pos / B72)

BOARD S3

THEORETICAL COMPARISON OF REAL-TIME SINGLE PARTICLE TRACKING TECHNIQUES
Bertus van Heerden (901-Pos / B352)

Bioengineering (Boards S4 - S12)

BOARD S4

INTRODUCING CHEMICALLY MODIFIED NUCLEOTIDES TO IMPROVE MRNA-BASED THERAPEUTICS
Teena Bajaj (659-Pos / B110)

BOARD S5

ENGINEERING OF GENOME EDITING PROTEIN CAS9 THAT SLIDES ALONG DNA FASTER AND MIGHT ENABLE EFFICIENT TARGET SEARCH
Trishit Banerjee (424-Pos / B358)

BOARD S6

BLACK DOTS: MICROCONTACT PRINTED REFERENCE-FREE TRACTION FORCE MICROSCOPY
Kevin Beussman (1754-Pos / B356)

BOARD S7

INHIBITION OF SARS-COV-2 SPIKE PROTEIN FUNCTION BY AMPHIPHILIC BLOCK COPOLYMERS
Michelle Ling (430-Pos / B364)

BOARD S8

MOLECULAR MAP OF DNA-POLYETHYLENIMINE NANOPARTICLE DISSOCIATION UNDER ENDOSOMAL ACIDIFICATION
Subhamoy Mahajan (860-Pos / B311)

BOARD S9

DETAIL DYNAMICS AFTER ATP BINDING IN HSP90 CHAPERONE CYCLE AND THE EFFECT OF NOVEL PEPTIDE DRUG CANDIDATE USING MOLECULAR DYNAMICS SIMULATIONS
Lisa Matsukura (956-Pos / B6)

BOARD S10

COOPERATIVE DYNAMICS OF REC-NUC LOBES PRIME CAS12A FOR DNA PROCESSING
Aakash Saha (77-Pos / B11)

BOARD S11

BRAVE NEW SURFACTANT WORLD REVISITED BY LIPASES: ACTIVATION AND UNFOLDING IN SDS
Mohamed Shehata (1404-Pos / B6)

BOARD S12

INVESTIGATING ATOMIC LEVEL STRUCTURE IN PYRIFORM SILK PROTEINS
Jeff R. Simmons (1416-Pos / B18)

Biological Fluorescence (Boards S13 - S18)

BOARD S13

SRRF 'N' TIRF-FCS: NEW INSIGHTS INTO EGFR-CYTOSKELETON INTERACTIONS
Harikrushnan Balasubramanian (568-Pos / B19)

BOARD S14

METHYLTRANSFERASE ENZYME RSMC ACT AS AN RNA CHAPERONE DURING BACTERIAL RIBOSOME BIOGENESIS
Keshav G C (181-Pos / B115)

BOARD S15

UNRAVELLING GENE EXPRESSION NETWORKS AND INFERRING KINETIC PARAMETERS FROM SMFISH DATA
Camille Moyer (910-Pos / B361)

BOARD S16

PROBING LENGTH SCALE DEPENDANT DIFFUSION DYNAMICS OF THE NODAL MORPHOGEN SQUINT IN LIVE ZEBRAFISH EMBRYOS THROUGH SPATIAL CROSS-CORRELATIONS IN IMAGING FLUORESCENCE CORRELATION SPECTROSCOPY
Ashwin V S Nelanthala (895-Pos / B346)

BOARD S17

QUANTITATIVE MULTI-TARGET SUPER-RESOLUTION FOR ESTIMATING ANTIBODY LABELING EFFICIENCY
David Schodt (883-Pos / B334)

BOARD S18

SAMPLE PREPARATION AND LASER INTENSITIES AFFECT MEOS3.2 PHOTOPHYSICS IN LIVE AND FIXED FISSION YEAST CELLS
Mengyuan Sun (1710-Pos / B312)

Biopolymers in vivo (Boards S19 - S22)

BOARD S19

MODELING MULTIVALENT PROTEIN PHASE SEPARATIONS WITH NETWORK-FREE RULE-BASED MODELING
Aniruddha Chattaraj (111-Pos / B45)

BOARD S20

ANTIMICROBIAL PEPTIDE-MEMBRANE INTERACTIONS: INSIGHTS FROM MOLECULAR SIMULATIONS
Fathima T. Doole (683-Pos / B134)

BOARD S21

(A)SPECIFIC DNA BINDING OF ARCHAEAL HISTONES, THE FORMATION AND POSITIONING OF HYPERNUCLEOSOMES
Mandy Erkelens (1531-Pos / B133)

BOARD S22

STRUCTURAL BASES FOR THE DEGRADATION SELECTIVITY OF C2H2 ZINC FINGER BY THALIDOMIDE METABOLITE
Hirotake Furihata (103-Pos / B37)

Channels, Receptors and Transporters (Boards S23 - S37)

BOARD S23

THE ENERGETICS OF CHOLESTEROL TRANSPORT THROUGH PATCHED1: MD SIMULATIONS AND FREE ENERGY CALCULATIONS
T. Bertie Ansell (351-Pos / B285)

BOARD S24

CONFORMATIONAL LANDSCAPES OF LIGAND-GATED ION CHANNEL GLIC FROM MARKOV STATE MODELING
Cathrine C. Bergh (284-Pos / B218)

BOARD S25

INVESTIGATING YIDC-ASSISTED FOLDING PATHWAYS OF DIFFERENT ALPHA-HELICAL MEMBRANE PROTEINS
Nina Blaimschein (647-Pos / B98)

BOARD S26

IN SILICO INSIGHTS ON THE ALLOSTERIC MODULATION OF THE MU-OPIOID RECEPTOR AND G PROTEIN COMPLEX IN THE PRESENCE OF AGONIST LIGAND BU72 AND POTENTIAL POSITIVE ALLOSTERIC MODULATOR BMS-986121
Mac Kevin E. Braza (1443-Pos / B45)

BOARD S27

DESIGN OF A CHIMERIC KCNQ1 CHANNEL FOR E. COLI EXPRESSION AND STUDIES OF LQTS VARIANTS
Kathryn R. Brewer (1170-Pos / B220)

BOARD S28

SUBSTRATE RECOGNITION OF THE SMALL MULTIDRUG RESISTANCE (SMR) FAMILY
Olive E. Burata (1028-Pos / B78)

BOARD S29

MOLECULAR DETERMINANTS OF NEUROPEPTIDE POTENCY AT FMRF-AMIDE GATED SODIUM CHANNELS FROM THE DEG/ENAC FAMILY
Mowgli Dandamudi (1630-Pos / B232)

BOARD S30

STRUCTURAL DYNAMICS AND ENERGETICS OF GLUCOSE TRANSPORT VIA RICE SWEET SUGAR TRANSPORTER
Ankita Gupta (356-Pos / B290)

BOARD S31

MOLECULAR MECHANISM OF POTASSIUM (K⁺) ION SENSING HISTIDINE KINASE INVOLVED IN BIOFILM FORMATION
Rachael M. Lucero (124-Pos / B58)

BOARD S32

MOLECULAR MECHANISM OF HERG1 CHANNEL REGULATION BY CERAMIDES
Williams E. Miranda (763-Pos / B214)

BOARD S33

CHOLESTEROL INHIBITION OF BK CHANNELS IS MEDIATED BY THEIR RCK HIGH AFFINITY SITES
Kelsey C. North (1101-Pos / B151)

BOARD S34

MOLECULAR SIMULATIONS REVEAL THE DYNAMICS OF THE T-CELL RECEPTOR IN A T-CELL MODEL MEMBRANE
Dheeraj Prakaash (625-Pos / B76)

BOARD S35

ASIC ACTIVATION MECHANISMS DELINEATED THROUGH GENETIC CODE EXPANSION
Matthew L. Rook (1634-Pos / B236)

BOARD S36

MULTISCALE SIMULATIONS EXAMINING GLYCAN SHIELD EFFECTS ON DRUG BINDING TO INFLUENZA NEURAMINIDASE
Christian Seitz (589-Pos / B40)

BOARD S37

CONFORMATIONAL COUPLING ACROSS THE MEMBRANE BILAYER OF EPIDERMAL GROWTH FACTOR RECEPTOR
Shwetha Srinivasan (1594-Pos / B196)

Cryo-EM (Boards S38 - S42)

BOARD S38

STRUCTURAL STUDIES OF STRAIGHT AND SUPERCOILED FLAGELLAR FILAMENTS FROM CAMPYLOBACTER JEJUNI
Mark A. Kreutzberger (847-Pos / B298)

BOARD S39

HIGH RESOLUTION CRYO-EM STRUCTURE OF THE ESPA FILAMENT FROM EPEC
Bronwyn Lyons (90-Pos / B24)

BOARD S40

CENTRAL ROLE OF THE LOWEST PART OF S4 OF CI-VSP IN COUPLING MECHANISM
Natsuki Mizutani (285-Pos / B219)

BOARD S41

THE ATOMIC MODEL FOR MYOSIN II COILED-COIL SHOWS NOVEL OBSERVATIONS AND INSIGHTS INTO MUSCLE CONTRACTION
Hamidreza Rahmani (296-Pos / B230)

BOARD S42

MICRORNA-122 AND POLY-C BINDING PROTEIN 2 REGULATE HEPATITIS C REPLICATION BY COMPETING FOR OVERLAPPING BINDING SITES
Seth D. Scott (1516-Pos / B118)

Intrinsically Disordered Proteins (Boards S43 - S53)

BOARD S43

COMPREHENSIVE ANALYSIS OF INTRINSICALLY DISORDERED REGIONS TO ELUCIDATE THEIR PHYSICAL PROPERTIES USING A MODIFIED PARAMETER
Hayato Aida (1047-Pos / B97)

BOARD S44

COMPLETING THE PARTIALLY RESOLVED COMPLEX CRYSTAL STRUCTURE OF AURORA KINASE A / N-MYC BY MOLECULAR MODELING
Pinar Altiner (91-Pos / B25)

BOARD S45

UNCOVERING THE MECHANISM OF DYSTROPHIN THROUGH SPECTROSCOPIC CHARACTERIZATION
Althea Amaris (1487-Pos / B89)

BOARD S46

MICROTUBULE-BASED TRANSPORT IS CONTROLLED BY TUBULIN TAILS AND THEIR MODIFICATIONS
Lavi S. Bigman (1237-Pos / B287)

BOARD S47

SOLVENT ACCESSIBILITY OF INDIVIDUAL PROTEIN MOLECULES AND MOLECULAR COMPLEXES MEASURED AT A SINGLE MOLECULE LEVEL
Arpan Dey (1123-Pos / B173)

BOARD S48

GENOME WIDE SCREENS POINT TO DISORDERED PROTEINS AS SENSORS OF OSMOTIC STRESS
Karina Guadalupe (1500-Pos / B102)

BOARD S49

TAU FORMS OLIGOMERIC COMPLEXES ON MICROTUBULES THAT ARE DISTINCT FROM PATHOLOGICAL OLIGOMERS IN DISEASE
Melina Theoni Gyparaki (148-Pos / B82)

BOARD S50

COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS OF Ca^{2+} -CALMODULIN
Jules Berlin Nde Kengne (1452-Pos / B54)

BOARD S51

GALLIC ACID: A NATURALLY OCCURRING BIFUNCTIONAL INHIBITOR OF AMYLOID AND METAL INDUCED AGGREGATION WITH POSSIBLE IMPLICATION IN METAL BASED THERAPY
Asra N. Khan (1503-Pos / B105)

BOARD S52

MEMBRANE CHOLESTEROL REGULATES THE BINDING OF ALPHA-SYNUCLEIN TO SYNAPTIC VESICLES, AND ITS SUBSEQUENT FUNCTIONAL AND PATHOGENIC BEHAVIOR
Anindita Mahapatra (1049-Pos / B99)

BOARD S53

MEMBRANE INSERTION OF INTRINSICALLY DISORDERED PROTEINS PROBED BY ROTATIONAL AND TRIPLET STATE DYNAMICS
Vicky Vishvakarma (1491-Pos / B93)

Macromolecular Machines and Assemblies Subgroup (Boards S54 - S63)

BOARD S54

FACTORS THAT AFFECT THE BINDING OF THE N-TERMINAL HELIX OF HUMAN ACE2 TO SPIKE PROTEIN OF SARS-COV2
Anirban Das (70-Pos / B4)

BOARD S55

THE DYNAMIC ENSEMBLE OF A:G AND A:8-OXOGUANINE MISMATCHES IN DUPLEX DNA: IMPLICATIONS FOR REPLICATION ERRORS AND DAMAGE REPAIR
Stephanie Gu (1065-Pos / B115)

BOARD S56

EXPLORING THE TRANSLOCATION MECHANISM OF BACTERIOPHAGE T7 HELICASE
Shikai Jin (156-Pos / B90)

BOARD S57

THE TWO DEUBIQUITINATING ENZYMES FROM *CHLAMYDIA TRACHOMATIS* HAVE DISTINCT UBIQUITIN RECOGNITION PROPERTIES
Sebastian Kenny (1478-Pos / B80)

BOARD S58

A MULTIDISCIPLINARY APPROACH TO DESIGN AMYLOID-LIKE PEPTIDES TO FORM SUPRAMOLECULAR ASSEMBLIES
Laura Pérez-Chirinos Lallana (1013-Pos / B63)

BOARD S59

A PARALLEL RATCHET-STROKE MECHANISM LEADS TO AN OPTIMUM FORCE FOR MOLECULAR MOTOR FUNCTION
Upasana L. Mallimadugula (1421-Pos / B23)

BOARD S60

CRYSTALLOGRAPHIC STRUCTURES OF TITIN IMMUNOGLOBULIN-LIKE I21 DOMAINS INVOLVED IN DILATED CARDIOMYOPATHY
Ines Martinez-Martin (1219-Pos / B269)

BOARD S61

ROLE OF SALT BRIDGES IN UBIQUITIN IN MODULATING THERMODYNAMIC, KINETIC AND MECHANICAL STABILITIES
Tathagata Nandi (963-Pos / B13)

BOARD S62

REFINEMENT OF PROTEIN HOMOLOGY MODEL BY ENHANCED DIRECTIONAL SAMPLING GUIDED BY BIOINFORMATICS
Rajat Punia (95-Pos / B29)

BOARD S63

SOLVATION DRIVES G-PROTEIN-COUPLED RECEPTOR ACTIVATION
Nipuna Weerasinghe (620-Pos / B71)

Mechanobiology (Boards S64 - S69)

BOARD S64

ALLOSTERY AND EPISTASIS AS INHERENT PROPERTIES OF ANISOTROPIC NETWORKS
Paul Campitelli (1446-Pos / B48)

BOARD S65

DIRECT EVIDENCE FOR VOLTAGE-INDUCED CONFORMATIONAL CHANGES OF PRESTIN, THE ELECTROMECHANICAL TRANSDUCER IN OUTER HAIR CELLS
Makoto F. Kuwabara (344-Pos / B278)

BOARD S66

SUBCELLULAR INVESTIGATION OF THE INTERPLAY BETWEEN MEMBRANE TENSION AND MECHANOSENSITIVITY USING FORCE-CONTROLLED MICROPIPETTES

Ines Lüchtfeld (1144-Pos / B194)

BOARD S67

THE ROLE OF THE OUTER LIPID-FACING HELIX IN CATIONIC PLGICS IS DEPENDENT ON THE CELLULAR CONTEXT

Susanne Mesoy (283-Pos / B217)

BOARD S68

DISRUPTING ELKIN1-DEPENDENT MECHANOELECTRICAL TRANSDUCTION MODULATES CELL-CELL INTERACTIONS IN ORGANOTYPIC TUMOUR SPHEROIDS

Amrutha Patkunarajah (319-Pos / B253)

BOARD S69

ENHANCED SAMPLING MOLECULAR DYNAMICS TO DETERMINE FORCE RESPONSE IN PEPTIDE TENSION SENSORS

Yuvraj Singh (388-Pos / B322)

Membrane Structure and Function (Boards S70 - S81)

BOARD S70

SHAPE FLUCTUATIONS OF GIANT UNILAMELLAR VESICLES AND ITS APPLICATIONS TO STUDY ELECTRIFIED MEMBRANES AND MEMBRANE VISCOSITY

Hammad Ali Faizi (203-Pos / B137)

BOARD S71

FLOCCULATION OF FATTY ACID MEMBRANES DOES NOT DISRUPT ENCAPSULATION: IMPLICATIONS FOR THE ORIGIN OF CELLS IN EVAPORATIVE LAKE ENVIRONMENTS

Zachary R. Cohen (186-Pos / B120)

BOARD S72

A NEUTRON REFLECTOMETRY STUDY OF PULMONARY SURFACTANT COMPLEXES

Ainhoa Collada (234-Pos / B168)

BOARD S73

MEMBRANE ORDER - WHAT YOU MEASURE DEPENDS ON WHAT YOU PROBE

Ankur Gupta (1086-Pos / B136)

BOARD S74

COUPLING OF LEAFLET PHASE BEHAVIOR IN ASYMMETRIC GIANT UNILAMELLAR VESICLES PREPARED BY HEMIFUSION: INVESTIGATING THE INFLUENCE OF THE LOW-METLING LIPID

Kristen Kennison (189-Pos / B123)

BOARD S75

DYNAMICS OF FRACTAL RUPTURES IN BIOMEMBRANES

Aysu Kucukturhan Kubowicz (1089-Pos / B139)

BOARD S76

THE ROLE OF GROWTH TEMPERATURE AND LIPID COMPOSITION IN PHASE SEPARATION OF YEAST VACUOLE MEMBRANES

Chantelle Leveille (184-Pos / B118)

BOARD S77

DYNORPHIN A INDUCES MEMBRANE PERMEABILIZATION BY FORMATION OF PROTEOLIPIDIC PORES

Deborah Aurora Perini (688-Pos / B139)

BOARD S78

STABILITY OF MEMBRANES CONTAINING DIFFERENT TYPES OF ANIONIC LIPIDS

Fernanda dos Santos Costa Leomil (230-Pos / B164)

BOARD S79

BACTERIAL MIMETIC SYSTEMS FOR STUDYING BACTERIAL INACTIVATION AND INFECTION

Mareike Stephan (717-Pos / B168)

BOARD S80

USING MOLECULAR DYNAMICS SIMULATIONS TO ELUCIDATE A ROLE FOR BACTERIAL CERAMIDES

Anushriya Subedy (1575-Pos / B177)

BOARD S81

SEIPIN ACCUMULATES AND TRAPS DIACYLGLYCEROLS AND TRYGLYCERIDES IN ITS RING-LIKE STRUCTURE

Valeria Zoni (1122-Pos / B172)

Membrane Transport (Boards S82 - S90)

BOARD S82

ELECTROPHYSIOLOGICAL CHARACTERIZATION OF CATSPER CHANNEL IN SEA URCHIN SPERM

Veronica Loyo Celis (1195-Pos / B245)

BOARD S83

INHOMOGENEOUS SOLUBILITY-DIFFUSION MODEL GIVES INSIGHT IN EFFICACY OF COUNTING CROSSINGS METHOD TO CALCULATE THE MEMBRANE PERMEABILITY

Samaneh Davoudi (390-Pos / B324)

BOARD S84

INFLUENCE OF FULLERENES ON PEROXIDIZED LIPID MEMBRANES

Gülsah Gül, (213-Pos / B147)

BOARD S85

IN GATING OF OUTER MEMBRANE PORINS

Nandan Haloi (637-Pos / B88)

BOARD S86

STRUCTURE OF THE BACTERIAL LIPID ABC TRANSPORTER MIAFEDB REVEALS SUBSTRATE BOUND

Mark MacRae (1029-Pos / B79)

BOARD S87

MEASURING THE FLOW-MEDIATED TRANSPORT VELOCITY OF LIPID-ANCHORED PROTEINS IN SUPPORTED LIPID BILAYERS

Amanda M. Ratajczak (642-Pos / B93)

BOARD S88

HETERO-OLIGOMERIC PROTEIN PORES FOR CHEMICAL AND BIOSENSING

Remya S (1316-Pos / B366)

BOARD S89

CORONAVIRUS ENVELOPE PROTEIN: LIPID SENSITIVITY AND MEMBRANE BENDING

Jesse Sandberg (1102-Pos / B152)

BOARD S90

DISPLACEMENT OF THE Na^+/K^+ -PUMP'S TRANSMEMBRANE DOMAINS DEMONSTRATE CONSERVED CONFORMATIONAL CHANGES IN P-TYPE 2 ATPASES

Victoria C. Young (363-Pos / B297)

Motility and Cytoskeleton (Boards S91 - S95)

BOARD S91

COUNTERACTIVE EFFECTS OF ELECTROSTATICS AND MACROMOLECULAR CROWDING ON ACTIN BUNDLE MECHANICS AND SECONDARY STRUCTURE
Nicholas Castaneda (773-Pos / B224)

BOARD S92

MODELLING THE EFFECTS OF MICROTUBULE PLUS END TAPERING ON EB1 BINDING
Samuel Gonzalez (1245-Pos / B295)

BOARD S93

OPPOSING MOTORS PROVIDE MECHANICAL AND FUNCTIONAL ROBUSTNESS IN THE MAMMALIAN SPINDLE
Lila Neahring (1678-Pos / B280)

BOARD S94

CROWDING TUNES THE ORGANIZATION AND MECHANICS OF ACTIN BUNDLES INDUCED BY ACTIN CROSSLINKING PROTEINS
Jinho Park (774-Pos / B225)

BOARD S95

NOVEL CARDIAC TROPONIN I S43/45N SUBSTITUTION DOES NOT CAUSE ABERRANT CARDIAC REMODELING OR DYSFUNCTION IN MICE
Vani S. Ravichandran (1654-Pos / B256)

Multiscale Genome Organization (Boards S96 - S98)

BOARD S96

CROWDING-INDUCED SPATIAL ORGANIZATION OF GENE EXPRESSION IN CELL-SIZED VESICLES
Gaurav Chauhan (1261-Pos / B311)

BOARD S97

REGULATION OF *PROVWX* TRANSCRIPTION BY LOCAL CHROMATIN REMODELLING
Fatema Zahra M. Rashid (1534-Pos / B136)

BOARD S98

UNSUPERVISED GENE REGULATORY NETWORK INFERENCE USING K-NEAREST-NEIGHBOR BASED MUTUAL INFORMATION
Lior Shachaf (1256-Pos / B306)

Nanoscale Approaches to Biology (Boards S99 - S108)

BOARD S99

QUANTITATIVE LIVE-CELL PALM REVEALS NANOSCOPIC FAA4 REDISTRIBUTIONS AND DYNAMICS ON LIPID DROPLETS DURING METABOLIC TRANSITIONS IN YEAST
Santosh Adhikari (880-Pos / B331)

BOARD S100

COUNTING FLUOROPHORES AND FINDING POTENTIALS FROM FRET, BAYESIAN NONPARAMETRICS FOR CHALLENGING PROBLEMS IN BIOPHYSICS
Shep Bryan IV (891-Pos / B342)

BOARD S101

COMPUTATIONAL STUDY OF SINGLE-PROTEIN SENSING USING NANOPORES
Sebastian Cardoch (1768-Pos / B370)

BOARD S102

DETERMINATION OF THE PARTITION COEFFICIENT OF PROTEIN-MEMBRANE REVERSIBLE ASSOCIATION BY FCS AND PCH
Arturo Garcia Vesga (1726-Pos / B328)

BOARD S103

USING ENZYME-LINKED MARKERS WITH CHROMOGENIC SUBSTRATES IN EXPANSION MICROSCOPY
Julia R. Migliore (1737-Pos / B339)

BOARD S104

RESOLUTION IMPROVEMENT IN CIDS SUPER-RESOLUTION MICROSCOPY USING A PHASOR PLOT APPROACH
Ali Mohebi (867-Pos / B318)

BOARD S105

SINGLE MOLECULE INVESTIGATION OF TANDEM G-QUADRUPLEX STRUCTURES FORMED BY HUMAN TELOMERIC SEQUENCE
Golam Mustafa (896-Pos / B347)

BOARD S106

NUCLEIC ACID SEQUENCE DETECTION BY A MULTI-TECHNIQUE APPROACH
Giulia Pinto (1748-Pos / B350)

BOARD S107

CHEMICALLY-TUNED SOLID-STATE NANOPORES FOR SINGLE-MOLECULE BIOPHYSICS
Jugal Saharia (1749-Pos / B351)

BOARD S108

A BAYESIAN NONPARAMETRIC APPROACH TO LEARNING MOLECULAR SPECIES AND DIFFUSION DYNAMICS BASED ON PHOTON ARRIVAL DATA
Weiqing Xu (893-Pos / B344)

Physical Cell Biology (Boards S109 - S116)

BOARD S109

ANALYSIS OF LENGTH BIASES IN SINGLE-CELL RNA SEQUENCING OF UNSPLICED MRNA BY MARKOV MODELING
Gennady Gorin (396-Pos / B330)

BOARD S110

INFORMATION PROPAGATION IN TIME THROUGH ALLOSTERIC SIGNALING
Tushar Modi (1448-Pos / B50)

BOARD S111

MEASURING SINGLE-CELL PLATELET FORCES VIA MICROCONTACT-PRINTED, REFERENCE-FREE TRACTION FORCE MICROSCOPY REVEALS RELATIONSHIPS BETWEEN CELL SHAPE, F-ACTIN LOCALIZATION, AND FORCE
Molly Mollica (811-Pos / B262)

BOARD S112

MULTIMODAL MICROSCALE MECHANICAL MAPPING OF SINGLE CELLS AS A FUNCTION OF ENVIRONMENT GEOMETRY
Milos Nikolic (320-Pos / B254)

BOARD S113**THE MOLECULAR BASIS OF THE REGULATION OF THE TMEM16A**CA²⁺-ACTIVATED CL CHANNEL BY THE LYSOSOMAL NPC1 PROTEIN

Lara F. Scofano (1196-Pos / B246)

BOARD S114

SOLVATION IMPACTS OF RNA COLLAPSE

Clark Templeton (1525-Pos / B127)

BOARD S115

DIFFUSION NMR AND RHEOLOGY STUDY OF A MODEL POLYMER AND

A DISORDERED PROTEIN IN THE PRESENCE OF BACTERIAL CELL LYSATE

CROWDERS

Yanitza Trosel (1492-Pos / B94)

BOARD S116

IN SILICO PREDICTION OF DRUG-INDUCED VENTRICULAR ARRHYTHMIA

USING HETEROGENEOUS TISSUE MODELS OF THE PURKINJE-VENTRICU-

LAR SYSTEM

Mengya Yuan (1603-Pos / B205)

Wednesday, February 24, 2021

Daily Program Summary

9:00 AM-10:00 AM	General Networking
10:00 AM-11:30 AM	<p>Symposium: Best of <i>Biophysical Journal</i>: Genomes to Populations Chair: Jane Dyson, Scripps Research Institute, USA</p> <p>X-RAY STRUCTURAL ANALYSIS OF SINGLE ADULT CARDIOMYOCYTES: TOMOGRAPHIC IMAGING AND MICRODIFFRACTION. <i>Tim Salditt</i></p> <p>DIFFERENT VINCULIN BINDING SITES USE THE SAME MECHANISM TO REGULATE DIRECTIONAL FORCE TRANSDUCTION. <i>Viola Vogel</i></p> <p>DYNAMIC CROWDING REGULATES TRANSCRIPTION. <i>Igal Szleifer</i></p> <p>DIFFERENTIAL LOCAL STABILITY GOVERNS THE METAMORPHIC FOLD SWITCH OF BACTERIAL VIRULENCE FACTOR RFAH. <i>Cesar Ramirez-Sarmiento</i></p>
10:00 AM-11:30 AM	Platform: Protein Structure and Conformation: Folding
10:00 AM-11:30 AM	Platform: Protein Dynamics and Allostery I
10:00 AM-11:30 AM	Platform: Membrane Dynamics
10:00 AM-11:30 AM	Platform: Mechanosensation
10:00 AM-11:30 AM	Platform: Muscles II
10:00 AM-11:30 AM	Platform: Membrane Pumps, Transporters, and Exchangers
10:00 AM-11:30 AM	Platform: Genetic, Cellular, Synthetic, and Systems Biology
10:00 AM-11:30 AM	Platform: Optical Microscopy and Superresolution Imaging II
10:00 AM-5:00 PM	Exhibits
11:30 AM-12:00 PM	<p>Exhibitor Presentation: Bruker Bruker's BioAFM Nano-Toolkit for Investigation of Mechanics, Structures and Dynamic Processes in Life Science</p>
11:30 AM-12:00 PM	Break
12:00 PM-1:30 PM	Global Pandemic Response: Charting a Path Forward Using Guides from the Past and Present
12:00 PM-1:30 PM	Platform: Protein Assemblies
12:00 PM-1:30 PM	Platform: Intrinsically Disordered Proteins (IDP) and Aggregates II
12:00 PM-1:30 PM	Platform: Nucleic Acid Replication, Transcription, Translation and Repair
12:00 PM-1:30 PM	Platform: Protein-Lipid Interactions I
12:00 PM-1:30 PM	Platform: Muscle, Calcium and Signaling I
12:00 PM-1:30 PM	Platform: Other Channels and Regulatory Mechanisms
12:00 PM-1:30 PM	Platform: Member Organized Session: Pattern Formation and Biochemical Excitability in Controlling Cell System Dynamics
12:00 PM-1:30 PM	Platform: Single-Molecule Spectroscopy

1:00 PM-2:00 PM	General Networking
1:00 PM-4:00 PM	BPS Virtual Education and Career Fair
1:30 PM-2:00 PM	Exhibitor Presentation: Leica Microsystems High Photon-Count Rate FCS and STED-FCS to Study Diffusion Dynamics in Live Cells
1:30 PM-2:00 PM	Break
2:00 PM -3:30 PM	Poster Presentations and Late Posters
3:30 PM -4:00 PM	Exhibitor Presentation: LUMICKS Correlative Force–Fluorescence Measurements to Reveal the Dynamic Life of Single Biomolecules: Latest Technology Advancements by LUMICKS, and Latest Findings on Protein Disaggregation by Professor Sander Tans
3:30 PM -5:30 PM	Peer-to Peer Networking Mixer
4:00 PM-4:30 PM	Exhibitor Presentation: Carl Zeiss Microscopy LLC Discovering the Subcellular Dynamics of Life with ZEISS Lattice Lightsheet 7
4:00 PM-4:30 PM	Biophysical Society Business Meeting

General Networking

9:00 AM-10:00 AM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Symposium

Best of *Biophysical Journal*: Genomes to Populations

10:00 AM - 11:30 AM

Chair

Jane Dyson, Scripps Research Institute, USA

NO ABSTRACT 10:00 AM

X-RAY STRUCTURAL ANALYSIS OF SINGLE ADULT CARDIOMYOCYTES: TOMOGRAPHIC IMAGING AND MICRODIFFRACTION. **Tim Salditt**

NO ABSTRACT 10:22 AM

DIFFERENT VINCULIN BINDING SITES USE THE SAME MECHANISM TO REGULATE DIRECTIONAL FORCE TRANSDUCTION. **Viola Vogel**

NO ABSTRACT 10:44 AM

DYNAMIC CROWDING REGULATES TRANSCRIPTION. **Igal Szleifer**

NO ABSTRACT 11:06 AM

DIFFERENTIAL LOCAL STABILITY GOVERNS THE METAMORPHIC FOLD SWITCH OF BACTERIAL VIRULENCE FACTOR RFAH. **Cesar Ramirez-Sarmiento**

Platform

Protein Structure and Conformation: Folding

10:00 AM - 11:30 AM

Chair

Roland Winter, TU Dortmund University, Germany

475-PLAT 10:00 AM

TEMPERATURE, PRESSURE, AND COSOLUTE EFFECTS ON LIQUID-LIQUID PHASE SEPARATION IN PROTEIN CONDENSATES: PHYSICAL CHEMISTRY AND BIOLOGICAL IMPLICATIONS. **Roland Winter**

476-PLAT 10:30 AM

CONFORMATIONAL PLASTICITY OF THE CLPAP AAA+ PROTEASE COUPLES PROTEIN UNFOLDING AND PROTEOLYSIS. **Alexandrea N. Rizo**, Kyle Eric Lopez, James Shorter, Daniel R. Southworth

477-PLAT 10:45 AM

ELECTRICAL UNFOLDING OF CYTOCHROME C DURING TRANSLOCATION THROUGH A NANOPORE CONSTRICTION. **Prabhat Tripathi**, Abdelkrim Benabbas, Behzad Mehrafrooz, Hirohito Yamazaki, Aleksei Aksimentiev, Paul M. Champion, Meni Wanunu

478-PLAT 11:00 AM

A NOVEL APPROACH COMBINING FLUORESCENCE-ANISOTROPY DECAYS AND MICROVISCOMETRY TO EXPLORE THE COTRANSLATIONAL COMPACTION OF NASCENT PROTEINS. **Rachel Hutchinson**, Xi Chen, Ningkun Zhou, Silvia Cavagnero

479-PLAT 11:15 AM

SHORT ARGININE-BASED PEPTIDES AS PREDICTORS FOR THE EXTENDED STRUCTURE OF POLYARGININE SEQUENCES IN INTRINSICALLY DISORDERED PROTEINS. **Bridget Milorey**, Reinhard Schweitzer-Stenner, Brian Andrews, Harald Schwalbe, Brigita Urbanc

Platform

Protein Dynamics and Allostery I

10:00 AM - 11:30 AM

Chair

Judith Klinman, University of California, Berkeley, USA

480-PLAT 10:00 AM

EMERGING EXPERIMENTAL PROBES FOR THE SPATIAL AND TEMPORAL RESOLUTION OF PROTEIN DYNAMICS IN ENZYME CATALYSIS. **Judith Klinman**, Shuaihua Gao, Emily J. Thompson, Jan Paulo Zaragoza

481-PLAT 10:30 AM

HDXMS REVEALS THE ROLE OF DYNAMICS ON THE SERINE PROTEASE ACTIVITY OF THE UROKINASE-TYPE PLASMINOGEN ACTIVATOR (UPA). **Constanza Torres-Paris**, Lufan Xiao, Harriet Song, Elizabeth A. Komives

482-PLAT 10:45 AM

ESSENTIAL DYNAMICS THAT DRIVE SARS-COV-2 SPIKE CONFORMATIONAL CHANGES. **Srirupa Chakraborty**, Rachael A. Mansbach, Kien Nguyen, Pedro D. Manrique, Sandrasegaram Gnanakaran

483-PLAT 11:00 AM

DIRECT OBSERVATION OF THE CATALYTICALLY RELEVANT FULLY FOLDED-LOCALLY UNFOLDED EQUILIBRIUM IN PEROXIREDOXIN Q OF XANTHAMONAS CAMPESTRIS. **Aidan Estelle**, Patrick N. Reardon, Andrew Karplus, Elisar J. Barbar

484-PLAT 11:15 AM

COMBINING SINGLE-MOLECULE FLUORESCENCE AND MD-SIMULATIONS TO DELINEATE THE KINETICS AND REGULATION OF PROTEINS. **Thorsten Hugel**, Sonja Schmid, Steffen Wolf, Bjoern Hellenkamp, Benedikt Sohmen, Johann Thurn, Gerhard Stock

Platform

Membrane Dynamics

10:00 AM - 11:30 AM

Chair

Petra Schwille, Max Planck Institute of Biochemistry, Germany

NO ABSTRACT 10:00 AM

WHEN SIMPLE BECOMES COMPLEX - HIDDEN FUNCTIONS OF MEMBRANE PROTEINS. **Petra Schwille**

485-PLAT 10:30 AM

MEASURING MEMBRANE DYNAMICS ON THE MESOSCALE. **Elizabeth G. Kelley**, Paul D. Butler, Michihiro Nagao

486-PLAT 10:45 AM

SUBCOMPARTMENTALIZATION AND PSEUDO-DIVISION OF MODEL PROTOCELLS. **Karolina Spustova**, Elif S. Koksai, Alar Ainla, Irep Gozen

487-PLAT 11:00 AM

REAL TIME MONITORING OF TRANSIENT LIPID-LIPID INTERACTIONS ON LIVE CELL MEMBRANES USING A DNA PROBE. **Yousef Bagheri**, Ahsan Ausaf Ali, Mingxu You

488-PLAT 11:15 AM

MEMBRANE BIOPHYSICS AND CHEMICAL BIOLOGY PLATFORM TO MAP THE LANDSCAPE OF VIRULENT LIPID-INDUCED EFFECTS ON HOST CELL MEMBRANE AND SIGNALING. **Shobhna Kapoor**, Manjari Mishra

Platform Mechanosensation

10:00 AM - 11:30 AM

Chair

Pascal Martin, Institut Curie, France

489-PLAT 10:00 AM

MACHANICAL FREQUENCY TUNING BY THE HAIR BUNDLE OF MECHANOSENSORY HAIR CELLS. **Pascal Martin**, Mélanie Tobin, Atitheb Chaayasitdhi

490-PLAT 10:30 AM

TEMPORAL ANALYSIS OF T-CELL RECEPTOR-IMPOSED FORCES VIA QUANTITATIVE SINGLE MOLECULE FRET MEASUREMENTS. **Janett Goehring**, Florian Kellner, Lukas Schrangl, Rene Platzer, Hannes Stockinger, Johannes B. Huppa, Gerhard J. Schütz

491-PLAT 10:45 AM

LIPID DROPLETS HAVE HIGH INTERFACIAL TENSION AND ARE SUFFICIENTLY RIGID TO RUPTURE THE NUCLEUS. **Irena L. Ivanovska**, Michael P. Tobin, Lawrence J. Dooling, Dennis E. Discher

492-PLAT 11:00 AM

MECHANO-CHEMICAL PATTERN FORMATION IN SPHERICAL CELL SHEETS. **Stephanie S. Hoehn**, Moritz Mercker

493-PLAT 11:15 AM

HETEROGENEOUSLY STRAINED TISSUE COLLAGEN RESISTS COLLAGENASE DEGRADATION WHERE STRAINS ARE HIGH. **Karanvir Saini**, Manu Tewari, Sangkyun Cho, Abdelaziz Jalil, Jerome Irianto, Manasvita Vashisth, Charlotte R. Pfeifer, Jason C. Andrechak, Lawrence J. Dooling, Cory Alvey, Alex Kasznel, David Chenoweth, Kazuhiro Yamamoto, Dennis E. Discher¹⁰

Platform Muscles II

10:00 AM - 11:30 AM

Chair

Bailong Xiao, Tsinghua University, China

494-PLAT 10:00 AM

THE MECHANOSENSITIVE PIEZO1 CHANNEL MEDIATES HEART MECHANOCHEMO TRANSDUCTION. Fan Jiang, Kun Wu, Kunlun Yin, Mingmin Zhang, Shi-Qiang Wang, Heping Cheng, Zhou Zhou, **Bailong Xiao**

495-PLAT 10:30 AM

MICROTUBULES ORCHESTRATE LOCAL TRANSLATION TO ENABLE CARDIAC GROWTH. **Keita Uchida**, Emily Scarborough, Maria Vogel, Benjamin L. Prosser, Izhak Kehat

496-PLAT 10:45 AM

DYNAMIC REGULATION OF INTRACELLULAR PH IN THE HEART. Yankun Lyu, Phung Thai, Lu Ren, Valeriy Timofeyev, Zhong Jian, Seojin Park, Kenneth S. Ginsburg, James Overton, Julie Bossuyt, Donald M. Bers, Ebenezer N. Yamoah, Ye Chen-Izu, Nipavan Chiamvimonvat, **Xiao-Dong Zhang**

497-PLAT 11:00 AM

BURST-LIKE TRANSCRIPTION OF SARCOMERIC GENES IN HYPERTROPHIC CARDIOMYOPATHY. Valentin Burkart, Julia Beck, David Aldag-Niebling, Kathrin Kowalski, Ante Radocaj, Jolanda van der Velden, Cris G. dos Remedios, Denise Hilfiker-Kleiner, Theresia Kraft, **Judith Montag**

498-PLAT 11:15 AM

HIPSC DERIVED CARDIOMYOCYTES OVEREXPRESSING DEOXY ATP TO RESTORE CARDIAC FUNCTION IN MYOCARDIAL INFARCTION. **Ketaki N. Mhatre**, Farid Moussavi-Harami, Julie Mathieu, Charles Murry, Michael Regnier

Platform Membrane Pumps, Transporters, and Exchangers

10:00 AM - 11:30 AM

Chair

Jue Chen, The Rockefeller University, USA

499-PLAT 10:00 AM

ABC TRANSPORTERS: MOLECULAR PUMPS POWERED BY ATP. **Jue Chen**

500-PLAT 10:30 AM

STRUCTURE OF A VESICULAR GLUTAMATE TRANSPORTER DETERMINED BY CRYO-EM. **Fei Li**, Jacob Eriksen, Janet Finer-Moore, Robert H. Edwards, Robert M. Stroud

501-PLAT 10:45 AM

ROLE OF INDIVIDUAL ZINC BINDING SITES IN THE CATION DIFFUSION FACILITATOR YIIP. **Maria L. Lopez**, Akiko Koide, Lorena Novoa Aponte, Shujie Fan, Oliver Beckstein, Jose M Arguello, Shohei Koide, David L. Stokes

502-PLAT 11:00 AM

GLUTAMATE TRANSPORTERS (EAATS) CONTAIN A CONSERVED CHLORIDE CHANNEL WITH TWO HYDROPHOBIC GATES. Ichia Chen, Shashank Pant, Qianyi Wu, Rosemary J. Cater, Meghna Sobti, Robert J. Vandenberg, Alastair Stewart, Josep Font, Emad Tajkhorshid, **Renae M. Ryan**

503-PLAT 11:15 AM

ION BINDING TO A MAMMALIAN SODIUM/PROTON EXCHANGER MEMBRANE PROTEIN FROM MOLECULAR DYNAMICS SIMULATIONS. **Chenou Zhang**, Ricky Sexton, Iven Winkelmann, Rei Matsuoka, Pascal Meier, Denis Shutin, Laura Orellana, Michael Landreh, Carol V. Robinson, David Drew, Oliver Beckstein

Platform Genetic, Cellular, Synthetic, and Systems Biology

10:00 AM - 11:30 AM

Chair

Cristina Marchetti, University of California, Santa Barbara, USA

NO ABSTRACT 10:00 AM

PHYSICAL MODELS OF THE RHEOLOGY OF DENSE BIOLOGICAL TISSUE. **M. Cristina Marchetti**

504-PLAT 10:30 AM

THE TRANSCRIPTOME DYNAMICS OF SINGLE CELLS DURING THE CELL CYCLE. **Daniel Schwabe**, Sara Formichetti, Jan Philipp Junker, Martin Falcke, Nikolaus Rajewsky

505-PLAT 10:45 AM

NEGATIVE SURFACE CHARGE REGULATES BIOCHEMICAL EXCITABILITY OF CORTEX AND LIMITS PROTRUSION FORMATION. **Tatsat Banerjee**, Debojyoti Biswas, Dhiman S. Pal, Yuchuan Miao, Pablo A. Iglesias, Peter N. Devreotes

506-PLAT 11:00 AM

SPATIOTEMPORAL DYNAMICS OF RAC1 SIGNALING DURING WOUND HEALING IN FORSTER RESONANCE ENERGY TRANSFER BIOSENSOR MICE. **Rachel Cinco**, Morgan Dragan, Enrico Gratton, Heidi Welch, Paul Timpson, Xing Dai, Michelle A. Digman

507-PLAT 11:15 AM

HYDROPHOBICITY BASED SEQUENCE BLOBULATION APPROACH CAPTURES FUNCTIONAL MODULARITY: DISEASE-ASSOCIATED MUTATIONS ARE ENRICHED IN HYDROPHOBIC BLOBS. **Ruchi Lohia**, Matthew Hansen, Grace H. Brannigan

Platform Optical Microscopy and Superresolution Imaging II

10:00 AM - 11:30 AM

Chair

Thomas Surrey, Francis Crick Institute, United Kingdom

508-PLAT 10:00 AM

MICROTUBULE NUCLEATION PROPERTIES OF SINGLE HUMAN TUBULINS INVESTIGATED BY TIRF MICROSCOPY AND CRYO-ELECTRON MICROSCOPY.

Tanja Consolati, Julia Locke, Johanna Roostalu, Zhuo Angel Chen, Julian Gannon, Jayant Asthana, Wei Ming Lim, Fabrizio Martino, Milos A. Cveticovic, Juri Rappsilber, Alessandro Costa, **Thomas Surrey**

509-PLAT 10:30 AM

HYPERSPECTRAL ANALYSIS OF FLUORESCENCE IMAGES IN SCATTERING MEDIA USING OPTICAL FILTERS. **Belén Torrado**, Alexander Dvornikov, Enrico Gratton

510-PLAT 10:45 AM

INFORMATION OPTIMAL PARTICLE TRACKING WITH A CONFOCAL OR 2-PHOTON MICROSCOPE. **Nicholas A. Vickers**, Fatemeh Sharifii, Samuel C. Pinto, Sean B. Andersson

511-PLAT 11:00 AM

ASSESSING THE RELIABILITY OF THE SUPPOSE ENHANCED DECONVOLUTION METHOD APPLIED TO DIFFERENT FLUORESCENT IMAGING TECHNIQUES. **Micaela Toscani**, Axel Lacapmesure, Guillermo D. Brinatti Vazquez, Oscar E. Martinez, Sandra R. Martinez

512-PLAT 11:15 AM

NEW CHROMOPHORES FOR FRET-BASED VOLTAGE SENSING SYSTEMS. **Ping Yan**, Julia K. Harrison, Daniel Fairchild, Corey D. Acker, Leslie M. Loew

Exhibits

10:00 AM - 5:00 PM

Exhibitor Presentation Bruker

11:30 AM - 12:00 PM

Bruker's BioAFM Nano-Toolkit for Investigation of Mechanics, Structures and Dynamic Processes in Life Science

The ability of atomic force microscopy (AFM) to obtain three-dimensional topography images of biomolecules and complexes with nanometer resolution, and optical tweezers (OT) to measure sub-piconewton molecular forces under near-physiological conditions remains unmatched by other single molecule techniques. JPK BioAFM has developed the new NanoWizard® 4 XP and NanoRacer AFM's, and Nanotracker2 (NT2) optical tweezers to set the bar even higher in these areas. The NW4XP is capable of high-speed study of the time-resolved dynamics associated with cellular processes; Nanoracer is designed for studying single molecule dynamics at 50 frames/sec; and NT2 can measure intra/inter molecular forces with multiple laser/trap options (up to 10 mW). With the latest scanner technologies inbuilt into NW4XP, NT2 and their compact design also allows full integration of AFM and OT into advanced commercially available light microscopy techniques. This seminar will focus on how the advances in Bruker's latest BioAFM can be applied to study a wide-range of biological samples, from individual biomolecules to mammalian cells and tissues in real-time, in-situ experiments. We will present examples of how we are able to resolve the nanoscale structure of individual biomolecules at high-speed scan rates (150 - 5000 Hz), follow the dynamic reorganization of the membrane-associated cytoskeleton of living cells at high-temporal and high-spatial resolution, and automatically map the topography of cell cultures across the entire area of the microscope stage. We will also in-

roduce our new scanning electrochemical microscopy (SECM) module and discuss the full suite of BioAFM modes and accessories for studying the nanomechanical properties of cells and tissues, including direct correlation of multiparametric, quantitative AFM and super-resolution (STED) datasets.

Speaker

Samrat Dutta, Sales Applications Scientist, Bruker

Break

11:30 AM - 12:00 PM

Global Pandemic Response Charting a Path Forward Using Guides from the Past and Present

12:00 PM - 1:30 PM

A candid look at the global challenges facing a successful pandemic strategy. Can the lessons from other pandemics provide a framework for international cooperation? Can a strategy be developed that addresses both public health concerns and doubts in the general populace about the safety/efficacy of new interventions? Hear from global experts in science and policy as they weigh in on the challenge ahead.

Chair

Ranajeet Ghose, The City College of New York, USA

Speakers

Thurka Sangaramoorthy, University of Maryland, USA

Patrick McTamney, AstraZeneca, USA

Felix Rey, Pasteur Institute, France

Arturo Casadevall, Johns Hopkins University, USA

Platform

Protein Assemblies

12:00 PM - 1:30 PM

Chair

Sheena Radford, University of Leeds, United Kingdom

513-PLAT 12:00 PM

BUILDING THE BACTERIAL CELL WALL: HOW DO BACTERIA DO IT?
Sheena Radford

514-PLAT 12:30 PM

EXPLORING THE MORPHOLOGICAL LANDSCAPE OF SELF-ASSEMBLED HIV-1 PROTEINS FROM A COARSE-GRAINED PERSPECTIVE. **Alexander J. Pak**, Gregory A. Voth

515-PLAT 12:45 PM

LOCALIZATION TO A MEMBRANE SURFACE CAN ACCELERATE THE PROTEIN ASSEMBLIES. **Bhavya Mishra**, Margaret E. Johnson

516-PLAT 1:00 PM

IN VITRO RECONSTITUTIONS AND FUNCTIONAL CHARACTERIZATIONS OF FIBRILLAR CENTERS OF NUCLEOLI. **Matthew R. King**, Rohit V. Pappu

517-PLAT 1:15 PM

KINETIC AND EQUILIBRIUM MEASUREMENT OF NUCLEATION OF PRION-LIKE DOMAIN PHASE SEPARATION. **Erik W. Martin**, Tyler S. Harmon, Jesse B. Hopkins, Srinivas Chakravarthy, Jeremias Incicco, Peter Schuck, Andrea Soranno, Tanja Mittag

Platform Intrinsically Disordered Proteins (IDP) and Aggregates II

12:00 PM - 1:30 PM

Chair

David Drummond, University of Chicago, USA

NO ABSTRACT 12:00 PM

RETHINKING STRESS-TRIGGERED PROTEIN AGGREGATION.

David Drummond

518-PLAT 12:30 PM

A GENERAL FRET-BASED METHOD TO MONITOR PROTEIN OLIGOMERIZATION AND CONDENSATE PHASE TRANSITION IN CELLS. **Qi Wan**, Sara Mavrova, Liesbeth Veenhoff, Arnold J. Boersma

519-PLAT 12:45 PM

CHARACTERIZATION OF THE STRUCTURAL FEATURES THAT MEDIATE PHASE SEPARATION OF INTRINSICALLY DISORDERED LOW-COMPLEXITY DOMAINS. **Ivan Peran**, Youlin Xia, Tanja Mittag

520-PLAT 1:00 PM

REAL-TIME MONITORING CONFORMATIONAL CHANGES OF A INTRINSICALLY DISORDERED PROTEIN WITH AEROLYSIN NANOPORE. **Hongyan Niu**, Xue-yuan Wu, Yi-Lun Ying, Yi-Tao Long

521-PLAT 1:15 PM

LIQUID-LIQUID PHASE SEPARATION OF REPEAT DISORDER SEQUENCES LEADS TO RNA CONFORMATIONAL AND DYNAMICAL HETEROGENEITY. **Hung T. Nguyen**, Dave Thirumalai

Platform Nucleic Acid Replication, Transcription, Translation and Repair

12:00 PM - 1:30 PM

Chair

Alexandra Zidovska, New York University, USA

522-PLAT 12:00 PM

THE "SELF-STIRRED" GENOME: DYNAMICS, FLOWS AND RHEOLOGY.

Alexandra Zidovska

523-PLAT 12:30 PM

STRUCTURAL AND DYNAMICAL SIGNATURES OF LOCAL DNA DAMAGE IN LIVE CELLS. **Jonah A. Eaton**, Alexandra Zidovska

524-PLAT 12:45 PM

STOCHASTIC SPATIAL SIMULATION OF GENETIC INFORMATION PROCESSES IN THE MINIMAL CELL. **Zane R. Thornburg**, Benjamin R. Gilbert, Julio Maia, John E. Stone, Vinson Lam, Elizabeth Villa, Zaida Luthey-Schulten

525-PLAT 1:00 PM

SINGLE-MOLECULE FRET ANALYSIS OF KEY PROTEIN CONFORMATIONAL CHANGES DURING PROMOTER ESCAPE BY RNA POLYMERASE. **Anna Wang**, Abhishek Mazumder, Achillefs N. Kapanidis

526-PLAT 1:15 PM

THE ROLE TRNA-MEDIATED REGULATION OF RIBOSOME DYNAMICS PLAYS IN FRAMESHIFTING BY +1 FRAMESHIFT-INDUCING TRNAS. **Haixing Li**, Howard Gamper, Ya-Ming Hou, Ruben L. Gonzalez

Platform Protein-Lipid Interactions I

12:00 PM - 1:30 PM

Chair

Aurélien Roux, University of Geneva, Switzerland

NO ABSTRACT 12:00 PM

MECHANICS OF ESCRT-III MEMBRANE REMODELLING. **Aurélien Roux**

527-PLAT 12:30 PM

A WEB-BASED FRAMEWORK FOR THE AUTOMATED DATA ANALYSIS AND VISUALIZATION OF LIPID-PROTEIN INTERACTIONS. **Besian I. Sejdiu**, Peter D. Tieleman

528-PLAT 12:45 PM

ELUCIDATING THE MECHANISM OF MEMBRANE DESTABILIZATION BY THE PREFERRED MODES OF INSERTION OF THE SARS-COV2 FUSION PEPTIDE. **George Khelashvili**, Harel Weinstein

529-PLAT 1:00 PM

MEMBRANE SURFACE RECOGNITION BY THE ASAP1 PH DOMAIN AND CONSEQUENCES FOR INTERACTIONS WITH THE SMALL GTPASE ARF1. **Olivier Soubias**, Shashank Pant, Frank Heinrich, Yue Zhang, Paul Randazzo, Mathias Loesche, Emad Tajkhorshid, Robert A. Byrd

530-PLAT 1:15 PM

STRUCTURE AND FUNCTION OF VIROPORINS IN LIPID MEMBRANES: INSIGHTS FROM STUDIES BY EPR SPECTROSCOPY. Peter P. Borbat, Saman Majeed, Jack H. Freed, **Elka R. Georgieva**

Platform Muscle, Calcium and Signaling I

12:00 PM - 1:30 PM

Chair

Claudia Moreno, University of Washington, USA

NO ABSTRACT 12:00 PM

EFFECTS OF AGING ON THE FUNCTION AND MODULATION OF L-TYPE CALCIUM CHANNELS IN THE CARDIAC PACEMAKER. **Claudia Moreno**

531-PLAT 12:30 PM

CA²⁺ HANDLING IN NON-FAILING HYPERTROPHIC CARDIOMYOCYTES SUBJECTED TO INOTROPIC INTERVENTIONS. **Anna Krstic**, Marie-Louise Ward

532-PLAT 12:45 PM

HIGH FREQUENCY ACOUSTIC CELL STIMULATION PROMOTES EXOSOME GENERATION REGULATED BY A CALCIUM-DEPENDENT MECHANISM. **Lizebona August Ambattu**, Shwathy Ramesan, Chaitali Dekiwadia, Eric Hanssen, Haiyan Li, Leslie Ye

533-PLAT 1:00 PM

THE MALIGNANT HYPERTHERMIA G2435R MUTATION CAUSES CONSTITUTIVE RYR1 OPENINGS. **Thomas M. Humberstone**, Chris Lindsay, Abigail D. Wilson, Elisa Venturi, Ahmed Alhussni, Charalampos Sigalas, Paul D. Allen, Rebecca M. Sitsapenas

534-PLAT 1:15 PM

TRPP1 CHANNEL CALCIUM SIGNALING AS A KEY DETERMINANT OF MYOGENESIS. **Sara Osorio Valencia**, Virdjini Vuchkovska, Elisabeth DiNello, Ivana Y. Kuo

Platform

Other Channels and Regulatory Mechanisms

12:00 PM - 1:30 PM

Chair

Sara Liin, Linköping University, Sweden

535-PLAT 12:00 PM

RATIONAL DESIGN OF FATTY ACID ANALOGUES TARGETING THE CARDIAC KV7.1 CHANNEL. **Sara I. Liin**

536-PLAT 12:30 PM

K_{sp} CHANNEL C-TYPE GATING INVOLVES ASYMMETRIC SELECTIVITY FILTER ORDER-DISORDER TRANSITIONS. **Andrew M. Natale**, Marco Gaetano Lorenz Lolicato, Fayal Abderemane-Ali, David Crottès, Sara Capponi, Ramona Duman, Armin Wagner, John M. Rosenberg, Michael Grabe, Daniel L. Minor

537-PLAT 12:45 PM

TRPV2 MODULATION BY SMALL MOLECULES AND LIPIDS. **Anna D. Protopopova**, Ruth A. Pumroy, Jeanne de la Roche, Ferdinand M. Haug, Bárbara B. Sousa, Pamela N. Gallo, Gonçalo J.L. Bernardes, Andreas Lefler, Vera Y. Moiseenkova-Bell

538-PLAT 1:00 PM

CHLORIDE PERMEATION THROUGH THE CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR (CFTR): A MOLECULAR SIMULATION STUDY. **Zhi Wei Zeng**, Régis Pomès

539-PLAT 1:15 PM

STRUCTURAL AND FUNCTIONAL INVESTIGATION ON HUMAN PANXIN 1 (PANX1) REVEALS NOVEL INSIGHT INTO CHANNEL GATING, ION PERMEATION AND DRUG INHIBITION. **Zheng Ruan**, Orozco J. Ian, Juan Du, Wei Lu

Platform

Member Organized Session: Pattern Formation and Biochemical Excitability in Controlling Cell System Dynamics

12:00 PM - 1:30 PM

Co-chairs

*Wolfgang Losert, University of Maryland College Park, USA
Tatsat Banerjee, Johns Hopkins University, USA*

540-PLAT 12:00 PM

EXCITABLE NETWORKS IN DIRECTED CELL MIGRATION. **Peter N. Devreotes**, Tatsat Banerjee, Dhiman S. Pal, Debojyoti Biswas, Huiwang Zhan, Pablo A. Iglesias

541-PLAT 12:18 PM

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

542-PLAT 12:36 PM

DIFFERENT CELL MIGRATION MODES: INSIGHTS FROM TRACTION FORCE MICROSCOPY AND MODELING. **Wouter-Jan Rappel**, Elisabeth Ghabache, Yuansheng Cao, Yuchuan Miao, Alexander Groisman, Peter N. Devreotes

543-PLAT 12:54 PM

PHYSICAL CONTROL OF INTRACELLULAR WAVES WITH NANOTOPOGRAPHY AND ELECTRIC FIELDS. **Qixin Yang**, Matt Hourwitz, Leonard Campanello, Peter N. Devreotes, John Fourkas, Wolfgang Losert

544-PLAT 1:12 PM

PULSATILE DYNAMICS OF EGFR/RAS/ERK SIGNALING: ROLES IN EPITHELIAL PHYSIOLOGY AND DISEASE. **John Albeck**

Platform

Single-Molecule Spectroscopy

12:00 PM - 1:30 PM

Chair

Gilad Haran, Weizmann Institute of Science, Israel

545-PLAT 12:00 PM

UNDERSTANDING MICROSECOND DYNAMICS OF PROTEIN MACHINES. **Gilad Haran**

546-PLAT 12:30 PM

DIRECT DIGITAL SENSING OF PROTEINS IN SOLUTION THROUGH SINGLE-MOLECULE OPTOFLUIDICS. **Georg Krainer**, Kadi Liis Saar, William E. Arter, Tuomas P.J. Knowles

547-PLAT 12:45 PM

ROTATION TRACKING USING DNA ORIGAMI ROTORS REVEALS SINGLE BASE PAIR STEPS DURING TRANSCRIPTION BY RNA POLYMERASE. **Pallav Kosuri**, Benjamin D. Altheimer, Mingjie Dai, Peng Yin, Xiaowei Zhuang

548-PLAT 1:00 PM

TUNING THE BAIRD AROMATIC TRIPLET STATE ENERGY OF CYCLOOCTATETRAENE TO MAXIMIZE THE SELF-HEALING MECHANISM IN ORGANIC FLUOROPHORES. **Avik K. Pati**, Ouissam El Bakouri, Steffen Jockusch, Zhou Zhou, Roger B. Altman, Gabriel A. Fitzgerald, Wesley B. Asher, Daniel S. Terry, Alessandro Borgia, Jonathan A. Javitch, Henrik Ottosson, Scott C. Blanchard

549-PLAT 1:15 PM

PROTEIN CONFORMATIONAL DYNAMICS *IN CELLULA* AND *IN VIVO* USING LIVE-CELL SINGLE-MOLECULE FRET HILO MICROSCOPY. **Abhinaya Anandamurugan**, Philipp Wortmann, Chenyang Lan, April Garcia Fernando, Marina Veil, Lukas Schrangl, Ritwick Sawarkar, Wolfgang Driever, Gerhard J. Schuetz, Thorsten Hugel

General Networking

1:00 PM-2:00 PM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

BPS Virtual Education and Career Fair

1:00 PM - 4:00 PM

Learn about the different leading biophysics programs and career opportunities. This virtual fair will give you the opportunity to speak to representatives from different institutions and companies about their biophysics programs and career opportunities. All those attending the Annual Meeting are encouraged to attend.

Exhibitor Presentation
Leica Microsystems

1:30 PM - 2:00 PM

High Photon-Count Rate FCS and STED-FCS to Study Diffusion Dynamics in Live Cells

Investigating diffusion dynamics of proteins and small molecules has become a routine measurement all across the life sciences, chemistry and physics. It provides valuable insights into reaction dynamics, oligomerization, molecular interactions or cellular (membrane) heterogeneities [1] on the other hand, routinely accessible by spectroscopic techniques such as fluorescence correlation spectroscopy (FCS). Fluorescence correlation spectroscopy (FCS) is a versatile tool to determine diffusion dynamics in membranes (2D diffusion) and solution or the cytoplasm (3D diffusion). Measuring the intensity fluctuations over time due to the diffusion of molecules through the observation volume is the basis for FCS. Temporal autocorrelation of the signal allows for the calculation of the autocorrelation

curve which provides insights into the underlying dynamics as well as the concentration of the observed species [2]. Until now, the concentration regime for reliable measurements has been limited by the detection electronics which could not efficiently and accurately time-tag photons at high photon-count rates. This restricted the range of measurable fluorophore concentrations and data quality of the FCS recordings, especially in combination with super-resolution stimulated emission depletion (STED)-FCS.

In this talk, we will show the applicability and reliability of FCS at high photon-count rates (average intensities of more than 1 MHz and concentrations higher than 1 μ M) using novel detection equipment based on hybrid detectors, namely HyD SMDs, and real-time gigahertz sampling of the photon stream using the Leica SP8 STED FALCON FCS implementation [3]. By measuring the diffusion of fluorophores in solution and cytoplasm of live cells, as well as in model and cellular membranes, we show that accurate diffusion and concentration measurements are possible in these previously inaccessible high photon count regimes on a turn-key instrument. This may reduce the bias when performing live cell measurements where varying expression levels occur routinely and increases the experimental flexibility. In STED-FCS data quality suffers from the fluorescence depletion and can be greatly improved by using higher confocal count rates. The presented data show a path towards robust FCS and STED-FCS measurements in living cells.

Speakers

Giulia Ossato, Product Manager, Leica Microsystems
Julia Roberti, Product Manager, Leica Microsystems
Falk Schneider, University of Oxford

- [1] E. Sezgin et al., "Measuring nanoscale diffusion dynamics in cellular membranes with super-resolution STED-FCS," *Nat. Protoc.*, vol. 14, no. 4, pp. 1054–1083, Apr. 2019.
- [2] J. Lackowicz, *Principles of Fluorescence Spectroscopy*, Third. Boston, MA: Springer US, 2006.
- [3] F. Schneider et al., "High photon count rates improve the quality of super-resolution fluorescence fluctuation spectroscopy," *J. Phys D: Appl. Phys.*, vol. 53, no. 16, 2020

Break

1:30 PM - 2:00 PM

Poster Presentations and Late Posters

2:00 PM - 3:30 PM

Exhibitor Presentation

LUMICKS

3:30 PM - 4:00 PM

Correlative Force–Fluorescence Measurements to Reveal the Dynamic Life of Single Biomolecules: Latest Technology Advancements by LUMICKS, and Latest Findings on Protein Disaggregation by Professor Sander Tans

To decipher complex molecular interactions, you need to be able to observe a biological process from multiple points of view. Using LUMICKS' groundbreaking C-Trap® Optical Tweezers – Fluorescence & Label-free Microscopy, you can simultaneously visualize individual molecules in real time and measure dynamic biological processes in great detail.

During our webinar, we will reveal how our latest technology development, the Trap Distance Lock, allows you to measure biomolecular equilibrium dynamics with unprecedented stability over extremely long periods of time. This new feature offers the ultimate system stability that enables you to capture the rarest, fastest, and smallest conformational changes that underlie the energy landscapes of biomolecules.

After a brief introduction by LUMICKS, we are honored to give the floor to our invited speaker Prof. Sander Tans who will present his work on polypeptide loop extrusion using correlative force–fluorescence measurements. Re-dissolving protein aggregates is crucial to cells, but the molecular basis has remained unknown. Using combined optical tweezers and single-molecule fluorescence detection, Prof. Tans and his team showed that the disaggregase ClpB extrudes loops of protein chains through its central pore, and hence forcibly extracts protein chains from aggregates. The data reveal notable processivity, power, step-dynamics, and switching between translocation modes. Protein disaggregation can thus be highly deterministic and energy-driven process, while polypeptide loop extrusion may be exploited by other systems including p97/cdc48.

Speakers

Olivier Heyning, CEO and Founder, LUMICKS
Aida Llauro Portell, Senior Application Scientist, LUMICKS
Sander Tans, AMOLF and Delft University of Technology, The Netherlands

Peer-to Peer Networking Mixer

3:30 PM - 5:30 PM

Looking for an opportunity to connect with your peers? This event is a great chance to compare notes with colleagues, make new connections, and discuss one-on-one your unique solutions to issues that arise in your particular career stage. Virtual networking space will be provided for Annual Meeting attendees at all career levels, from undergrads to established researchers.

Exhibitor Presentation

Carl Zeiss Microscopy LLC

4:00 PM - 4:30 PM

Discovering the Subcellular Dynamics of Life with ZEISS Lattice Lightsheet 7

In order to best understand the world around us it is necessary to observe microscopic specimens in as natural a state as possible. This requires a transition from imaging fixed to live specimens and expanding from 2D to 3D model organisms. The drive towards live-cell imaging over long timeframes and at high volume speeds brings new challenges. There is evidence that traditional imaging techniques can influence the behaviour of specimens due to phototoxicity, thus affecting the integrity of the results.

The most influential technological breakthroughs which address these challenges have been modifications to the shape of the excitation light. Classical laser-based imaging approaches utilize a gaussian excitation beam which is focussed to a spot or a sheet and scanned as required to excite the sample. As an alternative approach, Bessel beams have been combined to introduce a structured pattern to the beam profile. The resulting 'lattice' of light has many benefits for live imaging. The most notable are a reduction of light exposure due to significant improvement in signal to noise while maintaining high resolution and optical sectioning. With lattice-lightsheet microscopy it is possible to capture dynamics at previously unreachable combinations of acquisition speed and resolution over hours and even days.

This talk will describe how the ZEISS Lattice Lightsheet 7 makes long-term volumetric imaging of living cells with subcellular resolution possible without having to change your standard sample preparation protocols to accommodate the instrument. With automatic alignment and easy acquisition workflows, lattice light-sheet imaging is now as accessible as using a standard inverted microscope.

Join us for this webinar to learn how ZEISS Lattice Lightsheet 7 allows you to discover the subcellular dynamics of life.

Speaker

Renée Dalrymple, Product Marketing Manager – Life Sciences Lattice Line, Carl Zeiss Microscopy LLC

Biophysical Society Business Meeting

4:00 PM - 4:30 PM

WEDNESDAY POSTER SESSIONS

2:00 PM–3:30 PM

*Below is the list of poster presentations for Wednesday of abstracts submitted by October 1.
The list of late abstracts scheduled for Wednesday is available on page 109.*

ODD-NUMBERED BOARDS 2:00 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:30 PM

<u>Board Numbers</u>	<u>Category</u>
B1 - B34	Protein Structure and Conformation II
B35 - B50	Protein-Small Molecule Interactions I
B51 - B75	Protein Dynamics and Allostery I
B76 - B93	Membrane Protein Dynamics I
B94 - B98	Membrane Protein Folding
B99 - B110	Transcription
B111 - B130	Protein-Nucleic Acid Interactions II
B131 - B148	Membrane Active Peptides and Toxins
B149 - B168	Membrane Structure I
B169 - B180	Intracellular Calcium Channels and Calcium Sparks and Waves
B181 - B188	Intracellular Transport
B189 - B195	Voltage-gated Na Channels
B196 - B199	Voltage-gated Ca Channels
B200 - B220	Ion Channel Regulatory Mechanisms
B221 - B233	Actin Structure, Dynamics, and Associated Proteins
B234 - B259	Kinesins, Dyneins, and Other Microtubule-based Motors
B260 - B280	Cell Mechanics, Mechanosensing, and Motility II
B281 - B288	Energy Transducing Membrane Protein Complexes
B289 - B298	Electron Microscopy
B299 - B317	Molecular Dynamics II
B318 - B339	Optical Microscopy and Superresolution Imaging I
B340 - B364	Single-Molecule Spectroscopy

Protein Structure and Conformation II (Boards B1 - B34)

- 550-Pos BOARD B1**
HD-ANM A COMPUTATIONALLY EFFICIENT, HIGHLY CUSTOMIZABLE AND COMPREHENSIVE ELASTIC NETWORK MODEL. **Pranav M. Khade**, Domenico Scaramozzino, Ambuj Kumar, Robert L. Jernigan
- 551-Pos BOARD B2**
DEVELOPING EFFICIENT TRANSFER FREE ENERGY CALCULATION METHODS FOR HYDROPHOBICITY PREDICTIONS. **Adithya Polasa**, Seyed Hamid Tabari, Mahmoud Moradi
- 552-Pos BOARD B3**
INFERRING DELETERIOUS MUTATIONAL REGION IN CANCER FROM PROTEIN STRUCTURE. **Boshen Wang**, Xue Lei, Wei Tian, Yanyuan Tseng, Jie Liang
- 553-Pos BOARD B4**
GENERATING PROTEIN ENSEMBLES BY APPLYING FORCES TO AN IMPROVED ELASTIC NETWORK MODEL. **Ambuj Kumar**, Pranav M. Khade, Domenico Scaramozzino, Karin Dorman, Robert L. Jernigan
- 554-Pos BOARD B5**
IN SILICO GENERATION OF HOLO-LIKE CONFORMATIONS OF VERY FLEXIBLE ALLOSTERIC PROTEINS BEARING MULTIPLE BINDING SITES. **Andrea Basciu**, Attilio V. Vargiu, Giuliano Malloci, Paolo Ruggerone, Alexandre M. Bonvin
- 555-Pos BOARD B6**
PREDICTION OF A PROTEIN'S FREE ENERGY SURFACE AND VALIDATION WITH HD EXCHANGE. **Xiangda Peng**, Nabil F. Faruk, Michael Baxa, Scott Houliston, Karl F. Freed, Cheryl Arrowsmith, Gabriel J. Rocklin, Tobin R. Sosnick
- 556-Pos BOARD B7**
COMPUTATIONAL INSIGHTS INTO THE EFFECT OF GASTRIC PH ON THE STABILITY OF APO-LACTOFERRIN AND ITS INTERACTIONS WITH A-LACTALBUMIN AND B-LACTOGLOBULIN. **Kevin Darmawan**, Tom C. Karagiannis, Jeff Hughes, Darryl Small, Andrew Hung
- 557-Pos BOARD B8**
A COMBINATORIAL APPROACH TO EXAMINE PROTEIN-PROTEIN INTERACTION BASED SUBSTRATE SELECTIVITY IN *E. COLI* FATTY ACID BIOSYNTHESIS. **Thomas Bartholow**
- 558-Pos BOARD B9**
STRUCTURAL STUDIES OF DESIGNED CHIMERIC PROTEINS AND PREDICTIONS OF MUTATIONAL EFFECTS. **Victor Zhao**, João V. Rodrigues, Eugene I. Shakhnovich
- 559-Pos BOARD B10**
HIGH-THROUGHPUT DISULFIDE SCANNING OF *IN VIVO* PROTEIN CONFORMATIONS. **Eugene Serebryany**, Eugene Shakhnovich
- 560-Pos BOARD B11**
EMPLOYING AN UNNATURAL AMINO ACID TO EXAMINE LOCAL ENVIRONMENTS IN MULTIPLE PROTEIN SYSTEMS. **Christine M. Phillips-Piro**, Scott H. Brewer
- 561-Pos BOARD B12**
LEVERAGING HDX-MS SOLUTION DATA AND HDX MODELING TO REFINE MOLECULAR DYNAMICS ENSEMBLES AND GAIN AN ATOMISTIC UNDERSTANDING OF BIOPHYSICAL PHENOMENA. **Kyle C. Kihn**, Daniel J. Deredge, Patrick L. Wintrode
- 562-Pos BOARD B13**
MAPPING THE EPITOPE INTERACTIONS OF TRASTUZUMAB VIA PLASMA INDUCED MODIFICATION OF BIOMOLECULES (PLIMB). **Daniel Benjamin**, Faraz A. Choudhury, Benjamin Minkoff, Claire Bramwell, St John Skilton, Michael R. Sussman
- 563-Pos BOARD B14**
FLUORESCENCE ANISOTROPY EEMS: ADDING A NEW DIMENSION TO THE STUDY OF PROTEIN LOCAL ENVIRONMENT. **Karen E. Gall**, Alex Siemiarczuk
- 564-Pos BOARD B15**
EFFECTS OF CRYO-EM FREEZING ON STRUCTURAL ENSEMBLES. **Helmut Grubmuller**, Lars V. Bock
- 565-Pos BOARD B16**
ACROSS THE *E. COLI* PROTEOME IT IS COMMON FOR PROTEINS TO BECOME KINETICALLY TRAPPED IN SOLUBLE, NEAR-NATIVE, NON-FUNCTIONAL CONFORMATIONS THAT BYPASS THE PROTEOSTASIS NETWORK. **Daniel A. Nissley**, Fabio Trovato, Ian M. Sitarik, Yang Jiang, Karthik Narayan, Edward P. O'Brien
- 566-Pos BOARD B17**
THE TRANSITION PATHWAY BETWEEN THE CLOSED AND OPEN STATES OF INSULIN DEGRADING ENZYME SHOWS TWO DISTINCT MOTIONS: ROTATION AROUND A HINGE AND GRINDING BETWEEN TWO DOMAINS. **David Tang**, Wei-Jen Tang, Jordan Mancl, Esmael J. Haddadian
- 567-Pos BOARD B18**
PRESSURE ACCELERATES THE CIRCADIAN CLOCK OF CYANOBACTERIA. **Ryo Kitahara**, Keita Mitsuhashi, Soichiro Kitazawa, Kazuki Terauchi
- 568-Pos BOARD B19**
PRESSURE-TEMPERATURE LANDSCAPE OF THE UNFOLDED STATE OF CLT9-I98A PROTEIN. **Balasubramanian Harish**, Richard Gillilan, Daniel P. Raleigh, Catherine A. Royer
- 569-Pos BOARD B20**
PROBING PRESSURE EFFECTS ON CORE PACKING OF A REPEAT PROTEIN USING 13C-1H NMR. **Siwen Zhang**, Scott McCallum, Catherine A. Royer
- 570-Pos BOARD B21**
ULTRA-HIGH RESOLUTION AND CHARGE-DENSITY STUDIES ON THE TYPE-I COPPER PROTEIN AMICYANIN, FROM *PARACOCCLUS DENITRIFICANS*. **Narayanasami Sukumar**, Igor Kurinov, Malcolm S. Capel, James Withrow, Sahana L. Sukumar, Victor L. Davidson
- 571-Pos BOARD B22**
THE STRUCTURAL ENVIRONMENT AROUND THE HEME-BINDING SITE IN CYCLOOXYGENASE AND ITS IMPLICATION. **Inseok Song**
- 572-Pos BOARD B23**
STRUCTURAL AND FUNCTIONAL INSIGHTS OF AN UNPRECEDENTED MULTIHEME CYTOCHROME FROM *GEOBACTER SULFURREDU-CENS*. **Tomás M. Fernandes**, Leonor Morgado, Filipe Folgosa, Miguel Teixeira, Carlos A. Salgueiro
- 573-Pos BOARD B24**
TEMPERATURE DEPENDENCE OF INFRARED LIGHT TIME COURSE UNDER OXYGENATION AND DEOXYGENATION OF THE BLOOD IN VITRO. **Marina Kirichenko**, George Rybalchenko, Sergey Gavrilkin, Alexey Kirichenko
- 574-Pos BOARD B25 WITHDRAWN**
- 575-Pos BOARD B26**
STRUCTURAL BASIS FOR P450-MEDIATED OXYSTEROL METABOLISM BY *MYCOBACTERIUM TUBERCULOSIS*. **Sergey S. Bukhdruker**, Tatsiana Varaksa, Irina Grabovec, Egor Marin, Anton Kavaleuski, Polina Shabunya, Anastasiia Gusach, Kirill Kovalev, Ivan Kapranov, Alexey Mishin, Andrei Gilep, Natalia Strushkevich, Valentin Borschhevskiy

576-Pos BOARD B27
BIOCHEMICAL AND STRUCTURAL CHARACTERIZATION OF TWO CIF-LIKE EPOXIDE HYDROLASES FROM *BURKHOLDERIA CENOCEPACIA*. **Noor M. Taher**, Kelli L. Hvorecny, Cassandra M. Burke, Morgan S.A. Gilman, Gary E. Heussler, Jared Adolf-Bryfogle, Christopher D. Bahl, George A. O'Toole, Dean R. Madden

577-Pos BOARD B28
STRUCTURAL STUDIES OF THE NEURONAL APOPTOTIC COMPLEX OF THE PRONGF-P75^{NTR}-SORTILIN. **Purbasha Nandi**, Yu-Ping Poh, Po-Lin Chiu

578-Pos BOARD B29
ELABORATION OF MECHANISMS BY WHICH DISTINCT APELIN RECEPTOR BIOACTIVITY IS ELICITED BY ENDOGENOUS PEPTIDE LIGAND PROCESSING. **Tam Pham**, Jayatee Ray, Jan K. Rainey

579-Pos BOARD B30
ATOMISTIC INSIGHTS ON STRUCTURE AND DYNAMICS OF SPINACH ACYL CARRIER PROTEIN WITH SUBSTRATE LENGTH. **Marcel D. Baer**, John Shanklin, Simone Raugei

580-Pos BOARD B31
STRUCTURE AND DYNAMICS OF THE ENDOGENOUS MYCOBACTERIAL POLYKETIDE SYNTHASE PKS13 IN ACTION. **Sun Kyung Kim**

581-Pos BOARD B32 WITHDRAWN

582-Pos BOARD B33
STRUCTURAL INVESTIGATION ON THE SUBSTRATE SPECIFICITY OF MYCOBACTERIAL 3-KETOSTEROID-1,2-DEHYDROGENASE. **Xin Li**, Xiyao Cheng, Yue Han, Zhengkun Kuang, Yongqi Huang, Zhengding Su

583-Pos BOARD B34
CHARACTERIZING THE STRUCTURE AND FUNCTION OF RHODOQUINONE BIOSYNTHESIS ENZYMES. **Trilok Neupane**, Sophia Whitworth, Jamie Spawn, Jennifer Shepherd, David N. Langelan

Protein-Small Molecule Interactions I (Boards B35 - B50)

584-Pos BOARD B35
THE IMPACT OF LOCAL ENVIRONMENT ON SIMULATED METABOLITE CONFORMATIONS. **Meredith Rickard**, Ashley M. De Lio, Taras V. Pogorelov

585-Pos BOARD B36
ATOMIC RESOLUTION MECHANISM OF GTP RECOGNITION BY GTPASE. Bhupendra R. Dandekar, Navjeet Ahalawat, **Jagannath Mondal**

586-Pos BOARD B37
SOLVATION CONTRIBUTION TO THE FREE ENERGY OF LIGAND BINDING IS DETERMINED BY THE COUPLING BETWEEN SURFACE HYDRATION STRUCTURE AND SIDE CHAIN MOTION. **Jie Shi**, Jae-Hyun Cho, Wonmuk Hwang

587-Pos BOARD B38
CAPTURING PROTEIN-LIGAND RECOGNITION PATHWAYS IN COARSE GRAINED SIMULATIONS. **Bhupendra R. Dandekar**

588-Pos BOARD B39
ESTIMATING PROTEIN-LIGAND RELATIVE BINDING AFFINITIES USING THE SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION APPROACH. Himanshu Goel, **Anthony Hazel**, Vincent D. Ustach, Sunhwan Jo, Wenbo Yu, Alexander D. MacKerell

589-Pos BOARD B40
MULTISCALE SIMULATIONS EXAMINING GLYCAN SHIELD EFFECTS ON DRUG BINDING TO INFLUENZA NEURAMINIDASE. **Christian Seitz**, Lorenzo Casalino, Robert Konecny, Gary Huber, Rommie E. Amaro, J. Andrew McCammon

590-Pos BOARD B41
EXPLORING THE BINDING AFFINITIES OF FRUCTOSE AND GALACTOSE TO HUMAN SERUM ALBUMIN. **Prapasiri Pongprayoon**

591-Pos BOARD B42
COMPREHENSIVE CHARACTERIZATION OF LIGAND UNBINDING MECHANISMS AND KINETICS FOR T4 LYSOZYME MUTANTS. **Ariane Nunes-Alves**, Daria B. Kokh, Rebecca C. Wade

592-Pos BOARD B43
EXPLORING THE PROTEIN-LIGAND PATHS IN AURORA A/B KINASES WITH ENHANCED MOLECULAR DYNAMICS SIMULATIONS. **Felipe Bravo-Moraga**, Ariela Vergara-Jaque, Jans Alzate-Morales

593-Pos BOARD B44
COMPUTATIONAL ANALYSIS OF THE NEUROKININ-1 RECEPTOR INTERACTIONS WITH ANTAGONISTS. **Marcelo Cardoso dos Reis Melo**, Cesar de la Fuente-Nunez

594-Pos BOARD B45
USING COMPUTATIONAL AND NEUROBIOLOGICAL METHODS TO CHARACTERISE THE STIMULANT PROPERTIES OF NOVEL PSYCHOACTIVE SUBSTANCES (NPS) AT THE DOPAMINE TRANSPORTER. **Michelle A. Sahai**, Barbara Loi, Maria Antonietta De Luca, Hana Shiref, Jolanta Opacka-Juffry

595-Pos BOARD B46
ANALYSIS OF L-DOPA AND DROXIDOPA BINDING TO HUMAN BETA 2-ADRENERGIC RECEPTOR. **Andrea Catte**, Akash Deep Biswas, Sara Del Galdo, Giordano Mancini, Vincenzo Barone

596-Pos BOARD B47
ASSESSING STATE DEPENDENT BETA-ADRENERGIC RECEPTOR - LIGAND INTERACTIONS FOR MULTISCALE MODELING. **John R.D. Dawson**, Kevin R. DeMarco, Pei-Chi Yang, Slava Bekker, Vladimir Yarov-Yarovoy, Igor V. Vorobyov

597-Pos BOARD B48
MOLECULAR DETERMINANTS OF THE NEUROTOXICITY OF ACRYLAMIDE THROUGH COVALENT DOCKING. Nicolas P. Müller, **Mercedes Alfonso Prieto**

598-Pos BOARD B49
INTERACTION AND INHIBITORY MECHANISMS OF KOLAFLAVANONE, A GARCINIA BIFLAVONOID, WITH KINESIN EG5. **Tomisin H. Ogunwa**, Kei Sadakane, Takayuki Miyaniishi, Shinsaku Maruta

599-Pos BOARD B50
COMPUTATIONAL ASSESSMENT OF RECEPTOR-LIGAND UNBINDING UNDER APPLIED FORCE. **Willmor J. Pena**, Glen M. Hocky

Protein Dynamics and Allostery I (Boards B51 - B75)

600-Pos BOARD B51
SITE-SPECIFIC PHOTOINDUCED DYNAMICS OF THE LOV PROTEIN EL222 MONITORED BY MULTIPLE GENETICALLY ENCODED INFRARED PROBES. Aditya S. Chaudhari, Catarina A. Oliveira, Yingliang Liu, Prokopis C. Andrikopoulos, Inger Andersson, Bohdan Schneider, **Gustavo Fuertes**

601-Pos BOARD B52
CONFORMATIONAL REARRANGEMENT DURING ACTIVATION OF A METABOTROPIC GLUTAMATE RECEPTOR. **Brandon W. Liauw**, Hamid S. Afsari, Reza Vafabakhsh

602-Pos BOARD B53
EFFECT OF DONOR IDENTITY ON FRET SENSOR SENSITIVITY TO ENVIRONMENTAL MACROMOLECULAR CROWDING. **Chioma Nwachuku**, Emmanuel Tetteh-Jada, Malachy Brink, Scarlet Hoffman, Elsie Johnson, Arnold J. Boersma, Erin D. Sheets, Ahmed A. Heikal

603-Pos BOARD B54
CHARACTERIZATION OF A NEW HETERO-FRET BIOSENSOR TO MEASURE ENVIRONMENTAL IONIC STRENGTH. Chioma Nwachuku, Emmanuel Tetteh-Jada, **Malachy Brink**, Scarlet Hoffman, Boqun Liu, Arnold J. Boersma, Ahmed A. Heikal, Erin D. Sheets

604-Pos BOARD B55
ROLE OF LIGAND-BINDING AND NON-ACTIVE SITE RESIDUES IN THE DYNAMICS, CONFORMATIONAL INTEGRITY, AND CATALYSIS OF THE DISORDERED ENZYME MONOMERIC CHORISMATE MUTASE. **Shrutidhara Biswas**, Rajaram Swaminathan

605-Pos BOARD B56
PROBING ALLOSTERY IN OLIGOMERIC M₂ RECEPTORS USING SMFRET. **Dennis D. Fernandes**, Aimen Malik, Claudiu C. Gradinaru

606-Pos BOARD B57
SINGLE-MOLECULE INSIGHTS INTO ALLOSTERIC REGULATION OF THE NUCLEAR RECEPTOR PROTEIN RXRA. **Jakub Jungwirth**, Sayan Mondal, Mahran Shehade, Demian Liebermann, Dorit Levy, Inbal Riven, Gilad Haran

607-Pos BOARD B58
RESURRECTED ANCESTRAL TIM-BARREL GLYCOSIDASE DISPLAYS HEME BINDING AND ALLOSTERIC MODULATION. **Luis I. Gutierrez-Rus**, Gloria Gamiz-Arco, Valeria A. Risso, Beatriz Ibarra-Molero, Yosuke Hoshino, Dušan Petrović, Jose Justicia, Juan Manuel Cuerva, Adrian Romero-Rivera, Burckhard Seelig, Jose A. Gavira, Shina C.L. Kamerlin, Eric A. Gaucher, Jose M. Sanchez-Ruiz

608-Pos BOARD B59
ANISOTROPIC TERAHERTZ MICROSCOPY OF LYSOZYME IN DIFFERENT CRYSTAL LATTICE SYSTEMS. **Jeffrey A. McKinney**, Deepu K. George, Yanting Deng, Andrea G. Markelz

609-Pos BOARD B60
UTILIZING PH-DRIVEN TIME-RESOLVED CRYSTALLOGRAPHY TO ELUCIDATE THE HYDRIDE TRANSFER MECHANISM IN BACTERIAL HMG-COA REDUCTASE. **Vatsal Purohit**, Calvin Steussy, Tim Schmidt, Chandra J. Critchelow, Tony Rosales, Paul Helquist, Olaf Wiest, Cynthia V. Stauffacher

610-Pos BOARD B61
MECHANISTIC BASIS FOR UBIQUITIN MODULATION OF A PROTEIN ENERGY LANDSCAPE. **Emma Carroll**, Naomi R. Latorraca, Johanna Lindner, Jeff Pelton, Brendan Maguire, Susan Marqusee

611-Pos BOARD B62
MAPPING BINDING EPITOPES AND ALLOSTERIC EFFECTS IN STAPH ENTEROTOXINS. **Clint Vorauer**, Miklos Guttman

612-Pos BOARD B63
STRUCTURAL DYNAMICS OF THE HETERODIMERIZATION BETWEEN THE DNA-BINDING DOMAINS FROM HUMAN FOXP1 AND FOP2 TRANSCRIPTION FACTORS. Exequiel Medina, Ricardo Coñuecar, Cesar A. Ramirez-Sarmiento, **Hugo Sanabria**, Jorge Babul

613-Pos BOARD B64
HDX-MS GUIDED ENSEMBLE REWEIGHTING APPROACH CHARACTERIZES A LARGE CONFORMATIONAL REARRANGEMENT IN THE CYTOPLASMIC HEME BINDING PROTEIN PHUS. Kyle C. Kihn, Tyree Wilson, Richard T. Bradshaw, Patrick L. Wintrode, Lucy R. Forrest, Angela Wilks, **Daniel J. Deredge**

614-Pos BOARD B65
THERMAL TRANSFER FROM THE SURFACE LOOP TO THE IRON ACTIVE SITE OF SOYBEAN LIPOXYGENASE. **Jan Paulo Zaragoza**

615-Pos BOARD B66
ALLOSTERIC REGULATION OF THE ACTIVITY OF BY-KINASES, A UNIQUE FAMILY OF BACTERIAL PROTEIN TYROSINE KINASES. **Fatum Hajredini**, Andrea Piserchio, Rinat Abzalimov, Ranajeet Ghose

616-Pos BOARD B67
MAPPING BINDING INTERFACES AND ALLOSTERIC CHANGES IN THE SARS-COV-2 SPIKE PROTEIN USING HYDROGEN/DEUTERIUM EXCHANGE MASS SPECTROMETRY. **Shawn M. Costello**, Helen T. Hobbs, Sophie R. Shoemaker, Abigail E. Powell, Shion A. Lim, James A. Wells, Peter S. Kim, John E. Pak, Susan Marqusee

617-Pos BOARD B68
CONFORMATIONAL DYNAMICS IN NF- κ B TRANSCRIPTIONAL REGULATION. **Wei Chen**, Elizabeth A. Komives

618-Pos BOARD B69
INSIGHT INTO CULLIN RING LIGASE AND SUBSTRATE BINDING. **Philip R. Belzeski**, Ryan Lumpkin, Christopher Condon, Elizabeth A. Komives

619-Pos BOARD B70
DISULFIDE REDUCTION ALLOSTERICALLY DESTABILIZES THE B-LADDER SUB-DOMAIN ASSEMBLY WITHIN THE NS1 DIMER OF ZIKV. **Priti Roy**, Subhajt Roy, Neelanjana Sengupta

620-Pos BOARD B71
SOLVATION DRIVES G-PROTEIN-COUPLED RECEPTOR ACTIVATION. **Nipuna Weerasinghe**, Steven D.E. Fried, Andrey V. Struts, Suchithranga M.D.C. Perera, Michael F. Brown

621-Pos BOARD B72
CALCIUM DISSOCIATION OF HCM CAUSATIVE R21C TROPONIN I MUTATION. **Romi Castillo**, Anthony Baldo, Matthew M. Klass, Melissa L. Lynn, Steven D. Schwartz, Jill C. Tardiff

622-Pos BOARD B73
ALLOSTERIC REGULATION IN CRISPR/CAS1-CAS2 ACQUISITION OF PROTO-SPACER DNA IN CLOSE ASSOCIATION WITH CAS2. **Chunhong Long**, Liqiang Dai, Chao E, Jin Yu

623-Pos BOARD B74
SODIUM BINDING IN CYSTEINYL LEUKOTRIENE G PROTEIN-COUPLED RECEPTORS. **Viktoriiia Shaulskaia**, Aleksandra Luginina, Polina Khorn, Anastasiia Gusach, Olga Sukhacheva, Ekaterina Smirnova, Valentin Borshchevskiy, Alexey Mishin, Vadim Cherezov

624-Pos BOARD B75
PROTEOME-SCALE ANALYSIS OF VERTEBRATE PROTEIN THERMOADAPTATION MODULATED BY DYNAMIC ALLOSTERY AND PROTEIN SOLVATION. **Zhenlu Li**, Matthias Buck

Membrane Protein Dynamics I (Boards B76 - B93)

625-Pos BOARD B76
MOLECULAR SIMULATIONS REVEAL THE DYNAMICS OF THE T-CELL RECEPTOR IN A T-CELL MODEL MEMBRANE. **Dheeraj Prakaash**, Oreste Acuto, Graham Cook, Antreas Kalli

626-Pos BOARD B77
MOLECULAR DYNAMICS INVESTIGATION OF THE INFLUENZA HEMAGGLUTININ CONFORMATIONAL CHANGES. **Shadi Asadian Ghahfarokhi**, Vivek Govind Kumar, Mahmoud Moradi

627-Pos BOARD B78
A COMPUTATIONAL STUDY OF THE DYNAMICS OF CADHERIN-CATENIN COMPLEX REGULATED BY ACTIN CYTOSKELETON. **Qilin Yu**, Taeyoon Kim, Vijay Rajagopal

628-Pos BOARD B79

STRUCTURE AND DYNAMICS OF HIV-1 ENV TRIMERS ON NATIVE VIRIONS ENGAGED IN LIVING T CELLS. **Irene Carlon Andres**, Tomas Malinauskas, Sergi Padilla-Parra

629-Pos BOARD B80

CONTROLLING PHOTOSYNTHETIC LIGHT HARVESTING AT THE SINGLE PROTEIN LEVEL. **Tjaart P. Krüger**

630-Pos BOARD B81

HYDRATION AND PROTONATION EFFECTS ON ACTIVATION OF G-PROTEIN-COUPLED RECEPTORS. **Steven D.E. Fried**, Benjamin H.C. Cabrera, Anna R. Eitel, Kushani S.K. Hewage, Andrey V. Struts, Nipuna Weerasinghe, Suchithranga M.D. Perera, Michael F. Brown

631-Pos BOARD B82

PRESTIN GENERATES INSTANTANEOUS FORCE IN OUTER HAIR CELL MEMBRANES. **Jashan Sandhu**, Tamara Bidone, Richard D. Rabbitt

632-Pos BOARD B83

ACTIVATION MICROSITCHES IN ADENOSINE RECEPTOR A_{2A} FUNCTION AS RHEOSTATS IN CELL MEMBRANE. **Ning Ma**, Sangbae Lee, Nagarajan Vaidehi

633-Pos BOARD B84

DEMONSTRATION OF ANTIBIOTIC TRANSPORT BY THE MTRD EFFLUX PUMP FROM NEISSERIA GONORRHOEA. **Lauren Ammerman**, Sarah B. Mertz, Chanyang Park, John G. Wise

634-Pos BOARD B85

ROLE OF BURIED WATER IN THE MECHANISM OF PHOTOACTIVATION OF KR2 RHODOPSIN. **Suman Chakrabarty**

635-Pos BOARD B86

MECHANISTIC ORIGIN OF PARTIAL AGONISM OF Δ^9 -TETRAHYDRO-CANNABINOL FOR CANNABINOID RECEPTORS. **Soumajit Dutta**, Balaji Selvam, Diwakar Shukla

636-Pos BOARD B87

VITAMIN B₁₂ CARRIES PEPTIDE NUCLEIC ACIDS TO *E. COLI* CELLS THROUGH THE OUTER-MEMBRANE BTUB RECEPTOR. Tomasz Pienko, Jakub Czarnecki, Marcin Równicki, Monika Wojciechowska, Aleksandra J. Wierzbza, Dorota Gryko, Dariusz Bartosik, **Joanna Trylska**

637-Pos BOARD B88

ROLE OF THE INTERNAL LOOPS IN GATING OF OUTER MEMBRANE PORINS. **Nandan Haloi**, Archit Vasan, Paul Hergenrother, Emad Tajkhorshid

638-Pos BOARD B89

FUNCTIONAL EXPANSION OF G-PROTEIN-COUPLED RECEPTOR SHOWN BY TIME-RESOLVED X-RAY SCATTERING. **C. Swathi K. Menon**, Konstantinos Karpos, Thomas D. Grant, Andrey V. Struts, Steven D.E. Fried, Suchithranga M.D.C. Perera, Irina V. Kosheleva, Leslie Salas-Estrada, Alan Grossfield, Petra Fromme, Richard A. Kirian, Michael F. Brown

639-Pos BOARD B90

BACTERIORHODOPSIN PHOTOCYCLE CAPTURED AT THE SINGLE MOLECULE LEVEL BY HS-AFM. **Alma P. Perrino**, Simon Scheuring

640-Pos BOARD B91

AN INVESTIGATION OF THE CONFORMATIONAL DYNAMICS OF ABC EXPORTER PCAT1 USING MICROSECOND-LEVEL MD SIMULATIONS. **Vivek Govind Kumar**, Dylan S. Ogden, Mahmoud Moradi

641-Pos BOARD B92

ULTRAFast MEMBRANE PROTEIN DYNAMICS REVEALED BY X-RAY SCATTERING WITH A FEMTOSECOND FREE-ELECTRON LASER. **Thomas D. Grant**, Suchithranga M.D.C. Perera, Leslie A. Salas-Estrada, Andrey V. Struts, Udeep Chawla, Steven D.E. Fried, Nipuna Weerasinghe, Konstantinos Karpos, Domingo Meza, Nadia A. Zatsepin, Alan Grossfield, Derek Mendez, Petra Fromme, Richard A. Kirian, Michael F. Brown

642-Pos BOARD B93

MEASURING THE FLOW-MEDIATED TRANSPORT VELOCITY OF LIPID-ANCHORED PROTEINS IN SUPPORTED LIPID BILAYERS. **Amanda M. Ratajczak**, Ethan J. Miller, Xaymara Rivera, Aurelia R. Honerkamp-Smith

Membrane Protein Folding (Boards B94 - B98)

643-Pos BOARD B94

TOPOLOGY-SWITCHING MEMBRANE PEPTIDES FOR DETERMINATION OF THE ACTIVE TRANSMEMBRANE DIMER INTERFACE OF THE EPHA2 RECEPTOR. **Justin M. Westerfield**, Amita Sahoo, Jennifer Schuster, Katherine M. Stefanski, Alayna Cameron, Mikayla Maxwell, Matthew Jansen, Andrew C. Dixon, Daiane S. Alves, Matthias Buck, Francisco N. Barrera

644-Pos BOARD B95

LIPID BILAYER STRENGTHENS THE SIDE CHAIN INTERACTION NETWORK OF A MEMBRANE PROTEIN. **Fathima Shaima Muhammed Nazaar**, Ruiqiong Guo, Seung-Hyo Rhee, Seung-gu Kang, Heedeok Hong

645-Pos BOARD B96

DIMERIZATION OF THE FLUORIDE CHANNEL FLUC IN MEMBRANES. **Melanie Ernst**, Randy Stockbridge, Janice L. Robertson

646-Pos BOARD B97

THE ROLE OF THE MEMBRANE-WATER INTERFACE IN CO-TRANSLATIONAL MEMBRANE PROTEIN FOLDING. **Jan Steinkühler**, Sharon M. Loverde, Neha P. Kamat

647-Pos BOARD B98

INVESTIGATING YIDC-ASSISTED FOLDING PATHWAYS OF DIFFERENT ALPHA-HELICAL MEMBRANE PROTEINS. **Nina Blaimschein**, Andreas Kuhn, Nora Jahnen, Povilas Uzdavinyis, Christine M. Ziegler, Hariharan Parameswaran, Lan Guan, Daniel J. Mueller

Transcription (Boards B99 - B110)

648-Pos BOARD B99

KINETICS AND MECHANISM OF *E. COLI* TRANSCRIPTION INITIATION. **Dylan Plaskon**, Kate Henderson, Lindsey Felth, Claire Evensen, Sarah Dyke, Cristen Molzahn, Tristan Gunther, Guanyu Liao, Irina A. Shkel, M. Thomas Record

649-Pos BOARD B100

LIVE MEASUREMENTS OF TRANSCRIPTIONAL BURSTING AND DYNAMIC GENE REGULATION IN EARLY FLY EMBRYOS. **Po-Ta Chen**, Benjamin Zoller, Michal Levo, Thomas Gregor

650-Pos BOARD B101

DENGUE VIRUS NS5 TRANSCRIBES METABOLITE-CAPPED, RIG-I SENSITIVE VRNAS. **Brandon Schweibenz**, Mihai Solotchi, Etienne Decroly, Barbara Selisko, Bruno Canard, Smita S. Patel

651-Pos BOARD B102

LEARNING THE DYNAMICS OF BURSTY TRANSCRIPTION AND SPLICING USING ULTRA-FAST PARAMETER INFERENCE AND NEW ANALYTICAL SOLUTIONS OF THE CHEMICAL MASTER EQUATION. **John J. Vastola**, Gennady Gorin, Lior Pachter, William R. Holmes

652-Pos BOARD B103

NONRECIPROCAL AND CONDITIONAL COOPERATIVITY DIRECTS THE PIONEER ACTIVITY OF PLURIPOTENCY TRANSCRIPTION FACTORS. **Sai Li**, Eric B. Zheng, Li Zhao, Shixin Liu

653-Pos BOARD B104

LIGAND DEPENDENCE OF HORMONE ACTION IN GLUCOCORTICOID RECEPTOR STUDIED BY 3D ORBITAL TRACKING FLUORESCENCE CROSS CORRELATION SPECTROSCOPY. **Julianna Goelzer**, Diana Stavreva, Gordon Hager, Matthew L. Ferguson

654-Pos BOARD B105
MYC AMPLIFIES GENE EXPRESSION THROUGH GLOBAL CHANGES IN TRANSCRIPTION FACTOR DYNAMICS. **Daniel R. Larson**

655-Pos BOARD B106
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656-Pos BOARD B107
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657-Pos BOARD B108
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658-Pos BOARD B109
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659-Pos BOARD B110
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661-Pos BOARD B112
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662-Pos BOARD B113
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663-Pos BOARD B114
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664-Pos BOARD B115
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665-Pos BOARD B116
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666-Pos BOARD B117
MASSIVELY PARALLEL KINETIC PROFILING OF NATURAL AND ENGINEERED CRISPR NUCLEASES. **Stephen K. Jones**, John A. Hawkins, Nicole V. Johnson, Cheulhee Jung, Kuang Hu, James R. Rybarski, Janice S. Chen, Jennifer A. Doudna, William H. Press, Ilya J. Finkelstein

667-Pos BOARD B118
TIN2 IS AN ARCHITECTURE PROTEIN THAT FACILITATES TRF2-MEDIATED HIGHER-ORDER DNA AND RNA STRUCTURES AT TELOMERES. **Parminder Kaur**, Hai Pan, Hong Wang, Robert Riehn

668-Pos BOARD B119
TIN2 FACILITATES TRF1-MEDIATED TRANS- AND CIS-INTERACTIONS ON PHYSIOLOGICALLY RELEVANT LONG TELOMERIC DNA. **Hai Pan**, Parminder Kaur, Ryan Barnes, Qingyu Tang, Keith R. Weninger, Robert Riehn, Susan Smith, Patricia L. Opresko, Hong Wang

669-Pos BOARD B120
A STRUCTURALLY CONSERVED HUMAN AND TETRAHYMENA TELOMERASE CATALYTIC CORE. **Yaqiang Wang**, Marcus Gallagher-Jones, Lukas Sušac, He Song, Juli Feigon

670-Pos BOARD B121
AN AUTOINHIBITORY ROLE FOR THE GRF ZINC FINGER DOMAIN OF DNA GLYCOSYLASE NEIL3. **Alyssa A. Rodriguez**

671-Pos BOARD B122
SEQUENCE DEPENDENT BARRIERS TO NUCLEOSOME UNWRAPPING. William Hu, Phu Tang, Anjela Manandhar, Kaushik Chakraborty, **Sharon M. Loverde**

672-Pos BOARD B123
DNA DYNAMICS DURING SWR1-CATALYZED H2A.Z HISTONE EXCHANGE. **Xinyu A. Feng**, Matthew F. Poyton, Anand Ranjan, Myung Hyun Jo, Jasmin Zarb, Robert K. Louder, Giho Park, Qin Lei, Sheng Liu, Carl Wu, Taekjip Ha

673-Pos BOARD B124
ATOMIC-SCALE MOLECULAR DIFFUSION OF A TRANSCRIPTION FACTOR DOMAIN PROTEIN ALONG DNA. Liqiang Dai, Yongping Xu, Zhengwei Du, Xiaodong Su, **Jin Yu**

674-Pos BOARD B125
OCT4 PIONEERS GENOMIC NUCLEOSOMES IN MOTION. Jan Huertas, Caitlin MacCarthy, Hans Robert Schoeler, **Vlad Cojocaru**

675-Pos BOARD B126
A MODEL OF BZIP PROTEIN/DNA RECOGNITION USING KNOB-SOCKET ANALYSIS. **Aaron Tran**, Hyun Joo, Jerry Tsai

676-Pos BOARD B127
INCHWORM STEPPING OF MYC-MAX HETERODIMER PROTEIN DIFFUSION ALONG DNA. **Liqiang Dai**, Jin Yu

677-Pos BOARD B128
A NOVEL G1/S TRANSCRIPTION FACTOR FEEDBACK LOOP IN THE START TRANSITION IN BUDDING YEAST REVEALED BY SCANNING NUMBER AND BRIGHTNESS. **Pooja Goswami**, Savanna Dorsey, Carleton Coffin, Ghada Ghazal, Yogitha Thattikota, Jing Cheng, Sylvain Tollis, Mike Tyers, Catherine A. Royer

678-Pos BOARD B129
IN SILICO INVESTIGATIONS ON SWITCHING PROMOTOR RECOGNITION OF PHAGE RNA POLYMERASE VARIANTS FOLLOWING PATH ALONG LAB DIRECTED EVOLUTION. **Chao E**, Liqiang Dai, Jin Yu

679-Pos BOARD B130
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680-Pos BOARD B131

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681-Pos BOARD B132

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682-Pos BOARD B133

CATION-SELECTIVITY OF A SELF-ASSEMBLED PEPTIDE PORE IN PLANAR PHOSPHOLIPID BILAYERS USING ELECTRICAL IMPEDANCE SPECTROSCOPY. **Evelyne Deplazes**, Lissy M. Hartmann, Charles G. Cranfield, Alvaro Garcia

683-Pos BOARD B134

ANTIMICROBIAL PEPTIDE-MEMBRANE INTERACTIONS: INSIGHTS FROM MOLECULAR SIMULATIONS. **Fathima T. Doole**, Chun Kit Chan, Ellen Streitwieser, Daipayan Sarkar, Minkyu Kim, Abhishek Singharoy, Michael F. Brown

684-Pos BOARD B135

VESICLE AGGREGATION AND FUSION INFLUENCE MEMBRANE PERMEABILIZATION INDUCED BY ANTIMICROBIAL POLYCATIONS. **Shuai Shi**, Runhui Liu, Maria Hoernke

685-Pos BOARD B136

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686-Pos BOARD B137

A PORE IS NOT A PORE IS NOT A PORE. **Maria Hoernke**

687-Pos BOARD B138

DELIVERING THE CYCLIC PEPTIDE PHALLOIDIN TO THE CELL CYTOSOL BY MEMBRANE TRANSLOCATING CARRIER PEPTIDES. **Ryan P. Ferrie**, Jenisha Ghimire, Taylor Fuselier, William C. Wimley

688-Pos BOARD B139

DYNORPHIN A INDUCES MEMBRANE PERMEABILIZATION BY FORMATION OF PROTEOLIPIDIC PORES. **Deborah Aurora Perini**, Maria Queralt-Martin, Alex Peralvarez-Marin, Antonio Alcaraz

689-Pos BOARD B140

C-TERMINUS AMIDATION INFLUENCES BIOLOGICAL ACTIVITY AND MEMBRANE INTERACTION OF MACULATIN 1.1. **Shiying Zhu**, Frances Separovic, Marc-Antoine Sani

690-Pos BOARD B141

INVESTIGATING THE EFFECT OF PROLINE LINKERS ON HYBRID ANTIMICROBIAL PEPTIDE STRUCTURE AND ACTIVITY. **Hannah Klim**, Michelle Shui, Louise E. Darling, Donald E. Elmore

691-Pos BOARD B142

SYNTHETIC MOLECULAR EVOLUTION TO IDENTIFY HEMOCOMPATIBLE ANTIMICROBIAL PEPTIDES EFFECTIVE AGAINST DRUG-RESISTANT, BIOFILM-FORMING BACTERIA. **Jenisha Ghimire**, Charles G. Starr, Shantanu Guha, Joseph P. Hoffmann, Yihui Wang, Benjamin J. Nelson, Marc A. Gebara, Lisa A. Morici, William C. Wimley

692-Pos BOARD B143

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693-Pos BOARD B144

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694-Pos BOARD B145

INVESTIGATING THE EFFECTS OF CROWDING ON ANTIMICROBIAL PEPTIDES USING MEMBRANE DYNAMICS. **Jessie Huang**, Donald E. Elmore

695-Pos BOARD B146

MESSAGING ACROSS MEMBRANES THROUGH SYNTHETIC ALPHA HELICAL PORE ASSEMBLIES. **Smrithi Krishnan R**, Puthumadathil Neethu Narayanan Anitha, Kozhinjampara R. Mahendran

696-Pos BOARD B147

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697-Pos BOARD B148

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699-Pos BOARD B150

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701-Pos BOARD B152

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702-Pos BOARD B153

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703-Pos BOARD B154

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705-Pos BOARD B156

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706-Pos BOARD B157

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707-Pos BOARD B158
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708-Pos BOARD B159
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709-Pos BOARD B160
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710-Pos BOARD B161
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711-Pos BOARD B162
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712-Pos BOARD B163
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713-Pos BOARD B164
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715-Pos BOARD B166
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716-Pos BOARD B167
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724-Pos BOARD B175
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728-Pos BOARD B179
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DEFECTIVE MITOCHONDRIA ELECTRON TRANSPORT CHAIN SUPERCOMPLEX ASSEMBLY UNDERLIES ABNORMAL Ca^{2+} RELEASE IN RAT MYOCYTES FROM HYPERTROPHIC HEARTS. **Radmila Terentyeva**, Shanna Hamilton, Fruzsina Perger, Wenzhuo Ma, Sandor Gyorke, Richard T. Clements, Dmitry A. Terentyev

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730-Pos BOARD B181
PUROMYCIN CAUSES PROTEIN UPTAKE BY CELLS FROM THE MEDIUM. **Andrey O. Bogorodskiy**, Ivan Maslov, Dmitry Burkatovsky, Alexey Mishin, Ivan Okhrimenko, Georg Bueldt, Joachim Altschmied, Judith Haendeler, Thomas Gensch, Valentin Borshchevskiy

731-Pos BOARD B182
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732-Pos BOARD B183

AN INTERACTION BETWEEN B'-COP AND ITS ARFGAP, GLO3, IS REQUIRED TO MAINTAIN POST-GOLGI CARGO RECYCLING. **Boyang Xie**, Clara Guillem, Christian Jung, Amy K. Kendall, Jordan Best, Todd Graham, Lauren P. Jackson

733-Pos BOARD B184

PROBING BIOPHYSICAL PROPERTIES OF THE CYTOPLASM IN FISSION YEAST USING NANO-RHEOLOGY. **Rikki M. Garner**, Arthur T. Molines, Chenlei Hu, Joel Lemiere, Julie A. Theriot, Fred Chang

734-Pos BOARD B185

DECTIN-1 MEDIATED DC-SIGN RECRUITMENT TO *CANDIDA ALBICANS*-CONTACT SITES. **Rohan Choraghe**, Aaron Neumann

735-Pos BOARD B186

SIMULTANEOUS IMAGING OF DYNAMICS AND BIOCHEMICAL ACTIVITIES OF SINGLE PHAGOSOMES. **Yanqi Yu**, Zihan Zhang, Glenn F.W. Walpole, Yan Yu

736-Pos BOARD B187

COMPUTATIONAL ACCOUNT OF THE FIRST STAGES IN THE ELEVATOR MOTION OF THE HUMAN EAAT3 GLUTAMATE TRANSPORTER. **Ekaterina Kots**, Harel Weinstein

737-Pos BOARD B188

STICS ANALYSIS REVEALS THE ROLE OF TAU PHOSPHORYLATION IN REGULATING LYSOSOME TRANSPORT. **Pamela Yaninska**

Voltage-gated Na Channels (Boards B189 - B195)

738-Pos BOARD B189

ELIMINATING INDUCED POLARIZATION DRIVES CHANNEL TRANSITION FROM INSULATING TO CONDUCTING. **H. Richard Leuchtag**

739-Pos BOARD B190

STRUCTURAL MODELING OF Na_v -LIGAND INTERACTIONS WITH ROSETTA'S GALIGANDDOCK. **Brandon J. Harris**, Phuong T. Nguyen, Vladimir Yarov-Yarovoy

740-Pos BOARD B191

HETEROLOGOUS FUNCTIONAL EXPRESSION OF AN ASCIDIAN NAV1 CHANNEL WITH CLOSE RELATIONSHIP WITH ANCESTOR OF VERTEBRATE NEURONAL NAV CHANNELS. **Yasushi Okamura**, Takafumi Kawai, Masaki Hashimoto, Yuka Jinno, Måns Aspåker

741-Pos BOARD B192

STRUCTURAL STUDIES OF THE INTERACTION BETWEEN THE PADDLE MOTIF FROM $Na_v1.5DIV$ AND THE SEA ANEMONE TOXIN ANTHOPLEURIN-A. **Adel K. Hussein**, Mohammed H. Bhuiyan, Jianqin Zhuang, Boris Arshava, Sebastien F. Poget

742-Pos BOARD B193

MARKOV AND EYRING MODELING PREDICT DIFFERENTIAL CONTRIBUTIONS OF HOMOLOGOUS MUTATIONS IN HYPOKALEMIC PERIODIC PARALYSIS TO SKELETAL MUSCLE FIBER EXCITABILITY. **James R. Groome**, Landon Bayless-Edwards, Lance Port, Frank Lehmann-Horn, Karin Jurkat-Rott

743-Pos BOARD B194

TARGETING THE VASCULAR ENDOTHELIAL BARRIER TO PREVENT NANOSCALE CARDIAC REMODELING: A NOVEL STRATEGY TO PREVENT ATRIAL FIBRILLATION. **Louisa Mezache**, Amara Greer-Short, Przemyslaw Radwanski, Thomas J. Hund, Rengasayee Veeraraghavan

744-Pos BOARD B195

COMPUTATIONAL STUDY OF ION SELECTIVITY IN EUKARYOTIC VOLTAGE-GATED SODIUM CHANNELS. **Boris S. Zhorov**

Voltage-gated Ca Channels (Boards B196 - B199)

745-Pos BOARD B196

NIFEDIPINE MODULATES THE ACTIVATION OF $Ca_v1.1$ VOLTAGE-SENSING DOMAINS. **Marina Angelini**, Nicoletta Savalli, Federica Steccanella, Riccardo Olcese

746-Pos BOARD B197

VOLTAGE SENSOR OPERATION IN THE EMBRYONIC SPLICE VARIANT OF SKELETAL $Ca_v1.1$ CHANNELS. **Nicoletta Savalli**, Marina Angelini, Federica Steccanella, Alan Neely, Riccardo Olcese

747-Pos BOARD B198

DISSECTING THE ROLE OF $Ca_v1.2$ DYSFUNCTION IN THE PATHOGENESIS OF AUTISM SPECTRUM DISORDER. **Kevin G. Herold**, Moradeke A. Bamgboye, Deborah DiSilvestre, John Hussey, Josiah O. owoyemi, Andrea Meredith, Ivy E. Dick

748-Pos BOARD B199

ASSESSING THE IMPACT OF CALMODULINOPATHIC MUTATIONS ON NEURONAL ION CHANNEL REGULATION. **John W. Hussey**, Emily DeMarco, Deborah DiSilvestre, Helene H. Jensen, Mette Nyegaard, Michael T. Overgaard, Ivy E. Dick

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749-Pos BOARD B200

REGULATION OF THE ACTIVITY OF MITOCHONDRIAL LARGE-CONDUCTANCE CALCIUM-ACTIVATED POTASSIUM CHANNEL THROUGH A NEW EXTERNAL HEME-BINDING SITE. **Agnieszka Walewska**, Piotr Koprowski, Adam M. Szewczyk

750-Pos BOARD B201

ASSESSING THE ROLE OF ELECTROSTATIC INTERACTIONS IN THE MECHANISM OF BETA-BARREL CHANNEL GATING. Deborah Aurora Perini, Antonio Alcaraz, Vicente M. Aguilera, **Maria Queralt-Martin**

751-Pos BOARD B202

ELUCIDATING THE STRUCTURAL CONSTITUENTS OF FIBROBLAST GROWTH FACTOR 14 THAT CONFER ITS MODULATORY EFFECTS ON THE VOLTAGE-GATED SODIUM CHANNEL 1.6. **Nolan M. Dvorak**, Paul Wadsworth, Pingyuan Wang, Haiying Chen, Jia Zhou, Fernanda Laezza

752-Pos BOARD B203

IDENTIFICATION OF GATING SENSITIVE RESIDUES IN TREK-2. **Chun Kei Lam**, Bert L. de Groot

753-Pos BOARD B204

PATHWAYS FOR QUATERNARYAMMONIUM BLOCKER ENTRY INTO CLOSED CALCIUM ACTIVATED POTASSIUM CHANNELS. **Chen Fan**, Emelie Flood, Nattakan Sukomon, Toby W. Allen, Crina M. Nimigeian

754-Pos BOARD B205

CHARACTERIZATION OF ION TRANSPORT BASED ON CONDUCTANCE VERSUS CONCENTRATION CURVES. A THEORETICAL ANALYSIS. **Suren A. Tatulian**

755-Pos BOARD B206

IN SITU, LABEL-FREE STUDY OF THE CORRELATION BETWEEN Mg^{2+} UPTAKE PROTEINS AND MOTILITY OF *SALMONELLA TYPHIMURIUM* USING TIME-RESOLVED DYNAMIC LASER SPECKLE IMAGING. Keren Zhou, **Cassandra N. Nunez**, Varasiddhi J. Govindraj, Aida Ebrahimi

756-Pos BOARD B207

CONDUCTANCE MECHANISM OF MUTANT K^+ CHANNELS. **Andrei Mironenko**, Bert L. de Groot, Wojciech Kopec

757-Pos BOARD B208
THE PH MODULATION OF THE VOLTAGE SENSOR IN THE VOLTAGE-GATED PROTON CHANNEL (H_v1). **Emerson M. Carmona**, Osvaldo Alvarez, Alan Neely, Peter H. Larsson, Jose-Antonio Garate, Miguel Fernandez, Ramon Latorre, Carlos L. Gonzalez

758-Pos BOARD B209
MODELLING WATER BEHAVIOUR IN HYDROPHOBIC GATES OF ION CHANNELS. **Charlotte I. Lynch**, Shanlin Rao, Gianni Klesse, Stephen J. Tucker, Mark S.P. Sansom

759-Pos BOARD B210
LIPID-PROTEIN INTERACTIONS MODULATE THE CONFORMATIONAL EQUILIBRIUM OF A POTASSIUM CHANNEL. **Ruo-Xu Gu**, Bert L. de Groot

760-Pos BOARD B211
INTERMOLECULAR COOPERATIVE GATING IN PIEZO1 CHANNELS. **Tharaka D. Wijerathne**, Alper D. Ozkan, Jerome J. Lacroix

761-Pos BOARD B212
MAPPING THE CONFORMATIONAL STATES OF THE OUTER VESTIBULE OF KCSA, A PROKARYOTE POTASSIUM CHANNEL, USING THE LONG CHAIN QUATERNARY AMMONIUM BLOCKER, TETRAOCTYLAMMONIUM. **Clara Díaz-García**, María Lourdes Renart, Ana Marcela Giudici, Jose Antonio Poveda, Aleksander Fedorov, Jose M. Gonzalez-Ros, Mário Nuno Berberan-Santos, Manuel Prieto, Ana Coutinho

762-Pos BOARD B213
BREAKING THE DIMER OF THE VOLTAGE SENSING PHOSPHATASE. **Joshua A. Davisson**, Vamseedhar Rayaprolu, William J. Ratzan, John Kelley, Guillaume Sandoz, Susy C. Kohout

763-Pos BOARD B214
MOLECULAR MECHANISM OF HERG1 CHANNEL REGULATION BY CERAMIDES. **Williams E. Miranda**, Jiqing Guo, Haydee Mesa Galloso, Valentina Corradi, Peter D. Tieleman, Henry J. Duff, Sergei Y. Noskov

764-Pos BOARD B215
STRUCTURES OF A CONSTITUTIVELY ACTIVE MUTANT OF THE CALCIUM-ACTIVATED CHLORIDE CHANNEL TMEM16A IN LIGAND-FREE AND -BOUND STATES. **Andy K.M. Lam**, Jan Rheinberger, Cristina Paulino, Raimund Dutzler

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RESOLUTION IMPROVEMENT IN CIDS SUPER-RESOLUTION MICROSCOPY USING A PHASOR PLOT APPROACH. **Ali Mohebi**, Aymeric Le Gratiot, Riccardo Marongiu, Fabio Callegari, Paolo Bianchini, Alberto Diaspro

868-Pos BOARD B319
VERSATILE, HIGH-RESOLUTION, AND LARGE FIELD-OF-VIEW SINGLE-MOLECULE IMAGING BY OBLIQUE PLANE MICROSCOPY. Peter Brown, Rory Kruihoff, Lei Zhou, Yoshihiko Kobayashi, Purushothama Rao Tata, Alfred Millet-Sikking, Andrew G. York, Kevin M. Dean, Reto P. Fiolka, **Douglas P. Shepherd**

869-Pos BOARD B320
INVESTIGATION OF ONCOGENE-INDUCED ALTERATIONS IN CHROMATIN ORGANIZATION IN VITRO BY STRUCTURED ILLUMINATION MICROSCOPY. **Isotta Cainero**, Elena Cerutti, Mario Faretta, Gaetano Ivan Dellino, Pier Giuseppe Pelicci, Alberto Diaspro, Luca Lanzano'

870-Pos BOARD B321
A NOVEL DIGITAL-MICROMIRROR DEVICE BASED STRUCTURED ILLUMINATION MICROSCOPE FOR MULTICOLOR LIVE CELL IMAGING. **Peter T. Brown**, Rory Kruihoff, Gregory J. Seedorf, Douglas P. Shepherd

871-Pos BOARD B322
ISM-ASSISTED TOMOGRAPHIC STED MICROSCOPY ALLOWS FOR SAMPLE-GENTLE SUPERRESOLUTION IMAGING. **Julia Kratz**, Claudia Geisler, Alexander Egner

872-Pos BOARD B323
CORRELATING INTERFERENCE REFLECTION MICROSCOPY WITH 3D SUPERRESOLUTION FLUORESCENCE MICROSCOPY. **Lukas Velas**, Philipp Zelger, Alexander Jesacher, Gerhard J. Schütz

873-Pos BOARD B324
OPTIMIZED SUPER-RESOLUTION IMAGING OF NUCLEAR SITES IN AN ENGINEERED LEUKEMIA CELL LINE. **Elena Cerutti**, Isotta Cainero, Gaetano Ivan Dellino, Mario Faretta, Pier Giuseppe Pelicci, Alberto Diaspro, Luca Lanzano'

874-Pos BOARD B325
DYNAMICS OF THREE GLYCOSIDE HYDROLASES PROBED BY SINGLE-MOLECULE FLUORESCENCE MICROSCOPY. **Laurent Geffroy**, Haley A. Brown, Nicole M. Koropatin, Julie S. Biteen

875-Pos BOARD B326
SINGLE CELL PHYSIOLOGICAL CHARACTERIZATION IN LIVING TISSUE. **Enrico Gratton**

876-Pos BOARD B327
SIM-PYCHOGRAPHY IMAGING OF HUTCHINSON-GILFORD PROGERIA SYNDROME (HGPS) CELLS. **Alberta Trianni**, Nicholas Anthony, Isotta Cainero, Alberto Diaspro

877-Pos BOARD B328
LABEL-FREE SUPER-RESOLUTION MICROSCOPY BY MEANS OF TRANSIENT ABSORPTION SATURATION. **Behjat Sadat Kariman**, Takahiro Deguchi, Marco Scotto d'Abbusco, Giulia Zanini, Alberto Diaspro, Paolo Bianchini

878-Pos BOARD B329
STRUCTURAL CHANGES AND DYNAMICS OF DISASSEMBLING MICROTUBULES REVEALED BY LABEL-FREE SUPER-RESOLUTION MICROSCOPY. **Milan Vala**, Łukasz Bujak, Antonio G. Marin, Kristýna Holanová, Verena Henrichs, Marcus Braun, Zdenek Lansky, Marek Piliarik

879-Pos BOARD B330
PYME: AN INTEGRATED PLATFORM FOR HIGH-THROUGHPUT SMART NANOSCOPY. **Andrew E.S. Barentine**, Yu Lin, Phylcia Kidd, Miao Liu, Leonhard Balduf, Michael R. Grace, Edward Courchaine, Zach Marin, Juliana Rios Chen, Siyuan Wang, Joerg Bewersdorf, David Baddeley

880-Pos BOARD B331
QUANTITATIVE LIVE-CELL PALM REVEALS NANOSCOPIC FAA4 REDISTRIBUTIONS AND DYNAMICS ON LIPID DROPLETS DURING METABOLIC TRANSITIONS IN YEAST. **Santosh Adhikari**, Joe Moscatelli, Elias M. Puchner

881-Pos BOARD B332
COMPREHENSIVE FLUOROPHORE BLINKING ANALYSIS PLATFORM AS A PREREQUISITE FOR CLUSTER DETECTION VIA PHOTOACTIVATED LOCALIZATION MICROSCOPY. **Mario Brameshuber**, Benedikt K. Rosboth, René Platzer, Magdalena Schneider, Eva Sevcsik, Florian Baumgart, Hannes Stockinger, Gerhard J. Schuetz, Johannes B. Huppa

882-Pos BOARD B333
AXIAL LINE-SCANNING STED-FCS. Peng Gao, **Karin Nienhaus**, G. Ulrich Nienhaus

883-Pos BOARD B334
QUANTITATIVE MULTI-TARGET SUPER-RESOLUTION FOR ESTIMATING ANTIBODY LABELING EFFICIENCY. **David J. Schodt**, Sandeep Pallikkuth, Keith A. Lidke

884-Pos BOARD B335
3D PARTICLE LOCALIZATION IN LIVING CELLS BY DEEP LEARNING. **John Kohler**, Kwang-Ho Hur, Jesse Donahue, Rayna M. Addabbo, Joachim D. Mueller

885-Pos BOARD B336
ASSESSING LOCATION AND DISTRIBUTION OF PROTEINS AT THE NUCLEAR ENVELOPE FROM DUAL COLOR Z-SCAN INTENSITY PROFILES. **Siddarth Reddy Karuka**, Isaac Angert, Justyn Fine, Shivani Mahajan, G. W. Gant Luxton, Joachim D. Mueller

886-Pos BOARD B337
VISUALIZING DYNAMIC PROCESSES WITH RAPIDFLIM^{HIRES}: ULTRA FAST FLIM WITH OUTSTANDING 10 PS TIME RESOLUTION. Maria Loidolt-Krüger, Fabian Jolmes, Matthias Patting, Michael Wahl, Evangelos Sismakis, André Devaux, **Marcelle Koenig**, Uwe Ortmann, Felix Koberling, Rainer Erdmann

887-Pos BOARD B338
SPIRAL PHASE PLATE FOR TRACKING 3D MOTION IN CELLS. **Keith Bonin**, Sudhakar Prasad, Paul Kefer, Stephen Baker, George Holzwarth, Pierre-Alexandre Vidi

888-Pos BOARD B339
THE RELIABILITY OF FLUORESCENCE Z-SCAN ANALYSIS IN THE COMPLEX ENVIRONMENT OF THE LIVING CELL. **Isaac Angert**, Siddarth Reddy Karuka, John Kohler, Yan Chen, Joachim D. Mueller

Single-Molecule Spectroscopy (Boards B340 - B364)

889-Pos BOARD B340
SINGLE-MOLECULE FLUORESCENCE-BASED MEASUREMENTS OF CONFORMATIONAL DYNAMICS OF CALCIUM-BINDING PROTEIN RECOVERIN. **Ivan Maslov**, Polina Khorn, Andrey Bogorodskiy, Alisa Volgozhnikova, Iliia Zykov, Anatoli Belousov, Sergei Permyakov, Evgeni Zernii, Johan Hofkens, Jelle Hendrix, Thomas Gensch, Valentin Borshchevskiy

890-Pos BOARD B341
SINGLE MOLECULE FLOURESCENCE METHODS TO MONITOR SITE-SPECIFIC FLUCTUATIONS OF CY3 MONOMER AND DIMER LABELED DNA CONSTRUCTS WITHIN MACROMOLECULAR MACHINES. **Jack Maurer**, Amr Tamimi, Anabel Chang, Andrew H. Marcus

891-Pos BOARD B342
COUNTING FLUOROPHORES AND FINDING POTENTIALS FROM FRET, BAYESIAN NONPARAMETRICS FOR CHALLENGING PROBLEMS IN BIOPHYSICS. **Shep Bryan IV**

892-Pos BOARD B343
COMBINEFLUENT: AN OPEN SOURCE, LOW-COST LASER SYSTEM FOR SINGLE-MOLECULE MICROSCOPY. **Dylan George**, Ashley Cadby, Timothy D. Craggs

893-Pos BOARD B344
A BAYESIAN NONPARAMETRIC APPROACH TO LEARNING MOLECULAR SPECIES AND DIFFUSION DYNAMICS BASED ON PHOTON ARRIVAL DATA. **Weiqing Xu**

894-Pos BOARD B345
DNA/RNA SMRT SEQUENCING USING ELECTRO-OPTICAL WAVEGUIDES. **Fatemeh Farhangdoust**

895-Pos BOARD B346
PROBING LENGTH SCALE DEPENDANT DIFFUSION DYNAMICS OF THE NODAL MORPHOGEN SQUINT IN LIVE ZEBRAFISH EMBRYOS THROUGH SPATIAL CROSS-CORRELATIONS IN IMAGING FLUORESCENCE CORRELATION SPECTROSCOPY. **Ashwin V.S. Nelanuthala**, Jagadish Sankaran, Karuna Sampath, Thorsten Wohland

896-Pos BOARD B347
SINGLE MOLECULE INVESTIGATION OF TANDEM G-QUADRUPLEX STRUCTURES FORMED BY HUMAN TELOMERIC SEQUENCE. **Golam Mustafa**, Sajad Sheikh, Keshav G C, Sanjaya Abeyirigunawardena, Hamza Balci

897-Pos BOARD B348
BAYESIAN CLASSIFICATION AND MODELING OF SINGLE MOLECULE FLUORESCENCE COLOCALIZATION IMAGES. **Yerdos A. Ordabayev**, Larry J. Friedman, Douglas L. Theobald, Jeff Gelles

898-Pos BOARD B349
HIGHLY SENSITIVE PROTEIN QUANTIFICATION BY DIRECT KINETIC FINGERPRINTING OF SINGLE PROTEIN MOLECULES. **Tanmay Chatterjee**, Achim Knappik, Erin Sandford, Muneesh Tewari, Sung Won Choi, William B. Strong, Evan P. Thrush, Kenneth J. Oh, Ning Liu, Nils G. Walter, Alexander Johnson-Buck

899-Pos BOARD B350
SRRF 'N' TIRF-FCS: NEW INSIGHTS INTO EGFR-CYTOSKELETON INTERACTIONS. **Harikrushnan Balasubramanian**, Jagadish Sankaran, Wai Hoh Tang, Xue Wen Ng, Adrian Röllin, Thorsten Wohland

900-Pos BOARD B351
COMBINING ACOUSTIC FORCE SPECTROSCOPY AND DNA SCAFFOLD FOR HIGH THROUGHPUT MEASUREMENT OF LIGAND-RECEPTOR KINETICS AT SINGLE MOLECULE RESOLUTION. **Yong Jian Wang**, Claire Valotteau, Adrien Aimard, Lorenzo Villanueva, Dorota Kostrz, Maryne Follenfant, Terence Strick, Charlie Gosse, Patrick Chames, Felix Rico, Laurent Limozin

901-Pos BOARD B352
THEORETICAL COMPARISON OF REAL-TIME SINGLE PARTICLE TRACKING TECHNIQUES. **Bertus van Heerden**, Tjaart Krüger

902-Pos BOARD B353
A CONTINUOUS TIME REPRESENTATION OF SMFRET FOR THE EXTRACTION OF RAPID KINETICS. **Zeliha Kilic**, Ioannis Sgouralis, Wooseok Heo, Kunihiko Ishii, Tahei Tahara, Steve Pressé

903-Pos BOARD B354
COMBINING FLUORESCENCE MICROSCOPY AND ACOUSTIC FORCE SPECTROSCOPY TO MEASURE DNA AND PROTEIN MECHANICS. **Kees-Karel H. Taris**, Gijs J.L. Wuite, Erwin J.G. Peterman

904-Pos BOARD B355
VISUALIZING THE PHOSPHORYLATION CYCLES OF SINGLE MOLECULES IN SOLUTION. **Quan Wang**

905-Pos BOARD B356
UNTETHERING SINGLE MOLECULE SPECTROSCOPY WITH 3D-SMART. **Kevin D. Welsher**

906-Pos BOARD B357
SINGLE MOLECULE SHAPE DETERMINATION OF BIOMOLECULES USING DNA NANOSWITCH CALIPERS. **Prakash Shrestha**, Darren Yang, William Shih, Wesley P. Wong

907-Pos BOARD B358
APPLY DUAL-COLOR FCCS METHOD TO QUANTIFY PHASE SEPARATION AT THE NANOSCALE. **Chunlai Chen**

908-Pos BOARD B359
A BAYESIAN NONPARAMETRIC METHOD FOR TRACKING MULTIPLE MOLECULES WITH A MULTI-FOCUS CONFOCAL MICROSCOPE. **Sina Jazani**, Ioannis Sgouralis, Douglas P. Shepherd, Steve Pressé

909-Pos BOARD B360
SINGLE-MOLECULE FINGERPRINT SPECTRUM FOR BIOLOGICAL NANOPORE SENSING. **Xinyi Li**, Meng-Yin Li, Xixin Fu, Yongjing Wan, Yi-Lun Ying, Yi-Tao Long

910-Pos BOARD B361
UNRAVELLING GENE EXPRESSION NETWORKS AND INFERRING KINETIC PARAMETERS FROM SMFISH DATA. **Camille Moyer**, Zeliha Kilic, Douglas Shepherd, Steve Presse

911-Pos BOARD B362

SINGLE-MOLECULE IMAGING OF FET FUSION ONCOPROTEINS. Linyu Zuo, Guanwei Zhang, Matthew Massett, Jun Cheng, Zicong Guo, Liang Wang, Yifei Gao, Ru Li, Xu Huang, Pulong Li, **Zhi Qi**

912-Pos BOARD B363

JOINT ESTIMATION OF TRAJECTORY AND MOTION MODEL PARAMETERS IN THREE-DIMENSIONAL SINGLE PARTICLE TRACKING USING THE DOUBLE-HELIX POINT SPREAD FUNCTION. Ye Lin, Fatemeh Sharifi, **Sean B. Andersson**

913-Pos BOARD B364

SEQUENCE AND STRUCTURE BASED APPROACH FOR AUTOMATED FRET NETWORK DESIGN. **George L. Hamilton**, Hugo Sanabria, Faruck Morcos, Narendar Kolimi, Aishwarya Krishnamohan

Thursday, February 25, 2021

Daily Program Summary

9:00 AM-10:00 AM	General Networking
10:00 AM-11:30 AM	<p>Symposium: New and Notable Co-chairs: <i>Patricia Bassereau, Institut Curie, France, Bertrand Garcia-Moreno, Johns Hopkins University, USA</i></p> <p>PHOTOBIOLOGY OF NEW MICROBIAL RHODOPSINS. Keiichi Inoue A MEMBRANE ASSOCIATED ACTIN-SPECTRIN PERIODIC LATTICE ACTS AS A SHOCK ABSORBER TO PROTECT AXONS UNDER MECHANICAL STRESS. Pramod Pullarkat STRUCTURAL BASIS OF WNT SECRETION BY ITS CARRIER. Rie Nygaard LIFE OF VIMENTIN INTERMEDIATE FILAMENTS INSIDE AND OUTSIDE THE CELL. Alison Patteson</p>
10:00 AM-11:30 AM	Platform: Protein Dynamics and Allostery II
10:00 AM-11:30 AM	Platform: Membrane Protein Dynamics and Folding I
10:00 AM-11:30 AM	Platform: Membrane Peptides, Fusion, and Non-Bilayers
10:00 AM-11:30 AM	Platform: Ligand-gated Channels
10:00 AM-11:30 AM	Platform: Cytoskeletal Assemblies, Cell Mechanics, Mechanosensing and Motility
10:00 AM-11:30 AM	Platform: Mitochondria and Energy
10:00 AM-11:30 AM	Platform: Molecular Dynamics and Bioinformatics II
10:00 AM-11:30 AM	Platform: Bioengineering, Biosurfaces, and Biomaterials
10:00 AM-5:00 PM	Exhibits
11:30 AM-12:00 PM	Exhibitor Presentation: Nanion Technologies Automated Electrophysiology For Any Kinetics: Ion Channels & Transporters
11:30 AM-12:00 PM	Break
12:00 PM -1:30 PM	Poster Presentations and Late Posters
1:00 PM-2:00 PM	General Networking
1:30 PM-2:00 PM	Exhibitor Presentation: Andor Technology SRRF-Stream ⁺ - A Flexible and Effective Solution For Real-Time and Live Cell Superresolution Microscopy
1:30 PM-2:00 PM	Break
2:00 PM-3:30 PM	Meet the Editors
2:00 PM-3:30 PM	Platform: Protein Structure and Conformation: Viruses
2:00 PM-3:30 PM	Platform: Protein Prediction, Design, and Stability II
2:00 PM-3:30 PM	Platform: Protein-Nucleic Acid Interactions and Chromatin II
2:00 PM-3:30 PM	Platform: Membrane Structure
2:00 PM-3:30 PM	Platform: Muscle, Calcium and Signaling II
2:00 PM-3:30 PM	Platform: Actin and Associated Proteins - Myosins
2:00 PM-3:30 PM	Platform: Neuroscience
2:00 PM-3:30 PM	Platform: Spectroscopy, Diffraction and Microscopy
3:30 PM -4:00 PM	Exhibitor Presentation: Oxford Instruments NanoAnalysis Multi-Colour Electron Microscopy: Using Energy Dispersive X-ray Spectrometry to Image and Analyse Biological Samples
3:30 PM -5:30 PM	Speed Networking
4:00 PM-4:30 PM	Exhibitor Presentation: Molecular Devices Streamlining Electrophysiology Data Acquisition and Analysis in Ion Channel Study with Axon pCLAMP 11 Software

General Networking

9:00 AM-10:00 AM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Symposium New and Notable

10:00 AM - 11:30 AM

Co-chairs

Patricia Bassereau, Institut Curie, France

Bertrand Garcia-Moreno, Johns Hopkins University, USA

NO ABSTRACT 10:00 AM

PHOTOBIOLOGY OF NEW MICROBIAL RHODOPSINS. **Keiichi Inoue**

NO ABSTRACT 10:22 AM

A MEMBRANE ASSOCIATED ACTIN-SPECTRIN PERIODIC LATTICE ACTS AS A SHOCK ABSORBER TO PROTECT AXONS UNDER MECHANICAL STRESS.

Pramod Pullarkat

NO ABSTRACT 10:44 AM

STRUCTURAL BASIS OF WNT SECRETION BY ITS CARRIER. **Rie Nygaard**

NO ABSTRACT 11:06 AM

LIFE OF VIMENTIN INTERMEDIATE FILAMENTS INSIDE AND OUTSIDE THE CELL. **Alison Patteson**

Platform

Protein Dynamics and Allostery II

10:00 AM - 11:30 AM

Chair

Faruck Morcos, The University of Texas at Dallas, USA

914-PLAT 10:00 AM

EVOLUTIONARY DETERMINED EPISTASIS ADVANCES CONFORMATIONAL SAMPLING, MOLECULAR DESIGN AND EVOLUTIONARY MODELS. **Faruck Morcos**

915-PLAT 10:30 AM

INVESTIGATION OF ALLOSTERIC MECHANISM FROM AN EVOLUTIONARY PERSPECTIVE. **Riya Samanta**, Calvin Muth, Neel Sanghvi, Dorothy Beckett, Silvina Matysiak

916-PLAT 10:45 AM

UREA AS A PROTEIN LID OPENER: OVERCOMING SUBSTRATE INHIBITION IN ADENYLATE KINASE BY TUNING CONFORMATIONAL DYNAMICS. **David Scheerer**, Haim Yuval Aviram, Hisham Mazal, Inbal Riven, Gilad Haran

917-PLAT 11:00 AM

REFINING PROTEIN CONFORMATIONAL ENSEMBLES FROM SEPARATE EXPERIMENTAL MEASUREMENTS. **Emily Boland**, Jennifer M. Hays, Peter Kasson

918-PLAT 11:15 AM

ALLOSTERIC COMMUNICATION IN PDZ3 IS ORCHESTRATED BY THE CHARGED N-TERMINUS. **Tandac Furkan Guclu**, Nazli Kocatug, Canan Atilgan, Ali Rana Atilgan

Platform

Membrane Protein Dynamics and Folding I

10:00 AM - 11:30 AM

Chair

Dirk Slotboom, University of Groningen, The Netherlands

NO ABSTRACT 10:00 AM

MEMBRANE-ASSISTED DOMAIN MOVEMENTS IN SOLUTE TRANSPORTERS. **Dirk Slotboom**

919-PLAT 10:30 AM

TEMPERATURE DEPENDENCY OF CLC-EC1 DIMERIZATION IN LIPID BILAYERS. **Rahul Chadda**, Taeho Lee, Priyanka Sandal, Robyn Mahoney-Kruszka, Janice L. Robertson

920-PLAT 10:45 AM

REGULATING THE MEMBRANE TRANSPORT PROCESSES FOR BIO-MOLECULES VIA AN ENGINEERED AEROLYSIN. **Meng-Yin Li**, Xue-yuan Wu, Yi-Lun Ying, Yi-Tao Long

921-PLAT 11:00 AM

DEVELOPING A COARSE-GRAINED MODEL FOR SECRETION OF THE PASSENGER DOMAIN OF THE AUTOTRANSPORTER ESPP TO REACH REALISTIC SIMULATION TIME SCALES. **Lixinhao Yang**, Jinchan Liu, James C. Gumbart

922-PLAT 11:15 AM

THE INTERPLAY BETWEEN THE SELF-ORGANIZATION AND CURVATURE SENSING IN SEPTIN ASSEMBLIES. Ehsan Nazockdast, **Wenzheng Shi**, Kevin Cannon, Amy Gladfelter

Platform

Membrane Peptides, Fusion, and Non-Bilayers

10:00 AM - 11:30 AM

Chair

Pedro Carvalho, University of Oxford, United Kingdom

923-PLAT 10:00 AM

STRUCTURE OF THE YEAST SEIPIN REVEALS DETERMINANTS FOR LIPID DROPLET BIOGENESIS. **Pedro Carvalho**, Yoel Klug, Justin Deme, Susan Lea

924-PLAT 10:30 AM

BINDING MODE OF SARS-COV2 FUSION PEPTIDE TO HUMAN CELLULAR MEMBRANES. **Defne Gorgun**, Muyun Lihan, Karan Kapoor, Emad Tajkhorshid

925-PLAT 10:45 AM

DESCRIBING ANTIFUNGAL DRUG -STEROL INTERACTIONS INSIDE THE MEMBRANE: THE ROLE OF DYNAMICS. **Kevin J. Cheng**, Ashley M. De Lio, Agnieszka Lewandowska, Corinne P. Soutar, Martin D. Burke, Chad M. Rienstra, Taras V. Pogorelov

926-PLAT 11:00 AM

EBOLA VIRUS GLYCOPROTEIN INTERACTS WITH CHOLESTEROL TO ENHANCE MEMBRANE FUSION AND CELL ENTRY. Jinwoo Lee, Alex J.B. Kreutzberger, **Laura Odongo**, Elizabeth A. Nelson, David Nyenhuis, Volker Kiessling, Binyong Liang, David S. Cafiso, Judith M. White, Lukas K. Tamm

927-PLAT 11:15 AM

NANOMECHANICAL CHARACTERIZATION OF THE SYNERGISM OF ANTIMICROBIAL PEPTIDES PGLA AND MAG2 FOR LIPID MEMBRANE DISRUPTION. **Fabio Perissinotto**, Sebastien Janel, Javier Lopez-Alonso, Vincent Dupres, Burkhard Bechinger, Frank Lafont, Lorena Redondo-Morata

Platform Ligand-gated Channels

10:00 AM - 11:30 AM

Chair

Andrea Brüggemann, Nanion Technologies, Germany

NO ABSTRACT 10:00 AM

THE ABC AND D OF NMDA RECEPTORS AS POTENTIAL TARGETS FOR THE TREATMENT OF DEPRESSION AND CHRONIC PAIN. **Andrea Brüggemann**

928-PLAT 10:30 AM

STRUCTURAL BASIS OF FUNCTIONAL TRANSITIONS IN MAMMALIAN NMDA RECEPTORS. **Tsung-Han Chou**, Nami Tajima, Annabel Romero-Hernandez, Hiro Furukawa

929-PLAT 10:45 AM

HETEROGENEOUS POPULATIONS OF LIGAND-GATED ION CHANNEL, GLIC, REVEALED BY CRYO-ELECTRON MICROSCOPY AND SIMULATIONS. **Urška Rovsnič**, Yuxuan Zhuang, Bjorn Forsberg, Marta Carroni, Linnea Axelsson, Christian Blau, Rebecca J. Howard, Erik R. Lindahl

930-PLAT 11:00 AM

STRUCTURES OF HUMAN PROTON-ACTIVATED CHLORIDE CHANNEL (PAC) REVEAL MECHANISM OF PH SENSING AND GATING. **James Osei-Owusu**, Zheng Ruan, Juan Du, Wei Lu, Zhaozhu Qiu

931-PLAT 11:15 AM

ROLE OF D-SERINE BINDING TO THE NMDA RECEPTOR LIGAND-BINDING DOMAIN. **Remy A. Yovanno**, Albert Y. Lau

Platform Cytoskeletal Assemblies, Cell Mechanics, Mechanosensing and Motility

10:00 AM - 11:30 AM

Chair

Erika Holzbaur, University of Pennsylvania, USA

NO ABSTRACT 10:00 AM

NAVIGATING COMPLEX CYTOSKELETAL ARRAYS: KINESIN MOTILITY ALONG BIPOLAR MICROTUBULES IN DENDRITES. **Erika Holzbaur**

932-PLAT 10:30 AM

PATIENT-DERIVED GLIOBLASTOMA (GBM) CELLS EXHIBIT DISTINCT RHEOLOGICAL PROFILES ASSOCIATED WITH ALTERED CYTOSKELETON REGULATION. **Amelia Foss**, Woong Young So, Michael M. Gottesman, Kandice Tanner

933-PLAT 10:45 AM

NON-LINEAR MECHANICAL RESPONSE TRANSFORMS A GRADED MOLECULAR DISTRIBUTION INTO A STEP-WISE OUTPUT IN CELL BEHAVIOR. Sourabh Bhide, Denisa Gombalova, Johannes Stegmaier, Gregor Moenke, **Julio M. Belmonte**, Maria Leptin

934-PLAT 11:00 AM

HIERARCHICAL BAYESIAN 3D TRACTION FORCE MICROSCOPY WITH LOCAL REGULARIZATION BASED ON IMAGE QUALITY. **Adithan Kandasamy**, Yi-Ting Yeh, Amy B. Schwartz, Juan C. Lasheras, Juan C. del Alamo

935-PLAT 11:15 AM

DIFFERENTIAL ADHESION AND PERIODIC OSCILLATIONS OF MYOSIN-II MECHANICALLY PROOFREAD FILOPODIA INTERACTIONS DURING EMBRYONIC HEART FORMATION. **Timothy E. Saunders**, Shaobo Zhang, Sham Tiili

Platform Mitochondria and Energy

10:00 AM - 11:30 AM

Chair

Edward Lyman, University of Delaware, USA

936-PLAT 10:00 AM

MEMBRANE FLUIDITY: BOTH FUNDAMENTAL AND FUNCTIONAL. **Edward Lyman**

937-PLAT 10:30 AM

THE SPATIO-TEMPORAL ORGANIZATION OF MITOCHONDRIAL F₁F₀-ATP SYNTHASE IS DETERMINED BY ITS ACTIVITY AND CONTROLLED BY IF1. **Karin B. Busch**, Kirill Salewskij, Bettina Rieger, Verena Weissert, Frances Hager, Tasnim Arroum, Sara Cogliati, Christian P. Richter, Olympia E. Psathaki, Thomas Zobel, José A. Enríquez, Timo Dellmann

938-PLAT 10:45 AM

TRACKING MOTILITY AND MORPHOLOGY OF INDIVIDUAL MITOCHONDRIA REVEALS LARGE HETEROGENEITIES IN BREAST CANCER SUBTYPES. **Austin E.Y.T. Lefebvre**, Dennis Ma, Kai Kessenbrock, Devon A. Lawson, Michelle A. Digman

939-PLAT 11:00 AM

WETTING TRANSITIONS IN THE ATP SYNTHASE C-SUBUNIT RING, A LARGE-CONDUCTANCE ION CHANNEL. Rachel J. Dotson, Nelli Mnat-sakanyan, Elizabeth A. Jonas, **Sally C. Pias**

940-PLAT 11:15 AM

ASYNUCLEIN REGULATES MITOCHONDRIAL CALCIUM TRANSPORT THROUGH THE VOLTAGE DEPENDENT ANION CHANNEL. **William M. Rosencrans**, Vicente M. Aguilera, Tatiana K. Rostovtseva, Sergey M. Bezrukov

Platform Molecular Dynamics and Bioinformatics II

10:00 AM - 11:30 AM

Chair

Aleksandra Walczak, École Normale Supérieure, France

941-PLAT 10:00 AM

RESPONSE IN IMMUNE REPERTOIRES. **Aleksandra M. Walczak**

942-PLAT 10:30 AM

DEVELOPMENT OF A HYBRID NEURAL NETWORK/MOLECULAR MECHANICS APPROACH FOR METALLOPROTEIN SIMULATIONS. **Bettina Lier**, Peter Poliak, Julia Westermayr, Philipp Marquetand, Chris Oostenbrink

943-PLAT 10:45 AM

ENHANCED SAMPLING OF RNA FOLDING/UNFOLDING CONFIGURATIONS USING MACHINE LEARNING/GRAND CANONICAL MONTE CARLO. **Mert Y. Sengul**, Abhishek A. Kognole, Alexander D. MacKerell

944-PLAT 11:00 AM

AMPLIFICATION-FREE DETECTION OF VIRUSES IN MINUTES USING SINGLE-PARTICLE IMAGING AND MACHINE LEARNING. **Nicolas Shialis**, Leon Peto, Andrew McMahon, Chritof Hepp, Erica Bickerton, Cyril Favard, Delphine Muriaux, Monique Andersson, Alison Vaughan, Philippa Matthews, Nicole Stoesser, Derrick Crook, Achillefs N. Kapanidis, Nicole C. Robb

945-PLAT 11:15 AM

COMPUTING ABSOLUTE FREE ENERGY WITH DEEP GENERATIVE MODELS. **Xinqiang Ding**, Bin Zhang

Platform

Bioengineering, Biosurfaces, and Biomaterials

10:00 AM - 11:30 AM

Chair

Thomas Pucadyil, Indian Institute of Science Education and Research, India

946-PLAT 10:00 AM

MEMBRANE FISSION: INSIGHTS FROM RECONSTITUTING ORGANELLE FORM AND CHEMISTRY. **Thomas Pucadyil**

947-PLAT 10:30 AM

RAPID CLINICAL DIAGNOSTIC VIRAL DETECTION WITH SALIVA BY A NOVEL SINGLE STEP NESTED MANGO-NASBA ASSAY. **Haruki Iino**, Amir Abdol-ahzadeh, Elena Dolgosheina, Paul Poudevigne-Durance, George Moore, Paul Girvan, Artur Kaczmarczyk, Tianyi Zhang, Matt D. Newton, Peter J. Unrau, David S. Rueda

948-PLAT 10:45 AM

ERYTHRO-VLP: ERYTHROCYTE VIRUS-LIKE-PARTICLES. **Sebastian Himbert**, Maikel Rheinstädter

949-PLAT 11:00 AM

IDENTIFYING ENTHALPIC BARRIERS TO ENTROPICALLY-DRIVEN STRUCTURAL DISRUPTION IN BREAST CANCERS. **Vasudha Srivastava**, Jennifer L. Hu, James C. Garbe, Martha R. Stampfer, Mark A. LaBarge, Matthew Thomson, Zev J. Gartner

950-PLAT 11:15 AM

INVESTIGATING DPPC LIPOSOMES AND THEIR CAPACITY TO ASSIMILATE 2,2',3,3',4,4'-HEXACHLOROBIPHENYL, AN EMERGING ENVIRONMENTAL POLLUTANT. **Monica D. Rieth**, Andrew J. Lozano

Exhibits

10:00 AM - 5:00 PM

Exhibitor Presentation Nanion Technologies

11:30 AM - 12:00 PM

Automated Electrophysiology For Any Kinetics: Ion Channels & Transporters

Ion channels and transporters are important physiological and pharmacological targets. Electrophysiology remains the gold standard for studying these important targets and automation of the technique ensures higher throughput is achieved whilst maintaining high data quality. In this virtual symposium, Nanion Technologies provides two case studies where automated patch clamp (APC) or solid-supported membrane (SSM)-based electrophysiology devices were used in different applications. After a short greeting by Dr. Niels Fertig, CEO, Nanion Technologies will welcome two exceptional speakers, Dr Nina Braun (University of Copenhagen) and Dr. Matthias Quick (Columbia University).

Dr. Nina Braun presents recent work, with focus on establishing a high-throughput protocol to conduct functional and pharmacological investigations of non-canonical amino acids (ncAA)-containing hASIC1a (human acid-sensing ion channel 1a) variants in transiently transfected mammalian cells. Incorporation of ncAAs can endow proteins with novel functionalities, such as crosslinking or fluorescence. Function of these variants in ion channels can be studied with great precision using standard electrophysiology, but this approach is typically labor intensive and low throughput. During the study, three different photocrosslinking ncAAs were introduced into 103 positions and the function of the resulting 309 variants was assessed with SyncroPatch 384i automated patch-clamp platform, demonstrating that the approach is efficient and versatile, as it is amenable to

assessing even complex pharmacological modulation by peptides. The data show that the acidic pocket is a major determinant for current decay and live-cell crosslinking provides insight into the hASIC1a-psalmotoxin-1 interaction. Overall, this protocol aims to enable future APC-based studies of ncAA-containing ion channels in mammalian cells.

Next, Dr. Matthias Quick is focusing on the study of ion-dependent transporters with special emphasis on Na⁺ or H⁺-coupled symporters. Whereas flux studies with radiolabeled solutes use the target protein reconstituted in proteoliposomes provided a wealth of information, the determination of the thermodynamically-coupled solute transport-associated flux of H⁺ or Na⁺ has been challenging. By using the SURFE²R N1 SSM platform, his team was able to quickly collect data of solute transport-associated flux of co-transported ions across the membrane of proteoliposomes containing different target proteins. Additionally, with SURFE²R technology it is possible to collect data for a full kinetic characterization of a target protein such as its dependence on substrate and ion concentrations, pH, and potential essential additives, as well as its substrate recognition profile. The SURFE²R system also enables the use of a wide range of substrates that are readily commercially available, avoiding the use of radiolabeled compounds.

Speakers

Nina Braun, Post-Doctoral Fellow, Department of Drug Design and Pharmacology, University of Copenhagen
Matthias Quick, Associate Professor of Neurobiology (Psychiatry), Columbia University Medical Center (CUMC)

Break

11:30 AM - 12:00 PM

Poster Presentations and Late Posters

12:00 PM - 1:30 PM

General Networking

1:00 PM-2:00 PM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Exhibitor Presentation Andor Technology

1:30 PM - 2:00 PM

SRRF-Stream⁺ - A Flexible and Effective Solution For Real-Time and Live Cell Superresolution Microscopy

Much of the inner workings of the cell are hidden from view below the classical diffraction limit of light-based imaging microscopy. Superresolution techniques such as STORM, PALM, STED and SIM have smashed past this barrier and have helped enable cell biology to be studied in considerably more detail.

However, there are limitations to these techniques especially when considering live cell imaging. Superresolution techniques may require costly microscopy equipment, high illumination intensities, long acquisition times or specialised fluorophores. SRRF (Superresolution Radial Fluctuations) offers an alternative software-based approach that counters many of these limitations (Gustafsson *et al* 2016).

Specifically, it allows for superresolution at low illumination intensities, using standard fluorophores on a conventional microscope. Understandably SRRF has become widely used. One development of SRRF is SRRF-Stream. This version is exclusive to Andor Technology and optimizes GPU processing to unlock real-time live superresolution from a microscope.

We now present an updated version of SRRF-Stream called "SRRF-Stream⁺" which allows for improvements in the image quality over the original version of SRRF-Stream. We also show that SRRF-Stream⁺ can be

used on Andor Sona back-illuminated sCMOS cameras having previously been available solely on Andor iXon EMCCD cameras. These new developments add to the previous benefits of SRRF-Stream, making it an even more flexible and useful part of the microscopists imaging toolbox.

Speaker

Alan Mullan, Product Application Specialist – Microscopy Cameras, Andor Technology

Break

1:30 PM - 2:00 PM

Meet the Editors

2:00 PM - 3:30 PM

Take this opportunity to meet editors of the Society's three Journals: *Biophysical Journal*, *Biophysical Reports*, and *The Biophysicist*. Editors will be available to discuss their respective journals and to answer questions about where you should submit your work, what will help to get your work published, and what you can expect when you submit to these Society journals.

Platform

Protein Structure and Conformation: Viruses

2:00 PM - 3:30 PM

Chair

Charlotte Uetrecht, Heinrich Pette Institute, Germany

1327-PLAT 2:00 PM

FLYING VIRUSES - FROM BIOPHYSICAL TO STRUCTURAL CHARACTERIZATION. **Charlotte Uetrecht**

1328-PLAT 2:30 PM

REAL-TIME CONFORMATIONAL DYNAMICS OF SARS-COV-2 SPIKES ON VIRUS PARTICLES. **Maolin Lu**, Pradeep D. Uchil, Wenwei Li, Daniel S. Terry, Jason Gorman, Baoshang Zhang, Tongqing Zhou, Shilei Ding, Lihong Liu, David D. Ho, John R. Mascola, Andrés Finzi, Peter Kwong, Scott C. Blanchard, Walther Mothes

1329-PLAT 2:45 PM

SARS-COV-2 GLYCOSYLATED SPIKE ACTIVATION MECHANISM - SIMULATIONS OF THE FULL UNBIASED PATHWAY. **Terra Sztain-Pedone**, Surl-Hee Ahn, Anthony Bogetti, Lorenzo Casalino, Zied Gaieb, James A. McCammon, Lillian T. Chong, Rommie E. Amaro

1330-PLAT 3:00 PM

DIFFERENTIAL DYNAMIC BEHAVIOR OF PREFUSION SPIKE GLYCOPROTEINS OF SARS CORONAVIRUSES 1 AND 2. **Mahmoud Moradi**, Vivek Govind Kumar, Dylan S. Ogden, Ugochi Isu, James Losey

1331-PLAT 3:15 PM

STRUCTURAL BASIS FOR GERMLINE ANTIBODY BINDING TO ZIKA VIRUS ENVELOPE DOMAIN III. **Shannon R. Esswein**, Pamela J. Bjorkman

Platform

Protein Prediction, Design, and Stability II

2:00 PM - 3:30 PM

Chair

Dorothy Beckett, University of Maryland, USA

NO ABSTRACT 2:00 PM

SHIFTING ENSEMBLES OF RESIDUE NETWORKS IN EVOLUTION OF PROTEIN ALLOSTERY. **Dorothy Beckett**

1332-PLAT 2:30 PM

DIRECT OBSERVATION OF THE CONTRACTION OF AN UNFOLDED PROTEIN WITH TEMPERATURE. **Michael C. Baxa**, Xiaoxuan Lin, Srinivas Chakravarthy, Joseph R. Sachleben, Joshua A. Riback, Isabelle Gagnon, Patricia L. Clark, Tobin R. Sosnick

1333-PLAT 2:45 PM

PROBING THE IMPACT OF MOLECULAR CHAPERONES ON THE REFOLDABILITY OF THE *E. COLI* PROTEOME. **Philip To**, Stephen D. Fried

1334-PLAT 3:00 PM

EXPLORING EXHAUSTIVELY THE CONFORMATIONS OF A TANDEM DOMAINS PROTEIN USING A DISCRETE DISTANCE GEOMETRY APPROACH. Florence Cordier, Benjamin Bardiaux, Antonio Mucherino, Jerome Idier, Nicolas Wolff, Leo Liberti, **Therese E. Malliavin**

1335-PLAT 3:15 PM

EMERGING FEATURES OF RHEOSTAT POSITIONS. **Liskin Swint-Kruse**, Aron W. Fenton, S. Banu Ozkan, Bruno Hagenbuch, paul campitelli, Melissa Ruggiero, John Karanicolas, Shipra Malhotra, Joseph Fontes, Audrey Lamb, Alexey Ladokhin, Paul E. Smith

Platform

Protein-Nucleic Acid Interactions and Chromatin II

2:00 PM - 3:30 PM

Chair

Joshua Riback, Princeton University, USA

NO ABSTRACT 2:00 PM

MODELING CHROMATIN ARCHITECTURE TRANSITIONS IN BIOLOGICAL PROCESSES. **Tamar Schlick**

1336-PLAT 2:30 PM

CHROMATIN AND CYTOSKELETAL TETHERING DETERMINE NUCLEAR MORPHOLOGY IN PROGERIN EXPRESSING CELLS. **Maria Chiara Lionetti**, Silvia Bonfanti, Maria Rita Fumagalli, Francesc Font-Clos, Giulio Costantini, Oleksandr Chepizhko, Stefano Zapperi, Caterina La Porta

1337-PLAT 2:45 PM

SPATIALLY CONSTRAINED TRANSCRIPTIONAL SOURCES DRIVE ASPHERICITY OF INTRACELLULAR LIQUIDS. **Joshua A. Riback**, Daniel S.W. Lee, Jorine M. Eeftens, David W. Sanders, Lien Beckers, Clifford P. Brangwynne

1338-PLAT 3:00 PM

SUPER-RESOLUTION IMAGING REVEALS SPATIO-TEMPORAL PROPAGATION OF HUMAN REPLICATION FOCI MEDIATED BY CTCF-ORGANIZED CHROMATIN STRUCTURES. **Ziqing Winston Zhao**, Qian Peter Su, X Sunney Xie, Yujie Sun

1339-PLAT 3:15 PM

CHROMATIN ORGANIZATION AND PHASE SEPARATION OF HISTONES. **Anisha Shakya**, John King

Platform

Membrane Structure

2:00 PM - 3:30 PM

Chair

Ilpo Vattulainen, University of Helsinki, Finland

1340-PLAT 2:00 PM

BARRIERS IN THE EYE AND LUNGS THAT MAINTAIN BIOLOGICAL FUNCTIONS. **Ilpo Vattulainen**

1341-PLAT 2:30 PM

GM1 LEAFLET ASYMMETRY STABILIZES MEMBRANE PORES. **Mina Aleksanyan**, Rafael Lira, Jan Steinkuehler, Rumiana Dimova

1342-PLAT 2:45 PM

EXTRACTING ORGANELLE MEMBRANE TOPOLOGY FROM SUPER-RESOLUTION MICROSCOPY DATA. **Zach Marin**, Lukas A. Fuentes, Joerg Bewersdorf, David Baddeley

1343-PLAT 3:00 PM

LIPID BILAYER PASSIVE AREA REGULATION IN RESPONSE TO FLUID FLOWS. **Ethan J. Miller**, Aurelia R. Honerkamp-Smith

1344-PLAT 3:15 PM
PROBING THE MEMBRANE ENVIRONMENT OF PLASMA MEMBRANE PROTEINS: A MICROPATTERNING APPROACH. **Veronika Brumovska**, Gergö Fülöp, Gerhard J. Schütz, Eva Sevcsik

Platform
Muscle, Calcium and Signaling II
2:00 PM - 3:30 PM

Chair
Madeline Shea, University of Iowa, USA

NO ABSTRACT 2:00 PM
CA²⁺-SATURATED CALMODULIN BINDS TIGHTLY TO THE N-TERMINAL DOMAIN OF A-TYPE FIBROBLAST GROWTH FACTOR (FGF) HOMOLOGOUS FACTORS. **Madeline Shea**

1345-PLAT 2:30 PM
MULTISCALE MODELING OF DYADIC STRUCTURE-FUNCTION RELATION IN VENTRICULAR CARDIAC MYOCYTES. Filippo Giovanni Cosi, Wolfgang Giese, **Wilhelm Neubert**, Stefan Luther, Chamakuri Nagaiah, Ulrich Parltz, Martin Falcke

1346-PLAT 2:45 PM
QUANTITATIVE ASSESSMENT OF CARDIAC INTERCALATED DISK ULTRASTRUCTURE AND MOLECULAR ORGANIZATION BY INDIRECT CORRELATIVE LIGHT AND ELECTRON MICROSCOPY. **Heather Struckman**, Nicolae Moise, Celine Dagher, Seth H. Weinberg, Rengasayee Veeraraghavan

1347-PLAT 3:00 PM
MACHINE LEARNING TECHNIQUES TO CLASSIFY THE SEVERITY OF NOVEL SCN5A VARIANTS. **Chiara Campana**, Eric A. Sobie

1348-PLAT 3:15 PM
FUNCTIONAL AND STRUCTURAL INTERACTIONS BETWEEN CA²⁺, ATP AND CAFFEINE BINDING SITES OF SKELETAL MUSCLE RYANODINE RECEPTOR (RYR1). **Venkat R. Chirasani**, Daniel A. Pasek, Hannah G. Addis, Naohiro Yamaguchi, Gerhard Meissner

Platform
Actin and Associated Proteins - Myosins
2:00 PM - 3:30 PM

Chair
Glen Hocky, New York University, USA

1349-PLAT 2:00 PM
PASSIVE VERSUS ACTIVE REGULATION IN THE ACTIN CYTOSKELETON. **Glen M. Hocky**

1350-PLAT 2:30 PM
MYOSIN'S POWERSTROKE OCCURS WITH PHOSPHATE STILL IN THE ACTIVE SITE. **Brent Scott**, Christopher Marang, Laura K. Gunther, Mike K. Woodward, Christopher M. Yengo, Edward P. Debold

1351-PLAT 2:45 PM
STRUCTURE OF THE SHUTDOWN STATE OF MYOSIN-2. **Charlotte A. Scarff**, Glenn Carrington, David E. Casas-Mao, Joseph M. Chalovich, Peter J. Knight, Neil A. Ranson, Michelle Peckham

1352-PLAT 3:00 PM
STRUCTURAL PERSPECTIVE INTO ACTIVATION OF ARP2-3 COMPLEX FOR NUCLEATING LINEAR AND BRANCHED ACTIN ASSEMBLIES. **Bojian Ding**, Heidy Narvaez Ortiz, Brad Nolen, Saikat Chowdhury

1353-PLAT 3:15 PM
THE ACTIN CYTOSKELETON REGULATES MACROPHAGE ACTIVATION AND INFLAMMATION. **Elsa Ronzier**, Jeremy D. Rotty

Platform
Neuroscience
2:00 PM - 3:30 PM

Chair
Guo-Li Ming, University of Pennsylvania, USA

1354-PLAT 2:00 PM
MODELING HUMAN BRAIN ORGANOGENESIS USING PLURIPOTENT STEM CELLS. **Guo-Li Ming**

1355-PLAT 2:30 PM
MARGARIC ACID COUNTERACTS NEURONAL MECHANICAL SENSITIZATION. **Luis O. Romero**, Rebeca C. Caires Mugarra, Alec R. Nickolls, Alexander T. Chesler, Julio F. Cordero-Morales, Valeria Vasquez

1356-PLAT 2:45 PM
OPTOGENETIC ACTIVATION OF ERK AND AKT SIGNALING PROMOTES AXON REGENERATION AND FUNCTIONAL RECOVERY IN DROSOPHILA. Qin Wang, Huaxun Fan, Feng Li, Savanna S. Skeeters, Vishnu Krishnamurthy, Yuanquan Song, **Kai Zhang**

1357-PLAT 3:00 PM
STOCHASTIC REACTION-DIFFUSION MODELING OF CALCIUM DYNAMICS IN 3D-DENDRITIC SPINES OF PURKINJE CELLS. **Victor Nicolai Friedhoff**, Gabriela Antunes, Martin Falcke, Fábio Marques Simões de Souza

1358-PLAT 3:15 PM
TARGETED SENSORS FOR GLUTAMATERGIC NEUROTRANSMISSION. **Yuchen Hao**, Estelle Toulmé, Benjamin König, Ljudmila Katchan, Andrew J. Plested

Platform
Spectroscopy, Diffraction and Microscopy
2:00 PM - 3:30 PM

Chair
Marvin Bayro, University of Puerto Rico, USA

1359-PLAT 2:00 PM
SOLID-STATE NMR ANALYSIS OF INTERFACE FLEXIBILITY IN PLEOMORPHIC PROTEIN ASSEMBLIES. Guivert Michel, Jeremy J. Gonzalez, Carlos A. Figueroa-Morales, Naomi C. Rodriguez, **Marvin J. Bayro**

1360-PLAT 2:30 PM
DEEP LEARNING FOR FAST ATOMIC FORCE MICROSCOPY DATA ANALYTICS. **Anwasha Sarkar**, Joshua Waite, Soumik Sarkar

1361-PLAT 2:45 PM
COMBINATORIAL METHODS TO ENHANCE SUPERCRITICAL ANGLE FLUORESCENCE MEASUREMENTS. **Aaron Au**, Christopher M. Yip

1362-PLAT 3:00 PM
SUPER RESOLUTION CRYO-EM MAPS WITH 3D DEEP GENERATIVE NETWORKS. **Sai Raghavendra Maddhuri Venkata Subramaniya**, Genki Terashi, Daisuke Kihara

1363-PLAT 3:15 PM
BAYESIAN STRUCTURE DETERMINATION FROM ULTRAFAST SINGLE MOLECULE X-RAY DIFFRACTION. **Steffen Schultze**, Helmut Grubmüller

Exhibitor Presentation Oxford Instruments NanoAnalysis

3:30 PM - 4:00 PM

Multi-Colour Electron Microscopy: Using Energy Dispersive X-ray Spectrometry to Image and Analyse Biological Samples

The visualisation and analysis of life science samples has been a challenge throughout the history of electron microscopy. Biological sample preparation and the absence or addition of contrasting agents often play a key role in the development of imaging methodology. But the signals generated in an electron microscope are mostly underutilised by biologists. While energy dispersive x-ray spectrometry (EDS) has been used in materials science for many decades, sample stability and detector sensitivity have prevented a broader adoption in life sciences until recently [1]. Multi-colour electron microscopy (MCEM) combines elemental information about samples produced using EDS with ultrastructural electron data, providing a powerful and informative imaging technique [2].

MCEM addresses key research topics for the biological electron microscopist. What is it, where is it and how much? Using examples from biomedical research, animal cells and tissues, and plant cell biology, this talk will demonstrate how the addition of elemental maps to electron images contributes key information that could be used for a variety of biological imaging applications, such as region of interest profiling or automated segmentation of volumetric data). EDS is not only a powerful imaging tool, providing accurate identification of stains, labels, and ultrastructural features, but it can also be used to conduct analysis on the relative quantities of a wide range of elements, providing compositional data on native elements and exogenous features.

Speaker

Louise Hughes, Product Manager Life Science, Oxford Instruments

[1] Pirozzi, N.M., Hoogenboom, J.P. and Giepmans, B.N., 2018. ColorEM: analytical electron microscopy for element-guided identification and imaging of the building blocks of life. *Histochemistry and cell biology*, 150(5), pp.509-520.

[2] Scotuzzi, M., Kuipers, J., Wensveen, D.I., De Boer, P., Hoogenboom, J.P. and Giepmans, B.N., 2017. Multi-color electron microscopy by element-guided identification of cells, organelles and molecules. *Scientific reports*, 7(1), pp.1-8.

Speed Networking

3:30 PM-5:00 PM

Networking is made simple at the Virtual Speed Networking session. Connect with many biophysicists (including Biophysical Society committee members) through small group discussions in a short amount of time. Mid-career and more experienced scientists could learn how to get more involved in the Society or network for open positions in their labs. Early career scientists could discuss career goals and challenges, get advice on tenure, or grant writing, or find out how to gain recognition for their work. Graduate students and postdocs could make contacts to find their next position.

Pre-registration was required for participation.

Exhibitor Presentation Molecular Devices

4:00 PM - 4:30 PM

Streamlining Electrophysiology Data Acquisition and Analysis in Ion Channel Study with Axon pCLAMP 11 Software

Axon pCLAMP™ 11 software suite provides ion channel researchers with greater capability in electrophysiology data acquisition and analysis. Recent updates to this include an improved Protocol Editor, which allows the user to more easily create complex experimental protocols with many command stimulations, as well as a new Batch Analysis feature which streamlines analysis of multiple data sets. In this webinar, Dr. Jeffrey Tang will highlight these and other new features in pCLAMP 11 to streamline the data acquisition and analysis in your ion channel study, and how this software package allows you to perform more experiments and obtain more data in your electrophysiology research.

Speaker

Jeffrey Tang, Senior Application Scientist, Molecular Devices

THURSDAY POSTER SESSIONS

12:00 PM–1:30 PM

*Below is the list of poster presentations for Thursday of abstracts submitted by October 1.
The list of late abstracts scheduled for Thursday is available on page 113.*

ODD-NUMBERED BOARDS 12:00 PM–12:45 PM | EVEN-NUMBERED BOARDS 12:45 PM–1:30 PM

Board Numbers	Category
B1 - B27	Protein Stability, Folding, and Chaperones
B28 - B49	Protein-Small Molecule Interactions II
B50 - B65	Protein Assemblies II
B66 - B81	Membrane Protein Structures II
B82 - B99	Intrinsically Disordered Proteins (IDP) and Aggregates II
B100 - B106	Ribosomes and Translation
B107 - B132	DNA Structure and Dynamics
B133 - B147	Membrane Dynamics II
B148 - B158	Protein-Lipid Interactions: Channels
B159 - B185	General Protein-Lipid Interactions
B186 - B202	Mechanosensation
B203 - B211	Excitation-Contraction Coupling
B212 - B235	Voltage-gated K Channels
B236 - B252	Ion Channels, Pharmacology, and Disease
B253 - B278	Cardiac Muscle Mechanics and Structure
B279 - B296	Microtubules, Structure, Dynamics, and Associated Proteins
B297 - B310	Cellular, Metabolic and Genetic Networks
B311 - B318	Systems and Synthetic Biology
B319 - B326	Optical Microscopies and Diffraction Techniques
B327 - B350	Computational Methods and Bioinformatics II
B351 - B368	Micro- and Nanotechnology
B369 - B376	Biomaterials

Protein Stability, Folding, and Chaperones (Boards B1 - B27)

951-Pos BOARD B1

THE MOLECULAR ORIGINS OF THE INFLUENCE OF TRANSLATION-ELONGATION KINETICS ON THE SPECIFIC ACTIVITY OF ENZYMES. **Yang Jiang**, Edward P. O'Brien

952-Pos BOARD B2

STRUCTURAL BASIS FOR RECOGNITION OF THE HSP90 CLOSED, ATP STATE BY THE TPR-CONTAINING CO-CHAPERONE FKBP51. **Kanghyun Lee**, Aye Thwin, Daniel R. Southworth

953-Pos BOARD B3

MAPPING STRUCTURAL INTERMEDIATES DURING CO-TRANSLATIONAL FOLDING OF HSP70 WITH CROSSLINKING MASS SPECTROMETRY. **Anneliese M. Faustino**, Stephen D. Fried

954-Pos BOARD B4

INTERACTION BETWEEN RIBOSOME-BOUND NASCENT PROTEINS AND A SPECIFIC REGION OF THE RIBOSOMAL SURFACE. **Valeria Guzman Luna**, Andrew M. Fuchs, Rayna M. Addabbo, Anna J. Allen, Silvia Cavagnero

955-Pos BOARD B5

PROBING THE ROLE OF CHAIN CONNECTIVITY IN THE CO-TRANSLATIONAL FOLDING PROCESS OF HALOTAG THROUGH CIRCULAR PERMUTATION. **Natalie R. Dall**, Susan Marqusee

956-Pos BOARD B6

DETAIL DYNAMICS AFTER ATP BINDING IN HSP90 CHAPERONE CYCLE AND THE EFFECT OF NOVEL PEPTIDE DRUG CANDIDATE USING MOLECULAR DYNAMICS SIMULATIONS. **Lisa Matsukura**, Naoyuki Miyashita

957-Pos BOARD B7

SPATIAL RELATIONSHIP BETWEEN MEMBRANE, AAA+ DOMAIN AND BOUND PROTEIN SUBSTRATE DETERMINES THE UNFOLDING ACTIVITY OF THE MEMBRANE-INTEGRATED AAA+ PROTEASE FTSH. **Mihiravi Gunasekara**, Heedeok Hong

958-Pos BOARD B8

DOMAIN INTERACTIONS DETERMINE THE CONFORMATIONAL ENSEMBLE OF THE PERIPLASMIC CHAPERONE SURA. **Mathis J. Leblanc**, Dagan C. Marx, Ashlee M. Plummer, Susan Krueger, Karen G. Fleming

959-Pos BOARD B9

THE HSP70 CHAPERONE IS MOST EFFICIENT AT CIRCUMVENTING AGGREGATION IF CLIENT PROTEINS FOLD BEFORE THEIR RELEASE IN SOLUTION. **Miranda Mecha**, Jasmine Machhi, Silvia Cavagnero

960-Pos BOARD B10

OPTIMAL PREVENTION OF CLIENT-PROTEIN AGGREGATION ON THE SURFACE OF THE HSP70 CHAPERONE: A COMPUTATIONAL STUDY. **Jasmine Machhi**, Miranda Mecha, Silvia Cavagnero

961-Pos BOARD B11

MOLECULAR DETAILS OF PROTEIN MISFOLDING IN MYOCILIN-ASSOCIATED GLAUCOMA. **Raquel L. Lieberman**

962-Pos BOARD B12

NEGATIVE INTERDOMAIN COUPLING OF DYSTROPHIN SPECTRIN REPEATS. **Kari S. Olson**, Althea Amaris, Adeesha Jayathilaka, Jonathan Tigner, John Shortreed, Michael Fealey, Anne Hinderliter

963-Pos BOARD B13

ROLE OF SALT BRIDGES IN UBIQUITIN IN MODULATING THERMODYNAMIC, KINETIC AND MECHANICAL STABILITIES. **Tathagata Nandi**, Sri Rama Koti Ainavarapu

964-Pos BOARD B14

PROBING FOLDING BARRIERS IN HIGH THROUGHPUT USING PROTEOLYSIS AND YEAST DISPLAY. **Miriam R. Hood**, Eva Gerber, Susan Marqusee

965-Pos BOARD B15

SELECTION ORIGINATING FROM PROTEIN STABILITY AND FOLDABILITY: RELATIONSHIPS BETWEEN FOLDING FREE ENERGY, SEQUENCE ENSEMBLE, AND FITNESS. **Sanzo Miyazawa**

966-Pos BOARD B16

CHARACTERIZATION OF CAMKIIALPHA HOLOENZYME STABILITY. **Ana P. Torres-Ocampo**, Can Özden, Alexandra Hommer, Anne Gardella, Emily Lapinskas, Alfred Samkuty, Edward Esposito, Scott C. Garman, Margaret Stratton

967-Pos BOARD B17

AN INVESTIGATION OF THE DISULFIDE BRIDGE FORMATION OF A THYLAKOID PROTEASE USING NANOSECOND-LEVEL MD SIMULATIONS. **Alaa El-Khouly**, Adithya Polasa, Vivek Govind Kumar, Mahmoud Moradi

968-Pos BOARD B18

IDENTIFYING HOTSPOTS IN BINDING OF SARS-COV-2 SPIKE GLYCOPROTEIN AND HUMAN ACE2. **Jenny Mendis**, Ekrem Kaya, Tugba G. Kucukkal

969-Pos BOARD B19

MODELLING PH DEPENDENCE OF THE INTERACTION OF ALPHA-B CRYSTALLIN WITH CLIENT PROTEINS. Yusrah B. Kaudeer, Esi Obeng, **Patricia B. O'Hara**

970-Pos BOARD B20

EFFECT OF THE ANTI-SICKLE CELL DRUG GBT440 (VOXELOTOR) ON METHEMOLOBIN. **Aldo J. Munoz**, Melanie J. Cocco

971-Pos BOARD B21

NON-CLASSICAL PROTEIN KINASE A ACTIVATION BY AGGREGATION OF THE PKA R-SUBUNITS AS A MECHANISM OF INHERITED CARNEY COMPLEX MUTATIONS. **Naeimeh Jafari**, Jason Delrio, Madoka Akimoto, Olivia Byun, Stephen Boulton, Kody Moleschi, Yousif Sayyed, Pascale Swanson, Jinfeng Huang, Chi Lee, Jian Wu, Susan S. Taylor, Giuseppe Melacini

972-Pos BOARD B22

GENERATION OF ENHANCED RIBOSOMES FOR OPTIMAL PROTEIN OVEREXPRESSION VIA CRISPR-CAS9-ASSISTED RECOMBINEERING. **Anna J. Allen**, Valeria Guzman Luna, Hunter J. Furley, Silvia Cavagnero

973-Pos BOARD B23

MOLECULAR DYNAMICS MODELING OF SURFACTANT BLOCK COPOLYMER CATALYSIS OF PROTEIN DISAGGREGATION AND REFOLDING. **Kyle McCollum**, Michelle Ling, Raphael C. Lee

974-Pos BOARD B24

DUAL MECHANISM OF IONIC LIQUID-INDUCED PROTEIN UNFOLDING. **Pei-Yin Lee**, Onkar Singh, Harry Bermudez, Silvina Matysiak

975-Pos BOARD B25

INTERPRETING SMFRET-BASED CALCULATION OF TRANSITION PATH TIME WITH MOLECULAR SIMULATIONS. **Grace H. Taumoefolau**, Robert B. Best

976-Pos BOARD B26

GENERALIZATION OF THE GIBBS-THOMSON EQUATION AND PREDICTING MELTING TEMPERATURES OF BIOMACROMOLECULES IN CONFINED GEOMETRIES. **David V. Svintrazde**

977-Pos BOARD B27

CRYO-EM STRUCTURE OF AN ACTIVE TETRADECAMERIC AAA+ CHAPERONE CLPL. **Gyuhee Kim**, Seong-Gyu Lee, Seungsu Han, Jaeun Jung, Hyeong Seop Jeong, Jae-kyung Hyun, Dong-Kwon Rhee, Ho Min Kim, Sangho Lee

Protein-Small Molecule Interactions II (Boards B28 - B49)

- 978-Pos BOARD B28**
INVESTIGATION OF MOLECULAR COUNTERMEASURES TO MODULATE THE POPULATIONS AND TOXICITY OF AB42 OLIGOMERS. **Aidan K. Wright**, Ryan P. Kreiser, Lam T. Nguyen, Jared E. Hollows, Ryan Limbocker
- 979-Pos BOARD B29**
CONTROL OVER PROTEIN MULTIMERIZATION INDUCED BY WATER-SOLUBLE PORPHYRINS. **Tyler Brittain**, Oleksandr Kokhan
- 980-Pos BOARD B30**
DETERMINING VITRONECTIN'S ROLE IN FORMING THE HALLMARK OF AGE-RELATED MACULAR DEGENERATION. **Kyungsoo Shin**, L. Miya Fujimoto, James E. Kent, Alexander Aleshin, Ye Tian, Andrey A. Bobkov, Wonpil Im, Francesca M. Marassi
- 981-Pos BOARD B31**
PREDICTING ARRHYTHMOGENICITY: STRUCTURAL MODELING OF SAFE AND UNSAFE HERG BLOCKERS. **Aiyana M. Emigh**, Kevin R. DeMarco, Kazuharu Furutani, Jon T. Sack, Colleen E. Clancy, Igor V. Vorobyov, Vladimir Yarov-Yarovoy
- 982-Pos BOARD B32**
A NOVEL MODEL OF THE DIMERIC HUMAN HV1 CHANNEL REVEALS A PUTATIVE ATP BINDING SITE. **Manuel A. Llanos**, Pedro Martín, Nicolas Enrique, Juan Ignacio Felice, Agustín Aguaje, Luciana Gavernet, Veronica Milesi, Clara Ventura
- 983-Pos BOARD B33**
MOLECULAR MECHANISM OF THE POTENT BENZOPYRAN-G1 BLOCKER OF HETEROMERIC G-PROTEIN GATED POTASSIUM CHANNELS. **Meng Cui**, Yaser Alhamshari, Lucas Cantwell, Said El-Haou, Giasemi C. Eptaminitaki, Mengmeng Chang, Obada Abou-Assali, Haozhou Tan, Keman Xu, Meghan Masotti, Leigh D. Plant, Ganesh Thakur, Sami Noujaim, James T. Milnes, Diomedes E. Logothetis
- 984-Pos BOARD B34**
THE NOVEL SMALL MOLECULE 3H2ONE-G4 SELECTIVELY ACTIVATES HOMOMERIC GIRK4 CHANNELS. **Meng Cui**, Keman Xu, Michelle Ban, Giasemi C. Eptaminitaki, Diomedes E. Logothetis
- 985-Pos BOARD B35**
MONITORING LIGAND BINDING TO PURIFIED HCN4 CHANNEL PROTEINS. **Andrea Saponaro**, Atiyeh Sadat Sharifzadeh, Anna Moroni
- 986-Pos BOARD B36**
BEYOND VOLUME EXCLUSION-NANOPORE-BASED PROTEIN SEQUENCING. **Ming-Zhu Huo**, Meng-Yin Li, Yi-Lun Ying, Yi-Tao Long
- 987-Pos BOARD B37**
PREDICTION AND ANALYSIS OF MULTIPLE SITES AND INHIBITORS OF SARS-COV-2 PROTEINS. **Suhasini M. Iyengar**, Kelton Barnsley, Hoang Yen Vu, Ryan Dilworth, Jana Sefcikova, Penny Beuning, Mary Jo Ondrechen
- 988-Pos BOARD B38**
THE DESIGN OF A DESTABILIZER PEPTIDE TO DISRUPT SARS-COV-2 FUSION WITH ITS TARGETED CELL MEMBRANE. **Motamed Qadan**
- 989-Pos BOARD B39**
MECHANISM AND PATHWAYS OF INHIBITOR BINDING TO THE HUMAN ACE2 RECEPTOR FOR SARS-COV1/2. **Apurba Bhattarai**, Shristi Pawnikar, Yinglong Miao
- 990-Pos BOARD B40**
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- 991-Pos BOARD B41**
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- 992-Pos BOARD B42**
VITAMIN D AND ITS DERIVATIVES AS PROMISING DRUGS AGAINST COVID-19 - A COMPUTATIONAL STUDY. **Yuwei Song**, Shariq Qayyum, Radomir Slominski, Chander Raman, Andrzej Slominski, Yuhua Song
- 993-Pos BOARD B43**
INVESTIGATING BACTERIAL MALONYL-COA:ACYL TRANSFERASE AS A POTENTIAL SECONDARY TARGET OF 3-HYDROXY-3-METHYL-GLUTARYL-COA REDUCTASE INHIBITORS. **Gillian M. Barth**, Calvin Steussy, Tim Schmidt, Cynthia V. Stauffacher
- 994-Pos BOARD B44**
DISCOVERY OF SMALL MOLECULE INHIBITORS AND ACTIVATORS OF DEATH RECEPTOR 5 SIGNALING USING HIGH THROUGHPUT SCREENING. **Malaney Young**, Nagamani Vunnam, Chih Hung Lo, Jonathan N. Sachs
- 995-Pos BOARD B45**
INVESTIGATING THE BINDING INTERACTION BETWEEN B-LACTOGLOBULIN AND VITAMIN B12: A SPECTROSCOPIC AND COMPUTATIONAL APPROACH. **Janmejaya Rout**, Bikash C. Swain, Suchismita Subadini, Sakshi Sakshi, Padmaja P. Mishra, Harekrushna Sahoo, Umakanta Tripathy
- 996-Pos BOARD B46**
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- 997-Pos BOARD B47**
PROTEIN-LIGAND RECOGNITION ACCORDING TO LOCK-AND-KEY PRINCIPLE. **Daumantas Matulis**, Vaida Paketuryte, Denis Baronas, Asta Zubrien, Joana Gyllyte, Virginija Dudutiene
- 998-Pos BOARD B48**
YEAST HSP110 HAS A UNIQUE SUBSTRATE BINDING SITE ESSENTIAL FOR CHAPERONE ACTIVITY. **Ying Wang**, Ying Yang, Hongtao Li, Jiayue Su, Lei Zhou, Qingdai Liu, Qinglian Liu
- 999-Pos BOARD B49**
MECHANISM OF HIV-1 NC PROTEIN-INDUCED CONDENSATION OF DOUBLE STRANDED DNA AS A MODEL FOR DNA COMPACTION DURING REVERSE TRANSCRIPTION. **Helena Gien**, Michael Morse, Jonathan Kitrow, Ioulia F. Rouzina, Karin Musier-Forsyth, Mark C. Williams

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- 1000-Pos BOARD B50**
PROTEIN SUPERSATURATION DRIVES INNATE IMMUNITY SIGNALING. Alejandro Rodriguez Gama, Shriram Venkatesan, Tejbir Kandola, Tayla Miller, Randal Halfmann
- 1001-Pos BOARD B51**
CONTRASTING EFFECTS OF SOFT AND HARD CROWDERS ON AMYLOID AGGREGATION. **Myeongsang Lee**
- 1002-Pos BOARD B52**
STRUCTURE AND DYNAMICS OF THE *E. COLI* CHEMOTAXIS CORE SIGNALING COMPLEX. **Keith Cassidy**
- 1003-Pos BOARD B53**
DYNAMICS OF BIOFILM MATRIX ASSEMBLY IN THE MODEL ORGANISM *PSEUDOMONAS AERUGINOSA*. **Courtney Reichhardt**, Michael Matwichuk, Holly M. Jacobs, Matthew R. Parsek

1004-Pos BOARD B54
COMPARTMENTALIZED SIGNALING WITHIN A LIQUID CRYSTAL REGU-
LATES MEIOTIC DNA BREAK REPAIR. **Lexy von Diezmann**, Ofer Rog

1005-Pos BOARD B55
DEVELOPING A FUNCTIONALLY VALID MODEL OF THE TREM2-APOE
COMPLEX TO BETTER UNDERSTAND ITS ROLE IN ALZHEIMER'S DIS-
EASE. **Hunter B. Dean**, Thomas J. Brett, Erik D. Roberson, Yuhua Song

1006-Pos BOARD B56
UNVEILING THE CONTRIBUTIONS OF SECONDARY STRUCTURE AND
DISULFIDE BONDS FOR BACTERIAL ADHESION PILI EXTENSION USING A
MULTISCALE APPROACH. Joseph Baker, Tobias Dahlberg, **Esther Bullitt**,
Magnus Andersson

1007-Pos BOARD B57
SOLUBILITY PRODUCT CONSTANT GOVERNS MULTIVALENT PROTEIN
PHASE SEPARATIONS. **Aniruddha Chattaraj**, Michael L. Blinov, Leslie M.
Loew

1008-Pos BOARD B58
A QUANTITATIVE FRAMEWORK FOR HETEROTYPIC BUFFERING ENABLED
BY MULTICOMPONENT BIOMOLECULAR CONDENSATES. **Furqan Dar**,
Rohit V. Pappu, J. Paul Taylor

1009-Pos BOARD B59
PATHWAYS OF GENOME RELEASE DETERMINED BY VIRION PROPER-
TIES. Lukáš Sukeník, Pavel Plevka, **Robert Vacha**

1010-Pos BOARD B60
QUANTIFYING BTUBA/B ASSEMBLY IN LIVING CELLS. **Yuhan Wang**, Ma-
hima Unnikrishnan, Brooke Ramsey, Martin Gruebele

1011-Pos BOARD B61
A PIPELINE FOR INTEGRATIVE STRUCTURAL MODELLING OF VERY COM-
PLEX MOLECULAR COMPLEXES. **Jan Kosinski**, Vasileios Rantos, Kai Karius

1012-Pos BOARD B62
RESOLVING STRUCTURAL CHANGES IN FIBERS DURING FIBRINOLY-
SIS. **Spencer R. Lynch**, Brittany E. Bannish, Nathan E. Hudson

1013-Pos BOARD B63
A MULTIDISCIPLINARY APPROACH TO DESIGN AMYLOID-LIKE PEPTIDES
TO FORM SUPRAMOLECULAR ASSEMBLIES. **Laura Pérez-Chirinos Lallana**,
Ivan R. Sasselli, Aitziber L. Cortajarena

1014-Pos BOARD B64
TOPOLOGY PROTECTS ROBUST GLOBAL CYCLES IN STOCHASTIC SYS-
TEMS. **Evelyn M. Tang**, Jaime Agudo-Canalejo, Ramin Golestanian

1015-Pos BOARD B65
UNRAVELING THE DRIVING FORCES BEHIND THE BIOGENESIS OF BACTE-
RIAL MICROCOMPARTMENTS. **Gaurav Kumar**, Sharmistha Sinha

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1016-Pos BOARD B66
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PROTEIN-PROTEIN INTERACTIONS; CYTOCHROME B_6F - FERREDOXIN
NADP⁺ REDUCTASE. **William A. Cramer**, Stanislav D. Zakharov, Genji
Kurusu, Yuko Misumi

1017-Pos BOARD B67
ELECTROPHYSIOLOGICAL AND BIOCHEMICAL CHARACTERIZATION OF THE
HUMAN P2X7B RECEPTOR IN XENOPUS LAEVIS OOCYTES. **Sanaria Hawro**
Yakoob, Guenther Schmalzing, Fritz Markwardt

1018-Pos BOARD B68
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SIS MODULATOR 2 CHANNEL. **Wooyoung Choi**

1019-Pos BOARD B69
SYSTEMATIC ANALYSIS OF SYMMETRY IN MEMBRANE PROTEINS.
Antoniya A. Aleksandrova, Edoardo Sarti, Emily L. Yaklich, Lucy R. Forrest

1020-Pos BOARD B70
UNDERSTANDING THE MECHANISM OF LIPID TRANSPORT THROUGH THE
MLA SYSTEM IN *E.COLI*. **Dhenesh Puvanendran**, Max Haase, Gira Bhabha,
Damian C. Ekiert

1021-Pos BOARD B71
BIOPHYSICAL BASIS OF KDEL RECEPTOR-LIPID INTERACTIONS IN SECRE-
TORY SIGNALING. **Asma Rehman**, Amanda Altieri, Wenbo Yu, Stefan M.
Ivanov, Brian G. Pierce, Alexander D. MacKerell, Syed Saif Hasan

1022-Pos BOARD B72
A FAB-TAG FOR SMALL MEMBRANE PROTEIN STRUCTURE DETERMINA-
TION. **Benjamin McIlwain**, Amanda Erwin, Melanie D. Ohi, Randy B.
Stockbridge

1023-Pos BOARD B73
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LIES OF LARGE PORE CHANNELS (CALHM1,2 AND PANNEXIN1). **Johanna**
L. Syrjanen, Kevin Michalski, Tsung-Han Chou, Shanlin Rao, Eric Henze, Ju-
lia M. Kumpf, Noriko Simorowski, Tim Grant, Nikolaus Grigorieff, Stephen
J. Tucker, Toshimitsu Kawate, Hiro Furukawa

1024-Pos BOARD B74
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THE MEMBRANE-EMBEDDED SARS-COV-2 SPIKE PROTEIN MODEL. **Tianle**
Chen, Karan Kapoor, Emad Tajkhorshid

1025-Pos BOARD B75
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GOUS DESENSITIZATION. **John J. Tesmer**, Qiuyan Chen, Manolo Plasencia,
Zhuang Li, Leifu Chang, Philip C. Andrews

1026-Pos BOARD B76
CHALLENGES WITH THE PREPARATION OF A SOLUBLE AND ACTIVE FORM
OF LRAT. **Sarah Roy**, Line Cantin, Jordan Grondin, Vincent Boulanger,
Marie-Eve Gauthier, Stephane M. Gagne, Christian Salesses

1027-Pos BOARD B77
THE ANTI-APOPTOTIC BCL-2 PROTEIN BEHAVES AS AN INTEGRAL MEM-
BRANE PROTEIN. Ameerq Ul Mushtaq, Jörgen Åden, Tobias Sparrman,
Artur P.G. Dingeldein, Hanna P. Wacklin, Luke A. Clifton, **Gerhard Grobner**

1028-Pos BOARD B78
SUBSTRATE RECOGNITION OF THE SMALL MULTIDRUG RESISTANCE
(SMR) FAMILY. **Olive E. Burata**, Christian B. Macdonald, Ali A. Kermani,
Randy Stockbridge

1029-Pos BOARD B79
STRUCTURE OF THE BACTERIAL LIPID ABC TRANSPORTER MIAFEDB
REVEALS SUBSTRATE BOUND. **Mark R. MacRae**, Nicolas Coudray, Georgia
L. Isom, Mariyah N. Saiduddin, Gira Bhabha, Damian C. Ekiert

1030-Pos BOARD B80
STRUCTURAL SWITCHES REGULATING THE ALTERNATING ACCESS MECHA-
NISM OF HUMAN P-GLYCOPROTEIN. **Karan Kapoor**, Sepehr Dehgha-
nighahnaviyeh, Emad Tajkhorshid

1031-Pos BOARD B81
CRYSTAL STRUCTURES OF A MELIBIOSE SYMPORTER MELB WITH BOUND
SUGAR SUBSTRATE. **Lan Guan**, Hariharan Parameswaran

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1032-Pos BOARD B82
INVESTIGATION OF DYNAMICS ALONG DIVERGENT TAU AGGREGATION
PATHWAYS. **Ellie I. James**, Abhinav Nath, Miklos Guttman

1033-Pos BOARD B83

DYNAMICAL HETEROGENEITY IN THE MEASLES VIRUS IDP N_{TAIL} IN ITS FREE AND BOUND STATES. **John Kunkel**, Gerdenis Kodis, Gabor Nagy, Christophe Bignon, Sonia Longhi, Andrea C. Vaiana, Helmut Grubmuller, Wenwei Zheng, Sara M. Vaiana

1034-Pos BOARD B84

REENTRANT PHASE TRANSITION AND OUT-OF-EQUILIBRIUM BEHAVIOR OF LIQUID POLYPHOSPHATE CONDENSATE. **Hannah M. Seppala**, Priya R. Banerjee

1035-Pos BOARD B85

SEQUENCE AND CHEMICAL ENVIRONMENT DETERMINE THE GLOBAL DIMENSION OF INTRINSICALLY DISORDERED PROTEIN ENSEMBLES. **Feng Yu**, David Moses, Alex S. Holehouse, Shahar Sukenik

1036-Pos BOARD B86

SOLVENT RELAXATION SIGNIFICANTLY CONTRIBUTES TO ELECTRON TRANSFER RATES BETWEEN TRYPTOPHAN TRIPLET STATE AND CYSTINE. Gerdenis Kodis, John D. Kunkel, Wenwei Zheng, Dmitry V. Matyushov, **Sara M. Vaiana**

1037-Pos BOARD B87

HOW DO LIGANDS TUNE THE ASSEMBLY AND DISSOLUTION OF BIOMOLECULAR CONDENSATES? **Kiersten M. Ruff**, Furqan Dar, Rohit V. Pappu

1038-Pos BOARD B88

MODELING CHROMATIN CONDENSATION WITH COARSE-GRAINED MODELS. **Kathryn M. Lebold**, Robert B. Best

1039-Pos BOARD B89

INVESTIGATING THE ROLE OF THE INTRINSICALLY DISORDERED TRANSACTIVATION DOMAIN OF NF-KAPPAB IN DNA BINDING AND CO-ACTIVATOR INTERACTIONS. **Hannah E.R. Baughman**, Amalia C. Villagran-Suarez, Francis X. Alipranti, Dominic Narang, Elizabeth A. Komives

1040-Pos BOARD B90

TOWARD EFFICIENT Q-CANONICAL MONTE CARLO SIMULATIONS OF THE IMPACT OF CHARGE REGULATION ON CONFORMATIONAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS. **Martin J. Fossat**, Rohit V. Pappu

1041-Pos BOARD B91

SEQUENCE-DEPENDENT VISCOELASTICITY OF BIOMOLECULAR CONDENSATES. **Ibraheem Alshareedah**, Priya R. Banerjee

1042-Pos BOARD B92

MODELLING THE MULTIFARIOUS CONFORMATIONS OF THE INTRINSICALLY DISORDERED PROTEIN 4E-BP2 WITH SM-FRET, SAXS & PRE RESTRAINTS. **Spencer Smyth**, Thomas Tsangaris, Alaji Bah, Julie D. Forman-Kay, Claudiu C. Gradinaru

1043-Pos BOARD B93

AB(1-42) OLIGOMER INDUCED PERFORATION OF MEMBRANES REVEALS A MECHANISM FOR NEUROTOXICITY AND NEW MODES OF DRUG TARGETING. **Andres S. Arango**, Soumyo Sen, Moeen Meigooni, Emad Tajkhorshid

1044-Pos BOARD B94

NOVEL DISEASE VARIANTS REVEAL CRITICAL FUNCTIONS FOR INTRINSICALLY DISORDERED REGIONS ENCODED BY THE DIABETES GENE *CLEC16A*. **Morgan Gingerich**

1045-Pos BOARD B95

A HYDRODYNAMIC INSTABILITY DRIVES PROTEIN DROPLET FORMATION ON MICROTUBULES TO NUCLEATE BRANCHES. **Bernardo Gouveia**, Sagar U. Setru, Ray Alfaro-Aco, Joshua W. Shaevit, Howard A. Stone, Sabine Petry

1046-Pos BOARD B96

ALLOSTERIC REGULATION OF NUCLEOPORIN ASSEMBLIES BY PROTEIN INTRINSIC DISORDER. **Bartlomiej J. Blus**, Aleksandra Krolak, Junseock Koh, Hyuk-Soo Seo, Elias Coutavas

1047-Pos BOARD B97

COMPREHENSIVE ANALYSIS OF INTRINSICALLY DISORDERED REGIONS TO ELUCIDATE THEIR PHYSICAL PROPERTIES USING A MODIFIED PARAMETER. **Hayato Aida**, Ryuhei Harada, Yasuteru Shigeta, Kentaro Tomii

1048-Pos BOARD B98

SHINING LIGHT ON THE 'DARK MATTER' OF THE NUCLEAR PORE COMPLEX. **Miao Yu**, Sofya Mikhaleva, Piau Siong Tan, Christopher D. Reinke-meier, Edward A. Lemke

1049-Pos BOARD B99

MEMBRANE CHOLESTEROL REGULATES THE BINDING OF ALPHA-SYNUCLEIN TO SYNAPTIC VESICLES, AND ITS SUBSEQUENT FUNCTIONAL AND PATHOGENIC BEHAVIOR. **Anindita Mahapatra**, Narattam Mandal, Krishnananda Chattopadhyay

Ribosomes and Translation (Boards B100 - B106)

1050-Pos BOARD B100

SINGLE-MOLECULE DYNAMICS OF EIF4F-MEDIATED MRNA RECOGNITION. **Burak Cetin**, Gary Song, Seán E. O'Leary

1051-Pos BOARD B101

A CONSERVED ARGININE IN SWITCH I IS CRITICAL FOR PPGPP BINDING TO THE PROKARYOTIC TRANSLATIONAL GTPASE BIPA. **Victoria L. Robinson**, Gilman Dionne, Kevin J. Boyd, Ala M. Shaqra, Heidi Erlandsen, Madhubrata Ghosh, Ganesh S. Anand, Eric R. May

1052-Pos BOARD B102

ELONGATION FACTOR G MUTATIONS AND BACTERIAL RESISTANCE TO AMINOGLYCOSIDES. **Sara Gabrielli**, Lars V. Bock, Helmut Grubmueller

1053-Pos BOARD B103

ELUCIDATING THE MECHANISM OF EUKARYOTIC POLYPEPTIDE ELONGATION BY SINGLE-MOLECULE FRET. **Clark Fritsch**, Arpan Bhattacharya, Martin Ng, Hong Li, Barry S. Cooperman, Yale E. Goldman

1054-Pos BOARD B104

MECHANISM OF THE ACTIVATION OF RIBOSOME RESCUE FACTOR ARFB. **Lars V. Bock**

1055-Pos BOARD B105

ELECTROSTATIC INTERACTIONS BETWEEN NASCENT CHAINS AND THE RIBOSOME EXIT TUNNEL GENERATE FORCES THAT MODIFY TRANSLATION RATES. **Sarah E. Leininger**, Judith Rodriguez, Quyen Vu, Yang Jiang, Mai S. Li, Edward P. O'Brien

1056-Pos BOARD B106

LIVE-CELL SINGLE-MOLECULE TRACKING OF THE TRANSLATION MACHINERY. **Ivan L. Volkov**, Mikhail Metelev, Erik Lundin, Javier Aguirre, Magnus Johansson

DNA Structure and Dynamics (Boards B107 - B132)

1057-Pos BOARD B107

HIGH-COVERAGE NUCLEIC ACID PROBES FOR DISTINGUISHING SARS-COV-2 FROM INFLUENZA. **Samantha J. Courtney**, Zachary R. Stromberg, James Theiler, Brian T. Foley, Jason D. Gans, Karina Yusim, Jessica Z. Kubicek-Sutherland

1058-Pos BOARD B108

EXAMINING THE EFFECTS OF NETROPSIN ON THE MOBILITY OF DNA USING CAPILLARY ELECTROPHORESIS. **Jillian Miller**, Justin P. Peters

1059-Pos BOARD B109

CONFORMATION OF IMMUNE STIMULATORY SINGLE STRANDED DNA BY BIOMOLECULAR SIMULATIONS AND NMR. **Barna Tóth**, **Krisztina Fehér**

1060-Pos BOARD B110

VOLUMETRIC INTERPLAY BETWEEN THE CONFORMATIONAL STATES ADOPTED BY DNA STRANDS FROM THE PROMOTER REGION OF THE C-MYC ONCOGENE. **Lutan Liu**, Lily Scott, Takuma Kume, Tigran V. Chalikian

1061-Pos BOARD B111

DETERMINING LOCAL CONFORMATIONS AND CONFORMATIONAL DISORDER AT AND NEAR SINGLE-STRANDED (SS) AND DOUBLE-STRANDED (DS) DNA FORKS AND JUNCTIONS. **Dylan Heussman**, Patrick J. Herbert, Jack W. Maurer, Justin Kittell, Amr Tamimi, Tom Steinberg, Peter H. von Hippel, Andrew H. Marcus

1062-Pos BOARD B112

CONNECTING STRUCTURE WITH KINETICS OF SINGLE-STRANDED DNA FLUCTUATIONS THAT PROVIDE POTENTIAL BINDING SITES FOR REPLICATION PROTEINS. **Claire Albrecht**, Brett A. Israels, Chloe Chvatal, Peter H. von Hippel, Andrew H. Marcus

1063-Pos BOARD B113

ANHARMONIC BENDING OF DNA BASE-PAIR MISMATCH. **Michael L. Ryan**, Jiyoun Jeong, Tony Lemos, Harold D. Kim

1064-Pos BOARD B114

BENDING FLUCTUATIONS IN MISMATCHED DNA REVEALED BY FLUORESCENCE CORRELATION SPECTROSCOPY. **Timour B. Ten**, Viktoriya Zvoda, Manas K. Sarangi, Anjum Ansari

1065-Pos BOARD B115

THE DYNAMIC ENSEMBLE OF A:G AND A:8-OXOGUANINE MISMATCHES IN DUPLEX DNA: IMPLICATIONS FOR REPLICATION ERRORS AND DAMAGE REPAIR. **Stephanie Gu**, Eric S. Szymanski, Atul Kaushik Rangadurai, Hashim M. Al-Hashimi

1066-Pos BOARD B116

THERMODYNAMIC PARAMETERS AND DESIGN CONSIDERATIONS FOR EXPANDED ALPHABET P-Z AND G-Z BASE PAIRS IN DNA. **Jason D. Kahn**, Terrel Miffin, Kenneth K. Sharp, Xiaoyu Wang, Shuichi Hoshika, Hongying Sun, Mingyi Zhu, Tuan M. Pham, Raymond J. Peterson, Steven A. Benner, David H. Mathews

1067-Pos BOARD B117

NUCLEIC ACID CONFORMATIONAL PENALTIES FROM OPTICAL MELTING EXPERIMENTS. **Atul Kaushik Rangadurai**, Honglue Shi, Yu Xu, Bei Liu, Hashim M. Al-Hashimi

1068-Pos BOARD B118

KINETICS OF DNA MELTING AND ANNEALING UNDER SMALL TENSION. **Derek Hart**

1069-Pos BOARD B119

CORRELATIVE SINGLE-MOLECULE FORCE-FRET MEASUREMENTS OF DNA HAIRPIN CONFORMATIONAL DYNAMICS. **Nastaran Hadizadeh Yazdi**, Jordi Cabanas-Danés, Sheema Rahmanseresht, Ann Mukhortava, Rosalie P.C. Driessen, Ali Raja

1070-Pos BOARD B120

FIRST PASSAGE TIME STUDY OF DNA STRAND DISPLACEMENT. **Alexander W. Cook**, Bo Broadwater, Harold D. Kim

1071-Pos BOARD B121

HOW THE CIRCULAR AND LINEAR CONFORMATIONAL FLUCTUATIONS OF GIANT DNA MOLECULES CHANGE WITH THE VISCOSITY OF THE SOLVENT. **Masato Tanigawa**, Takafumi Iwaki

1072-Pos BOARD B122

RESTRICTED MOBILITY AND JAMMING OF DENSELY PACKED DNA PULLED OUT FROM PHAGE PH129 VIRUS CAPSIDS. **Mounir Fizari**, Nicholas A. Keller, Douglas E. Smith

1073-Pos BOARD B123

SHAPE AND SEDIMENTATION COEFFICIENTS OF SUPERCOILED DNA MINICIRCLES. **Radost Waszkiewicz**, Maciej Lisicki, Daniel J. Catanese, Jonathan Fogg, Magdalena Gruzziel, Maria L. Ekiel-Jezewska, Borries Demeler, E. Lynn Zechiedrich, Piotr Szymczak

1074-Pos BOARD B124

INFLUENCE OF DNA LENGTH ON SUPERCOILING-DEPENDENT 3-D SHAPE. **Nathan Corman**, Cecilia Quijano, Jonathan Fogg, B. Montgomery Pettitt, E. Lynn Zechiedrich

1075-Pos BOARD B125

SUPERCOILING AND LOOPING PROMOTE DNA BASE ACCESSIBILITY AND COORDINATION AMONG DISTANT SITES. **Jonathan M. Fogg**, Allison Judge, Erik Stricker, Hilda L. Chan, E. Lynn Zechiedrich

1076-Pos BOARD B126

BIPHASIC EFFECT OF POLYAMINES ON GENE EXPRESSION IN RELATION TO THE SPECIFIC CHANGE OF THE HIGHER-ORDER STRUCTURE OF DNA. **Tomoki Kitagawa**, Takashi Nishio, Naoki Umezawa, Tsunehiko Higuchi, Yuko Yoshikawa, Takahiro Kenmotsu, Kenichi Yoshikawa

1077-Pos BOARD B127

GENERATING CHROMOSOME GEOMETRIES AT THE SINGLE-CELL LEVEL FROM CRYO-ELECTRON TOMOGRAMS. **Benjamin R. Gilbert**, Zane R. Thornburg, Vinson Lam, Elizabeth Villa, Fatema Zahra M. Rashid, Remus T. Dame, Zaida Luthey-Schulten

1078-Pos BOARD B128

ACCURATE SEQUENCE-DEPENDENT COARSE-GRAINED MODEL FOR CONFORMATIONAL AND ELASTIC PROPERTIES OF DOUBLE-STRANDED DNA. **Salvatore Assenza**, Ruben Perez

1079-Pos BOARD B129

CTAG VS. GATC: STRUCTURAL BASIS FOR REPRESENTATIONAL DIFFERENCES IN REVERSE PALINDROMIC DNA TETRANUCLEOTIDE SEQUENCES. **Mahmoud Sharawy**, Artemis Louyakis, Johann P. Gogarten, Eric R. May

1080-Pos BOARD B130

ION BINDING TO THE *BCL-2* G-QUADRUPLEX FROM POLARIZABLE SIMULATIONS WITH THE DRUDE FORCE FIELD. **Brian D. Ratnasinghe**, Alexa M. Salsbury, Justin A. Lemkul

1081-Pos BOARD B131

COMPUTER SIMULATIONS OF NUCLEIC ACID CONDENSATION MECHANISM: THE ROLE OF INTERFACIAL CATIONS DISTRIBUTION. **Weiwei He**, Xiangyun Qiu, Serdal Kirmizialtın

1082-Pos BOARD B132

TWO-PHASE DYNAMICS OF DNA SUPERCOILING BASED ON DNA POLYMER PHYSICS MODEL. **Biao Wan**, Xinliang Xu, Jin Yu

Membrane Dynamics II (Boards B133 - B147)

1083-Pos BOARD B133

TIME-LAPSE, LIVE-CELL IMAGING OF POTASSIUM EFFLUX IN CELL EXPOSED TO NANOSECOND PULSED ELECTRIC FIELDS. **Flavia Mazzarda**, Esin B. Sozer, Julia L. Pittaluga, Claudia Muratori, P. Thomas Vernier

1084-Pos BOARD B134

SURFACE-ASSISTED FORMATION OF MODEL PROTOCELLS FROM FATTY ACID AND PHOSPHOLIPID MIXTURES. **Inga Põldsalu**, Elif S. Koksal, İrep Gozen

1085-Pos BOARD B135
REGULATION OF ENDOCYTOSIS BY INTRACELLULAR MEMBRANE TENSION DISTRIBUTION. **Tithi Mandal**

1086-Pos BOARD B136
MEMBRANE ORDER - WHAT YOU MEASURE DEPENDS ON WHAT YOU PROBE. **Ankur Gupta**, Mamata Kallianpur, Vicky Vishvakarma, Daniel Huster, Sudipta Maiti

1087-Pos BOARD B137
ESTABLISHING AN IDEALIZED PLANT PLASMA MEMBRANE FOR BIOMOLECULAR SIMULATION. **Austin T. Weigle**, Matthew Carr, Diwakar Shukla

1088-Pos BOARD B138
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1104-Pos BOARD B154
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1105-Pos BOARD B155
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1108-Pos BOARD B158
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1112-Pos BOARD B162
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1113-Pos BOARD B163
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1114-Pos BOARD B164
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1123-Pos BOARD B173
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1138-Pos BOARD B188
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1141-Pos BOARD B191
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1144-Pos BOARD B194
SUBCELLULAR INVESTIGATION OF THE INTERPLAY BETWEEN MEMBRANE TENSION AND MECHANOSENSITIVITY USING FORCE-CONTROLLED MICROPIPETTES. **Ines Lüchtefeld**, Christoph Gäbelein, Janos Voros, Boris Martinac, Tomaso Zambelli, Massimo Vassalli

1145-Pos BOARD B195
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1146-Pos BOARD B196
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1147-Pos BOARD B197
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1154-Pos BOARD B204
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1155-Pos BOARD B205
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1156-Pos BOARD B206
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1158-Pos BOARD B208
AUTOSOMAL-DOMINANT CASQ2-K180R CAUSES CPVT BY ALTERING INTRA-SR CALCIUM BUFFERING WITHOUT REDUCING CASQ2 PROTEIN LEVELS. **Matthew Wleklinski**, Shan Parikh, Daniel Blackwell, Bjorn C. Knollmann

1159-Pos BOARD B209
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1160-Pos BOARD B210
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1161-Pos BOARD B211
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1167-Pos BOARD B217
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1171-Pos BOARD B221
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1173-Pos BOARD B223
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1174-Pos BOARD B224
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1175-Pos BOARD B225
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1178-Pos BOARD B228
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1179-Pos BOARD B229
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1180-Pos BOARD B230
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1181-Pos BOARD B231
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1182-Pos BOARD B232
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1183-Pos BOARD B233
MODULATION OF VENTRICULAR CARDIOMYOCYTES ELECTROPHYSIOLOGY BY GLYPICAN 1 HEPARAN SULFATE PROTEOGLYCAN. Diego Souza, Andreia Chignalia, **Joao L. Carvalho-de-Souza**

1184-Pos BOARD B234
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1185-Pos BOARD B235
COVID-19 DRUGS CHLOROQUINE AND HYDROXYCHLOROQUINE, BUT NOT AZITHROMYCIN AND REMDESIVIR, BLOCK HERG POTASSIUM CHANNELS. Mark Szendrey, Jun Guo, Wentao Li, Tonghua Yang, **Shetuan Zhang**

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1186-Pos BOARD B236
AGE-DEPENDENT INTERCALATED DISC PERINEXAL NARROWING CONCEALS LONG-QT SYNDROME TYPE 3 PHENOTYPE. **Xiaobo Wu**, Robert G. Gourdie, Gregory Hoeker, Seth H. Weinberg, Steven Poelzing

1187-Pos BOARD B237
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1188-Pos BOARD B238
AN ASYMMETRIC C-TYPE INACTIVATED STRUCTURE OF HERG CHANNEL AND ITS BINDING TO CHEMICALLY DIVERSE DRUGS. **Jing Li**, Rong Shen, Eduardo Perozo, Benoit Roux

1189-Pos BOARD B239
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1190-Pos BOARD B240
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1191-Pos BOARD B241
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1192-Pos BOARD B242
 CA²⁺-ACTIVATED K⁺ CHANNEL K_{CA3.1} REGULATES IL-10 EXPRESSION IN REGULATORY T CELLS AT THE RECOVERY PHASE OF INFLAMMATORY BOWEL DISEASE MODEL. **Susumu Ohya**, Miki Matsui, Junko Kajikuri, Kyoko Endo, Hiroaki Kito

1193-Pos BOARD B243
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IMMUNOFLUORESCENCE IMAGE ANALYSIS PIPELINE FOR DISTINGUISHING EPITHELIAL-MESENCHYMAL TRANSITION. **Shreyas U. Hirway**, Nadiyah T. Hassan, Michael Sofroniou, Christopher A. Lemmon, Seth H. Weinberg

1299-Pos BOARD B349
CHEMICAL-STATE-DEPENDENT FREE ENERGY PROFILE FROM SINGLE-MOLECULE TRAJECTORIES OF BIOMOLECULAR MOTORS: APPLICATION TO PROCESSIVE CHITINASE. **Kei-ichi Okazaki**, Akihiko Nakamura, Ryota Iino

1300-Pos BOARD B350
WHO IS TO THANK FOR THE RHYTHMS OF MY TAIL: A MATHEMATICAL STUDY OF CIRCADIAN RHYTHM IN THE MRNA POLY(A) TAIL. Xiangyu Yao, Shihoko Kojima, **Jing Chen**

Micro- and Nanotechnology (Boards B351 - B368)

1301-Pos BOARD B351
ITERATIVE KINETIC PROOFREADING FOR HIGH-SPECIFICITY DNA SEQUENCE DISCRIMINATION. **Chandler Petersen**, Alexander Johnson-Buck, Nils G. Walter

1302-Pos BOARD B352
OPEN-VOLUME MICROFLUIDICS FOR BIOPRINTING OF *IN VITRO* TUMOR MODELS. **Tatsiana Lobovkina**, Vladimir Kirejev, Shijun Xu, Avadhesh Kumar Singh, Adina Elena Lupu, Gavin D.M. Jeffries

1303-Pos BOARD B353
DETECTION OF SURFACE CHARGE ENHANCEMENT IN MAGNETOELECTRIC NANOPARTICLES INDUCED BY AC MAGNETIC FIELD STIMULATION USING SINGLE ENTITY APPROACH. **Popular Pandey**, Ajeet Kaushik, Jin He

1304-Pos BOARD B354
EFFECT OF NANOPARTICLES GENERATED IN ACOUSTIC PLASMA DISCHARGE ON MICROBIOLOGICAL OBJECTS IN LIQUID MEDIA. **Nikolay Bulychev**

1305-Pos BOARD B355
ADDRESSING THE STABILITY OF POLYGONAL DNA NANOSTRUCTURES *IN VITRO* AND *IN VIVO*. **Christina Kolonelou**

1306-Pos BOARD B356
CLOGGING PROBABILITY OF NICKED DNA MOLECULES ON SOLID-STATE NANOPORES. **Shimba Ichino**, Kento Lloyd, Yuuta Moriyama, Toshiyuki Miitsui

1307-Pos BOARD B357
ELECTRIC FIELD MODULATED PEPTIDE NANO-ASSEMBLY. **Vivek Prakash**, Vibin Ramakrishnan

1308-Pos BOARD B358
CORRELATION BETWEEN SPECTROSCOPIC AND STRUCTURAL FEATURES OF DIMERIC DNA-TEMPLATED SILVER NANOCCLUSERS USING MASS SPECTROMETRY. **Soonwoo Hong**, Ines C. Santos, Yu-An Kuo, Yuan-I Chen, Trung D. Nguyen, Hsin-Chin Li, Pranav Anbarasu, Jennifer S. Brodbelt, Tim Yeh

1309-Pos BOARD B359
NANOSCALE SPATIAL REGULATION OF INSULIN RECEPTOR SIGNALLING CLUSTERS USING DNA NANOSTRUCTURES. **Joel Spratt**

1310-Pos BOARD B360
HIGH-THROUGHPUT OPTIMIZATION OF NANOCCLUSER BEACONS USING AN NGS PLATFORM. **Yu-An Kuo**, Oliver S. Zhao, Soonwoo Hong, Trung D. Nguyen, Yuan-I Chen, Hsin-Chih Li, Tim Yeh

1311-Pos BOARD B361
DIFFUSION LIMITATIONS AND TRANSLOCATION BARRIERS IN ATOMICALLY THIN BIOMIMETIC PORES. **Michael Zwolak**, Subin Sahu

1312-Pos BOARD B362
TEMPERATURE STUDIES REVEAL THE ROLES OF ENTROPY AND ENTHALPY IN POLYMER-NANOPORE INTERACTIONS. **Joseph W.F. Robertson**, Christopher Angevine, Amala Dass, Joseph Reiner

1313-Pos BOARD B363
MEASURING SIZE AND ZETA POTENTIAL OF NANOPARTICLES WITH A SALT GRADIENT. Martin K. Rasmussen, Jonas N. Pedersen, **Rodolphe Marie**

1314-Pos BOARD B364
NANOPORE-BASED LOCALIZATION OF POST-TRANSLATIONAL MODIFICATION MIMIC. **David P. Hoogerheide**, Tatiana K. Rostovtseva, Sergey M. Bezrukov

1315-Pos BOARD B365
IN SITU UNZIPPING OF LONG, HIGH MOLECULAR WEIGHT DNA IN SOLID STATE NANOPORES. Ravipa Losakul, Dayana E. Tobar, Akira Pimenov, Aracely Gutierrez, Robin Schipper, Wolf A. Jehle, **Henk W.C. Postma**

1316-Pos BOARD B366
HETERO-OLIGOMERIC PROTEIN PORES FOR CHEMICAL AND BIOSENSING. **Remya Satheesan**, Kozhinjampara R. Mahendran

1317-Pos BOARD B367
EXOSOMES ARE SECRETED AT DISTINCT DENSITIES IN HUMAN CANCER CELLS AND ARE PROMISING VECTORS FOR HYDROPHOBIC DRUG DELIVERY. **William S. Fisher**, Christine Tchounwou, Kai K. Ewert, Sophia Wei, Logan Roberts

1318-Pos BOARD B368
A DNA NANOASSEMBLY-BASED APPROACH TO MAP MEMBRANE PROTEIN NANOENVIRONMENTS. **Elena Ambrosetti**, Giulio Bernardinelli, Ian T. Hoffecker, Leonard Hartmanis, Georges Kiriako, Ario de Marco, Rickard Sandberg, Björn Högberg, Ana Teixeira

Biomaterials (Boards B369 - B376)

1319-Pos BOARD B369
OPTIMIZATION OF PROTOCOLS FOR FRUSTULE EXTRACTION AND THEIR CHARACTERIZATION. **Elena Sanchez-Brenes**, Ana M. Silva-Benavides, Leonardo Lesser-Rojas

1320-Pos BOARD B370
THE DEGRADATION AND TISSUE INTEGRATION OF HYDROXYAPATITE IMPLANTS ANALYSED USING ENERGY DISPERSIVE X-RAY SPECTROMETRY. **Louise C. Hughes**, Zhidao Xia

1321-Pos BOARD B371
INVESTIGATION ON THE EFFECTS OF DILUTED SYNOVIAL FLUID ADSORPTION TO MODEL SURFACES. **Amar Mann**, Nawshin Sultana Jenifar, Roberto C. Andresen Eguiluz

1322-Pos BOARD B372
ADHESIVE PROPERTIES OF SYNTHETIC CEMENT-DERIVED BIOMATERIALS FROM THE BARNACLE *AMPHIBALANUS AMPHITRITE*. **Elizabeth A. Yates**, Michael C. Wilson, Christopher R. So

1323-Pos BOARD B373

MULTISCALE MODELING REVEALS PHYSICAL INTERACTIONS THAT INFLUENCE THE MECHANICAL BEHAVIOUR OF POLYSACCHARIDE-SURFACTANT HYDROGELS. **Suhas Gotla**, Silvina Matysiak

1324-Pos BOARD B374

NANOSCALE CHARACTERIZATION OF SPECIFIC INTERACTION OF LYTIC BACTERIOPHAGES WITH BIOFILMS. **Evgeny V. Dubrovin**, Natalia V. Kuzmina, Ekaterina A. Varlamova, Vasily S. Kolmogorov, Petr V. Gorelkin, Alexander S. Erofeev, Anastasia V. Popova, Oleg V. Batishchev

1325-Pos BOARD B375

DESIGNING GOLD BINDING PEPTIDES: MODELLING AND EXPERIMENT AT THE BIO-ABIOTIC INTERFACE. **Meagan C. Small**, Deborah A. Sarkes, Hong Dong, Jessica L. Terrell, Justin P. Jahnke, Theresah Zu, Dimitra N. Stratis-Cullum, Margaret M. Hurley

1326-Pos BOARD B376

MECHANOCHEMISTRY AT THE ORIGINS OF LIFE? **Helen G. Hansma**

Friday, February 26, 2021

Daily Program Summary

9:00 AM-10:00 AM	General Networking
10:00 AM-11:00 AM	<p>President's Symposium: Building an Inclusive Biophysical Society Chair: <i>Catherine A. Royer, Rensselaer Polytechnic Institute, USA</i></p> <p>Speakers Catherine A. Royer, Rensselaer Polytechnic Institute, USA David Asai, Howard Hughes Medical Institute, USA Bil Clemons, California Institute of Technology, USA Yadilette Rivera-Colón, Bay Path University, USA Billy Williams, American Geophysical Union, USA</p>
10:00 AM-5:00 PM	Exhibits
11:00 AM-12:00 PM	Awards and 2021 Biophysical Society Lecture
12:00 PM-1:30 PM	Responding to the Coronavirus Threat through Investments in Fundamental Biomedical Research
12:00 PM-1:30 PM	Platform: Protein-Small Molecule Interactions
12:00 PM-1:30 PM	Platform: Membrane Protein Dynamics and Folding II
12:00 PM-1:30 PM	Platform: Intrinsically Disordered Proteins (IDP) and Aggregates III
12:00 PM-1:30 PM	Platform: RNA Structure and Dynamics
12:00 PM-1:30 PM	Platform: Protein-Lipid Interactions II
12:00 PM-1:30 PM	Platform: Ion Channels, Pharmacology, and Disease
12:00 PM-1:30 PM	Platform: Microtubule-associated Motors -Cytoskeleton-based Intracellular Transport
12:00 PM-1:30 PM	Platform: Molecular Dynamics and Bioinformatics III
1:00 PM-2:00 PM	General Networking
1:30 PM-2:00 PM	<p>Exhibitor Presentation: Curi Bio Bioengineering the Cell Environment for More Mature and Predictive 2D and 3D Models</p>
1:30 PM-2:00 PM	Break
2:00 PM -3:30 PM	Poster Presentations and Late Posters

Friday, February 26

General Networking

9:00 AM-10:00 AM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

President's Symposium: Building an Inclusive Biophysical Society

10:00 AM - 11:00 AM

The scientific community, and indeed the world, has been faced with a great deal of introspection recently on the topics of inclusion and diversity. Organizations, associations, and institutions are faced with identifying a pathway that will create and sustain an inclusive community. However, before we begin to discuss what an inclusive Biophysical Society (BPS) would look like, we must first understand the baseline from which we begin. How do we define inclusion? Where are we starting from, and where do we want to go? How do we measure successful change in culture and attitudes outside of metrics? Join BPS President Catherine A. Royer as she leads a forum discussion based on input from BPS members, featuring invited speakers with extensive experience in working to enhance diversity, equity, and inclusion for scientists at their organizations and across the scientific enterprise. We hope this one-hour session will serve as the beginning of the discussion for creating a welcoming, inclusive Biophysical Society.

Chair

Catherine A. Royer, Rensselaer Polytechnic Institute, USA

Speakers

Catherine A. Royer, Rensselaer Polytechnic Institute, USA
David Asai, Howard Hughes Medical Institute, USA
Bil Clemons, California Institute of Technology, USA
Yadilette Rivera-Colón, Bay Path University, USA
Billy Williams, American Geophysical Union, USA

Exhibits

10:00 AM - 5:00 PM

Awards and 2021 Biophysical Society Lecture

11:00 AM - 12:00 PM

PRESENTATION OF AWARDS 11:00 AM

NO ABSTRACT

11:10 AM

VISUALIZING STRUCTURE, DYNAMICS AND INTERACTIONS OF COMPLEX MACROMOLECULAR ASSEMBLIES. **Eva Nogales**

Responding to the Coronavirus Threat through Investments in Fundamental Biomedical Research

12:00 PM - 1:30 PM

Effectively containing and limiting the spread of COVID-19, as well as responding to future pandemics by emerging, as yet unknown, infectious diseases, will require substantial increases in our knowledge of how this virus and other pathogens infect humans, how the human immune system responds to infection, and how to leverage this understanding to develop new vaccines and drugs. These needs can only be addressed by

substantial increased funding for fundamental biomedical research, as supported through congressional appropriations to federal agencies such as the NIH, NSF and DOE.

Chair

Eric Sundberg, Emory University, USA

Speakers

Michael Lauer, National Institutes of Health, USA
Victoria McGovern, Burroughs Wellcome Fund, USA
Jennifer Cama, House Appropriations Subcommittee on Labor, USA

Platform

Protein-Small Molecule Interactions

12:00 PM - 1:30 PM

Chair

Chair to be announced.

NO ABSTRACT 12:00 PM

P-GLYCOPROTEIN AND SMALL MOLECULE DRUG INTERACTIONS. **Qinghai Zhang**

1364-PLAT 12:30 PM

INFLUENCE OF FORCE ON THE FIMH CATCH BOND. **Laura Carlucci, Wendy E. Thomas**

1365-PLAT 12:45 PM

RAPID RANKING OF HETEROCYCLE-SIDE CHAIN STACKING INTERACTIONS BASED ON NEW MOLECULAR DESCRIPTORS. **Andrea Bootsma**

1366-PLAT 1:00 PM

PAVING THE WAY TO FIGHT MULTI-DRUG RESISTANT TUBERCULOSIS. **Joaquim T. Marquês, Catarina Faria, Susana Santos, Maria da Soledade Santos, Filomena Martins, Rodrigo F.M. De Almeida**

1367-PLAT 1:15 PM

DEVELOPMENT OF A HIGH-THROUGHPUT FLUORESCENT-BASED ASSAY TO ASSESS CYTOCHROME P450 3A7 ACTIVITY IN NEONATAL HUMAN LIVER MICROSOMES. **Hannah M. Work, Sylvie E. Kandel, Jed N. Lampe**

Platform

Membrane Protein Dynamics and Folding II

12:00 PM - 1:30 PM

Chair

Patrick van der Wel, University of Groningen, The Netherlands

1368-PLAT 12:00 PM

HOW LIPIDS MOBILISE MEMBRANE-BOUND CYTOCHROME C SEEN BY SOLID-STATE NMR. **Patrick C.A. van der Wel**

1369-PLAT 12:30 PM

NONEQUILIBRIUM DYNAMICS OF DIRECTIONAL H⁺ TRANS-MEMBRANE TRANSPORT. **Saurabh Talele, John King**

1370-PLAT 12:45 PM

A NEWLY DISCOVERED CLASS OF CURVATURE SENSITIVE PROTEINS: TRIMERIC ANNEXINS. **Christoffer D. Florentsen, Guillermo S. Moreno Pescador, Alexander K. Sonne, Weria Pezeshkian, Joshua Daniels, Iliriana Qoqaj, Ali Asghar Hakami Zanjani, Himanshu Khandelia, Jesper Nylandsted, Poul Martin Bendix**

1371-PLAT 1:00 PM

MOLECULAR ASSEMBLY PATHWAY OF MITOCHONDRIAL SAM50 IN NATIVE MEMBRANES. **Pankaj B. Tiwari, Radhakrishnan Mahalakshmi**

1372-PLAT **1:15 PM**
GPCR OLIGOMERISATION MODULATION BY CONFORMATIONAL STATE AND LIPID INTERACTIONS REVEALED BY MD SIMULATIONS AND MARKOV MODELS. **Wanling Song**, Anna L. Duncan, Mark S. Sansom

Platform Intrinsically Disordered Proteins (IDP) and Aggregates III

12:00 PM - 1:30 PM

Chair
Andela Saric, University College London, United Kingdom

NO ABSTRACT **12:00 PM**
PATHWAYS OF AMYLOID FORMATION IN SOLUTION AND ON LIPID MEMBRANES. **Andela Saric**

1373-PLAT **12:30 PM**
THE INTERACTION BETWEEN POLY-PR DIPEPTIDE REPEAT PROTEINS AND THE NUCLEAR PORE COMPLEX. **Hamidreza Jafarinia**, Erik Van der Giesen, Patrick R. Onck

1374-PLAT **12:45 PM**
MECHANISM FOR SCAVENGING OF AMYLOID-B BY HYBRID SILICA NANOBOWLS: DIAGNOSTIC AND THERAPEUTIC APPLICATIONS FOR AB PATHOLOGY. **Vrinda Sant**, Madhura Som, Ratnesh Lal

1375-PLAT **1:00 PM**
MOLECULAR ORIGINS OF FREE ENERGIES ASSOCIATED WITH COMPLEX INTERACTIONS OF BIOLOGICAL POLYELECTROLYTE-LIKE DISORDERED PROTEINS. **Aritra Chowdhury**, Andrea Sottini, Alessandro Borgia, Madeleine B. Borgia, Miloš T. Ivanović, Daniel Nettel, Robert B. Best, Benjamin Schuler

1376-PLAT **1:15 PM**
THERAPEUTICS AGAINST PROTEIN MISFOLDED OLIGOMERS IN NEURODEGENERATIVE DISEASES. **Ryan Limbocker**, Aidan Wright, Ryan P. Kreiser, Benedetta Mannini, Michele Vendruscolo

Platform RNA Structure and Dynamics

12:00 PM - 1:30 PM

Chair
Yamuna Krishnan, University of Chicago, USA

NO ABSTRACT **12:00 PM**
THE MEMBRANE POTENTIAL OF ORGANELLES. **Yamuna Krishnan**

1377-PLAT **12:30 PM**
COMPREHENSIVE SEQUENCE-TO-FUNCTION MAPPING OF LIGAND-DEPENDENT RNA CATALYSIS. **Andrew Savinov**, Johan O.L. Andreasson, Steven M. Block, William J. Greenleaf

1378-PLAT **12:45 PM**
SINGLE BASE-PAIR CONFORMATIONAL SWITCH MODULATES MIR-34A TARGETING OF SIRT1 MRNA. **Katja Petzold**

1379-PLAT **1:00 PM**
MAGNESIUM MEDIATED FLUORIDE BINDING ANCHORS THE DOCKED CONFORMATION OF THE FLUORIDE RIBOSWITCH. **Rajeev Yadav**, Julia R. Widom, Nils G. Walter

1380-PLAT **1:15 PM**
ANTI-FRAMESHIFTING LIGAND ACTIVE AGAINST SARS CORONAVIRUS-2 IS RESISTANT TO NATURAL MUTATIONS OF THE FRAMESHIFT-STIMULATORY PSEUDOKNOT. Krishna Neupane, **Sneha Munshi**, Meng Zhao, Dustin Ritchie, Sandaru M. Ilerperuma, Michael T. Woodside

Platform Protein-Lipid Interactions II

12:00 PM - 1:30 PM

Chair
Ling-Gang Wu, NIH, NINDS, USA

1381-PLAT **12:00 PM**
VISUALIZING MEMBRANE TRANSFORMATION IN MEDIATING ENDOCYTOSIS AND GENERATING VARIOUS ENDOCYTIC MODES IN LIVE CELLS. **Ling-Gang Wu**, Wonchul Shin, Lisi Wei

1382-PLAT **12:30 PM**
INTERFACIAL DELIVERY OF SURFACTANT PROTEIN SP-D THROUGH ITS ASSOCIATION WITH PULMONARY SURFACTANT. **Cristina García Mouton**, Alberto Hidalgo, Raquel Arroyo, Mercedes Echaide, Antonio Cruz, Jesus Perez-Gil

1383-PLAT **12:45 PM**
PIP₂ PROMOTES CONFORMATION-SPECIFIC DIMERIZATION OF THE EPHA2 TRANSMEMBRANE DOMAIN THROUGH JUXTAMEMBRANE INTERACTIONS. **Katherine M. Stefanski**, Charles M. Russeull, Justin M. Westfield, Rajan Lamichhane, Francisco N. Barrera

1384-PLAT **1:00 PM**
PDK1 FORMS HOMODIMERS ON SUPPORTED LIPID BILAYERS IN A PIP₃ DEPENDENT MANNER. **Moshe T. Gordon**, Joseph J. Falke

1385-PLAT **1:15 PM**
REVEALING THE DYNAMICS OF KRAS4B DIMERIZATION ON ANIONIC MEMBRANE FROM ONE MILLISECOND ALL ATOM MOLECULAR DYNAMICS SIMULATIONS. **Van A. Ngo**, Angel E. Garcia

Platform Ion Channels, Pharmacology, and Disease

12:00 PM - 1:30 PM

Chair
Alexis Rohou, Genentech Inc., USA

NO ABSTRACT **12:00 PM**
STRUCTURE OF THE SODIUM LEAK CHANNEL NALCN REVEALS INSIGHTS INTO ITS DISEASE MUTATIONS, UNIQUE PHARMACOLOGY AND GATING. **Marc Kschonsak**

1386-PLAT **12:30 PM**
INTERPLAY OF NAV1.5 DISEASE-CAUSING MUTATIONS AND PHOSPHORYLATION REVEALED BY PROTEIN SEMI-SYNTHESIS AND MOLECULAR DYNAMICS SIMULATIONS. **Iacopo Galleano**, **Hendrik Harms**, Koushik Choudhury, Keith K. Khoo, Lucie Delemotte, Stephan A. Pless

1387-PLAT **12:45 PM**
HERG1A/1B SUBUNIT IMBALANCE IN LONG QT SYNDROME 2 PATIENT-SPECIFIC IPSC-CARDIOMYOCYTES. **Li Feng**, Jianhua Zhang, ChangHwan Lee, Gina Kim, Fang Liu, Andrew J. Petersen, Evi Lim, Corey Anderson, Kate M. Orland, Gail A. Robertson, Lee Eckhardt, Craig T. January, Timothy J. Kamp

1388-PLAT **1:00 PM**
AN EPILEPSY-ASSOCIATED MUTATION AT THE K_v1.2 (KCNA2) CHARGE TRANSFER CENTER STRONGLY SUPPRESSES CHANNEL SURFACE TRAFFICKING. **Sarah H. Lindström**, Maki Kaneko, Michelle Nilsson, Federica Steccanella, Marina Angelini, Deborah Holder, Michela Ottolia, Riccardo Olcese, Antonios Pantazis

1389-PLAT **1:15 PM**
STRUCTURAL BASIS FOR GATING OF THE TWO-PORE DOMAIN K⁺ (K_{2P}) CHANNELS TASK-1 AND TALK-2. **Marcus Schewe**, Elena B. Riel, Susanne Rinné, Wojciech Kopec, Jan Langer, Peter Lindemann, Björn C. Jüres, Marc Nazaré, Bert L. de Groot, Niels Decher, Thomas Baukrowitz

Platform

Microtubule-associated Motors-Cytoskeleton-based Intracellular Transport

12:00 PM - 1:30 PM

Chair

Lukas Kapitein, Utrecht University, The Netherlands

No ABSTRACT 12:00 PM

CYTOSKELETAL DYNAMICS AND KINESIN-1 SELECTIVITY IN DEVELOPING NEURONS. **Lukas Kapitein**

1390-PLAT 12:30 PM

THE MITOTIC KINESIN-6 KIF20A IS AN UNCONVENTIONAL TRANSPORTER AND NETWORK BUILDER. **Fanomezana M. Ranaivoson**, Amna Abdalla Mohammed Khalid, Steven Rosenfeld, Christoph F. Schmidt, Anne M. Houdusse

1391-PLAT 12:45 PM

LONG-RANGE COUPLING BETWEEN KINESINS REGULATES COLLECTIVE MOTOR BEHAVIOR. **Shane A. Fiorenza**, Sithara Wijeratne, Meredith D. Betterton, Radhika Subramanian

1392-PLAT 1:00 PM

ENGINEERED ICOSAHEDRAL PROTEIN CAGE AS A FLEXIBLE MODEL SYSTEM TO STUDY PROPERTIES OF MULTI-MOTOR TRANSPORT OF VIRAL CARGOES. **Somaye Badieyan**, Michael P. Andreas, Tobias W. Giessen, Michael A. Cianfrocco

1393-PLAT 1:15 PM

PATHOGENIC MUTATIONS IN THE CHROMOKINESIN KIF22 DISRUPT ANAPHASE CHROMOSOME SEGREGATION. **Alex F. Thompson**, Patrick R. Blackburn, Jane B. Lian, Eric W. Klee, Jason Stumpff

Platform

Molecular Dynamics and Bioinformatics III

12:00 PM - 1:30 PM

Chair

Matthieu Wyart, EPFL, Switzerland

1394-PLAT 12:00 PM

ARCHITECTURE AND CO-EVOLUTION OF ALLOSTERIC MATERIALS. **Matthieu Wyart**

1395-PLAT 12:30 PM

PERMUT - SPATIALLY RESOLVED HYDRATION ENTROPIES FROM ATOMISTIC SIMULATIONS. **Leonard P. Heinz**, Helmut Grubmueller

1396-PLAT 12:45 PM

GOLEM: AUTOMATED AND ROBUST CRYO-EM-GUIDED LIGAND DOCKING WITH EXPLICIT WATER MOLECULES. **Zhiyu Zhao**, Emad Tajkhorshid

1397-PLAT 1:00 PM

REPLICA EXCHANGE MONTE CARLO METHOD FOR PROTON AND X-RAY INDUCED DNA DAMAGE AND REPAIR. **Thienbao N. Carpeny**, Megan Cordone, Camila Quintero Hilsaca, Zachary Condon, Sarah Castro

1398-PLAT 1:15 PM

GEOMETRIC DEEP LEARNING ON BIOMOLECULAR STRUCTURE. **Raphael Townshend**, Ligia Melo, David Liu, Ron O. Dror

General Networking

1:00 PM-2:00 PM

Catch up with colleagues and friends in the biophysical community during our networking hour. This event, which is open to all meeting attendees, provides meet-and-greet opportunities to enhance your virtual meeting experience.

Exhibitor Presentation

Curi Bio

1:30 PM - 2:00 PM

Bioengineering the Cell Environment for More Mature and Predictive 2D and 3D Models

Cells in the body use a variety of cues (structural, mechanical, electrochemical, etc.) from the extracellular matrix (ECM) to develop and mature physiologically. These influential cues help regulate a broad spectrum of processes such as cell signaling, division, and differentiation. Many in vitro platforms seek to combine and incorporate these cues into the cell's microenvironment but often fail, suffering from lack of reproducibility and incompatibility with other well-established end-point assays.

Here, we demonstrate biomimetic in vitro platforms capable of reliably reproducing these essential cues. These platforms markedly improve the structural and functional development of a variety of cell types, including stem cells, cardiomyocytes, muscle cells, and more. These cutting-edge strategies can be deployed in both 2D and 3D model systems for high-throughput assessment of metabolism, electrophysiology, and contractility. We describe how the differentiation of stem cells can be enhanced by providing a more biomimetic culture environment, with a particular focus on iPSC-derived cardiomyocytes and skeletal muscle cells. Further, we highlight how an active mechanical environment combined with aligned cell-nanotopography cues improves adhesion, signaling, and polarity across many cell applications. Finally, we demonstrate how to scale these technologies to 3D organoid systems, and how these approaches can improve the development of in vitro disease models to support the discovery of new therapies.

Speaker

Hamed Ghazizadeh, Product Manager, Curi Bio

Break

1:30 PM - 2:00 PM

Poster Presentations and Late Posters

2:00 PM - 3:30 PM

FRIDAY POSTER SESSIONS

2:00 PM–3:30 PM

*Below is the list of poster presentations for Friday of abstracts submitted by October 1.
The list of late abstracts scheduled for Friday is available on page 117.*

ODD-NUMBERED BOARDS 2:00 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:30 PM

<u>Board Numbers</u>	<u>Category</u>
B1 - B34	Protein Structure and Conformation III
B35 - B56	Protein Dynamics and Allostery II
B57 - B71	Membrane Protein Dynamics II
B72 - B83	Enzyme Function, Cofactors, and Post-translational Modifications
B84 - B105	Intrinsically Disordered Proteins (IDP) and Aggregates III
B106 - B131	RNA Structure and Dynamics
B132 - B148	Chromatin and the Nucleoid
B149 - B164	Membrane Fusion and Non-Bilayer Structures
B165 - B181	Membrane Structure II
B182 - B203	Membrane Receptors and Signal Transduction
B204 - B221	Cardiac, Smooth, and Skeletal Muscle Electrophysiology
B222 - B231	TRP Channels
B232 - B245	Ligand-gated Channels II
B246 - B260	Cardiac Muscle Regulation
B261 - B268	Myosins
B269 - B280	Cytoskeletal Assemblies and Dynamics
B281 - B294	Mitochondria in Cell Life and Death
B295 - B303	Molecular and Cellular Neuroscience
B304 - B307	Neuroscience
B308 - B342	Optical Microscopy and Superresolution Imaging II
B343 - B349	Force Spectroscopy and Scanning Probe Microscopy
B350 - B370	Biosensors

Protein Structure and Conformation III (Boards B1 - B34)

1399-Pos BOARD B1

STRUCTURAL AND FUNCTIONAL ANALYSIS OF APOLIPOPROTEIN E MODIFICATION BY A LIPID PEROXIDATION PRODUCT, 4-HYDROXYNONE-NAL. **Abbas Abdulhasan**, Muhammad I. Abeer, Vasanthy Narayanaswami

1400-Pos BOARD B2

DEVELOPMENT OF APOLIPOPROTEIN AI CHIMERA FOR TARGETED DRUG DELIVERY TO BREAST CANCER CELLS. **Robert Mejia**, Daanish Kulkarni, Vasanthy Narayanaswami

1401-Pos BOARD B3

LIPID-PROTEIN FORCES PREDICT CONFORMATIONAL TRANSITION IN A MECHANOSENSITIVE CHANNEL. **Csaba Daday**, Bert L. de Groot

1402-Pos BOARD B4

MEMBRANE INTERACTION OF HUMAN CLIC5 IS FACILITATED BY DIOXIDATION OF A CONSERVED CYSTEINE AND DRIVES MEMBRANE FUSION. **Alisa Ferofontov**, Pavla Vankova, Petr Man, Moshe Giladi, Yoni Haitin

1403-Pos BOARD B5

STRUCTURAL DYNAMICS OF ANTIMICROBIAL PEPTIDES BASED ON HUMAN DEFENSIN 5 AMONG O-ANTIGENS OF BACTERIAL MEMBRANE. **Phoom Chumponanomakun**, Prapasiri Pongprayoon

1404-Pos BOARD B6

BRAVE NEW SURFACTANT WORLD REVISITED BY LIPASES: ACTIVATION AND UNFOLDING IN SDS. **Mohamed Shehata**, Aise Unlu, Emel Timucin

1405-Pos BOARD B7

SINGLE PARTICLE ANALYSIS REVEALS THE ORGANIZATION OF THE MEMBRANE REMODELING PROTEIN CAVEOLIN-1 WITHIN DISC-SHAPED COMPLEXES. **Bing Han**, Jason C. Porta, Jessica L. Hanks, Yelena Peskova, Elad Binshtein, Kelly A. Dryden, Derek P. Claxton, Hassane S. Mchaourab, Erkan Karakas, Melanie D. Ohj, Anne K. Kenworthy

1406-Pos BOARD B8

MECHANISM OF CHOLESTEROL TRANSLOCATION IN MYCOBACTERIA. **Tian Chen**, Fei Peng, Xiyao Cheng, Yongqi Huang, Zhengding Su

1407-Pos BOARD B9

INVESTIGATION OF CYCLIC AMP BINDING INTERACTIONS WITH ISOLATED CYCLIC NUCLEOTIDE BINDING DOMAIN OF HCN1 CHANNEL USING ATOMISTIC MOLECULAR DYNAMICS SIMULATIONS AT MICROSECOND TIMESCALE. **Matthew G. Brown**, Adithya Polasa, Mahmoud Moradi

1408-Pos BOARD B10

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THEORETICAL STUDY OF THE INTRINSIC CONFORMATIONAL PREFERENCES AND MICROSOLVATION EFFECT ON THE SELF-ASSEMBLY OF HYDROPHOBIC L-DIPEPTIDES. **Francisco Adasme Carreno**, Julio Caballero, Joel Ireta

1411-Pos BOARD B13

MAPPING AMINO ACIDS AT PROTEIN-MEMBRANE INTERFACES TO UPDATE THE CURRENT MEMBRANE BINDING MODEL. **Thibault Tubiana**, Nathalie Reuter

1412-Pos BOARD B14

ROLE OF GLYCOSYLATION IN LIPID-INTERACTING PROPERTIES OF PULMOSAPOSIN A, FROM THE PULMONARY SURFACTANT PROTEIN B PRECURSOR. **Miriam Isasi**, Jesús Pérez Gil, Lucía García

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EXPLORING THE STRUCTURAL STABILITY AND ASSEMBLY MECHANISM OF HYDROPHOBIN PROTEINS. **Kathleen L. Vergunst**

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UNDERSTANDING THE PACKING OF AMYLOIDOGENIC PEPTIDE SEGMENTS USING ELECTRONIC STRUCTURE CALCULATIONS. **Camila Munoz Gutierrez**, Jans Alzate Morales, Joel Ireta

1415-Pos BOARD B17

EFFECT OF RESIDUE SUBSTITUTIONS ON THE HYDROPHOBIC CORE OF THE C-TERMINUS OF THE PRION PROTEIN. **Steffany Nguyen**, Garrett M. Gloeb, Dan Irwin, Patricia Soto

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INVESTIGATING ATOMIC LEVEL STRUCTURE IN PYRIFORM SILK PROTEINS. **Jeffrey R. Simmons**, Genevieve Gasmi-Seabrook, Jan K. Rainey

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FILAMENTS UNDER FORCE: A COMPUTATIONAL MOLECULAR-SCALE INVESTIGATION OF TYPE IV PILI FROM MULTIPLE ORGANISMS. Bryan Bogin, Maria Fairfield, Rebecca B. Goncalves, Kimberly Jarquin, Stephen Jones, Christopher A. Lovenduski, Kevin Marin, Emma Webb, Horacio Vargas-Guzman, Adolfo Poma, Nicolas Biais, **Joseph L. Baker**

1419-Pos BOARD B21

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1420-Pos BOARD B22

CALCIUM-INDUCED CONFORMATIONAL DYNAMICS OF THE C-DOMAIN OF *TETRAHYMENA* CYTOSKELETAL PROTEIN TCB2. **Armaan Kumar**, Adina M. Kilpatrick, Patricia Soto

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A PARALLEL RATCHET-STROKE MECHANISM LEADS TO AN OPTIMUM FORCE FOR MOLECULAR MOTOR FUNCTION. **Upasana L. Mallimadugula**, Eric A. Galburt

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DYNEIN ADAPTORS SUCH *ASDROSOPHILABICAUDAL* (*DMBICD*) RECOGNIZE CARGO AND ARE REQUIRED TO ACTIVATE DYNEIN FOR PROGRESSIVE TRANSPORT. **Heying Cui**, M. Yusuf Ali, Puja Goyal, Kaiqi Zhang, Jia Ying Loh, Kathleen M. Trybus, Sozanne R. Solmaz

1423-Pos BOARD B25

STRUCTURAL ANALYSIS OF SMALL G-PROTEIN RAS MULTIMER INDUCED BY CHEMICAL MODIFICATION OF HVR DOMAIN WITH CAGED COMPOUND. **Rufiat Nahar**

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1425-Pos BOARD B27

THE INVISIBLE PROTEIN STATES OF MDMX AND MDM2 DETERMINE LIGAND-BINDING AFFINITY REVEALED BY CRYSTALLOGRAPHIC STRUCTURES AND NMR DYNAMICS. Xiyao Cheng, Huihui Liu, Yongqi Huang, **Zhengding Su**

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1429-Pos BOARD B31
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1478-Pos BOARD B80
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1479-Pos BOARD B81
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1480-Pos BOARD B82
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1481-Pos BOARD B83
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1485-Pos BOARD B87
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1486-Pos BOARD B88
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1487-Pos BOARD B89
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1491-Pos BOARD B93
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1492-Pos BOARD B94
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1494-Pos BOARD B96
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1495-Pos BOARD B97
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MONITORING SINGLE SAM/SAH RIBOSWITCH LIGAND-INDUCED FOLDING AND MIMICKING CO-TRANSCRIPTIONAL FOLDING. **Ting-Wei Liao**, Lin Huang, David Lilley, Taekjip Ha

1507-Pos BOARD B109
IMPACTS OF FLUORESCENT BASE ANALOGUE SUBSTITUTION ON THE FOLDING OF A RIBOSWITCH. **Julia R. Widom**, Janson Hoehner

1508-Pos BOARD B110
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1509-Pos BOARD B111
CONSERVED ELEMENTS IN THE 3'-UTR OF SARS-COV-2: INVOLVEMENT IN GENOMIC DIMERIZATION AND INTERACTIONS WITH CELLULAR MICRORNAS. **Joshua A. Imperatore**, Caylee L. Cunningham, Caleb J. Frye, Kendy A. Pellegrine, Jeffrey D. Evanseck, Mihaela-Rita Mihailescu

1510-Pos BOARD B112
CHARACTERIZATION OF SARS-COV-2 CONSERVED ELEMENTS' STRUCTURES AND THEIR RNA-RNA INTERACTIONS. **Caylee Cunningham**, Joshua Imperatore, Ella Milback, Morgan Shine, Kendy A. Pellegrine, Patrick Lackey, Jeffrey D. Evanseck, Mihaela-Rita Mihailescu

1511-Pos BOARD B113
CONDENSED LIQUID PHASE 3D STRUCTURE OF SARS-COV-2 S2M GUIDED BY NMR SPECTROSCOPY. **Kendy A. Pellegrine**, Joshua A. Imperatore, Caylee L. Cunningham, Adam H. Kensinger, Petru Mihailescu, Matthew N. Srnec, Mihaela-Rita Mihailescu, Jeffrey D. Evanseck

1512-Pos BOARD B114
ENHANCED SAMPLING OF THE SARS-COV-2 S2M ELEMENT. **Adam H. Kensinger**, Kendy A. Pellegrine, Joshua Imperatore, Matthew N. Srnec, Mihaela-Rita Mihailescu, Jeffrey D. Evanseck

1513-Pos BOARD B115
MODELING THE STRUCTURE OF THE FRAMESHIFT-STIMULATORY PSEUDOKNOT IN SARS-COV-2 REVEALS MULTIPLE POSSIBLE CONFORMERS. **Sara Ibrahim Omar**, Meng Zhao, Rohith Vedhthaanth Sekar, Sahar Arbabimoghadam, Jack A. Tuszynski, Michael T. Woodside

1514-Pos BOARD B116
STRUCTURAL DYNAMICS OF SARS-COV-2 FRAMESHIFT SIGNAL STUDIED BY SINGLE-MOLECULE FORCE SPECTROSCOPY REVEAL TOPOLOGICALLY DISTINCT CONFORMERS. **Krishna P. Neupane**, Meng Zhao, Noel Q. Hoffer, Aaron Lyons, Sneha Munshi, Dustin Ritchie, Michael T. Woodside

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RNA STRUCTURAL ENSEMBLES ACT AS A GATE KEEPER OF 3' ALTERNATIVE SPLICING. **Robb S. Welty**

1516-Pos BOARD B118
MICRORNA-122 AND POLY-C BINDING PROTEIN 2 REGULATE HEPATITIS C REPLICATION BY COMPETING FOR OVERLAPPING BINDING SITES. **Seth D. Scott**, You Li, Stanley M. Lemon, Kyung H. Choi

1517-Pos BOARD B119
RAPID AND ACCURATE DETERMINATION OF ATOMISTIC RNA DYNAMIC ENSEMBLE MODELS USING NMR AND STRUCTURE PREDICTION. **Honglue Shi**

1518-Pos BOARD B120
ENSEMBLE SIMULATIONS: FOLDING, UNFOLDING AND MISFOLDING OF HIGH-EFFICIENCY TRANSFER-MESSENGER RNA PSEUDOKNOT. **Nguyet Nguyen**, Vinh Ngo, Jessica Moore, Eric J. Sorin

1519-Pos BOARD B121
UNFOLDING THERMODYNAMICS OF AN RNA PSEUDOKNOT AND ITS DNA ANALOG. Irine Khustsishvili, Calliste Reiling, **Luis A. Marky**

1520-Pos BOARD B122
RARE CONFORMATIONAL TRANSITION IN VIRAL RNA UPON LIGAND BINDING. **Lev Levintov**, Harish Vashisth

1521-Pos BOARD B123
PRESSURE EFFECTS ON THE CONFORMATIONAL TRANSITIONS OF TRNALYS3. **Jinqiu Wang**, Balasubramanian Harish, Kevin Larsen, Joseph D. Puglisi, Richard Gillilan, Catherine A. Royer

1522-Pos BOARD B124
BREAKING THE BOUNDARY BETWEEN SOLUTION X-RAY SCATTERING AND MOLECULAR DYNAMICS SIMULATIONS OF STRUCTURED NUCLEIC ACIDS. **Yen-Lin Chen**, Weiwei He, Lois Pollack, Serdal Kirmizialtin

1523-Pos BOARD B125
STRATEGIES FOR MODELING LIGAND DOCKING TO NATURAL AND ENGINEERED RNA STRUCTURES. **Wojciech K. Kasprzak**, Regan M. LeBlanc, Monalisa Swain, Abeer Ageeli, Nathan J. Baird, Theodore K. Dayie, Stuart F.J. Le Grice, Bruce A. Shapiro

1524-Pos BOARD B126
MIMICKING A CELLULAR ENVIRONMENT FOR RNA FOLDING STUDIES. **Hyejin Yoo**, Caitlin Davis

1525-Pos BOARD B127
SOLVATION IMPACTS OF RNA COLLAPSE. **Clark Templeton**

1526-Pos BOARD B128
EFFECT OF THE CATION SIZE ON THE STABILITY OF RNA STRUCTURES. **Anja Henning-Knechtel**, D. Thirumalai, Serdal Kirmizialtin

1527-Pos BOARD B129
SECONDARY STRUCTURES OF VERY LARGE RNAs VIA HIGH-THROUGHPUT OLIGONUCLEOTIDE-BINDING MICROARRAYS. **Ofer Kimchi**, Rees Garmann, Timothy Chiang, Megan Engel, Michael P. Brenner, Vinathan N. Manoharan

1528-Pos BOARD B130
MAPPING INTERNALLY AND ENVIRONMENTALLY STIMULATED RNA FOCI FORMATION. **Eitan S. Acks**, Caitlin M. Davis

1529-Pos BOARD B131
ILLUMINATING RNA DYNAMICS IN LIVE MAMMALIAN CELLS WITH THE RIBOGLOW PLATFORM. **Esther Braselmann**

Chromatin and the Nucleoid (Boards B132 - B148)

1530-Pos BOARD B132
PROTAMINE LOOPS DNA IN MULTIPLE STEPS. Obinna A. Ukogu, Adam D. Smith, Luka Matej Devenica, Hilary Bediako, Ryan B. McMillan, Yuxing E. Ma, Ashwin Balaji, Robert D. Schwab, Shahzad Anwar, Moumita Dasgupta, **Ashley R. Carter**

1531-Pos BOARD B133
(A)SPECIFIC DNA BINDING OF ARCHAEAL HISTONES, THE FORMATION AND POSITIONING OF HYPERNUCLEOSOMES. **Mandy Erkelens**, Bram Henneman, Thomas B. Brouwer, Gert-Jan A.J.T. Kuintjies, Clara van Emmerik, Ramon A. van der Valk, Monika Timmer, Nancy C.S. Kirolos, Hugo van Ingen, John Van Noort, Remus T. Dame

1532-Pos BOARD B134
ACIDIC SOLUTIONS TO ARCHAEAL CHROMATIN. **Shawn Laursen**, Samuel Bowerman, Karolin Luger

1533-Pos BOARD B135
CHARACTERIZING PARTIAL HISTONE WRAPPING STATES AND THE HISTONE-TO-PROTAMINE TRANSITION IN SPERM. **Kyle M. Jones**, Yuxing Ma, Lynn Fu, Joanna M. Idrovo, Ashley R. Carter

1534-Pos BOARD B136
REGULATION OF *PROVWX* TRANSCRIPTION BY LOCAL CHROMATIN REMODELLING. **Fatema Zahra M. Rashid**, Kathy R. Chaurasiya, Daan J.W. Brocken, Remus T. Dame

1535-Pos BOARD B137
CHROMATIN REMODELER CHD1 FORMS TERNARY COMPLEXES WITH ADP AND PI ANALOGUE WHICH MIMIC TRANSIENT STATES IN ATPASE CYCLE. **Md Noor A Alam**, Kei Sadakane, Shinsaku Maruta

1536-Pos BOARD B138
MITOCHONDRIAL METABOLIC DYSFUNCTION DRIVES PROTEIN HYPERACYLATION THAT WEAKENS NUCLEOSOMES. **Micah J. McCauley**, John A. Smestad, Matthew C. Amato, Ioulia F. Rouzina, Mark C. Williams, L. James Maher

1537-Pos BOARD B139
CHARACTERIZATION OF CENTROMERES AND TELOMERES IN HUMAN CELLS. **Alexis S. Clavijo**, Steven Ionov, Alexandra Zidovska

1538-Pos BOARD B140
CHROMATIN MECHANICS DICTATES SUBDIFFUSION AND COARSENING DYNAMICS OF EMBEDDED CONDENSATES. **Daniel S.W. Lee**, Ned S. Wingreen, Clifford P. Brangwynne

1539-Pos BOARD B141
NONINVASIVE MEASUREMENT OF INTERPHASE CHROMATIN RHEOLOGY *IN VIVO*. **Iraj Eshghi**, Jonah Eaton, Alexandra Zidovska

1540-Pos BOARD B142
MESOSCALE PHASE SEPARATION OF CHROMATIN IN THE NUCLEUS. **Gaurav Bajpai**, Daria A. Pavlov, Dana Lorber, Talila Volk, Samuel Safran

1541-Pos BOARD B143
THEORETICAL STUDY OF CHROMATIN ORGANIZATION AT THE MESOSCALE. **Omar Adame-Arana**, Gaurav Bajpai, Samuel Safran

1542-Pos BOARD B144
DATA-DRIVEN POLYMER MODEL FOR MECHANISTIC EXPLORATION OF DIPLOID GENOME ORGANIZATION. **Bin Zhang**

1543-Pos BOARD B145
BUILDING A 4D NUCLEOME STATE LANDSCAPE IN HUMAN IPSCS: INTEGRATED ANALYSIS OF THE ORGANIZATION AND FUNCTION OF NUCLEAR BODIES. **Christopher L. Frick**, Susanne M. Rafelski

1544-Pos BOARD B146
GLOBAL LANDSCAPE OF 3D ARCHITECTURAL ANCHORS FROM GENOME-WIDE ANALYSIS OF SPECIFIC CHROMATIN INTERACTIONS. **Hammad Farooq**, Lin Du, Alan Perez-Rathke, Jie Liang

1545-Pos BOARD B147
TOWARDS THE UNDERSTANDING OF THE RELATION BETWEEN CHROMATIN ORGANIZATION AND SUB-NUCLEAR PATTERN OF ONCOPROTEIN DEK. **Agnieszka Pierzynska-Mach**, Isotta Cainero, Elisa Ferrando-May, Luca Lanzano', Alberto Diaspro

1546-Pos BOARD B148
SPATIAL ARCHITECTURE OF CHROMATIN AT LOCI OF TUMOR SUPPRESSORS AND ONCOGENE. **Lin Du**, Alan Perez-Rathke, Jie Liang

Membrane Fusion and Non-Bilayer Structures (Boards B149 - B164)

1547-Pos BOARD B149
SINGLE-VIRUS INVESTIGATION OF NON-SIALIC-ACID-MEDIATED SENDAI VIRUS BINDING TO SUPPORTED LIPID BILAYERS IN THE ABSENCE OF GANGLIOSIDE RECEPTOR. **Amy Lam**, Nandini Seetharaman, Eunice Kim, Orville O. Kirkland, Robert J. Rawle

1548-Pos BOARD B150
INVESTIGATION OF WEST NILE VIRUS OFF-PATHWAY MEMBRANE FUSION MECHANISMS USING KINETIC MODELING. **Abraham S. Park**, Olivia I. Graceffa, Robert J. Rawle

1549-Pos BOARD B151
INTERFERON-INDUCED TRANSMEMBRANE PROTEIN 3 BLOCKS FUSION OF DIVERSE ENVELOPED VIRUSES BY LOCALLY ALTERING MECHANICAL PROPERTIES OF CELL MEMBRANES. **Xiangyang Guo**, Jan Steinkühler, Mariana Marin, Xiang Li, Wuyuan Lu, Rumiana Dimova, Gregory B. Melikyan

1550-Pos BOARD B152
BULK FUSION STUDIES OF SENDAI VIRUS AND APPLICATION OF MASS ACTION KINETIC FUSION MODEL. **Papa Freduah A. Anderson**, Robert J. Rawle

1551-Pos BOARD B153
MECHANISTIC STUDIES OF LASSA FEVER VIRUS GLYCOPROTEIN-MEDIATED MEMBRANE FUSION. **Ruben M. Markosyan**, Mariana Marin, Fredric S. Cohen, Gregory B. Melikyan

1552-Pos BOARD B154
THE EXTENDED INTERMEDIATE OF THE SARS-COV-2 SPIKE PROTEIN USES EXTREME REACH AND FLEXIBILITY TO CAPTURE HOST CELL MEMBRANES. Rui Su, **Jin Zeng**, Sathish Thiyagarajan, Ben O'Shaughnessy

1553-Pos BOARD B155
UNDERSTANDING ACTIVATION AND INHIBITION OF SARS-COV-2 VIRAL ENTRY WITH SINGLE-VIRUS MICROSCOPY. Anjali Sengar, Giorgio Morbioli, **Peter Kasson**

1554-Pos BOARD B156
SIMULATION OF THE INFLUENZA FUSION PEPTIDE PRE-PORE STRUCTURE. **Amy Rice**, Sourav Halder, Eric Wang, Paul S. Blank, Sergey A. Akimov, Timur R. Galimzyanov, Richard W. Pastor, Joshua Zimmerberg

1555-Pos BOARD B157
HIV-CELL MEMBRANE FUSION INTERMEDIATES ARE RESTRICTED BY SERINC3 AND SERINC5. Amanda E. Ward, Volker Kiessling, Owen Pornillos, Judith M. White, Barbie K. Ganser-Pornillos, **Lukas K. Tamm**

1556-Pos BOARD B158
DEVELOPING AN INTENSITY-BASED CONFORMATIONAL SENSOR FOR SNARES. **Huan Bao**

1557-Pos BOARD B159
HOW MANY SYNAPTOTAGMIN MOLECULES DOES IT TAKE TO CLAMP A SNARE COMPLEX? **Zachary A. McDargh**, Ben O'Shaughnessy

1558-Pos BOARD B160
THE BACTERIAL MEMBRANE FISSION PROTEIN FISB REQUIRES HOMO-OLIGOMERIZATION AND LIPID-BINDING TO CATALYZE MEMBRANE SCISSION. **Ane Landajuela**, Martha Braun, Christopher D.A. Rodrigues, Thierry Doan, Florian Horenkamp, Anna Andronicos, Vladimir Shteyn, Nathan D. Williams, Chenxiang Lin, David Rudner, Erdem Karatekin

1559-Pos BOARD B161
ELECTROSTATIC EFFECTS ON MODEL MEMBRANE COMPRESSIBILITY AND VESICLE ADHESION. **Oscar Zabala-Ferrera**, Peter J. Beltramo

1560-Pos BOARD B162

UNIQUE PROPERTIES OF TIGHTLY DOCKED MEMBRANES PRIOR TO THEIR FUSION. **Agata Witkowska**, Leonard P. Heinz, Helmut Grubmuller, Reinhard Jahn

1561-Pos BOARD B163

NANOSCALE MEMBRANE PORES FOLLOW TWO TENSION-TRIGGERED PATHWAYS TO MEMBRANE RUPTURE DURING EXOCYTOSIS, DRUG DELIVERY AND TRANSFECTION. **Dong An**, Sathish Thiyagarajan, Egor Antipov, Brett E. Alcott, Ben O'Shaughnessy

1562-Pos BOARD B164

DYNAMICS OF MEMBRANE TENSION AND SYNAPTIC VESICLE RECYCLING. **Carolina Gomis Perez**, Natasha Dudzinski, Mason Rouches, Benjamin B. Machta, David Zenisek, Erdem Karatekin

Membrane Structure II (Boards B165 - B181)

1563-Pos BOARD B165

REFINING SDP MODELING OF THE INVERTED HEXAGONAL PHASE. Plinio R. Lopez, David A. Ruitter, **Paul E. Harper**

1564-Pos BOARD B166

PROBING THE UNIQUE ROLE OF ULTRALONG-CHAIN OMEGA-ACYLCE-RAMIDE CER[EOS] IN A STRATUM CORNEUM LIPID MODEL MATRIX USING ^2H NMR. **Ferdinand Fandrei**, Oskar Engberg, Lukáš Opálka, Kateřina Vávrová, Daniel Huster

1565-Pos BOARD B167

SUPPRESSION OF L_{α}/L_{β} PHASE COEXISTENCE IN THE LIPIDS OF PULMONARY SURFACTANT. Jonathan R. Fritz, Ryan W. Loney, Stephen B. Hall, **Stephanie A. Tristram-Nagle**

1566-Pos BOARD B168

CHOLESTEROL PUSHES VITAMIN E AND POLYUNSATURATED PHOSPHO-LIPIDS TOGETHER. **Alexander Q. Phillips**, Samuel W. Canner, Scott I. Feller, Stephen R. Wassall

1567-Pos BOARD B169

MOLECULAR LEVEL MEMBRANE MODULATION BY OMEGA-3 FATTY ACIDS. **Manuela A.A. Ayee**, Brendan C. Bunker, Jordan L. De Groot

1568-Pos BOARD B170

LIPID PEROXIDATION ENHANCES LO/LD DOMAIN PHASE SEPARATION IN GIANT PLASMA MEMBRANE VESICLES. **Muthuraj Balakrishnan**, Anne K. Kenworthy

1569-Pos BOARD B171

QUANTITATIVE EXAMINATION OF CHANGES IN FLUIDITY AND CHOLESTEROL CONTENT IN BOVINE AORTIC ENDOTHELIAL CELLS USING PHASOR ANALYSIS OF LAURDAN FLUORESCENCE LIFETIME. **Kelly A. Zaccheo**, Balam Benítez-Mata, Michelle A. Digman, Donald G. Buerk, Dov Jaron, Kenneth A. Barbee

1570-Pos BOARD B172

NANOSCALE DOMAIN STRUCTURE IN A BINARY LIPID MIXTURE: A SMALL ANGLE NEUTRON SCATTERING AND CALORIMETRY STUDY. **Ursula A. Perez-Salas**, Natalie Krzyzanowski, Lionel Porcar

1571-Pos BOARD B173

SUB-DIFFRACTION LIMITED IMAGING OF LIPID DOMAINS USING RATIO-METRIC STED. **Gokul Raghunath**, Gregory Melikian

1572-Pos BOARD B174

LOOKING UNDER THE HOOD OF MEMBRANE FLUCTUATION ANALYSIS. THE SYSTEMATICS OF SEEMINGLY HARMLESS CHOICES. **Muhammed F. Erguder**, Markus Deserno

1573-Pos BOARD B175

LIPID CHAIN UPTURNS AND ORIENTATIONAL POTENTIAL IN MEMBRANE LIQUID CRYSTALS. **Abhinav Ramkumar**, Michael F. Brown, Horia I. Petrache

1574-Pos BOARD B176

RECENT UPDATES TO THE CHARMM LIPID FORCE FIELDS. **Yalun Yu**, Jeffrey B. Klauda, Alexander D. MacKerell, Benoit Roux, Richard W. Pastor

1575-Pos BOARD B177

USING MOLECULAR DYNAMICS SIMULATIONS TO ELUCIDATE A ROLE FOR BACTERIAL CERAMIDES. **Anushriya Subedy**, Liam M. Sharp, Eric A. Klein, Grace H. Brannigan

1576-Pos BOARD B178

INTERACTION BETWEEN BIOMIMETIC LIPID MEMBRANES AND TRO-DUSQUEMINE: AN ATOMIC FORCE MICROSCOPY STUDY. **Davide Odino**, Silvia Errico, Claudio Canale, Riccardo Ferrando, Fabrizio Chiti, Annalisa Relini

1577-Pos BOARD B179

THE SAPONINS AFFECT THE ELECTRICAL PROPERTIES OF THE LIPID BILAYERS. **Svetlana S. Efimova**, Olga S. Ostromova

1578-Pos BOARD B180

STRUCTURE AND INTERACTION OF LIPID BILAYERS IN THE PRESENCE OF ATP. **Azam Shafieenezhad**, Andres T. Cavazos, Stephen R. Wassall, Horia I. Petrache

1579-Pos BOARD B181

MEASUREMENTS AND SIMULATIONS OF LIPID MEMBRANES CONTAINING INOSITOL HEADGROUPS. **Azam Shafieenezhad**, Andres T. Cavazos, Alexander Q. Phillips, Ann C. Kimble-Hill, Stephen R. Wassall, Horia I. Petrache

Membrane Receptors and Signal Transduction (Boards B182 - B203)

1580-Pos BOARD B182

CAPILLARY PERICYTE K_{ATP} CHANNEL ACTIVATION DRIVES THE DILATION OF UPSTREAM CEREBRAL ARTERIOLES. **Ashwini Hariharan**, Colin Robertson, Christer Betsholtz, Thomas A. Longden

1581-Pos BOARD B183

INVESTIGATING THE STRUCTURE OF EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) DIMERS AND OLIGOMERS IN CELLS. **Sarah R. Needham**, Sumanth Iyer, Benjamin Davis, Laura Zanetti Domingues, Selene K. Roberts, Daniel R. Rolfe, Marisa Martin-Fernandez

1582-Pos BOARD B184

MODULATION OF INSULIN RECEPTOR ACTIVITY UPON PLASMA MEMBRANE STEROL AND PHOSPHOLIPID SUBSTITUTIONS TO ALTER LIPID DOMAIN FORMATION. **Pavana Suresh**, W. Todd Miller, Erwin London

1583-Pos BOARD B185

SLOW AMPA RECEPTORS IN HIPPOCAMPAL PRINCIPAL CELLS. **Niccolò P. Pampaloni**, Irene Riva, Anna L. Carbone, Andrew J. Plested

1584-Pos BOARD B186

OBSERVING TYROSINE KINASE FUNCTION BY POLARIZATION RESOLVED FLUORESCENCE MICROSCOPY. **Alina Sakhi**, Josef Lazar

1585-Pos BOARD B187

PHOTOAFFINITY LABELED UNNATURAL AMINO ACID CROSSLINKING STABILIZES A TRANS-SIGNALING CONFORMATION BETWEEN THE D_2 -5HT $_{2A}$ RECEPTOR HETEROMER. **Brenda T. Winn**, Chungsik Kim, Meng Cui, Roman Manetsch, Diomedes E. Logothetis

1586-Pos BOARD B188

QUANTITATIVE INVESTIGATION OF MECHANOSENSING IN B CELL ACTIVATION. **Hannah C.W. Reed**, Anna T. Bajur, Maro Iliopoulou, Katelyn M. Spillane

1587-Pos BOARD B189
POLARIZATION MICROSCOPY IMAGING OF G PROTEINS AT ENDOGENOUS EXPRESSION LEVELS. **Paul S. Miclea**, Josef Lazar

1588-Pos BOARD B190
ALPHA-ADRENERGIC REGULATION OF CAMP IN VENTRICULAR CARDIAC MYOCYTES. **Michael W. Rudokas**, Shailesh R. Agarwal, Robert D. Harvey

1589-Pos BOARD B191
FLUORESCENCE LIFETIME-BASED DNA PROBE FOR MULTIPLEXED QUANTIFICATION OF TENSILE FORCES AT CELL-CELL JUNCTIONS. **Puspam Keshri**, Bin Zhao, Mingxu You

1590-Pos BOARD B192
NON-SELECTIVE CATION CURRENTS MEDIATED BY CX43 HEMICHANNEL-P2X4 RECEPTOR SIGNALING PATHWAY IN RAT ATRIAL MYOCYTES UNDER SHEAR STRESS. Min-Jeong Son, Joon-Chul Kim, Anh T. Vu, Qui A. Le, **Sun-Hee Woo**

1591-Pos BOARD B193
KINETICS OF THE LAT:GRB2:SOS PROTEIN CONDENSATION PHASE TRANSITION ON MEMBRANES RESEMBLE A GLASS TRANSITION. **Simou Sun**, Trevor Grand Pre, L. J. Nugent Lew, Laura M. Nocka, David T. Limmer, Jay T. Groves

1592-Pos BOARD B194
MOLECULAR INTERACTIONS BETWEEN CD21/35 & THE ACTIN CYTOSKELETON IN FOLLICULAR DENDRITIC CELLS ARE REGULATED BY CELL-ECM TRACTION FORCES. **Maro Iliopoulou**, Anna T. Bajur, Hannah Reed, Katelyn M. Spillane

1593-Pos BOARD B195
THE EFFECT OF GLYCANS STERIC POTENTIALS ON VIRUS INFECTIVITY- THE SARS-COV-2 CASE. **Giuseppe Battaglia**

1594-Pos BOARD B196
CONFORMATIONAL COUPLING ACROSS THE MEMBRANE BILAYER OF EPIDERMAL GROWTH FACTOR RECEPTOR. **Shwetha Srinivasan**

1595-Pos BOARD B197
SIMULTANEOUS RECORDING OF MULTIPLE SIGNALING EVENTS BY FREQUENCY- AND SPECTRALLY-TUNED MULTIPLEXING OF FLUORESCENT PROBES. Michelina Kierzek, Parker Deal, Evan W. Miller, Shatanik Mukherjee, Dagmar Wachten, Arnd Baumann, Ulrich B. Kaupp, Timo Strünker, **Christoph Brenker**

1596-Pos BOARD B198
ACETYLCHOLINE RECEPTOR AGONISTS EXERT CYTOPROTECTION AGAINST HYPOXIA/REOXYGENATION INJURY THROUGH INHIBITING APOPTOSIS AND PROMOTING MITOCHONDRIAL DYNAMICS AND BIOGENESIS. **Kannaporn Intachai**, Siriporn Chattipakorn, Nipon Chattipakorn, Krekwit Shinlapawattayatorn

1597-Pos BOARD B199
TIMING TO MEMBRANE-ASSOCIATED PROTEIN CONDENSATION CONTROLS ANTIGEN DISCRIMINATION IN T CELLS. **Mark K. O'Dair**, Darren McAfee, Kiera B. Wilhelm, Jay T. Groves

1598-Pos BOARD B200
THE L920F EPHA4 ONCOGENIC MUTATION ALTERS THE SAM DOMAIN FOLD AND INDUCES EPHA4 OLIGOMERIZATION. **Taylor P. Light**, Zichen Wang, Kelly Karl, Elmer A. Zapata-Mercado, Taras V. Pogorelov, Jeffrey J. Gray, Kalina Hristova

1599-Pos BOARD B201
DIFFERENTIAL ANALYSIS OF T-CELL ACTIVATION BY A LIBRARY OF MEMBRANE-TETHERED, MONOVALENT, FAB'-BASED SYNTHETIC T-CELL RECEPTOR AGONISTS. **Kiera B. Wilhelm**, Shumpei Morita, Darren McAfee, Mark K. O'Dair, Sungi Kim, Jay T. Groves

1600-Pos BOARD B202
DNA ORIGAMI DEMONSTRATE THE UNIQUE STIMULATORY POWER OF SINGLE PMHCS AS T-CELL ANTIGENS. Joschka Hellmeier, Rene Platzer, Alexandra Eklund, Thomas Schlichthaerle, Gerhard J. Schuetz, Ralf Jungmann, Johannes B. Huppa, **Eva Sevcsik**

1601-Pos BOARD B203
ELECTROSTATIC MODULATION OF SIGNALING AT THE MEMBRANE WAVEFORM- AND TIME-DEPENDENT ELECTRIC CONTROL OF ERK DYNAMICS. **Quan Qing**

Cardiac, Smooth, and Skeletal Muscle Electrophysiology (Boards B204 - B221)

1602-Pos BOARD B204
SEX DIFFERENCES IN FUNCTIONAL MORPHOLOGY OF EMBRYONIC MURINE CORONARY ARTERIES. **Shion Nagasawa**, Masami Kodama, Hiroki Kurihara, Koichi Nishiyama, Yuichiro Arima, Kazuho Sakamoto, Junko Kurokawa

1603-Pos BOARD B205
IN SILICO PREDICTION OF DRUG-INDUCED VENTRICULAR ARRHYTHMIA USING HETEROGENEOUS TISSUE MODELS OF THE PURKINJE-VENTRICULAR SYSTEM. **Mengya Yuan**, Pan Li

1604-Pos BOARD B206
OPTIMIZATION AND VALIDATION OF FAST RATIO-METRIC VOLTAGE-SENSITIVE DYE IMAGING IN NEURONAL AND CARDIAC TISSUES AND CULTURES. **Corey D. Acker**, Ping Yan, Anthony Pettinato, Travis Hinson, Leslie M. Loew

1605-Pos BOARD B207
POLYUNSATURATED FATTY ACIDS THERAPEUTIC POTENTIAL FOR LONG QT SYNDROME. **Alicia de la Cruz**, Marta E. Perez, Quinn C. Rainer, H. P. Larsson

1606-Pos BOARD B208
THYROID AND DEXAMETHASONE TREATMENT ENHANCES THE EXPRESSION OF REPOLARIZING POTASSIUM CURRENTS AND IMPROVE ELECTROPHYSIOLOGICAL MATURATION OF HUMAN IPSC-DERIVED CARDIOMYOCYTES. **Lili Wang**, Yuko Wada, Nimer Ballan, Lior Gepstein, Bjorn C. Knollmann

1607-Pos BOARD B209
INVESTIGATIONAL TREATMENTS FOR COVID-19 MAY INCREASE VENTRICULAR ARRHYTHMIA RISK THROUGH DRUG INTERACTIONS. **Meera Varshneya**, Itziar Irurzun-Arana, Chiara Campana, Rafael Dariolli, Amy Gutierrez, Taylor K. Pullinger, Eric A. Sobie

1608-Pos BOARD B210
EFFECTS OF MECHANICAL STIMULUS ON BEAT SEQUENCE OF CARDIOMYOCYTES WITH FEEDBACK CONTROL. **Ryu Kidokoro**, Kazuki Mammoto, Takashi Miyazawa, Shota Nozaki, Ryuta Watanabe, Yuuta Moriyama, Toshiyuki Mitsui

1609-Pos BOARD B211
EFFECTS OF ESTROGENS ON THE ACTIONS OF HERG. **Shintaro Sugimoto**, Fumiya Tamura, Mana Sugimoto, Oka Takayuki, Igor V. Vorobyov, Kazuho Sakamoto, Junko Kurokawa

1610-Pos BOARD B212
CARDIAC L-TYPE CHANNEL MODULATION BY LRRC10 PROTEINS. **Pedro J. del Rivero Morfin**, Manu Ben-Johny

1611-Pos BOARD B213
POST-TRANSLATIONAL MODIFICATIONS IN HUMAN BETA MYOSIN HEAVY CHAIN. **Maicon Landim-Vieira**, Matthew C. Childers, Amanda L. Wacker, Michelle Rodriguez Garcia, Rakesh K. Singh, Elizabeth A. Brundage, Bryan A. Whitson, Paul M. Janssen, Prescott B. Chase, Brandon J. Biesiadecki, Michael Regnier, J. Renato Pinto, Michelle S. Parvatiyar

1612-Pos BOARD B214
PRIOR FREEZING IN LIQUID NITROGEN HAS MINIMAL IMPACT ON THE CONTRACTILE PROPERTIES OF CHEMICALLY PERMEABILIZED HUMAN MYOCARDIUM. **Faruk H. Moonschi**, Ashley M. White, Gregory N. Milburn, Dylan F. Colli, Emma J. Birks, Kenneth S. Campbell

1613-Pos BOARD B215
USING A GENETIC ALGORITHM TO PARAMETERIZE A MATHEMATICAL MODEL OF A PORCINE VENTRICULAR CARDIOMYOCYTE. **Taylor K. Pullinger**, Matthew Amoni, Itziar Irurzun-Arana, Karin R. Sipido, Eric A. Sobie

1614-Pos BOARD B216
AGE-ASSOCIATED ION CHANNEL LOCALIZATION AND EXPRESSION CHANGES REGULATE CARDIAC SODIUM GAIN-OF-FUNCTION. **Madison B. Nowak**, Steven Poelzing, Seth H. Weinberg

1615-Pos BOARD B217
FINITE-ELEMENT MODELING OF PARAMETRICALLY-DEFINED CARDIAC INTERCALATED DISK NANODOMAIN STRUCTURE. **Nicolae Moise**, Heather L. Struckman, Celine Dagher, Rengasayee Veeraraghavan, Seth H. Weinberg

1616-Pos BOARD B218
SPATIAL-TEMPORAL PATTERNS OF EARLY AFTERDEPOLARIZATIONS UNDERLYING T-WAVE ABNORMALITIES IN A TISSUE MODEL OF THE PURKINJE-VENTRICULAR SYSTEM. **Mengya Yuan**, Pan Li

1617-Pos BOARD B219
DIFFERENTIAL ROLES OF CALCIUM-ACTIVATED AND CALCIUM-INHIBITED ADENYLYL CYCLASE ISOFORMS IN THE REGULATION OF SAN AUTOMATICITY. **Lu Ren**, Phung Thai, Raghavender R. Gopireddy, Valeriy Timofeyev, Xiao-Dong Zhang, Alana C. Conti, Manuel F. Navedo, Nipavan Chiamvimonvat

1618-Pos BOARD B220
PKA AND CAMKII SIGNALING SYNERGISTICALLY PROMOTES ATRIAL ARRHYTHMIA IN POPULATIONS OF HUMAN ATRIAL TISSUES. **Haibo Ni**, Xianwei Zhang, Stefano Morotti, Eleonora Grandi

1619-Pos BOARD B221
QUANTIFYING THE ARRHYTHMOGENIC EFFECTS OF SUBCELLULAR STRUCTURAL VARIATIONS IN A THREE-DIMENSIONAL MODEL OF THE HUMAN ATRIAL MYOCYTE. **Xianwei Zhang**, Haibo Ni, Stefano Morotti, Daisuke Sato, William E. Louch, Andrew G. Edwards, Eleonora Grandi

TRP Channels (Boards B222 - B231)

1620-Pos BOARD B222
TEMPERATURE SENSITIVITY IN THE TRPM8 CHANNEL IS HARBORED AT THE C-TERMINAL DOMAIN. **Karen Castillo**, Ignacio Diaz-Franulic, Jonathan Canan, Fernando D. Gonzalez-Nilo, Ramon Latorre

1621-Pos BOARD B223
TRPV1 ENHANCES CCK SIGNALING IN VAGAL AFFERENT NEURONS. **Rachel A. Arnold**, James Peters

1622-Pos BOARD B224
DISEASE-RELATED TRPM3 MUTATIONS RENDER THE CHANNEL OVERACTIVE VIA DIFFERENT MECHANISMS. **Siyuan Zhao**, Yevgen Yudin, Tibor Rohacs

1623-Pos BOARD B225
DUAL EFFECTS OF PHOSPHATIDYLINOSITOL ON TRPV1 REGULATION INVOLVE FUNCTIONALLY DISTINCT BINDING SITES. **Aysenur T. Yazici**, Eleonora Gianti, Marina A. Kasimova, Vincenzo Carnevale, Tibor Rohacs

1624-Pos BOARD B226
ATOMISTIC AND DYNAMIC DETAILS OF THE GATING MECHANISM OF THE TETHERED MECHANOSENSITIVE ION CHANNEL NOMPC. Yang Wang, Yifeng Guo, Guanluan Li, Chunhong Liu, Lei Wang, Aihua Zhang, Zhiqiang Yan, **Chen Song**

1625-Pos BOARD B227
GATING OF TRPV5 CHANNEL ACTIVITY BY PHOSPHORYLATION AND EXOGENOUS LIGANDS. **Edwin C. Fluck**, Taylor Hughes, Ruth Pumroy, Vera Moiseenkova-Bell

1626-Pos BOARD B228
ACTIVATION AND INHIBITION OF ASSAY-READY TRPA1 AND TRPV CELLS: AN AUTOMATED PATCH CLAMP STUDY. **Andrea Bruggemann**, Tom A. Goetze, András Horváth, Ilka Rinke, Nadine Becker, Alison Obergrussberger, Lukas Focke, Oliver Wehmeier, Ralf Schwandner, Niels Fertig

1627-Pos BOARD B229
TRPM7 PERMEANT DIVALENT METAL CYTOTOXICITY DURING MAGNESIUM DEPLETION AND LOADING. Alayna A. Mellott, **Jananie Rockwood**, Charles T. Luu, J. Ashot Kozak

1628-Pos BOARD B230
MECHANISM OF PRAZIQUANTEL ACTION AT A TRANSIENT RECEPTOR POTENTIAL CHANNEL. Sang-Kyu Park, Lukas Friedrich, Nawal Yahya, Claudia Rohr, David Maillard, Friedrich Rippmann, Thomas Spangenberg, **Jonathan S. Marchant**

1629-Pos BOARD B231
STRUCTURE OF THE ANCESTRAL TRPY1 CHANNEL FROM SACCHAROMYCES CEREVISIAE REVEALS MECHANISMS OF LIPID AND CALCIUM MODULATION. **Tofayel Ahmed**, Collin Nisler, Edwin C. Fluck, Marcos M. Sotomayor, Vera Moiseenkova-Bell

Ligand-gated Channels II (Boards B232 - B245)

1630-Pos BOARD B232
MOLECULAR DETERMINANTS OF NEUROPEPTIDE POTENCY AT FMRF-AMIDE GATED SODIUM CHANNELS FROM THE DEG/ENAC FAMILY. **Mowgli Dandamudi**, Timothy Lynagh

1631-Pos BOARD B233
VALIDATION OF AN ASIC1A LIGAND-GATED ASSAY ON AN AUTOMATED PATCH CLAMP PLATFORM AND ITS USE FOR NOVEL LIGAND SCREENING. **Marc Rogers**, John Ridley, Ian Witton, Raymond Tang, Robert W. Kirby

1632-Pos BOARD B234
DETERMINING THE TOPOLOGY OF THE ACID-SENSING ION CHANNEL INTRACELLULAR DOMAINS. **Tyler A. Couch**, Kyle Berger, Dana Kneisley, Matthew L. Rook, Tyler W. McCulloch, Paul J. Kammermeier, David M. MacLean

1633-Pos BOARD B235
CHARACTERIZING CONFORMATIONAL CHANGES OF ASIC1A DURING GATING AND PEPTIDE MODULATION. **Stephanie A. Heusser**, Zeshan P. Sheikh, Christian B. Borg, Iacopo Galleano, Stephan A. Pless

1634-Pos BOARD B236
ASIC ACTIVATION MECHANISMS DELINEATED THROUGH GENETIC CODE EXPANSION. **Matthew L. Rook**, Tyler A. Couch, Jackson Hernandez, Alison J. Frontier, David M. MacLean

1635-Pos BOARD B237
DEVELOPMENT AND VALIDATION OF ASIC1A LIGAND-GATED ION CHANNEL DRUG DISCOVERY ASSAYS ON AUTOMATED PATCH CLAMP PLATFORMS. **Marc Rogers**, Sam Manyweathers, Tom Götze, Nadine Becker, Ilka Rinke, Michael George, Alison Obergrussberger

1636-Pos BOARD B238
DETERMINING ARACHIDONIC ACID INTERACTION SITES FOR ACID-SENSING ION CHANNELS USING MD SIMULATIONS. **Anna Ananchenko**, Maria Musgaard

1637-Pos BOARD B239
ROBUST HIDDEN MARKOV MODEL SELECTION BY BAYESIAN NETWORK-BASED ALGORITHMS EMBRACING VARIOUS PROBLEMS OF EXPERIMENTAL DATA. **Jan L. Münch**, Ralf Schmauder, Gabriel Lacroix, Rikard Blunck, Klaus Benndorf

1638-Pos BOARD B240
COMPREHENSIVE DOMAIN INSERTION PROFILING TO STUDY INWARD RECTIFIER K⁺ CHANNEL FOLDING ROBUSTNESS. Willow Coyote-Maestas, David Nedrud, Yungui He, **Daniel Schmidt**

1639-Pos BOARD B241
PKC MODULATION BY GIRK CHANNELS IS INVOLVED IN THE PATHOPHYSIOLOGY OF ATRIAL FIBRILLATION. **Kirin Gada**, Aishwarya Chandrashekar, Mengmeng Chang, Takeharu Kawano, Leigh D. Plant, Sami F. Noujaim, Diomedes E. Logothetis

1640-Pos BOARD B242
OLIVE OIL RESTORES FUNCTIONALITY OF INTRACELLULARLY RETAINED MUTANT CNG CHANNEL. **Angeles Avalos Hernandez**, Ataulfo Martinez-Torres, Estela Ruiz-Baca, Pablo Miranda, Angelica Lopez-Rodriguez

1641-Pos BOARD B243
TOWARDS UNDERSTANDING HCN1 INHIBITION BY SMALL MOLECULES. **Elizabeth D. Kim**, Crina M. Nimigeau

1642-Pos BOARD B244
INVOLVEMENT OF MITOCHONDRIAL INTERMEDIATE CONDUCTANCE CA²⁺-ACTIVATED K⁺ CHANNELS IN DCEBIO-INDUCED C2C12 SKELETAL MUSCLE CELL HYPERTROPHY. **Kazuho Sakamoto**, Chihiro Hibi, Shunya Takeshita, Junko Kurokawa

1643-Pos BOARD B245
DISSECTION OF P2X4 AND P2X7 RECEPTOR CURRENT COMPONENTS IN BV-2 MICROGLIA. Mira Trang, Guenther Schmalzing, Christa E. Mueller, **Fritz Markwardt**

Cardiac Muscle Regulation (Boards B246 - B260)

1644-Pos BOARD B246
MUTATIONS LINKED TO DILATED CARDIOMYOPATHY PERTURB THE TOPOLOGY AND REGULATORY RESPONSE OF PHOSPHOLAMBAN. **Daniel K. Weber**, Venkateswara Reddy Uddigiri, Tata Gopinath, Gianluigi Veglia

1645-Pos BOARD B247
REGULATION OF THE KINETICS OF HUMAN CARDIAC MYOSIN. **Akhil Gargey**, Yuri E. Nesmelov

1646-Pos BOARD B248
EFFECTS OF CARDIAC MYOSIN HEAVY CHAIN ISOFORM COMPOSITION ON CONTRACTION KINETICS AND CALCIUM TRANSIENTS IN ADULT RAT CARDIOMYOCYTES. Jan Nicolas Riesselmann, Tim Holler, Ante Radocaj, Joachim Meißner, Theresia Kraft, **Natalie Weber**

1647-Pos BOARD B249
MACHINE LEARNING MODEL OF CARDIAC MUSCLE CONTRACTION. **Yasser Aboelkassem**, Erica Pursell

1648-Pos BOARD B250
BIOCHEMICAL ROLE OF PHOSPHORYLATION OF SERINE-283 OF MAMMALIAN TROPOMYOSIN TPM1.1 (ALPHA). **A. Madhushika M. Silva**, David H. Heeley

1649-Pos BOARD B251
C-TERMINAL BASIC RESIDUES OF TROPONIN T FACILITATE TROPONIN I TRANSITIONS DURING ACTIVATION. Li Zhu, Dylan Johnson, **Joseph M. Chalovich**

1650-Pos BOARD B252
EMERGENCE OF THE N-TERMINAL REGULATORY DOMAIN OF CARDIAC TROPONIN I FOR LIVING ON LAND AND THE FUNCTION OF ADULT HEART OF HIGHER VERTEBRATES. **Monica A. Rasmussen**, Hanzhong Feng, J.-P. Jin

1651-Pos BOARD B253
RESTRICTIVE N-TERMINAL TRUNCATION OF CARDIAC TROPONIN T RESTORES A TROPONIN I-LIKE INHIBITORY STRUCTURE TO MODULATE CONTRACTILITY IN PATHOPHYSIOLOGICAL ADAPTATION. **Tianxin Cao**, Han-Zhong Feng, J.-P. Jin

1652-Pos BOARD B254
GENETICALLY ENGINEERED ADDITION OF A CA²⁺ BUFFERING CAPACITY IN MOUSE CARDIAC MUSCLE THIN FILAMENT USING A GLU-RICH SEGMENT OF INSECT TROPONIN T ALTERS CARDIAC PERFORMANCE. **Hanzhong Feng**, Tianxin Cao, J.-P. Jin

1653-Pos BOARD B255
MOLECULAR- AND CELLULAR-LEVEL EFFECTS OF A TROPONIN MUTATION LINKED TO DILATED CARDIOMYOPATHY. **Samantha K. Barrick**, Lina Greenberg, Michael J. Greenberg

1654-Pos BOARD B256
NOVEL CARDIAC TROPONIN I S43/45N SUBSTITUTION DOES NOT CAUSE ABERRANT CARDIAC REMODELING OR DYSFUNCTION IN MICE. **Vani S. Ravichandran**, Margaret V. Westfall, Tabea M. Schatz

1655-Pos BOARD B257
GENETIC VARIANTS AND POST-TRANSLATIONAL MODIFICATIONS OF CARDIAC TROPONIN C: INSIGHTS FROM THE PUBLIC DATABASES. **Tyler R. Reinoso**, Maicon Landim-Vieira, Yun Shi, Jamie R. Johnston, Michelle S. Parvatiyar, J. Renato D. Pinto, Andrew P. Landstrom, Prescott B. Chase, Hanna J. Tadros

1656-Pos BOARD B258
MODULATION OF CARDIAC THIN FILAMENT AZIMUTHAL RIGIDITY BY CALCIUM AND CROSS-BRIDGES. Maicon Landim-Vieira, Weikang Ma, Jamie Johnston, Vitold E. Galkin, Prescott B. Chase, Thomas C. Irving, **J. Renato D. Pinto**

1657-Pos BOARD B259
CONDITIONAL KNOCK-OUT OF CARDIAC MYOSIN LIGHT CHAIN KINASE AMELIORATES HYPERTROPHIC CARDIOMYOPATHY PHENOTYPE IN A MURINE MODEL. **Michelle C. Rodriguez Garcia**, Karissa Dieseldorff Jones, Rosemeire Kanashiro-Takeuchi, Audrey N. Chang, Eunyoung Lee, Michael Osei Assibey, Maicon Landim-Vieira, Isabella Leite Coscarella, Cynthia Vied, Prescott B. Chase, James T. Stull, J. Renato Pinto

1658-Pos BOARD B260
INTRINSIC MODIFIER EFFECT OF CTNT ISOFORM SWITCHING IN SARCOMERIC CARDIOMYOPATHIES. **Melissa L. Lynn**, Catherine Vasquez, Lauren Tal-Grinspan, Matthew M. Klass, Teryn A. Holeman, Jil C. Tardiff

Myosins (Boards B261 - B268)

1659-Pos BOARD B261
ADP-BOUND ACTOMYOSIN STATE EXHIBITS LOWER STIFFNESS THAN THE RIGOR STATE. **Tianbang Wang**, Bernhard Brenner, Arnab Nayak, Mamta Amrute-Nayak

1660-Pos BOARD B262
THE MEASUREMENT OF THE STEPPING FORCE OF PURIFIED ZYMOGEN GRAUNLES USING A SINGLE BEAM OPTICAL TRAP. **Justin J. Raupp**, Yuwen Mei, Takeshi Sakamoto

1661-Pos BOARD B263
DECIPHERING THE FUNCTION AND THE REGULATION OF *PLASMODIUM FALCIPARUM* MYOSIN A. **Julien Robert-Paganin**, Dihia Moussaoui, James P. Robblee, Daniel Auguin, Thomas C.A. Blake, Elena Kremontsova, Jake Baum, Kathleen M. Trybus, Anne Houdusse

1662-Pos BOARD B264
CONFORMATIONAL DISTRIBUTIONS OF ISOLATED MYOSIN MOTOR DOMAINS ENCODE THEIR MECHOCHEMICAL PROPERTIES. **Gregory Bowman**

1663-Pos BOARD B265
REGULATORY LIGHT CHAINS FINE-TUNE SKELETAL MUSCLE MYOSIN-II FUNCTION. Arnab Nayak, Tianbang Wang, Peter Franz, Walter Steffen, Igor Chizhov, Georgios Tsiavaliaris, **Mamta Amrute**

1664-Pos BOARD B266
SWITCH I AND SWITCH II MUTANTS DIFFERENTIALLY IMPACT THE RECOVERY STROKE IN MYOSIN V. Laura K. Gunther, Rohini Desetty, **Christopher M. Yengo**

1665-Pos BOARD B267
NEAR-ATOMIC STRUCTURE OF THE 10S FORM OF MYOSIN II: IMPLICATIONS FOR INHIBITION, ACTIVATION AND DISEASE. **Prince Tiwari**, Shixin Yang, Kyoungwhan Lee, Osamu Sato, Mitsuo Ikebe, Raul Padron, Roger Craig

1666-Pos BOARD B268
UNDERSTANDING HOW MUTATIONS IN NON-MUSCLE MYOSIN 2A DRIVE HUMAN DISEASE. **David E. Casas-Mao**

Cytoskeletal Assemblies and Dynamics (Boards B269 - B280)

1667-Pos BOARD B269
THE MITOTIC CROSSLINKING PROTEIN PRC1 ACTS LIKE A MECHANICAL DASHPOT TO RESIST MICROTUBULE SLIDING. Ignas R. Gaska, Mason E. Armstrong, April C. Alfieri, **Scott T. Forth**

1668-Pos BOARD B270
COFILIN PROTECTS CONTRACTILE RINGS FROM BRIDGING INSTABILITIES. Zachary A. McDargh, **Hongkang Zhu**, Ben O'Shaughnessy

1669-Pos BOARD B271
WRITHING OF CYTOKINETIC CONTRACTILE RINGS REVEALS THAT THE CONTRACTILE RING IS AN ELASTOPOROUS CABLE. **Sathish Thiyagarajan**, Dong An, Roberto Alonso-Matilla, Shuyuan Wang, Ting Gang Chew, Mohan Balasubramanian, Ben O'Shaughnessy

1670-Pos BOARD B272
FUNCTIONAL OPTIMALITY OF THE HIGHLY CONSERVED ARP2/3-MEDIATED 70° BRANCHING ANGLE. **Rikki M. Garner**, Julie A. Theriot

1671-Pos BOARD B273
STRUCTURE AND FUNCTION OF ABNORMAL SPINDLE-LIKE, MICROTUBULE ASSOCIATED PROTEIN (ASPM). **Marcus Holt**, David E. Casas-Mao, Jacqueline Bond, Michelle Peckham

1672-Pos BOARD B274
FUNCTIONAL DIFFERENCES BETWEEN B- AND F-ACTIN: FROM TRANSLATION DYNAMICS TO AMINO ACID CHANGES. **Pavan Vedula**, Satoshi Kurosaka, Dawei Dong, Brittany MacTaggart, Qin Ni, Yi Jiang, Anna Kashina

1673-Pos BOARD B275
QUANTITATIVE ANALYSIS OF ACTIN CYTOSKELETON'S MORPHOLOGICAL CHANGES DURING EMT IN LUNG CANCER AND PRE-CANCER CELL LINES. **Arkaprabha Basu**, Manash K. Paul, Mitchel Alioscha-Perez, Anna Grosberg, Hichem Sahli, Steven Dubinett, Shimon Weiss

1674-Pos BOARD B276
COLLECTIVE EFFECTS OF XMAP215, EB1, CLASP2, AND MCAK LEAD TO ROBUST MICROTUBULE TREADMILLING. **Goker Arpag**, Elizabeth J. Lawrence, Veronica J. Farmer, Sarah L. Hall, Marija Zanic

1675-Pos BOARD B277
UNDERSTANDING THE MECHANISMS THAT GIVE RISE TO THE MAMMALIAN SPINDLE'S RESPONSE TO FORCE USING THEORY AND MICRONEEDLE MANIPULATION. **Vahe Galstyan**, Pooja Suresh, Sophie Dumont, Rob Phillips

1676-Pos BOARD B278
CYTOPLASM BIOPHYSICAL PROPERTIES LIMIT CYTOSKELETON DYNAMICS IN VIVO. **Arthur T. Molines**, Joel Lemiere, Claire H. Edrington, Chieh-Ting Hsu, Ida E. Steinmark, Klaus Suhling, Gohta Goshima, Liam J. Holt, Gary Brouhard, Fred Chang

1677-Pos BOARD B279
TENSION-DEPENDENT MYOSIN DYNAMICS ON CONTRACTILE ACTOMYOSIN STRUCTURES. **Wen-hung Chou**, David Kovar, Margaret L. Gardel

1678-Pos BOARD B280
OPPOSING MOTORS PROVIDE MECHANICAL AND FUNCTIONAL ROBUSTNESS IN THE MAMMALIAN SPINDLE. **Lila Neahring**, Sophie Dumont

Mitochondria in Cell Life and Death (Boards B281 - B294)

1679-Pos BOARD B281
ON THE NATURE OF THE MITOCHONDRIAL PERMEABILITY TRANSITION. **Carmen A. Mannella**, Liron Boyman, Andrew Coleman, Christopher W. Ward, W. Jonathan Lederer

1680-Pos BOARD B282
CONSEQUENCES OF INNER MEMBRANE FOLDING ON MITOCHONDRIAL ATP OUTPUT. **Carmen A. Mannella**, Nasrin Afzal, W. Jonathan Lederer, Mohsin S. Jafri

1681-Pos BOARD B283
ROLE OF VDAC ISOFORMS IN ALPHA-SYNUCLEIN ENTRY INTO MITOCHONDRIA. **Megha Rajendran**, Marie-Paule Strub, Sergey M. Bezrukov, Tatiana K. Rostovtseva

1682-Pos BOARD B284
NME4 LOSS-OF-FUNCTION ALTERS MITOCHONDRIA, TRIGGERS RETROGRADE SIGNALING AND LEADS TO CELLULAR REPROGRAMMING. **Uwe Schlattner**, Frédéric Lamarche, Olivier De Wever, Cécile Cottet-Rousselle, Isabelle Hiningier-Favier, Malgorzata Tokarska-Schlattner, Eric Fontaine, Morgane Le Gall, Gilhem Clary, Cedric Broussard, Philippe Chafey, Marie-Lise Lacombe, Mathieu Boissan

1683-Pos BOARD B285
MITOCHONDRIAL CA²⁺ UPTAKE IN *OPA1*^{-/-} CELLS IS UPREGULATED THROUGH FUNCTIONAL ER-MITOCHONDRIA COUPLING. **Benjamin Cartes-Saavedra**, Patrick Yu-Wai-Man, Gyorgy Hajnoczky, Verónica Eisner

1684-Pos BOARD B286
PROHIBITIN OVEREXPRESSION PROMOTES OPA1 CLEAVAGE, REDUCES ROS AND IMPROVES RESPIRATION POST HYPOXIA. **Wenzhuo Ma**, Scarlett M. Huck, Shanna Hamilton, Radmila Terentyeva, Dmitry Terentyev, Richard T. Clements

1685-Pos BOARD B287
THE IMPACT OF MOLECULAR HYDROGEN ON MITOCHONDRIAL ROS AND APOPTOSIS IN COLORECTAL CANCER CELLS. **Yi-Hsuan Tsai**, Megha Jhunjhunwala, Tsan-Yao Chen, Chi-Shuo Chen

1686-Pos BOARD B288
ROLE OF OPA1 ADA-CaUSING MUTANTS IN MITOCHONDRIAL NUCLEOID DISTRIBUTION. **Josefa Macuada**, Geraldine Aedo, Gonzalo Vidal, Timothy Rudge, Benjamin Cartes-Saavedra, Verónica Eisner

1687-Pos BOARD B289
SEMI-AUTOMATED METHOD FOR IMAGE ANALYSIS OF MTDNA NUCLEOIDS DYNAMICS. **Geraldine Aedo**, Josefa Macuada, Benjamin Cartes-Saavedra, Gonzalo Vidal, Timothy Rudge, Verónica Eisner

1688-Pos BOARD B290
CYTOSOLIC AND MITOCHONDRIAL Ca^{2+} TRANSIENTS IN MITOCHONDRIAL FISSION PROTEIN MID49-DEFICIENT CELLS. **Erik A. Lopez**, Diego Troncoso, Benjamín Cartes-Saavedra, Daniel A. Lagos, Verónica Eisner

1689-Pos BOARD B291
DISEASE CAUSING-MFN2 MUTATIONS ALTER MITOCHONDRIAL FUSION AND FISSION DYNAMICS IN MOUSE EMBRYONIC FIBROBLAST. **Daniel Lagos**, Pamela Rojas, Diego Troncoso, Benjamin Cartes-Saavedra, Rita Horvath, Verónica Eisner

1690-Pos BOARD B292
GLUCOSE MODULATION OF MITOCHONDRIAL MORPHOLOGY IN PANCREATIC CELLS. **Ching-Hsiang Chu**, Wen-Wei Tseng, An-Chi Wei

1691-Pos BOARD B293
ACEYLATED CYCLOPHILIN D REGULATES MITOCHONDRIAL FUNCTION IN THE DEVELOPING MOUSE HEART. **Gisela Beutner**, Jonathan R. Burris, George A. Porter

1692-Pos BOARD B294
CASPASE REGULATION UNDER PHYSIOLOGICAL STRESS. **Rama Ali**

Molecular and Cellular Neuroscience (Boards B295 - B303)

1693-Pos BOARD B295
USING VOLUMETRIC 3D MICROSCOPY TECHNIQUES TO CHARACTERIZE ASTROCYTE MORPHOLOGIES OVER LARGE SPATIAL SCALES. **Kaitlin Szederkenyi**, Martin Oheim, Christopher M. Yip

1694-Pos BOARD B296
REACTION-DIFFUSION MODELING TO ASSESS WHAT LIMITS EFFECTIVE ACETYLCHOLINE FLUCTUATIONS AT HIGH FREQUENCY CHOLINERGIC ELECTROPLAQUES. Elham Alkhamash, Ivan L'Heureux, Catherine E. Morris, **Bela Joos**

1695-Pos BOARD B297
UNDERSTANDING THE ROLE OF DOPAMINE IN ASTROCYTE MEDIATED BRAIN SIGNALING AND FUNCTION. **Surya P. Aryal**, Chris I. Richards

1696-Pos BOARD B298
REGULATING QUANTAL SIZE OF NEUROTRANSMITTER RELEASE THROUGH A GPCR VOLTAGE SENSOR. Quanfeng Zhang, Yinglin Li, Lili Yin, Zhaohan Lin, Bin Liu, Feipeng Zhu, **Zhuan Zhou**

1697-Pos BOARD B299
IN SITU STUDIES OF FIBRILLAR POLYMORPHS IN ALZHEIMER'S DISEASE. Biel Roig Solvas, Bradley T. Hyman, **Lee Makowski**

1698-Pos BOARD B300
ELECTRONIC EXPRESSION OF BACKGROUND AND DELAYED RECTIFIER CURRENTS VIA DYNAMIC CLAMP PRODUCES PHYSIOLOGICAL ACTION POTENTIALS IN STEM CELL DERIVED GLUTAMATERGIC NEURONS. Mark W. Nowak, Brian K. Panama, Leigh Korbel, **Randall L. Rasmusson**, Glenna Bett

1699-Pos BOARD B301
A NOVEL TWO Ca^{2+} SENSOR SYSTEM IN C. ELEGANS. **Zhitao Hu**

1700-Pos BOARD B302
ALZHEIMER'S DISEASE, HYPERGLYCEMIA, AND AN ANTIOXIDANT: AN INVESTIGATION INTO NEURONAL CELL DEATH. **Marie L. Kelly-Worden**, Emma Cieslik

1701-Pos BOARD B303
COULOMBIC FRICTION BETWEEN TWO SLIDING BIO-FILAMENTS : A COMPUTATIONAL MODEL. **Touhid Feghhi**, Wolfgang Tichy, AWC Lau

Neuroscience (Boards B304 - B307)

1702-Pos BOARD B304
FORMATION OF A MORPHOGEN GRADIENT - ACCELERATION BY QUANTUM WALKS. Carl Trindle, **Irfan Lone**

1703-Pos BOARD B305
COMPUTATIONAL MODEL OF EPHAPTIC COUPLING AND POTASSIUM MODULATION AT THE VESTIBULAR HAIR CELL CALYX SYNAPSE. **Aravind Chenrayan Govindaraju**, Anna Lysakowski, Ruth Anne Eatock, Robert M. Raphael

1704-Pos BOARD B306
EXPOSURE SYSTEM DEPENDENT CALCIUM INFLUX IN CHROMAFFIN CELLS BY NANOSECOND ELECTRIC PULSE- FIELD REFLECTIONS AT DIELECTRIC INTERFACE. **Anithakrithi Balaji**, Jihwan Yoon

1705-Pos BOARD B307
MECHANOCHEMICAL MODELING OF AMPAR TRAFFICKING IN DENDRITIC SPINES. **Miriam Bell**, Padmini Rangamani

Optical Microscopy and Superresolution Imaging II (Boards B308 - B342)

1706-Pos BOARD B308
MACHINE LEARNING ENABLED PHASE UNWRAPPING FOR DIGITALHOLOGRAPHIC MICROSCOPY. **Ziyang Yu**, Jin Lei, Christopher M. Yip

1707-Pos BOARD B309
APOLLO-NADP⁺ TARGETTING TO MEASURE ORGANELLE REDOX RESPONSES IN PANCREATIC BETA-CELLS. **Jonathan V. Rocheleau**, Alex Bennett, Huntley Chang

1708-Pos BOARD B310
A QUANTITATIVE OPTOGENETIC TOOL TO CONTROL GENE EXPRESSION DURING EMBRYONIC DEVELOPMENT. **Anand P. Singh**, Ping Wu, Eric F. Wieschaus, Jared E. Toettcher, Thomas Gregor

1709-Pos BOARD B311
MAPPING PROTEIN CONCENTRATIONS IN LIVE HIPSCS ACROSS MICROSCOPE PLATFORMS. Derek Thirstrup, Jie Yao, Jamie Sherman, Nathalie Gaudreault, **Winfried Wiegand**

1710-Pos BOARD B312
SAMPLE PREPARATION AND LASER INTENSITIES AFFECT MEOS3.2 PHOTOPHYSICS IN LIVE AND FIXED FISSION YEAST CELLS. **Mengyuan Sun**, Kevin Hu, Joerg Bewersdorf, Thomas D. Pollard

1711-Pos BOARD B313
UNIFORM, UNIVERSAL, SHADOWLESS TIRF MICROSCOPY VIA ANNULAR FIBER BUNDLE. **Benjamin Croop**

1712-Pos BOARD B314
TWO-PHOTON ABSORPTION CHARACTERISTICS OF MELANOPIN IN BIOLOGICAL SYSTEMS. **Carlos Renteria**, Honggu Choi, Brian Tibble, Rishyashring R. Iyer, Eric J. Chaney, Mantas Zurauskas, Yuan-Zhi Liu, Stephen A. Boppart

1713-Pos BOARD B315
MULTISPECTRAL STOKES/MUELLER DETECTION MODULE FOR MULTI-PHOTON/FLUORESCENCE CONFOCAL SCANNING IMAGING MICROSCOPY. **Aymeric Le Gratiot**, Riccardo Marongiu, Muhammad Waseem W. Ashraf, Ali Mohebi, Fabio Callegari, Paolo Bianchini, Alberto Diaspro

1714-Pos BOARD B316
A NEW BIOSENSOR DESIGN REVEALS CONFORMATIONAL CHANGES OF SINGLE MOLECULES IN LIVING CELLS. **Bei Liu**

1715-Pos BOARD B317
2.5D MICROSCOPY: FAST, HIGH-THROUGHPUT SUBCELLULAR IMAGING VIA VOLUMETRIC PROJECTION. **Jinhan Ren**, Kyu Young Han

1716-Pos BOARD B318
DEVELOPMENT OF DIFFUSION CONTRAST PHOTO-ACTIVATED LOCALIZATION MICROSCOPY TO DETECT SPARSE PROTEIN INTERACTIONS AT HIGH BACKGROUND. Angel Mancebo, **Jacob M. Ritz**, Elias M. Puchner

1717-Pos BOARD B319
SYNCHRONOUS 3D TRACKING AND IMAGING AT MULTIPLE SCALES TO OVERCOME SPATIOTEMPORAL DISPARITY. **Courtney C. Johnson**, Jack C. Exell, Kevin D. Welsner

1718-Pos BOARD B320
GLOBALLY DENSITY-CORRECTED CORRELATION ANALYSIS FOR SINGLE-MOLECULE LOCALIZATION MICROSCOPY. **Thomas R. Shaw**, Sarah L. Veatch

1719-Pos BOARD B321
SPECTRAL DETECTION ENABLES MULTI-COLOR FLUORESCENCE FLUCTUATION SPECTROSCOPY STUDIES IN LIVING CELLS. **Valentin Dunsing**, Annett Petrich, Salvatore Chiantia

1720-Pos BOARD B322
UNIVERSAL QUENCHING OF STANDARD ORGANIC FLUOROPHORES BY WATER AND ALCOHOLS THROUGH RESONANCE ENERGY TRANSFER. **Jimmy Maillard**, Kathrin Klehs, Christopher Rumble, Eric Vauthey, Mike Heilemann, **Alexandre Fuerstenberg**

1721-Pos BOARD B323
HIGHLY MULTIPLEXED DETERMINATION OF THE CELL STATE BY PHASOR SPECTRAL FLIM. **Lorenzo Scipioni**, Alessandro Rossetta, Giulia Tedeschi, Enrico Gratton

1722-Pos BOARD B324
OFF-AXIS DIGITAL HOLOGRAPHIC MICROSCOPE WITH A ROTATING DIFFRACTION PLATE FOR SPECKLE SUPPRESSION. **Jin Lei**, Christopher M. Yip

1723-Pos BOARD B325
UNBIASED FLUORESCENCE CORRELATION SPECTROSCOPY OF DIFFUSIVE PROCESSES IN LIVING CELLS. **Kwang Ho Hur**, John Kohler, Joachim D. Mueller

1724-Pos BOARD B326
DIFFRACTION-LIMITED MAPPING OF INTEGRIN FORCE VECTOR FIELDS WITH VALID-MFM. **Aaron T. Blanchard**, Dale Combs, Sk Aysha Rashid, Joshua Brockman, Yuxin Duan, Alexa L. Mattheyses, Khalid Salaita

1725-Pos BOARD B327
QUANTIFICATION OF CHRONIC RENAL PARENCHYMAL INJURY USING PHASOR APPROACH TO AUTOFLUORESCENCE LIFETIME IMAGING. **Suman Ranjit**, Kammi Henriksen, Alexander Dvornikov, Marco Delsante, Avi Rosenberg, Moshe Levi, Enrico Gratton

1726-Pos BOARD B328
DETERMINATION OF THE PARTITION COEFFICIENT OF PROTEIN-MEMBRANE REVERSIBLE ASSOCIATION BY FCS AND PCH. **Arturo G. Vesga**, Cintia de Vequi, Lupe Villegas, Johana Torralba, Miguel García-Porras, Pablo Carravilla, Jose L. Nieva, Jose Requejo-Isidro

1727-Pos BOARD B329
HYPERSPETRAL IMAGING IN A SINGLE PLANE ILLUMINATION MICROSCOPE BY SPECTRAL PHASOR ANALYSIS WITH SINE-COSINE TRANSMISSION FILTERS. **Leonel S. Malacrida**, Andres Kamaid, Enrico Gratton, Per Niklas Hedde

1728-Pos BOARD B330
QUANTIFYING SUBCELLULAR GROWTH DYNAMICS USING QUANTITATIVE PHASE IMAGING. **Soorya Pradeep**, Thomas A. Zangle

1729-Pos BOARD B331
NON-INVASIVE SINGLE-CELL MORPHOMETRY IN LIVING BACTERIAL BIOFILMS. **Ji Zhang**, Yibo Wang, Mingxing Zhang, Jie Wang, Alecia Achimovich, Scott T. Acton, Andreas Gahlmann

1730-Pos BOARD B332
FLUORESCENCE LIFETIME IMAGING MICROSCOPY MAPS FLUOROPHORE CONCENTRATIONS, A GAUSSIAN PROCESS APPROACH. **Mohamadreza Fazel**, Sina Jazani, Steve Pressé

1731-Pos BOARD B333
MOLECULAR ASSESSMENT OF HER2 IN BREAST CANCER. **Adam L. Maddox**, Matthew S. Brehove, Steven J. Tobin, Devin L. Wakefield, Kiarash R. Eliato, Jackelyn Alva-Ornelas, Veronica Jones, Daniel Schmolze, Joanne Mortimer, Victoria L. Seewaldt, Tijana Jovanovic-Talisan

1732-Pos BOARD B334
A WORKFLOW FOR DETERMINING AND SIZING OLIGOMERIC BIOMOLECULAR STRUCTURES WITH CRYO SINGLE MOLECULE LOCALIZATION MICROSCOPY. **Magdalena C. Schneider**, Roger Telschow, Gwenael Mercier, Montserrat López-Martinez, Otmar Scherzer, Gerhard J. Schütz

1733-Pos BOARD B335
NADH AUTOFLUORESCENCE PHASOR FLIM FOR THE METABOLIC CHARACTERIZATION OF T CELL AND LEUKEMIA CELL IN A DROPLET. **Francesco Palomba**, Michelle A. Digman, Xuhao Luo, Abraham Lee

1734-Pos BOARD B336
WAVELET-BASED BACKGROUND AND NOISE REMOVAL FOR FLUORESCENCE MICROSCOPY IMAGES. Manuel Hüpfel, Andrei Y. Kobitski, Weichun Zhang, **G. Ulrich Nienhaus**

1735-Pos BOARD B337
SINGLE-PARTICLE TRACKING OF DNA-BINDING BIOMOLECULES IN CELLS: POWER-LAW DISTRIBUTIONS OF DWELL TIMES. **Michael J. Saxton**

1736-Pos BOARD B338
QUANTITATIVE FLUORESCENCE MICROSCOPY ON SARS-COV-2. **Rayna M. Addabbo**, John Kohler, Isaac Angert, Yan Chen, Heather Hanson, Louis M. Mansky, Joachim D. Mueller

1737-Pos BOARD B339
USING ENZYME-LINKED MARKERS WITH CHROMOGENIC SUBSTRATES IN EXPANSION MICROSCOPY. **Julia R. Migliore**, Douglas D. Root

1738-Pos BOARD B340
NUMBER AND BRIGHTNESS ANALYSIS WITH SPATIAL FILTERS. **Daniel Foust**, David W. Piston

1739-Pos BOARD B341
AUTOMATIC IMAGE SEGMENTATION BASED ON PHASOR SPACE CLUSTERING. **Alexander Vallmitjana**, Belén Torrado, Enrico Gratton

1740-Pos BOARD B342
COMPARISON OF DIFFERENT SCANNING ION-CONDUCTANCE MICROSCOPY METHODS TO STUDY LOCAL MECHANICAL PROPERTIES OF LIVING CELLS. **Aleksei Iakovlev**, Pavel Novak, Alexander Erofeev, Petr Gorelkin, Vasilii Kolmogorov, Nikita Savin

Force Spectroscopy and Scanning Probe Microscopy (Boards B343 - B349)

1741-Pos BOARD B343
ANTIMICROBIAL ACTIVITY OF ANTIFUNGAL DRUGS ON CANDIDA PARAPSILOSIS STUDIED BY SCANNING IONCONDUCTANCE MICROSCOPY (SICM). **Nikita Savin**, Vasilii Kolmogorov, Aleksei Iakovlev, Roman Timoshenko, Petr Gorelkin, Alexander Erofeev, Yuri E. Korchev

1742-Pos BOARD B344
MORPHOLOGICAL AND NANOMECHANICAL PROPERTIES OF MODEL OF ANIMAL AND HUMAN EYE LENS LIPID MEMBRANES. **Nawal Khadka**, Raju Timsina, Laxman Mainali

1743-Pos BOARD B345
ELUCIDATING THE NANOSCALE EFFECT OF CELL GEOMETRY AND CYTOSKELETON ORGANIZATION ON *CANDIDA*-HOST CELL INTERACTIONS. **Easter Ndlovu**, Tanya E. Dahms, Etienne Dague

1744-Pos BOARD B346
ROLE OF LIGAND BINDING SITE IN MODULATING MECHANICAL PROPERTIES OF UBIQUITIN FAMILY PROTEINS. Mona Gupta, Ravindra Venkatramani, **Sri Rama Koti Ainavarapu**

1745-Pos BOARD B347
MAPPING MECHANOSTABLE PULLING GEOMETRIES OF PROTEIN-LIGAND COMPLEXES. **Zhaowei Liu**, Rodrigo A. Moreira, Ana Dujmović, Haipei Liu, Byeongseon Yang, Adolfo B. Poma, Michael A. Nash

1746-Pos BOARD B348
EXPLORING THE DOXORUBICIN-DNA INTERACTION BY DNA STRETCHING USING OPTICAL TWEEZERS. **Zachary Ells**, Brian Dolle, Ioulia F. Rouzina, Mark C. Williams, Thayaparan Paramanathan

1747-Pos BOARD B349
DOES ATP MODULATE PROTEIN NANOMECHANICS. **Agata Bak**, Jorge Alegre-Cebollada

Biosensors (Boards B350 - B370)

1748-Pos BOARD B350
NUCLEIC ACID SEQUENCE DETECTION BY A MULTI-TECHNIQUE APPROACH. **Giulia Pinto**, Silvia Dante, Pietro Parisse, Paolo Canepa, Lorendana Casalis, Maurizio Canepa, Ornella Cavalleri

1749-Pos BOARD B351
CHEMICALLY-TUNED SOLID-STATE NANOPORES FOR SINGLE-MOLECULE BIOPHYSICS. **Jugal Saharia**, Matthew ODonohue, Y.M. Nuwan D.Y. Bandara, Buddini I. Karawdeniya, Min Jun Kim

1750-Pos BOARD B352
SMOOTH VOLTAGE-DRIVEN TRANSLOCATION OF FULL-LENGTH PROTEINS THROUGH NANOPORES. **Luning Yu**, Xinqi Kang, Mohammad Amin Alibakhshi, Fanjun Li, Bezhad Mehrafrooz, Aleksei Aksimentiev, Min Chen, Meni Wanunu

1751-Pos BOARD B353
DEVELOPMENT AND CHARACTERIZATION OF NOVEL PROBES FOR PHOTOACOUSTIC MICROSCOPY. **Francesco Garzella**, Barbara Storti, Ranieri Bizzarri, Aba Losi, Wolfgang Gärtner, Stefania Abbruzzetti, Paolo Bianchini, Cristiano Viappiani, Alberto Diaspro

1752-Pos BOARD B354
BENT DNA BOWS AS SENSING AMPLIFIERS FOR DETECTING DNA-INTERACTING SALTS AND MOLECULES. **Yong Wang**, Jack Freeland, Lihua Zhang, Shih-Ting Wang, Mazon Ruiz

1753-Pos BOARD B355
IGLOW: REAL-TIME FLUORESCENCE REPORTING, INTRA-VESICULAR ACTIVITY, AND HELIX-8 INDEPENDENCE IN A CPGFP-TAGGED MECHANOSENSITIVE GPCR. **Alper D. Ozkan**, Tina Gettas, Audrey Sogata, Wynn Phaychanpheng, Jerome J. Lacroix

1754-Pos BOARD B356
BLACK DOTS: MICROCONTACT PRINTED REFERENCE-FREE TRACTION FORCE MICROSCOPY. **Kevin M. Beussman**, Molly Y. Mollica, Sangyoon J. Han, Ashley Emery, Wendy E. Thomas, Nathan J. Sniadecki

1755-Pos BOARD B357
ORIENTATION IDENTIFICATION OF PEPTIDE TRANSLOCATION THROUGH AN AEROLYSIN NANOPORE. **Yilun Ying**, Hongyan Niu, Xue-yuan Wu, Yi-Tao Long

1756-Pos BOARD B358
THE REACTIVITY OF CYSTEINE IN NANOPORE CONFINED ENVIRONMENT. **Wei Liu**, Yi-Lun Ying, Meng-Yin Li, Xue-yuan Wu, Yi-Tao Long

1757-Pos BOARD B359
INTRACELLULAR IMAGING OF OXYGEN AND REACTIVE OXYGEN SPECIES USING FLUORESCENCE LIFETIME IMAGING OF EYFP-MYO-MCHERRY. **Rozhin Penjweini**, Branden Roarke, Alessio Andreoni, Gregory R. Alspaugh, Katie A. Link, Dan L. Sackett, Jay R. Knutson

1758-Pos BOARD B360
ULTRASENSITIVE OPTICAL LABEL-FREE BIOSENSING AND FLUORESCENT MEASUREMENTS USING UV SURFACE PLASMONS IN GOLD NANOLAYERS LAUNCHED WITH THE SUPPORT OF A SPECIALLY DESIGNED PHOTONIC CRYSTAL. Kirill Prusakov, Dmitry Basmanov, Dmitry Klinov, **Sergey K. Sekatskii**

1759-Pos BOARD B361
TUNING THE REDOX PROPERTIES OF HEME-BASED BIOSENSORS. Martin J. Iwanicki, Christopher C. Moser, **Bohdana M. Discher**

1760-Pos BOARD B362
OPEN-ENDED COAXIAL PROBE FOR DIELECTRIC THICKNESS MEASUREMENTS. **Christopher E. Bassey**

1761-Pos BOARD B363
ELECTROCHEMICAL METHOD FOR REAL-TIME ROS MEASUREMENTS IN SINGLE CELLS. **Alexander Vaneev**, Roman Timoshenko, Vasilii Kolmogorov, Elena Lopatukhina, Nelly Chmelyuk, Emil Yamansarov, Rostislav Petrov, Alexander Majouga, Yuri Korchev, Pavel Novak, Natalia Klyachko, Alexander Erofeev, Peter Gorelkin

1762-Pos BOARD B364
REVERSIBLE MICHAEL ADDITION OF AN ENGINEERED CYSTEINE RESIDUE TO A LIGHT ACTIVATED LIGAND, A NEW DESIGN STRATEGY FOR A SYNTHETIC PHOTOSWITCHABLE FLUORESCENT PROTEIN. **Soham Maity**, Wei Sheng, Nona Ehyaei, Thomas E. Kimmel, James H. Geiger, Babak Borhan

1763-Pos BOARD B365
FLUORESCENCE SENSORS FOR DETECTION, DISCRIMINATION AND QUANTIFICATION OF SIDEROPHORES. **Ashish Kumar**, Salet M. Newton, Phillip E. Klebba

1764-Pos BOARD B366
DEVELOPMENT AND OPTIMIZATION OF RED-SHIFTED FLUORESCENT PHI BIOSENSORS. **Jacob E. Wagner**, Katharine White

1765-Pos BOARD B367
DESIGN AND CHARACTERIZATION OF GOLD-PALLADIUM ELECTRODE PLATFORMS FOR CANCER DETECTION. **Manuel J. La Torre Poueymirou**, Ramonita Diaz Ayala, Carlos R. Cabrera

1766-Pos BOARD B368

SCREENING GEVIS WITH VOLTAGE SENSING DOMAINS FROM DIFFERENT SPECIES OF THE VOLTAGE SENSING PHOSPHATASE GENE FAMILY REVEALS DIFFERENCES IN MEMBRANE EXPRESSION AND VOLTAGE RANGES. Lee Min Leong, **Laura Bilbao-Broch**, Youna Kim, Shacarol Sims, Iryna Martsishevska, Md Sofequl Islam Mukim, Ju-young Lee, Jiwon Kim, Yeon ha Ju, Minjoo Song, Jihyun Song, Maria Godlevska, Bradley J. Baker

1767-Pos BOARD B369

COMPUTATIONAL MODELING OF DNA-NANOTUBE HYBRID CONJUGATES FOR BIOSENSOR APPLICATIONS. **Lela Vukovic**

1768-Pos BOARD B370

COMPUTATIONAL STUDY OF SINGLE-PROTEIN SENSING USING NANOPORES. **Sebastian Cardoch**, Ralph H. Scheicher

TUESDAY LATE POSTERS

12:00 PM–1:30 PM

Below is the list of late poster presentation for Tuesday.

ODD-NUMBERED BOARDS 12:00 PM–12:45 PM | EVEN-NUMBERED BOARDS 12:45 PM–1:30 PM

<u>Numbers</u>	<u>Category</u>
LB1 - LB7	Protein Structure and Conformation I
LB8 - LB13	Protein Structure, Prediction, and Design
LB14 - LB16	Protein Assemblies
LB17 - LB18	Membrane Protein Structures
LB19 - LB24	Intrinsically Disordered Proteins (IDP) and Aggregates I
LB25 - LB28	Membrane Physical Chemistry
LB29 - LB29	Membrane Dynamics
LB30 - LB36	Exocytosis and Endocytosis
LB37 - LB42	Calcium Signaling
LB43 - LB43	Other Channels
LB44 - LB45	Skeletal and Smooth Muscle Mechanics, Structure, and Regulation
LB46 - LB46	Bacterial Mechanics, Cytoskeleton, and Motility
LB47 - LB50	Membrane Pumps, Transporters, and Exchangers
LB51 - LB51	EPR and NMR: Spectroscopy and Imaging
LB52 - LB56	Computational Methods and Bioinformatics
LB57 - LB60	Bioengineering

Tuesday, February 23

Tuesday Late Posters (Boards LB1 - LB60)

Protein Structure and Conformation I (Boards LB1 - LB7)

L1769-Pos BOARD LB1

PROBING THE MECHANISM OF PEPTIDE REGISTER SHIFTS IN T CELL RECEPTOR RECOGNITION. **Tatiana Rosales**

L1770-Pos BOARD LB2

USING THE GEOMETRY BETWEEN AMINO ACID SIDE CHAINS TO CHARACTERIZE PROTEIN PACKING. **Michael L. Kalin**, Pranav M. Khade, Ambuj Kumar, Robert L. Jernigan

L1771-Pos BOARD LB3

THE N-TERMINAL DOMAIN OF RFAH PLAYS AN ACTIVE ROLE IN PROTEIN FOLD-SWITCHING. **Pablo Galaz-Davison**, Ernesto Roman, Cesar A. Ramirez-Sarmiento

L1772-Pos BOARD LB4

VCCI-CHEMOKINE INTERACTIONS: EXPERIMENTAL STUDY MEETS COMPUTATIONAL INSIGHTS. **Wenyan Guan**, Lauren E. Stark, Laura Showalter, Michael E. Colvin, Patricia LiWang

L1773-Pos BOARD LB5

BIOPHYSICAL CHARACTERIZATION OF METAL BINDING TO ZNF750, A ZNF IMPLICATED IN TUMORIGENESIS. **Britney R. Privett**, Elizabeth DeGaetano

L1774-Pos BOARD LB6

DETECTION OF UBIQUITINATION ACTIVITIES IN CANCER CELLS USING ARTIFICIAL RING FINGERS. **Kazuhide Miyamoto**

L1775-Pos BOARD LB7

EXPRESSION AND PURIFICATION OF YEAST-DERIVED GPCR, GA AND Gbg SUBUNITS FOR STRUCTURAL AND DYNAMIC STUDIES. **Wenjie Zhao**

Protein Structure, Prediction, and Design (Boards LB8 - LB13)

L1776-Pos BOARD LB8

TOPOLOGICAL DATA ANALYTIC FRAMEWORK FOR BIOLOGICAL STRUCTURES AND SHORT-TERM EVOLVING MOLECULAR MODELS. **Wai Shing Tang**, Lorin Crawford

L1777-Pos BOARD LB9

STRUCTURE-BASED DESIGN OF MUTATIONS IN LEIOMODIN/TROPOMYOSIN BINDING INTERFACE. **Nickolas C. Starks**, Garry E. Smith, Alla S. Kostyukova, Dmitri Tolkatchev

L1778-Pos BOARD LB10

RESIDUAL FORCE ENHANCEMENT IS REDUCED IN PERMEABILIZED FIBER BUNDLES FROM *MDM* MUSCLES. **Dhruv Mishra**, Kiisa C. Nishikawa

L1779-Pos BOARD LB11

COMPUTATIONAL MODELING OF VIROPORIN PROTEINS FROM RNA VIRUSES. Lori D. Banks, **Jeremy Bennett**

L1780-Pos BOARD LB12

BIRESCRYSTAL AND SERESCRYSTAL, TWO SEQUENCE-BASED CRYSTALLIZATION PREDICTORS USING NOVEL SQUEEZE EXCITATION RESIDUAL NETWORKS. **Mohammad Madani**, Anna Tarakanova

L1781-Pos BOARD LB13

MODELING CORONAVIRUS SPIKE PROTEIN DYNAMICS-IMPLICATIONS FOR IMMUNOGENICITY AND IMMUNE ESCAPE. **Genevieve Kunkel**, Mohammad Madani, Simon J. White, Paulo H. Verardi, Anna Tarakanova

Protein Assemblies (Boards LB14 - LB16)

L1782-Pos BOARD LB14

MECHANISTIC EVALUATION OF *IN VITRO* AGGREGATION OF FULL-LENGTH, HUMAN TDP-43 PROTEIN. **Josephine C. Esposto**, Sanela Maric

L1783-Pos BOARD LB15

SNARE COMPLEX ASSEMBLY AND ITS REGULATION BY COMPLEXIN-1 - A NATIVE MASS SPECTROMETRY STUDY. **Julia Hesselbarth**, Carla Schmidt

L1784-Pos BOARD LB16

DESIGNING SMART PROTEIN MICROPARTICLES FOR DRUG DELIVERY. **Dirk Fennema Galparsoro**, Valeria Vetri, Vito Foderà

Membrane Protein Structures (Boards LB17 - LB18)

L1785-Pos BOARD LB17

STRUCTURE OF THE LIPID MODIFIED WNT IN COMPLEX WITH ITS RECEPTOR WLS. **Rie Nygaard**, Jia Yu, Jonathan Kim, Daniel Ross, Giacomo Parisi, Oliver B. Clarke, David M. Virshup, Filippo Mancia

L1786-Pos BOARD LB18

STRUCTURE AND FUNCTION OF THE *ARABIDOPSIS THALIANA* GLUTAMATE RECEPTOR-LIKE (GLR) CHANNEL. **Marriah N. Green**, Shanti Pal Gangwar, erwan michard, Alex A. Simon, Jose A. Feijo, Alexander I. Sobolevsky

Intrinsically Disordered Proteins (IDP) and Aggregates I (Boards LB19 - LB24)

L1787-Pos BOARD LB19

TUNABLE MULTIPHASE DYNAMICS OF ARGININE AND LYSINE LIQUID CONDENSATES. **Rachel S. Fisher**, Shana Elbaum-Garfinkle

L1788-Pos BOARD LB20

SMALL-MOLECULE SEQUESTRATION OF AMYLOID-BETA AS A DRUG DISCOVERY STRATEGY FOR ALZHEIMER'S DISEASE. **Gabriella T. Heller**, Francesco A. Aprile, Thomas C.T. Michaels, Ryan Limbocker, Michele Perni, Francesco Simone Ruggeri, Benedetta Mannini, Thomas Löhr, Massimiliano Bonomi, Carlo Camilloni, Alfonso De Simone, Isabella C. Felli, Roberta Pierattelli, Tuomas P. Knowles, Michele Vendruscolo

L1789-Pos BOARD LB21

FUS LOW COMPLEXITY DOMAIN FIBRIL STRUCTURE BY CRYO ELECTRON MICROSCOPY AND SOLID-STATE NMR. **Myungwoon Lee**, Ujjayini Ghosh, Kent R. Thurber, Masato Kato, Robert Tycko

L1790-Pos BOARD LB22

MILLISECOND TIME-RESOLVED SOLID-STATE NMR REVEALS A TWO-STAGE MOLECULAR MECHANISM FOR COMPLEX FORMATION OF CALMODULIN AND MYOSIN LIGHT CHAIN KINASE. **Jaekyun Jeon**, Robert Tycko, Wai-Ming Yau

L1791-Pos BOARD LB23

THE ROLE OF PHASE SEPARATION BY NUP98 FUSION ONCOPROTEINS IN LEUKEMIA. **Bappaditya Chandra**, Nicole L. Michmerhuizen, Hazheen Shirneki, Michael White, Diana M. Mitrea, Ilaria Iacobucci, Jeffery M. Klcó, Charles G. Mullighan, Richard Kriwacki

L1792-Pos BOARD LB24

IDENTIFYING RULES GOVERNING PHASE SEPARATION OF DISORDERED PROTEINS. **Gregory L. Dignon**

Membrane Physical Chemistry (Boards LB25 - LB28)

L1793-Pos BOARD LB25

UNDERSTANDING THE EFFECTS OF IONIZABLE LIPIDS ON A LIPID NANOPARTICLE SURFACE BY COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS. **Sreyoshi Sur**, Yan Xia, Michael Smith

L1794-Pos BOARD LB26

DIVALENT METALS CD AND NI AFFECT THE MEMBRANE PHASE PROPERTIES OF ISOLATED BIOLOGICAL MEMBRANES FROM HUMAN RENAL PROXIMAL TUBULE CELLS. **Kevin Sule**, Wing-Kee Lee, Elmar J. Prenner

L1795-Pos BOARD LB27

AUTOMATED IMAGE ANALYSIS OF MOLECULAR ORGANIZATION ON THE GIANT UNILAMELLAR VESICLES BY FLUORESCENCE INTENSITY TRACE AND DEEP LEARNING. **Il-Hyung Lee**, Selin Ozturk, Sam Passaro, Weitian Wang

L1796-Pos BOARD LB28

THE EFFECTS OF THE COMMON IMAGING AGENT GADOLINIUM ON THE PHYSICAL CHARACTERISTICS OF MODEL MEMBRANES. **Colin H.E. Unruh**, Elmar J. Prenner

Membrane Dynamics (Boards LB29 - LB29)

L1797-Pos BOARD LB29

TITANIUM DIOXIDE AND ZINC OXIDE NANO-MATERIALS CHANGE THE LIPID ORDER OF MODEL MEMBRANES. **Matthew J. Sydor**, Donald S. Anderson, Harmen B.B. Steele, Sandy Ross, Andrij Holian

Exocytosis and Endocytosis (Boards LB30 - LB36)

L1798-Pos BOARD LB30

DETERMINATION OF GEOMETRIC FEATURES THAT DISTINGUISH THE CONSTANT AREA MODEL FROM THE CONSTANT CURVATURE MODEL FOR CLATHRIN-MEDIATED ENDOCYTOSIS. **Rui Ma**, Julien Berro

L1799-Pos BOARD LB31

EXTRACELLULAR VIMENTIN ASSISTS IN SARS-COV-2 HOST CELL INVASION. **Sarthak Gupta**, Maxx Swoger, Alison Patteson, J.M. Schwarz

L1800-Pos BOARD LB32

STAR MICROSCOPY REVEALS DYNAMICS OF CURVATURE FORMATION DURING CLATHRIN-MEDIATED ENDOCYTOSIS IN LIVING CELLS WITH NANOMETER AXIAL RESOLUTION. **Tomasz J. Nawara**, Tejeshwar C. Rao, Alexa L. Mattheyses

L1801-Pos BOARD LB33

CONFORMATIONAL DYNAMICS OF SNARE PROTEINS DURING NSF-MEDIATED DISASSEMBLY. **Katie M. Dunleavy**, Holland Matlock, Richard A. Pfuetzner, Luis A. Esquivies, Giovanni Howells, Bishal Misra, Claire Gething, Axel T. Brunger, Ucheor B. Choi

L1802-Pos BOARD LB34

SINGLE-VESICLE RESOLUTION MEASUREMENT OF NEUROTRANSMITTER SECRETION EVENTS USING HIGH-DENSITY MEA FOR THE RAPID STUDY OF MOLECULAR MANIPULATIONS. **Kevin A. White**, Brian N. Kim

L1803-Pos BOARD LB35

CELL PATTERNING BY SECRETION-INDUCED PLASMA MEMBRANE FLOWS. Veneta Gerganova, Iker Lamas, David M. Rutkowski, Alexander Vještica, Daniela Gallo Castro, Vincent Vincenzetti, **Dimitrios Vavylonis**, Sophie G. Martin

L1804-Pos BOARD LB36

THE EFFECT OF ASSEMBLY AND LOADING METHODS ON THE SIZE DISTRIBUTION AND UPTAKE OF POLY-N-VINYL-2-PYRROLIDONE THIOOCTADECYL POLYMERIC NANOCARRIER. Levi Collin Nelemans, Cristian Pablo Pennisi, Gunna Christiansen, Anna L. Luss, Pavel P. Kulikov, Andrey N. Kuskov, Mikhail I. Shtilman, **Leonid Gurevich**

Calcium Signaling (Boards LB37 - LB42)

L1805-Pos BOARD LB37

FERIC-BASED MAGNETOGENETICS, EVALUATION OF METHODS AND PROTOCOLS IN *IN VITRO* MODELS. **Miriam Hernandez Morales**, Victor Han, Richard Kramer, Chunlei Liu

L1806-Pos BOARD LB38

TRPC6 AND STIM2 REGULATE RETICULAR AND CYTOSOLIC CALCIUM CONTENT IN ESTROGEN RECEPTOR-POSITIVE BREAST CANCER CELLS. **José Sánchez Collado**, Carlos Cantonero, José Javier López, Lucía González Gutiérrez, Ginés María Salido, Juan Antonio Rosado

L1807-Pos BOARD LB39

THE PATHOPHYSIOLOGICAL ROLE OF VASCULAR SMOOTH MUSCLE NCX1 FOR PULMONARY ARTERIAL HYPERTENSION. **Hideaki Tagashira**, Asahi Nagata, Tomo Kita, Satomi Kita, Takahiro Iwamoto

L1808-Pos BOARD LB40

PHOSPHOLAMBAN PENTAMERS AS MOLECULAR NOISE-FILTERS. **Daniel Koch**, Mathias Gautel

L1809-Pos BOARD LB41

ARRHYTHMOGENIC CALMODULIN MUTANT D96V DYSREGULATES NA⁺-CA²⁺ NANODOMAINS IN CARDIOMYOCYTE TRANSVERSE TUBULES. **Mikhail Tarasov**, Yusuf Olgar, Alec Miller, Heather Struckman, Jonathan Davis, Sándor Györke, Rengasayee Veeraraghavan, Przemyslaw Radwanski

L1810-Pos BOARD LB42

MICROWAVE ELECTRIC FIELD AT 2.45 GHZ MODULATES THE β -ADRENERGIC RESPONSE OF HUMAN EMBRYONIC STEM CELL-DERIVED CARDIOMYOCYTES. **Catrin F. Williams**, Catherine Hather, Heungjae Choi, Adrian Porch, Christopher George

Other Channels (Boards LB43 - LB43)

L1811-Pos BOARD LB43

THE ROLE OF PROTEIN FLEXIBILITY AND AN EYRING BARRIER IN THE SELECTIVITY FILTER GATING OF A K⁺ CHANNEL. Oliver Rauh, Jennifer Opper, Maximilian Sturm, Nils Drexler, Deborah-Désirée Scheub, Ulf-Peter Hansen, Gerhard Thiel, **Indra Schroeder**

Skeletal and Smooth Muscle Mechanics, Structure, and Regulation (Boards LB44 - LB45)

L1812-Pos BOARD LB44

IN SITU REPLACEMENT OF SLOW SKELETAL MYBP-C. **Rachel Sadler**, Joshua Strom, Samantha P. Harris

L1813-Pos BOARD LB45

REAL-TIME VISUALIZATION OF DUAL COLOR QUANTUM-DOTS LABELED ON MYOSIN HEADS AND RODS REVEALS S2 DOMAIN FLEXIBILITY IN SMOOTH MUSCLE MYOSIN FILAMENTS MOVING ON ACTIN IN VITRO. **Murali Anuganti**, Richard Brizendine, Christine R. Cremo

Bacterial Mechanics, Cytoskeleton, and Motility (Boards LB46 - LB46)

L1814-Pos BOARD LB46
THREE-DIMENSIONAL RECONSTRUCTIONS OF *E. COLI* CELLS REVEAL GEOMETRIC ENRICHMENT OF THE CYTOSKELETAL PROTEIN MREB.
Benjamin P. Bratton, Zemer Gitai, Joshua W. Shaevitz

Membrane Pumps, Transporters, and Exchangers (Boards LB47 - LB50)

L1815-Pos BOARD LB47
ALLOSTERIC REGULATION OF AN ABC CHOLESTEROL TRANSPORTER VIA THE POLAR RELAY AND THE TRIPLE-HELIX BUNDLE. Bala M. Xavier, Aiman A. Zein, Angelica Venes, Junmei Wang, **Jyh-Yeuan Lee**

L1816-Pos BOARD LB48
TWO AHC MUTATIONS ESTABLISH NA⁺-SITE III OF THE NA⁺/K⁺-ATPASE AS THE SOURCE OF THE SLOW COMPONENT OF THE NA⁺-MEDIATED TRANSCIENT CURRENTS. **Cristina Moreno Vadillo**, Miguel Holmgren

L1817-Pos BOARD LB49
THE ADENINE NUCLEOTIDE TRANSLOCASE IN THE INTERPLAY BETWEEN ELECTROCHEMICAL COUPLING AND UNCOUPLING IN MITOCHONDRIA. **Juergen Kreiter**, Anne Rupprecht, Sanja Skulj, Zlatko Brkljaca, Kristina Zuna, Mario Vazdar, Elena E. Pohl

L1818-Pos BOARD LB50
ARGININE-SELECTIVE MODULATION OF THE LYSOSOMAL TRANSPORTER PQLC2 THROUGH A GATE-TUNING MECHANISM. Xavier Leray, Rossella Conti, Yan Li, Cécile Debacker, Florence Castelli, François Fenaille, Anselm Zdebik, Michael Pusch, **Bruno Gasnier**

EPR and NMR: Spectroscopy and Imaging (Boards LB51 - LB51)

L1819-Pos BOARD LB51
PROTEOMIC SIGNATURE OF IN VIVO MITOCHONDRIAL FUNCTION. **Fatemeh Adelnia**, Ceereena Ubaida-Mohien, Ruin Moaddel, Michelle Shardell, Alexey Lyashkov, Kenneth W. Fishbein, Miguel A. Aon, Richard G. Spencer, Rafael De Cabo, Luigi Ferrucci

Computational Methods and Bioinformatics (Boards LB52 - LB56)

L1820-Pos BOARD LB52
STRUCTURE-BASED FUNCTIONAL ANALYSIS OF BRCA1 RING DOMAIN VARIANTS: CONCORDANCE OF COMPUTATIONAL MUTAGENESIS, EXPERIMENTAL ASSAY, AND CLINICAL DATA. Majid Masso, **Anirudh Bansal**, Arnav Bansal, Andrea Henderson

L1821-Pos BOARD LB53
STATISTICAL ANALYSIS OF PROTEIN SECONDARY STRUCTURES WITH AN EMPHASIS ON THEIR STATIC AND DYNAMIC CHARACTERISTICS. **Soon Woo Park**, Moon Ki Kim

L1822-Pos BOARD LB54
RECOGNITION OF PROTEINS BY RANDOM FOREST BASED ON NANOPORE SENSING DATA. **Stephane P. Hess**, Jared Houghtaling, Cuifeng Ying, Brandon Bruhn, Olivia Eggenberger, Lars Malmström, Michael Mayer

L1823-Pos BOARD LB55
EPISTASIS AND THE ROLE OF CORRELATED MUTATIONS IN DETERMINING THE FITNESS LANDSCAPE AND ENTRENCHMENT OF DRUG RESISTANCE IN HIV. **Avik Biswas**, Allan Haldane, Ronald M. Levy

L1824-Pos BOARD LB56
ENHANCED GENE FUNCTION ASSIGNMENTS FROM IMPROVED PROTEIN SEQUENCE MATCHING. **Benjamin R. Litterer**

Bioengineering (Boards LB57 - LB60)

L1825-Pos BOARD LB57
CAFFEINE-OPERATED SYNTHETIC MODULES FOR CHEMOGENETIC CONTROL OF PROTEIN ACTIVITIES BY LIFE STYLE. **Tianlu Wang**

L1826-Pos BOARD LB58
ENGINEERING OF A *BONA FIDE* LIGHT-OPERATED CALCIUM CHANNEL. **Lian He**

L1827-Pos BOARD LB59
VERY FAST CAS9 DEACTIVATION. **Roger S. Zou**, Yang Liu, Bin Wu, Taekjip Ha

L1828-Pos BOARD LB60
RAPID ISOLATION OF RARE TARGETS FROM LARGE FLUID VOLUMES USING PARTICLE COUNTING AND SORTING DEVICES. **Tam M. Vu**, Per Niklas Hedde, Margaux Bouzin, Enrico Gratton, Weian Zhao

WEDNESDAY LATE POSTERS

2:00 PM–3:30 PM

Below is the list of late poster presentation for Wednesday.

ODD-NUMBERED BOARDS 2:00 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:30 PM

<u>Numbers</u>	<u>Category</u>
LB1 - LB6	Protein Structure and Conformation II
LB7 - LB10	Protein-Small Molecule Interactions
LB11 - LB16	Protein Dynamics and Allostery I
LB17 - LB19	Membrane Protein Dynamics
LB20 - LB21	Membrane Protein Folding
LB22 - LB23	Transcription
LB24 - LB27	Protein-Nucleic Acid Interactions
LB28 - LB29	Membrane Active Peptides and Toxins
LB30 - LB34	Membrane Structure
LB35 - LB37	Voltage-gated Na Channels
LB38 - LB42	Ion Channel Regulatory Mechanisms
LB43 - LB44	Actin Structure, Dynamics, and Associated Proteins
LB45 - LB45	Kinesins, Dyneins, and Other Microtubule-based Motors
LB46 - LB48	Cell Mechanics, Mechanosensing, and Motility
LB49 - LB49	Electron Microscopy
LB50 - LB54	Molecular Dynamics
LB55 - LB59	Optical Microscopy and Superresolution Imaging I
LB60 - LB63	Single-Molecule Spectroscopy

Wednesday, February 24

Wednesday Late Posters (Boards LB1 - LB63)

Protein Structure and Conformation II (Boards LB1 - LB6)

L1829-Pos BOARD LB1

STRUCTURAL CHARACTERIZATION OF THE INTERACTION BETWEEN A_MI-DOMAIN OF THE INTEGRIN MAC-1 (A_MB₂) AND THE CYTOKINE PLEIOTROPHIN. **Hoa Nguyen**, Nataly Podolnikova, Tatiana Ugarova, Xu Wang

L1830-Pos BOARD LB2

A COMPUTATIONAL STUDY ON THE HYDRATION-SHELL PROPERTIES OF ANTIFREEZE AND NON-ANTIFREEZE. **Akash Deep Biswas**, Vincenzo Barone, Andrea Amadei, Isabella Daidone

L1831-Pos BOARD LB3

ASSESSING THE EVOLUTIONARY CONSERVATION OF PROTEIN CONFORMATIONAL DIVERSITY USING A NOVEL METRIC BASED ON DIFFERENCE DISTANCE MAPS. **Mallika Iyer**, Lukasz Jaroszewski, Zhanwen Li, Mayya Sedova, Adam Godzik

L1832-Pos BOARD LB4

INTRINSIC CONFORMATIONAL PREFERENCES OF THE CHARGED AMINO ACIDS IN DISORDERED PROTEINS. **Pete Camacho**, Lance R. English, Steven T. Whitten

L1833-Pos BOARD LB5

HIGH-PRESSURE NMR REVEALS VOLUME AND COMPRESSIBILITY DIFFERENCES BETWEEN TWO STABLY-FOLDED ARNT PAS-B CONFORMATIONS. **Xingjian Xu**, Donald Gagné, James M. Aramini, Kevin H. Gardner

L1834-Pos BOARD LB6

THE USE OF STOPPED-FLOW TECHNOLOGY IN BIOPHYSICAL CHARACTERIZATION. **Tom Constable**

Protein-Small Molecule Interactions (Boards LB7 - LB10)

L1835-Pos BOARD LB7

ELECTROSTATICS REGULATE EPICALLOCATECHIN-GALLATE EFFECTS ON BOVINE SERUM ALBUMIN AGGREGATION. **Daniele Gulli**, Giuseppe Santacataldo, Caterina Alfano, Bruno Giuseppe Pignataro, Valeria Vetri

L1836-Pos BOARD LB8

BIOMOLECULAR CONDENSATES OF P53: HOMOTYPIC AND FUNCTIONAL HETEROTYPIC LIQUID-LIQUID PHASE SEPARATION WITH THE HPV E2 MASTER REGULATOR. Silvia Borkosky, Ramón Peralta Martínez, Karen Campos-León, Kevin Gaston, **Gonzalo de Prat-Gay**

L1837-Pos BOARD LB9

PROBING THE INTER-PROTEIN INTERACTIONS BETWEEN TWO LEADING PROTEIN VACCINE CANDIDATES FROM NONTYPEABLE *HAEMOPHILUS INFLUENZAE*. **Niaya Jackson**, Anna Kasper, Kara Farquharson, Seth Jones, Michael Gleghorn, Ravinder Kaur, Lea Michel

L1838-Pos BOARD LB10

A FLUORESCENCE POLARIZATION BASED HIGH THROUGHPUT SCREENING METHOD IDENTIFIES MODULATORS OF HUMAN CARDIAC TROPONIN C - TROPONIN I INTERACTION. **Priyanka Parijat**, Laszlo Kondacs, Alexander Alexandrovich, Mathias Gautel, Alexander J.A. Cobb, Thomas Kampourakis

Protein Dynamics and Allostery I (Boards LB11 - LB16)

L1839-Pos BOARD LB11

UNDERSTANDING THE HIGHER-ORDER DEPENDENCES IN PROTEIN SEQUENCES AND STRUCTURES. **Kejue Jia**, Wen Zhou, Zhao Ren, Pranav Khade, Robert L. Jernigan

L1840-Pos BOARD LB12

THE GENOTYPE-PHENOTYPE LANDSCAPE OF AN ALLOSTERIC PROTEIN. **David Ross**, Drew S. Tack, Peter D. Tonner, Abe Pressman, Nathaniel D. Olson, Sasha F. Levy, Eugenia F. Romantseva, Nina Alperovich, Olga Vasilyeva

L1841-Pos BOARD LB13

CONFORMATIONAL FOOTPRINT OF ALLOSTERIC MODULATION IN METABOTROPIC GLUTAMATE RECEPTORS. **Arash Foroutan**, Brandon W. Liauw, Hamid Samareh Afsari, Reza Vafabakhsh

L1842-Pos BOARD LB14

A KINETIC MAP OF SPLICEOSOME ACTIVATION. **Xingyang Fu**, Aaron A. Hoskins

L1843-Pos BOARD LB15

STRUCTURAL ORIGINS OF PROTEIN CONFORMATIONAL ENTROPY. **Jose Alfredo Caro**, Kathleen G. Valentine, Josh Wand

L1844-Pos BOARD LB16

A GPU-BASED FORCE-FIELD FITTING PROGRAM AND APPLICATION TO NEW PARAMETERS FOR MODIFIED AMINO ACIDS. **Kellon A.A. Belfon**, Chuan Tian, Lauren E. Raguette, Lakshan Manathunga, Daniel P. Raleigh, Carlos Simmerling

Membrane Protein Dynamics (Boards LB17 - LB19)

L1845-Pos BOARD LB17

LINKING FUNCTION TO GLOBAL AND LOCAL DYNAMICS IN AN ELEVATOR TYPE TRANSPORTER BY SINGLE MOLECULE FLUORESCENCE IMAGING OF DYNAMICS AND TRANSPORT. **Didar Ciftci**, Chloe Martens, Vishnu G. Ghani, Scott C. Blanchard, Argyris Politis, Gerard H.M. Huysmans, Olga Boudker

L1846-Pos BOARD LB18

MULTISCALE SIMULATIONS OF DENGUE VIRUS MORPHOLOGICAL CHANGES AND ANTIBODY INTERACTIONS. **Jan K. Marzinek**, Peter J. Bond

L1847-Pos BOARD LB19

DYNAMIC ARCHITECTURAL CHANGES IN DESMOSOMES DURING ASSEMBLY AND MATURATION. **Reena R. Beggs**, Tejeshwar C. Rao, William F. Dean, Andrew Kowalczyk, Alexa L. Mattheyses

Membrane Protein Folding (Boards LB20 - LB21)

L1848-Pos BOARD LB20

INVESTIGATION OF SUBSTANCE PERMEABILITY OF MUTANT BETA-BARREL NANOPORE-FORMING PROTEIN. **Toshiyuki Tosaka**, Koki Kamiya

L1849-Pos BOARD LB21

SUPR-CM FOR IMPROVED MEASUREMENTS OF ANTIBODY STABILITY. **Alastair Davy**

Transcription (Boards LB22 - LB23)

L1850-Pos BOARD LB22

REAL-TIME, SINGLE-MOLECULE OBSERVATIONS OF CO-TRANSCRIPTIONAL RIBOSWITCH FOLDING. **Catherine E. Scull**, Javier Cabello-Villegas, Adrien Chauvier, Irina Artsimovitch, Nils G. Walter

L1851-Pos BOARD LB23

DEFINING THE DIVERGENT BIOPHYSICAL PROPERTIES OF RNA POLYMERASES I AND II. **Ruth Q. Jacobs**, Zachariah M. Ingram, Aaron L. Lucius, David A. Schneider

Protein-Nucleic Acid Interactions (Boards LB24 - LB27)

L1852-Pos BOARD LB24

MOLECULAR DETERMINANTS OF TRANSLOCATION ON DNA BY THE TRANSCRIPTION-REPAIR COUPLING AND EVOLVABILITY FACTOR MFD. Christiane Brugger, Cheng Zhang, Margaret Suhanovsky, David Kim, Amy Sinclair, Dmitry Lyumkis, **Alexandra M. Deaconescu**

L1853-Pos BOARD LB25

ELUCIDATING THE ROLES OF HISTONE TAILS IN NUCLEOSOME RECOGNITION. **Yunhui Peng**, Shuxiang Li, Alexey V. Onufriev, David Landsman, Anna Panchenko

L1854-Pos BOARD LB26

INTERACTIONS BETWEEN INTRINSICALLY DISORDERED DOMAINS OF NUCLEAR RECEPTORS AND DNA STUDIED WITH SINGLE-MOLECULE OPTICAL TWEEZERS, COMPUTATIONAL SIMULATIONS, AND CELL ASSAYS. **David P. Lohry**, Taylor A. Stevens, Tongye Shen, Elias Fernandez

L1855-Pos BOARD LB27

MEASURING DNA TARGET SEARCH AT THE SINGLE MOLECULE LEVEL. **Kayla J. Oliveira**, Emma E. Stevens, Van Nguyen, Allen C. Price

Membrane Active Peptides and Toxins (Boards LB28 - LB29)

L1856-Pos BOARD LB28

ROLE OF LYS CLUSTERING IN MEMBRANE INTERACTIONS OF CATIONIC ANTIMICROBIAL PEPTIDES. **Shelley He**, Charles M. Deber

L1857-Pos BOARD LB29

BICELLE-INDUCED STRUCTURE OF THE FUSION PEPTIDE OF SARS-COV-2 SPIKE. Rama K. Koppiseti, Yan G. Fulcher, **Steven R. Van Doren**

Membrane Structure (Boards LB30 - LB34)

L1858-Pos BOARD LB30

BINDING EFFECTS OF CALCIUM IONS ON DIFFERENT CELL MEMBRANE MODELS. **Katja Balantic**, Victor Weiss, Günter Allmaier, Peter Kramar

L1859-Pos BOARD LB31

CHOLESTEROL OXIDATION MODULATES THE FORMATION OF LIQUID-ORDERED DOMAINS IN MODEL MEMBRANES. **Paul Smith**, Chris D. Lorenz

L1860-Pos BOARD LB32

OBSERVATION OF GM1 FLIP-FLOP ON CELL-SIZED ASYMMETRIC GM1 LIPOSOMES PREPARED BY NANO-SIZED LIPOSOME FUSION METHOD. **Masato Suzuki**, Koki Kamiya

L1861-Pos BOARD LB33

THE ROLE OF THIXOTROPY IN TREK-1 FORCE TRANSDUCTION. **Scott B. Hansen**, Hao Wang, Nick Petersen

L1862-Pos BOARD LB34

SARS-COV-2 INFECTION THROUGH CHOLESTEROL UPTAKE. **Hao Wang**, Zixuan Yuan, Arif Pavel, Robert Hobson, Scott B. Hansen

Voltage-gated Na Channels (Boards LB35 - LB37)

L1863-Pos BOARD LB35

DETERMINANTS OF CONDUCTANCE OF VOLTAGE GATED SODIUM CHANNEL Na_vMS. **Ada Y. Chen**, Bernard R. Brooks, Ana Damjanovic

L1864-Pos BOARD LB36

QUANTUM MECHANICS, UNIVERSAL SCALING AND FERROELECTRIC HYSTERESIS REGIMES IN THE GIANT SQUID AXON PROPAGATING ACTION POTENTIAL: A PHASE SPACE APPROACH. **Nikola Jurisic**, Fred Cooper

L1865-Pos BOARD LB37

FLECAINIDE BLOCK OF VOLTAGE-GATED SODIUM CHANNELS - STATE-DEPENDENT DRUG-PORE INTERACTIONS. **Akihiko Sunami**, Tatsuo Munakata

Ion Channel Regulatory Mechanisms (Boards LB38 - LB42)

L1866-Pos BOARD LB38

INHIBITION OF FURIN ALTERS CA²⁺ HOMEOSTASIS AND INDUCES MALIGNANT PHENOTYPE REPRESSION IN TRIPLE NEGATIVE BREAST CANCER CELLS. **Carlos Cantonero**, Jose Sanchez Collado, José Javier López, Geraldine Siegfried, Jean Descarpentrie, Tarik Smani, Iker Badiola, Simon Pernot, Serge Evrard, Abdel Majid Khatib, Juan Antonio Rosado

L1867-Pos BOARD LB39

HYDROPHOBIC GATING IN CRAC CHANNEL: A MOLECULAR DYNAMICS SIMULATION STUDY. **Carlo Guardiani**, Alberto Giacomello

L1868-Pos BOARD LB40

LSM12 IS AN NAADP RECEPTOR MEDIATING INTRACELLULAR CALCIUM MOBILIZATION. **Xin Guan**

L1869-Pos BOARD LB41

THE IMPACT OF A TACHYCARDIA-ASSOCIATED MUTATION ON THE REGULATION OF PACEMAKER CHANNEL BY CYCLIC NUCLEOTIDES. **Joanna Xia**, Anson Chan, Michael Murphy, Filip Van Petegem, Eric Accili

L1870-Pos BOARD LB42

EXPANDING WITHOUT EXPLODING: MEASURING AND MODELING THE BIOMECHANICS OF POLLEN HYDRATION. Kari Miller, **Anders E. Carlsson**, Elizabeth Haswell

Actin Structure, Dynamics, and Associated Proteins (Boards LB43 - LB44)

L1871-Pos BOARD LB43

SUBSTITUTIONS Q93H AND E97K IN TROPOMYOSIN TPM2.2 DIFFERENTLY AFFECT REGULATION OF ACTO-MYOSIN INTERACTIONS AND INHIBITION OF ACTIN POLYMERIZATION BY TROPOMODULIN 1. **Joanna Moraczewska**, Malgorzata Sliwinska, Katarzyna Robaszekiewicz, Piotr Wasag

L1872-Pos BOARD LB44

CHIATS: GENETICALLY ENCODED TOOLS FOR CHEMOGENETIC CONTROL OF F-ACTIN DISASSEMBLY. **Tienhung Lan**, Lian He, Tianlu WANG, Yubin Zhou

Kinesins, Dyneins, and Other Microtubule-based Motors (Boards LB45 - LB45)

L1873-Pos BOARD LB45
COLLECTIVE MOTILITY OF DYNEIN LINEAR ARRAYS BUILT ON DNA NANOTUBES. **Ibusuki Ryota**, Misaki Shiraga, Akane Furuta, Maki Yoshio, Hiroaki Kojima, Kazuhiro Oiwa, Kenya Furuta

Cell Mechanics, Mechanosensing, and Motility (Boards LB46 - LB48)

L1874-Pos BOARD LB46
CELLULAR MEMORY IN EUKARYOTIC CHEMOTAXIS DEPENDS ON THE BACKGROUND CHEMOATTRACTANT CONCENTRATION. **Man Ho Tang**, Richa Karmakar, Aravind Karanam, Haicen Yue, Daniel Lombardo, Brian A. Camley, Alex Groisman, Wouter-Jan Rappel

L1875-Pos BOARD LB47
SPATIOTEMPORAL DYNAMICS OF PIEZO1 LOCALIZATION CONTROLS KERATINOCYTE MIGRATION DURING WOUND HEALING. **Jesse R. Holt**, Wei-Zheng Zeng, Elizabeth L. Evans, Seung-Hyun Woo, Shang Ma, Hamid Abuwarda, Meaghan Loud, Ardem Patapoutian, Medha M. Pathak

L1876-Pos BOARD LB48
CELLS DIFFERENTIALLY ALTER THEIR LOCAL STIFFNESS LANDSCAPE AS ASSESSED USING OPTICAL TWEEZERS ACTIVE MICRORHEOLOGY. **Alicja Jagiello**, Micah Lim, Elliot Botvinick

Electron Microscopy (Boards LB49 - LB49)

L1877-Pos BOARD LB49
NUCLEOTIDE-DEPENDENT POLYMERIZATION INTERFACES IN DRP1. **Paul V. Thomas**, Adam Frost

Molecular Dynamics (Boards LB50 - LB54)

L1878-Pos BOARD LB50
QUANTUM EFFECTS IN PHOTOSYNTHESIS. Preet Sharma, **Maxwell Portman**

L1879-Pos BOARD LB51
DIFFERENTIATING SURFACTANT INTERACTIONS WITH BACTERIAL CELL MEMBRANES: A COMBINED MOLECULAR DYNAMICS AND EXPERIMENTAL STUDY. **Pradyumn Sharma**, Rakesh Vaiwala, Srividhya Parthasarathi, Nivedita Patil, Morris Waskar, Janhavi Raut, Jaydeep Kumar Basu, Ganapathy Ayappa

L1880-Pos BOARD LB52
EXPLORATORY ANALYSIS AND COMPARISON OF BIOMOLECULAR STRUCTURAL ENSEMBLES WITH PEnSA. **Martin Vögele**, Ron O. Dror

L1881-Pos BOARD LB53
THERMODYNAMICS AND FREE ENERGY LANDSCAPE OF BAR DOMAIN DIMERIZATION FROM MD SIMULATIONS. **Adip Jhaveri**

L1882-Pos BOARD LB54
MOLECULAR DYNAMICS SIMULATIONS OF F_1 -ATPASE WITH GPU SUPER-COMPUTER. **Matthew A. Anderson**, Ricardo A. Matute, Sandor Volkan-Kacco

Optical Microscopy and Superresolution Imaging I (Boards LB55 - LB59)

L1883-Pos BOARD LB55
SPATIAL AND METABOLIC RELATIONSHIPS BETWEEN GUT MICROBES DURING RESISTANT STARCH DEGRADATION. **Aathmaja Anandhi Rangarajan**, Hannah E. Chia, Monica H. Olszewski, Nicole M. Koropatkin, Julie Biteen

L1884-Pos BOARD LB56
DETERMINATION OF ANGULAR FLUCTUATIONS OF THE LOCAL CELL MEMBRANE SLOPE AT HIGH RESOLUTION USING OPTICAL TWEEZERS AND SINGLE PROBE PARTICLE. **Basudev Roy**, Rahul Vaipully, Manoj Gopalakrishnan, Snigdhave Chakraborty, Vandana Yadav, Saumendra Bajpai

L1885-Pos BOARD LB57
PHASOR-BASED APPROACH ENHANCED BY SUPERVISED MACHINE LEARNING TECHNIQUES FOR COLLAGEN MICRO-ARCHITECTURE CHARACTERIZATION AND AUTOMATIC IMAGE SEGMENTATION. **Riccardo Scodellaro**, Margaux Bouzin, Davide Panzeri, Veronica Remori, Enrico Giampieri, Laura Marongiu, Francesca Mingozzi, Laura D'Alfonso, Maddalena Collini, Francesca Granucci, Giuseppe Chirico, Laura Sironi

L1886-Pos BOARD LB58
LABEL-FREE SUPER-RESOLUTION PHOTO-THERMAL IMAGING ON MELANOMA BIOPSIES. **Mario Marini**, Margaux Bouzin, Amirbahador Zeynali, Laura Sironi, Laura D'Alfonso, Francesca Mingozzi, Francesca Granucci, Giuseppe Chirico, Maddalena Collini

L1887-Pos BOARD LB59
METHODS FOR ESTIMATING AND EVALUATING THE DRIFT OF SINGLE MOLECULE LOCALIZATION MICROSCOPY DATASETS. **Frank J. Fazekas**, Thomas R. Shaw, Sarah L. Veatch

Single-Molecule Spectroscopy (Boards LB60 - LB63)

L1888-Pos BOARD LB60
MECHANICAL STUDIES OF HIGHLY-LUMINESCENT NANOLUC PROTEIN. **Dimitra Apostolidou**, Yue Ding, Piotr E. Marszalek

L1889-Pos BOARD LB61
EXPLORING PHOTOPHYSICAL HETEROGENEITY OF LIGHT HARVESTING COMPLEXES IN MODEL MEMBRANES BY SINGLE MOLECULE SPECTROSCOPY. **Premashis Manna**, Thomas Davies, Madeline Hoffmann, Matthew Johnson, Gabriela Schlau-Cohen

L1890-Pos BOARD LB62
NANOMECHANICS OF DNA SELF-ASSEMBLIES STUDIED BY MASSIVE PARALLEL FORCE SPECTROSCOPY. Michael Penth, Kordula Schellhuber, Roland Bennewitz, **Johanna Blass**

L1891-Pos BOARD LB63
RESTORING THE DYNAMICS OF SINGLE MOLECULES IN LIVE CELLS FROM NOISY IMAGES WITH DEEP LEARNING. **Fadil Iqbal**, Jing Liu

THURSDAY LATE POSTERS

2:00 PM–3:30 PM

Below is the list of late poster presentation for Thursday.

ODD-NUMBERED BOARDS 2:00 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:30 PM

<u>Numbers</u>	<u>Category</u>
LB1 - LB5	Protein Stability, Folding, and Chaperones
LB6 - LB11	Intrinsically Disordered Proteins (IDP) and Aggregates II
LB12 - LB12	Ribosomes and Translation
LB13 - LB19	DNA Structure and Dynamics
LB20 - LB21	Protein-Lipid Interactions: Channels
LB22 - LB30	General Protein-Lipid Interactions
LB31 - LB33	Mechanosensation
LB34 - LB41	Voltage-gated K Channels
LB42 - LB43	Ion Channels, Pharmacology, and Disease
LB44 - LB45	Cardiac Muscle Mechanics and Structure
LB46 - LB46	Microtubules, Structure, Dynamics, and Associated Proteins
LB47 - LB50	Cellular, Metabolic and Genetic Networks
LB51 - LB51	Systems and Synthetic Biology
LB52 - LB58	Optical Spectroscopy and Diffraction Techniques
LB59 - LB62	Micro- and Nanotechnology
LB63 - LB65	Biomaterials

Thursday, February 25

Thursday Late Posters (Boards LB1 - LB65)

Protein Stability, Folding, and Chaperones (Boards LB1 - LB5)

L1892-Pos BOARD LB1

THERMAL STABILITY AND HIGHER ORDER STRUCTURE ANALYSIS OF ANTI-CORONAVIRUS VHH ANTIBODY BY CIRCULAR DICHROISM SPECTROSCOPY. **Ai Yamane**, Taiji Oyama, Yasuo Horiguchi, Akikazu Murakami, Satoko Suzuki

L1893-Pos BOARD LB2

FUNCTIONAL COOPERATIVITY BETWEEN THE TRIGGER FACTOR CHAPERONE AND THE CLPX PROTEOLYTIC COMPLEX. **Walid A. Houry**

L1894-Pos BOARD LB3

REGULATION OF NOCTURNIN PHOSPHATASE ACTIVITY THROUGH THE AMINO TERMINUS. **Anushka Wickramaratne**

L1895-Pos BOARD LB4

TOPOLOGICAL DATA ANALYSIS OF HIGH TEMPERATURE ENZYME ACTIVITY. **Samin Tajik**, Thad Harroun

L1896-Pos BOARD LB5

THE CLPX TRANSLOCASE AND ITS APPLICATION TO THE STUDY OF PROTEIN FOLDING *IN VITRO*. **Iker F. Soto Santarriaga**, Micayla Bowman, Patricia L. Clark

Intrinsically Disordered Proteins (IDP) and Aggregates II (Boards LB6 - LB11)

L1897-Pos BOARD LB6

EARLY EVENTS DURING FUNCTIONAL AMYLOID FORMATION OF THE PARATHYROID HORMONE. **Bruno Voigt**, Jochen Balbach

L1898-Pos BOARD LB7

PHASE SEPARATION OF INTRINSICALLY DISORDERED PROTEIN POLYMERS MECHANICALLY STIFFENS FIBRIN CLOTS. **Ivan Urosev**

L1899-Pos BOARD LB8

A TELL-TALE SIGN OF INTERACTION BETWEEN AMYLOID-B AND APOE IN IPSC-DERIVED NEURONAL STEM CELLS FROM ALZHEIMER'S PATIENTS. **Arpan Dey**, Uchit Bhaskar, Vicky Vishvakarma, Madhuri Kallianpur, Sreelakshmi C, Kanchan Garai, Odity Mukherjee, **Sudipta Maiti**

L1900-Pos BOARD LB9

HUMANIN INACTIVATES PRO-APOPTOTIC BCL-2 PROTEINS THROUGH A COMMON FIBRIL-FORMING MECHANISM. **Daniel Morris**, Sabrina Johnson, David Kastner, Marie-Paule Strub, Yi He, Christopher K.E. Bleck, Duck-Yeon Lee, Nico Tjandra

L1901-Pos BOARD LB10

CROWDED SOLUTIONS OF IDPS PROBED BY SAXS ALONG WITH ATOMISTIC AND COARSE-GRAINED COMPUTER SIMULATIONS. **Eric Fagerberg**, Linda K. Månsson, Sam Lenton, Marie Skepö

L1902-Pos BOARD LB11

HIGH RESOLUTION STRUCTURAL ANALYSIS OF ALS-ASSOCIATED MUTANT SOD1 INCLUSION BODIES. **Dalia Naser**, Michael Tarasca, Gyana G. Mishra, Tyler G.B. Soule, Harmeen Deol, Elizabeth M. Meiering

Ribosomes and Translation (Boards LB12 - LB12)

L1903-Pos BOARD LB12

THE HIBERNATING RIBOSOME STRUCTURE FROM THE LYME DISEASE PATHOGEN *BORRELIA BURGENDORFERI*. **Manjuli R. Sharma**, Swati R. Manjari, Ekansh K. Agrawal, Pooja Keshavan, Ravi K. Koripella, Ashley L. Marcinkiewicz, Yi-Pin Lin, Rajendra K. Agrawal, Nilesh K. Banavali

DNA Structure and Dynamics (Boards LB13 - LB19)

L1904-Pos BOARD LB13

PHYSICO-CHEMICAL PROPERTIES OF THE STRONG TOBACCO SMOKE CARCINOGEN NNK DIAZONIUM ION. **Christos Deligkaris**, David Wahl, Evan Millam

L1905-Pos BOARD LB14

BIOPHYSICAL CHARACTERIZATION AND X-RAY CRYSTALLOGRAPHY OF TELOMERIC G-QUADRUPLEX STRUCTURES FROM *TETRAHYMENA THERMOPHILA*. **Dana Beseiso**, Sawyer McCarthy, Erin Chen, Elizabeth Gallagher, Joanne Miao, Liliya Yatsunyk

L1906-Pos BOARD LB15

SELF-ASSEMBLED GUANOSINE AS SWELLING FISHNETS: DRUG UPTAKE AND RELEASE ASSESSMENT BY FLUORESCENT PROBES. **Alessia Pepe**, Paolo Moretti, Paolo Mariani

L1907-Pos BOARD LB16

WHY CROWDED DNA IS CONDENSED MORE READILY BY Na^+ THAN BY K^+ . **Yegor S. Kolesnikov**, Ivan Y. Gushchin, Peter A. Zhilyaev, Alexey V. Onufriev

L1908-Pos BOARD LB17

STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF TELOMERIC REPEAT-CONTAINING RNA (TERRA). **Bok-Eum Choi**, Hui-Ting Lee

L1909-Pos BOARD LB18

GENOME PACKAGING IN BACTERIOPHAGES: THE EFFECT OF DNA - CAPSID INTERACTIONS. **Cecilia Bores Quijano**, Oliver Henrich, B. Montgomery Pettitt, Chuanying Chen

L1910-Pos BOARD LB19

MAKING THE MOST OF DNA MELT CURVES, DATA COLLAPSE WITH AFFINE TRANSFORMATIONS AND CONSEQUENCES OF EXPERIMENTAL DESIGN. **Jacob M. Majikes**, Paul N. Patrone, Robert F. DeJaco, Anthony J. Kearsley, J. Alexander Liddle

Protein-Lipid Interactions: Channels (Boards LB20 - LB21)

L1911-Pos BOARD LB20

LOCALLY DISTRIBUTED TENSION MD: A RAPID AND SYSTEMATIC APPROACH TO STUDY MECHANICAL ACTIVATION OF MEMBRANE PROTEINS. **Rajitha Rajeshwar Tatikonda**, Andriy Anishkin, Sergei I. Sukharev, **Juan M. Vanegas**

L1912-Pos BOARD LB21

STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF A HUMAN POTASSIUM CHANNEL, KIR2.1. **Dania Zuniga**, Said Bendahhou, Françoise Bonneté, Tahar Bouceba, Alexandre Pozza, Renaud Wagner, Catherine Venien-Bryan

General Protein-Lipid Interactions (Boards LB22 - LB30)

L1913-Pos BOARD LB22

ROLE OF CHOLESTEROL IN THE FUNCTION OF CYSTIC FIBROSIS CORRECTORS AND POTENTIATORS. **Dorna Ravamehr-Lake**, Charles M. Deber

L1914-Pos BOARD LB23

DIFFERENT A-CASEIN ASSOCIATION STATES AND THEM INTERACTION WITH LIPID VESICLES TO STUDY ANTIBACTERIAL ACTIVITY. **Sara Anselmo**, Giuseppe Sancataldo, Valeria Vetri

L1915-Pos BOARD LB24

ROLE OF CHOLESTEROL ON ALPHA-CRYSTALLIN BINDING TO PHOSPHATIDYL SERINE MEMBRANE. **Geralline Trossi-Torres**, Raju Timsina, Nawal Khadka, Laxman Mainali

L1916-Pos BOARD LB25

PIEZO1-INDUCED MEMBRANE CURVATURE CAUSES RAFT ASSOCIATION AND ALTERATION OF THE CHOLESTEROL DISTRIBUTION BETWEEN LEAFLETS. **Amanda Buyan**, David Allender, Siewert J. Marrink, Michael Schick, Ben Corry

L1917-Pos BOARD LB26

EFFECTS OF DIFFERENT MEMBRANE LIPIDS ON THE FUNCTIONS OF THE LC3/GABARAP AUTOPHAGY PROTEIN FAMILY MEMBERS. Marina N. Irlondo, Asier Etxanziz, Yaiza R. Varela, Uxue Ballesteros, Javier H. Hervas, L. Ruth Montes, **Félix M. Goñi**, Alicia Alonso

L1918-Pos BOARD LB27

EFFECTS OF MEMBRANE OXIDATION ON THE ACTIVITY OF THE 1A HUMAN SEROTONIN RECEPTOR. **Ahmed ElBaradei**, Zikai Wang, Noah Malmstadt

L1919-Pos BOARD LB28

THE MITOCHONDRIA-TARGETED PEPTIDE SS-31 MODULATES THE THERMOTROPIC PROPERTIES OF CARDIOLIPIN-CONTAINING MODEL MEMBRANES. **Emily Ng**, Jeffrey D. Tamucci, Heidi Erlandsen, Hazel H. Szeto, Nathan N. Alder

L1920-Pos BOARD LB29

THE INFLUENCE OF CHOLESTEROL IN A MYELIN-LIKE BILAYER ON MYELIN BASIC PROTEIN. **Jennica Träger**, Annette Meister, Gerd Hause, George Harauz, Dariush Hinderberger

L1921-Pos BOARD LB30

STEPWISE AND COOPERATIVE MEMBRANE BINDING AND TETHERING BY TANDEM C2 DOMAINS OF EXTENDED SYNAPTOTAGMINS REVEALED BY OPTICAL TWEEZERS. **Jinghua Ge**, Xin Bian, Lu Ma, Yiyang Cai, Yanghui Li, Yasunori Saheki, Erdem Karatekin, Pietro De Camilli, Yongli Zhang

Mechanosensation (Boards LB31 - LB33)

L1922-Pos BOARD LB31

SOFT POLYDIMETHYLSILOXANE-SUPPORTED LIPID-BILAYERS FOR STUDYING T-CELL INTERACTIONS. **Anna H. Lippert**, Ivan Dimov, Alex Winkel, Jane Humphrey, James T. McColl, Kevin Chen, Ana M. Santos, Edward Jenkins, Kristian Franze, Simon Davis, David Klenerman

L1923-Pos BOARD LB32

RESPONSE OF FIBRIN NETWORK TO APPLIED OSCILLATION DETECTED BY PIXEL INTENSITY FLUCTUATIONS. **Qingda Hu**, Tessa A. Morris, Anna Grosberg, Alex J. Levine, Elliot Botvinick

L1924-Pos BOARD LB33

SUBSTRATE STIFFNESS MODULATES INTEGRIN BETA-1 RECRUITMENT AT CELL-MATRIX ADHESIONS IN AGED VASCULAR SMOOTH MUSCLE CELLS. Krishna Raj Ojha, Samuel Padgham, Song Yi Shin, Frida Leon Olmedo, Christopher R. Woodman, **Andreea Trache**

Voltage-gated K Channels (Boards LB34 - LB41)

L1925-Pos BOARD LB34

RILUZOLE INHIBITS $K_v4.2$ CHANNELS ACTING ON THE CLOSED AND CLOSED INACTIVATED STATES. David O. Pacheco Rojas, Mayra Delgado Ramírez, Kathya Villatoro, Eloy G. Moreno Galindo, Aldo Rodríguez-Menchaca, José A. Sánchez Chapula, **Tania Ferrer Villada**

L1926-Pos BOARD LB35

ENDOCANNABINOID-LIKE COMPOUNDS AS MODULATORS OF THE CARDIAC KV7.1/KCNE1 CHANNEL. **Irene Hiniesto Iñigo**, Siri Lundholm, Johan E. Larsson, Sara I. Liin

L1927-Pos BOARD LB36

EXPLORING HERG GATING THROUGH MD SIMULATIONS AND NETWORK ANALYSIS. **Flavio Costa**

L1928-Pos BOARD LB37

TWO MEMBERS OF THE KCNQ FAMILY OF VOLTAGE-GATED POTASSIUM CHANNELS SHOW UNIQUE RESPONSES TO MODULATION BY POLYUNSATURATED FATTY ACIDS. **Damon J.A. Frampton**, Johan E. Larsson, Sara I. Liin

L1929-Pos BOARD LB38

FUNCTIONAL UPREGULATION OF HERG1B ION CHANNELS BY DIRECT INTERACTIONS WITH HERG1A N-TERMINAL PAS AND N-LINKER DOMAINS. **Ashley A. Johnson**, Taylor R. Crawford, Matt C. Trudeau

L1930-Pos BOARD LB39

BK CHANNEL MODULATION BY THE GAMMA-SUBUNIT POSITIVELY CHARGED PEPTIDES VIA ELECTROSTATIC INTERACTIONS WITH THE CALCIUM-BOWL SITE. **Guanxing Chen**, Qin Li, Jiusheng Yan

L1931-Pos BOARD LB40

EVALUATION OF AN AUTISM-ASSOCIATED KCNMB2 VARIANT ON BK CHANNEL PROPERTIES. **Hans J. Moldenhauer**, Andrea L. Meredith

L1932-Pos BOARD LB41

OPTIMIZATION OF A HIGH-THROUGHPUT LIPOSOMES FLUORESCENCE ASSAY FOR THE SCREENING OF DRUG LIBRARIES WITH POTENTIAL THERAPEUTIC USE FOR ION CHANNEL DYSFUNCTION RELATED DISEASES. **Emily Marian Ostermaier**, Doris M. Cortes, Luis G. Cuello

Ion Channels, Pharmacology, and Disease (Boards LB42 - LB43)

L1933-Pos BOARD LB42

TOXIN AUTORESISTANCE IN POISON BIRDS AND FROGS IS NOT ROOTED IN TARGET SODIUM CHANNEL MUTATIONS. **Fayal Abderemane-Ali**, Nathan D. Rossen, Megan E. Kobiela, Robert A. Craig II, Catherine E. Garrison, Lauren A. O'Connell, J. Du Bois, John P. Dumbacher, Daniel L. Minor

L1934-Pos BOARD LB43

PATHOLOGICAL STATE OF MALIGNANT HYPERTHERMIA ASSOCIATED R615C MUTATION REVEALED USING CRYO-EM. **Omid Haji-Ghassemi**

Cardiac Muscle Mechanics and Structure (Boards LB44 - LB45)

L1935-Pos BOARD LB44
IMPROVING MITOCHONDRIAL FUNCTION IN DCM PATIENTS WITH ELAMIPRETIDE INDUCES SARCOMERIC PROTEIN MODIFICATIONS THAT IMPROVE CONTRACTILE FUNCTION. **Tova Ceccato**

L1936-Pos BOARD LB45
ENHANCED THICK FILAMENT STIFFNESS CONTRIBUTES TO LENGTH DEPENDENT ACTIVATION. **Bradley M. Palmer, Martin M. LeWinter**

Microtubules, Structure, Dynamics, and Associated Proteins (Boards LB46 - LB46)

L1937-Pos BOARD LB46
THE ASTRIN-SKAP COMPLEX LUBRICATES THE KINETOCHORE-MICROTUBULE INTERFACE. **Miquel Salvans, Renaldo Sutanto, Sophie Dumont**

Cellular, Metabolic and Genetic Networks (Boards LB47 - LB50)

L1938-Pos BOARD LB47
URN MODELS FOR STOCHASTIC GENE EXPRESSION. **Krishna Choudhary, Atul Narang**

L1939-Pos BOARD LB48
IN SILICO EVOLUTION OF GENE REGULATORY NETWORKS OF CELL SIZE CONTROL. **Félix Proulx-Giraldeau, Paul François, Jan Skotheim**

L1940-Pos BOARD LB49
QUANTIFICATION OF AAV CAPSID LOADING FRACTIONS - A COMPARATIVE STUDY. **Akash Bhattacharya, Shawn Sternisha, Ross VerHeul, Kyle Curry, Jian Zhang, Sean Kelly, Jeffrey Hung**

L1941-Pos BOARD LB50
DOWNSTREAM BIOEFFECTS ON HL-60 LEUKEMIA CELLS AFTER MEMBRANE PERFORATION BY MICROBUBBLE-MEDIATED ULTRASOUND EXPOSURE. **Xinxing Duan, Jennifer M. Wan, Alfred C. Yu**

Systems and Synthetic Biology (Boards LB51 - LB51)

L1942-Pos BOARD LB51
PROTON GRADIENTS FROM LIGHT-HARVESTING E. COLI TRIGGER DNA CORTEX FORMATION FOR SYNTHETIC CELLS. **Kevin Jahnke, Noah Ritzmann, Julius Fichtler, Anna Nitschke, Yannik Dreher, Tobias Abele, Götz Hofhaus, Ilia Platzman, Rasmus Schröder, Joachim P. Spatz, Daniel Müller, Kerstin Göpfrich**

Optical Spectroscopy and Diffraction Techniques (Boards LB52 - LB58)

L1943-Pos BOARD LB52
CRYSTALLIZATION OF APOA1 AND APOE4 NANOLIPOPROTEIN PARTICLES AND INITIAL XFEL-BASED STRUCTURAL STUDIES. **Megan L. Shelby, Deepshika Gilbale, Thomas D. Grant, William J. Bauer, Natalia Crespo, Angela C. Evans, Wei He, Pontus Fischer, Alke Meents, Tonya L. Kuhl, Matthias Frank, Matthew A. Coleman**

L1944-Pos BOARD LB53
CAPABILITIES AT THE GM/CA@APS STRUCTURAL BIOLOGY FACILITY AT THE ADVANCED PHOTON SOURCE. **Nagarajan Venugopalan, Michael Becker, Stephen Corcoran, Dale Ferguson, Mark Hilgart, David J. Kissick, Oleg Makarov, Craig M. Ogata, Sergey Stepanov, Qingping Xu, Shenglan Xu, Robert F. Fischetti, Janet L. Smith**

L1945-Pos BOARD LB54
DESCRIBING M3, M6, M9 REFLECTIONS WITH FOURIER SERIES REPRESENTATION OF MYOSIN DENSITIES. **Bradley M. Palmer**

L1946-Pos BOARD LB55
STUDY OF LIPID PHASE TRANSITIONS IN MAMMALIAN OOCYTES USING RAMAN SPECTROSCOPY OF ISOTOPICALLY LABELED LIPIDS. **Konstantin A. Okotrub, Svetlana V. Ranneva, Valentina I. Mokrousova, Sergei Y. Amstislavsky, Nikolay V. Surovtsev**

L1947-Pos BOARD LB56
MORE FULL WAVELENGTH RANGE CALIBRATIONS FOR CIRCULAR DICHROISM SPECTROSCOPY. **Curtis W. Meuse**

L1948-Pos BOARD LB57
BEYOND ALPHA-HELIX AND BETA-SHEET: EXPANDING THE ROLE OF CIRCULAR DICHROISM. **Pavel Ryzhov**

L1949-Pos BOARD LB58
RAPID REACTION MONITORING WITH MID-IR DUAL-COMB SPECTROSCOPY - 440 SPECTRA / SECONDS IN SITU STOPPED-FLOW. **Florian Eigenmann**

Micro- and Nanotechnology (Boards LB59 - LB62)

L1950-Pos BOARD LB59
ENHANCED ELECTROOSMOSIS IN PROPYLENE CARBONATE SALT SOLUTIONS. **Wilfred S. Russell**

L1951-Pos BOARD LB60
STUDY OF THE HYDROPHOBIC FORMATION OF LIPID DENDRIMER NANOPARTICLES USED AS A POTENTIAL STRATEGY TO ENCAPSULATE STATINS DRUGS USED FOR ISCHEMIC BRAIN STROKE TREATMENT. **Alondra Lopez Colon, Luis M. Negron Rios, Dalvin D. Mendez-Hernandez**

L1952-Pos BOARD LB61
CONTROLLING OF NANOPARTICLE DYNAMICS DURING NANOPORE TRANSLOCATION USING THERMAL-RESPONSIVE POLYMER. **Katsuyuki Enomoto, Hiromu Ishii, Bokusui Nakayama, Keiko Esashika, Toshiharu Saiki**

L1953-Pos BOARD LB62
TWO-COLOR OPTICAL NANOPORE MEASUREMENT TO VISUALIZE OVERALL TRANSLOCATION PROCESS OF DNA. **Hiromu Ishii, Katsuyuki Enomoto, Toshiharu Saiki**

Biomaterials (Boards LB63 - LB65)

L1954-Pos BOARD LB63
DESIGNING A HOUSEHOLD WATER FILTRATION SYSTEM SUITABLE FOR DEVELOPING COUNTRIES: USE OF LIMITED RESOURCES TO SUPPORT HOUSEHOLD WATER MANAGEMENT. **Aryanna A. Wiggins-Gamble**

L1955-Pos BOARD LB64
EMERGENCE OF A SMOOTH INTERFACE FROM GROWTH OF A DENDRITIC NETWORK AGAINST A MECHANOSENSITIVE CONTRACTILE MATERIAL. **Medha Sharma, Jiang Tao, Tony Harris**

L1956-Pos BOARD LB65
THE THICKNESS OF SOFT HYDROGEL SUBSTRATES MODIFIES BONE MARROW STROMAL CELL MORPHOLOGY AND MIGHT AFFECT DIFFERENTIATION. **Maria Luisa Hernandez Miranda, Nicholas D. Evans, Bram Sengers**

FRIDAY LATE POSTERS

2:00 PM–3:30 PM

Below is the list of late poster presentation for Friday.

ODD-NUMBERED BOARDS 2:00 PM–2:45 PM | EVEN-NUMBERED BOARDS 2:45 PM–3:30 PM

<u>Numbers</u>	<u>Category</u>
LB1 - LB6	Protein Structure and Conformation III
LB7 - LB11	Protein Dynamics and Allostery II
LB12 - LB16	Enzyme Function, Cofactors, and Post-translational Modifications
LB17 - LB21	Intrinsically Disordered Proteins (IDP) and Aggregates III
LB22 - LB23	RNA Structure and Dynamics
LB24 - LB24	Membrane Fusion and Non-Bilayer Structures
LB25 - LB26	Membrane Receptors and Signal Transduction
LB27 - LB28	Cardiac, Smooth, and Skeletal Muscle Electrophysiology
LB29 - LB29	TRP Channels
LB30 - LB35	Ligand-gated Channels
LB36 - LB39	Cardiac Muscle Regulation
LB40 - LB41	Myosins
LB42 - LB43	Cytoskeletal Assemblies and Dynamics
LB44 - LB48	Mitochondria in Cell Life and Death
LB49 - LB49	Molecular and Cellular Neuroscience
LB50 - LB52	Neuroscience
LB53 - LB57	Optical Microscopy and Superresolution Imaging II
LB58 - LB59	Force Spectroscopy and Scanning Probe Microscopy
LB60 - LB63	Biosensors

Friday, February 26

Friday Late Posters (Boards LB1 - LB63)

Protein Structure and Conformation III (Boards LB1 - LB6)

L1957-Pos BOARD LB1

PRELIMINARY STRUCTURAL CHARACTERIZATION OF C. ELEGANS HOX TRANSCRIPTION FACTOR LIN-39 AND ITS MUTANT LIN-39(CCC16). Kristina Lodahl, Rebecca Surma-Heine, Andrea K. Kalis, **Kim N. Ha**

L1958-Pos BOARD LB2

DIFFERENCES IN LOCAL STRUCTURAL DYNAMICS OF BACTERIAL TRANSCRIPTION ELONGATION COMPLEX UPON BINDING OF NUSG AND RFAH TRANSCRIPTION FACTORS. **Jose Alejandro Molina Ramirez**, Steve Silletti, Irina Artsimovitch, Elizabeth A. Komives, Cesar A. Ramirez-Sarmiento

L1959-Pos BOARD LB3

STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF THE BESTROPHIN2 ANION CHANNEL. **Aaron P. Owji**

L1960-Pos BOARD LB4

THE CONFORMATION AND DYNAMICS OF LRRK2 THAT ARE ASSOCIATED WITH ITS ACTIVATION AND PARKINSON'S DISEASE PATHOGENESIS. **Jui-Hung Weng**, Phillip C. Aoto, Steven Silletti, Susan S. Taylor

L1961-Pos BOARD LB5

TROPOELASTIN: BIOMECHANICS IN DIFFERENT PHYSIOLOGICAL ENVIRONMENTS AND MECHANISMS OF ELASTICITY. **Chengeng Yang**, Anna Tarakanova

L1962-Pos BOARD LB6

USING GRAPHS TO ANALYZE SARS-COV2 SPIKE MUTATIONS. **Pedro D. Manrique**, Rory C. Henderson, Srirupa Chakraborty, Kien Nguyen, Rachael A. Mansbach, Kevin J. Wiehe, Bette Korber, Sandrasegaram Gnanakaran

Protein Dynamics and Allostery II (Boards LB7 - LB11)

L1963-Pos BOARD LB7

A FREE-ENERGY LANDSCAPE APPROACH REVEALS THE GLOBAL CONFORMATIONAL DYNAMICS OF PROTEASOMAL ATPASES. Rui Fang, Jason Hon, Mengying Zhou, **Ying Lu**

L1964-Pos BOARD LB8

ROLE OF PROTEIN-SUGAR INTERACTIONS IN MAINTENANCE OF PROTEIN DYNAMICS AND FUNCTION IN SMALL LEUCINE-RICH PROTEOGLYCANS. **Rajas M. Rao**, Marc Guérout, Nicolas Belloy, Jean-Marc Crowet, Stéphane Brézillon, Manuel Dauchez, Stephanie Baud

L1965-Pos BOARD LB9

EFFECT OF NON-NATIVE INTERACTIONS ON CLP ATPASE-MEDIATED DEGRADATION OF KNOTTED PROTEINS REVEALED USING MOLECULAR DYNAMICS. **Hewafonsekage Yasan Y. Fonseka**, Alex Javidi, Luiz F.L. Oliveira, Cristian Micheletti, George Stan

L1966-Pos BOARD LB10

ALLOSTERIC MODULATION OF ACE2 CONFORMATION UPON BINDING TO SPIKE PROTEIN OF SARS-COV-2. **Duen-Shian Wang**, Hamed S. Hayatshahi, Jin Liu

L1967-Pos BOARD LB11

A TALE OF TWO BINDING PATHWAYS: MOLECULAR DYNAMICS STUDY OF THE GID1A-GA-GAI SYSTEM. **John Patterson**, Charles C. David, Marion Wood, Xiaolin Sun, Donald J. Jacobs, Erik H.A. Rikkerink

Enzyme Function, Cofactors, and Post-translational Modifications (Boards LB12 - LB16)

L1968-Pos BOARD LB12

GENITISATE 1,2-DIOXYGENASE FROM *ASPERGILLUS NIGER*: FUNCTIONAL CHARACTERIZATION AND IDENTIFICATION OF RESIDUES CRITICAL FOR CATALYSIS. **Patrick Semana**, Justin Powlowski

L1969-Pos BOARD LB13

STRUCTURAL BASIS FOR LONG CHAIN ISOPRENOID SYNTHESIS BY THE HUMAN *CIS*-PRENYLTRANSFERASE COMPLEX. **Michal Lisnyansky Bar-El**

L1970-Pos BOARD LB14

COMPARISON OF THE PEROXIDASE FUNCTION OF GLOBIN-DEHALO-PEROXIDASES-A AND B. **Nikhila Kashyap Dhanvantari Madhuresh**, Stefan Franzen

L1971-Pos BOARD LB15

A SYNTHETIC MINIMAL PATHWAY FOR THE REGENERATION OF REDOX COFACTORS. Michele Partipilo, **Eleanor J. Ewins**, Bert Poolman, Dirk Jan Slotboom

L1972-Pos BOARD LB16

A COMPUTATIONAL STUDY OF THE ROLE OF THE E3 LIGASE IN THE UBIQUITINATION REACTION. **Jay-Anne Johnson**

Intrinsically Disordered Proteins (IDP) and Aggregates III (Boards LB17 - LB21)

L1973-Pos BOARD LB17

MEDIN OLIGOMER MEMBRANE PORE FORMATION: A POTENTIAL MECHANISM OF VASCULAR DYSFUNCTION. **Scott M. Younger**, Hyunbum Jang, Hannah A. Davies, Martin Niemiec, Joe G.N. Garcia, Ruth Nussinov, Raymond Q. Migrino, Jillian Madine, Fernando M. Teran Arce

L1974-Pos BOARD LB18

HIV-TAT PROTEIN GENERATES ITS OWN HIGHLY TOXIC AMYLOID FIBRILS. **Alina L. Popescu Hategan**, Edward L. Mertz, Joseph Steiner, Elena Karnaukhova, Mario A. Bianchet, Lisa Henderson, Olav Zimmerman, Jeff Kowalak, Emiliós K. Dimitriadis, Avindra Nath

L1975-Pos BOARD LB19

INHIBITION OF TAU PROTEIN AGGREGATION USING SMALL MOLECULE INHIBITORS AND IMMUNOTHERAPIES. **Sanela Martić**

L1976-Pos BOARD LB20

THE SARS-COV-2 NUCLEOCAPSID PROTEIN IS DYNAMIC, DISORDERED, AND PHASE SEPARATES WITH RNA. **Jasmine Cubuk**, Jhullian J. Alston, Jeremias J. Incicco, Sukrit Singh, Melissa D. Stuchell-Brereton, Michael D. Ward, Maxwell I. Zimmerman, Neha Vithani, Daniel Griffith, Jason A. Wagoner, Gregory Bowman, Kathleen B. Hall, Andrea Soranno, Alex S. Holehouse

L1977-Pos BOARD LB21

CHARACTERIZING VESICLE BINDING AFFINITY AND CONFORMATION OF POST-TRANSLATIONALLY MODIFIED ALPHA-SYNUCLEIN BY SINGLE MOLECULE FLUORESCENCE SPECTROSCOPY. **Buyan Pan**, E. James Petersson, Elizabeth Rhoades

RNA Structure and Dynamics (Boards LB22 - LB23)

L1978-Pos BOARD LB22

INVESTIGATING THE DYNAMICS OF POLY(ADP-RIBOSE) BY SINGLE MOLECULE FLUORESCENCE RESONANCE ENERGY TRANSFER (SMFRET). **Mohsen Badiie**

L1979-Pos BOARD LB23

SEQUENCE-INDUCED BENDING IN DOUBLE-STRANDED RNA: SIMILARITIES AND DIFFERENCES FROM DOUBLE-STRANDED DNA. **Alberto Marin-Gonzalez**, Clara Aicart-Ramos, Mikel Marin-Baquero, Alejandro Martin-Gonzalez, J G Vilhena, Ruben Perez, Fernando Moreno-Herrero

Membrane Fusion and Non-Bilayer Structures (Boards LB24 - LB24)

L1980-Pos BOARD LB24

CALCIUM IONS PROMOTE THE MEMBRANE INSERTION OF SARS-COV AND SARS-COV-2 FUSION PEPTIDES AND ORDERING OF LIPIDS IN THE HOST MEMBRANE. **Susan Daniel**

Membrane Receptors and Signal Transduction (Boards LB25 - LB26)

L1981-Pos BOARD LB25

THE EFFECT OF ROD OUTER SEGMENT STRUCTURE ON PHOTON RESPONSE AMPLITUDE AND KINETICS. **Polina Geva**, Giovanni Caruso, Colin J. Klaus, Heidi E. Hammo, Vsevolod V. Gurevich, Emmanuele DiBenedetto, Clint L. Makino

L1982-Pos BOARD LB26

CLATHRIN-COAT ASSEMBLY REGULATES THE HETERODIMERIC ORGANIZATION OF INTEGRINS. **Xiaoting Liu**, Salma Jalal, Cheng-han Yu

Cardiac, Smooth, and Skeletal Muscle Electrophysiology (Boards LB27 - LB28)

L1983-Pos BOARD LB27

THERMO-ELECTRICAL COUPLING IN CARDIAC DYNAMICS. **Alessandro Loppini**, Alessio Gizzi, Alessandro Barone, Christian Cherubini, Flavio Fenton, Simonetta Filippi

L1984-Pos BOARD LB28

SEX-BASED DIFFERENCES IN CARDIAC CONDUCTION AND ACTION POTENTIAL DURATION ARE EXACERBATED BY MAGNESIUM AND MAN-NITOL. **Madeline Arpin**, Grace Blair, William Adams, Mark Joseph, Steven Poelzing

TRP Channels (Boards LB29 - LB29)

L1985-Pos BOARD LB29

CARDIOVASCULAR CHARACTERIZATION OF TRANSGENIC MICE OVEREX-PRESSING DOMINANT NEGATIVE TRPM7 MUTANT. **Takayuki Nemoto**, Hideaki Tagashira, Tomo Kita, Tomohiro Numata, Satomi Kita, Takahiro Iwamoto

Ligand-gated Channels (Boards LB30 - LB35)

L1986-Pos BOARD LB30

Q277 STABILIZES THE CASIC1 DESENSITIZED STATE BY MEDIATING A HYDROGEN BOND NETWORK AND RETARDS RECOVERY FROM DESENSITIZATION. **Megan Miaro**, Matthew L. Rook, Tyler A. Couch, Dana Kneisley, David M. MacLean, Maria Musgaard

L1987-Pos BOARD LB31

THE CARDIAC RYANODINE RECEPTOR IS PERMEABLE TO Zn^{2+} . **Jana Gaburjakova**, **Marta Gaburjakova**

L1988-Pos BOARD LB32

AMPA RECEPTOR - NON-COMPETITIVE ANTAGONIST BINDING FREE ENERGY COMPUTED WITH AN AUTOMATED THERMODYNAMIC INTEGRATION PROTOCOL. **Evgeny Gutkin**, Chamali Narangoda, Maria G. Kurnikova

L1989-Pos BOARD LB33

A PIKFYVE INHIBITOR, YM201636, DIRECTLY INHIBITS HUMAN TPC2 CHANNEL. **Canwei Du**, Jiusheng Yan

L1990-Pos BOARD LB34

A BACKDOOR STRATEGY FOR THE FUNCTIONAL AND STRUCTURAL CHARACTERIZATION OF THE HERG CHANNEL. **Victoria Alejandra Cuello**, Doris M. Cortes, Luis G. Cuello

L1991-Pos BOARD LB35

ANTIBODY-ASSISTED CRYSTALLOGRAPHY OF MEMBRANE PROTEINS. **Stephanie Lynn Boston**, Doris M. Cortes, Luis G. Cuello

Cardiac Muscle Regulation (Boards LB36 - LB39)

L1992-Pos BOARD LB36

THE STRUCTURE OF THE NATIVE CARDIAC THIN FILAMENT AT SYSTOLIC Ca^{2+} LEVELS. **Cristina M. Risi**, Ian Pepper, Betty Belknap, Howard D. White, J. Renato D. Pinto, Prescott B. Chase, **Vitold E. Galkin**

L1993-Pos BOARD LB37

REDUCED EXPRESSION OF CMYBP-C IN LEFT ATRIA RELATIVE TO LEFT VENTRICLE OF CAT AND MICE HEARTS. **Julie Fan**, Rachel Sadler, Samantha Harris

L1994-Pos BOARD LB38

THE INTERACTION OF THE CARDIAC MYOSIN BINDING PROTEIN C C2 IG DOMAIN WITH F-ACTIN. **Cristina M. Risi**, Malay Patra, Betty Belknap, Howard D. White, Samantha Harris, Vitold E. Galkin

L1995-Pos BOARD LB39

THIN FILAMENT COOPERATIVITY AND ATTACHED CROSS-BRIDGES HAVE SYNERGISTIC EFFECTS ON MYOCARDIAL CONTRACTILE DYNAMICS. **Sarah A. Kosta**, Kenneth S. Campbell

Myosins (Boards LB40 - LB41)

L1996-Pos BOARD LB40

CHARACTERIZATION OF A FILOPODIA MYOSIN MOTOR. **Casey Eddington**, Margaret A. Titus

L1997-Pos BOARD LB41

CONFORMATIONAL DISTRIBUTIONS OF ISOLATED MYOSIN MOTOR DOMAINS ENCODE THEIR MECHANOCHEMICAL PROPERTIES. **Artur Meller**, Justin Porter, Maxwell I. Zimmerman, Michael J. Greenberg, Gregory Bowman

Cytoskeletal Assemblies and Dynamics (Boards LB42 - LB43)

L1998-Pos BOARD LB42

MATRIX STIFFNESS AND BLOOD PRESSURE TOGETHER REGULATE VASCULAR SMOOTH MUSCLE CELL PHENOTYPE SWITCHING AND COFILIN DEPENDENT Podosome FORMATION. **Brian Hon Man Sit**, Zhen Feng, Ioannis Xanthis, Emilie Marhuenda, Simona Zingaro, Cathy Shanahan, Gareth E. Jones, Cheng-Han Yu, Thomas Iskratsch

L1999-Pos BOARD LB43

NANOSCALE ORGANIZATION OF ACTIN FILAMENTS IN THE RED BLOOD CELL MEMBRANE SKELETON. **Velia M. Fowler**, Roberta Nowak, Haleh Alimohamadi, Padmini Rangamani

Mitochondria in Cell Life and Death (Boards LB44 - LB48)

L2000-Pos BOARD LB44

PERMEABILITY TRANSITION CURRENTS AT THE LEVEL OF THE WHOLE MITOCHONDRION. **Maria A. Neginskaya**, Evgeny V. Pavlov

L2001-Pos BOARD LB45

BUTYRATE REVERSES CYPD-MEDIATED MPTP OPENING PHENOTYPES IN MOUSE MYOFIBERS. **Ang Li**, Xuejun Li, Jianxun Yi, Jingsong Zhou

L2002-Pos BOARD LB46

MITOCHONDRIAL OUTER MEMBRANE TRANSPORTER PROTEIN (TSPO) INHIBITOR PK11195 PROTECTS AGAINST CELL DEATH ONLY IF APPLIED AT REPERFUSION: SUCCINATE-MEDIATED MECHANISM OF ACTION. Lea K. Seidlmayer, Benjamin J. Hanson, Phung N. Thai, Saul Schaefer, Donald M. Bers, **Elena N. Dedkova**

L2003-Pos BOARD LB47

BUTYRATE IMPROVES MITOCHONDRIAL BIOGENESIS OF AN ALS CELLULAR MODEL. **Xuejun Li**, Ang Li, Jianxun Yi, Yanan Vickery, Jingsong Zhou

L2004-Pos BOARD LB48

MITOCHONDRIAL DEFECT EXACERBATES MUSCLE MEMBRANE FRAGILITY AT NMJ IN ALS SKELETAL MUSCLE. Jianxun Yi, Ang Li, Xuejun Li, **Jingsong Zhou**

Molecular and Cellular Neuroscience (Boards LB49 - LB49)

L2005-Pos BOARD LB49

ELECTROPHYSIOLOGICAL CHARACTERIZATION OF IPSC-DERIVED CORTICAL NEURONS USING AUTOMATED PATCH CLAMP. **Kadla R. Rosholm**, Pin-Fang Chen, Daniel R. Sauter, Anders Lindqvist, Taylor E. Forman, Sean A. Dwyer, Cindy Yang, Elizabeth D. Buttermore

Neuroscience (Boards LB50 - LB52)

L2006-Pos BOARD LB50

BIOPHYSICAL MODELING OF *C. ELEGANS* NERVOUS SYSTEM: FROM SINGLE CURRENTS UP WHOLE-NEURONS MODELS. **Martina Nicoletti**, Alessandro Loppini, Letizia Chiodo, Viola Folli, Giancarlo Ruocco, Simona Filippi

L2007-Pos BOARD LB51

COMPUTATIONAL STUDY OF FACTORS AFFECTING THE SPEED AND TIMING OF CONDUCTION IN THE MYELINATED AUDITORY AXON WITH RANVIER NODES. **Jun Xu**

L2008-Pos BOARD LB52

THE RAPID DIFFERENTIATION AND MATURATION OF NAV 1.7, 1.8, 1.9 AND TRPV1 EXPRESSING, ELECTROPHYSIOLOGICALLY ACTIVE HUMAN INDUCED PLURIPOTENT STEM CELL DERIVED NOCICEPTORS. **Vincent Truong**, Aleyah Goins, Sascha Alles, Patrick Walsh

Optical Microscopy and Superresolution Imaging II (Boards LB53 - LB57)

L2009-Pos BOARD LB53

SIMULTANEOUS PHASOR FLIM AND SHG IN VIVO IMAGING TO QUANTIFY METABOLIC AND ARCHITECTURAL CHANGES ASSOCIATED WITH UVA-INDUCED SKIN CANCER. **Michael G. Nichols**, Kelsey A. Jackson, Connor J. Kalhorn, Cecilia M. Myers, Thien Q. Tran, George J. Varghese, Daniel H. Wood, Laura A. Hansen

L2010-Pos BOARD LB54

MOLECULAR RESOLUTION NANOSCOPIC IMAGING OF THE SPATIAL DUAL ROLE OF ODF2 IN THE MAMMALIAN DISTAL AND SUBDISTAL APPENDAGES. **Ting-Jui Chang**, Jung-Chi Liao, Ya-Tien Fang, Tony Yang

L2011-Pos BOARD LB55

MATRIX - AN ARRAY-BASED DETECTOR FOR BACKGROUND REDUCTION IN STED MICROSCOPY. **Mary Grace M. Velasco**, Frederic Weidling, Gero Schloetel, Joern Heine, Karsten Bahlmann, Matthias Reuss

L2012-Pos BOARD LB56

SECOND AND THIRD HARMONIC GENERATION MICROSCOPIC IMAGING ON SOME NOVEL BIOLOGICAL TISSUES. **Gregory S. Harms**, Hermann Götz, Jeffrey A. Stratford, Mona K. Roesler, Madhusudhan Thati, Michael J. Schmeisser, Krishnaraj Rajalingam

L2013-Pos BOARD LB57

DESMOSOMAL CADHERIN ORGANIZATION REVEALED BY FLUORESCENCE POLARIZATION MICROSCOPY. **William F. Dean**, Alexa L. Mattheyses

Force Spectroscopy and Scanning Probe Microscopy (Boards LB58 - LB59)

L2014-Pos BOARD LB58

SINGLE-MOLECULE MANIPULATION OF MACROMOLECULES ON MEMBRANES USING HIGH-RESOLUTION OPTICAL TWEEZERS. **Yukun Wang**

L2015-Pos BOARD LB59

ATOMIC FORCE MICROSCOPY REVEALS CHANGES IN CELLULAR STRUCTURE INDUCED BY THE CHEMOTHERAPEUTIC DRUGS. **Lina A. Alhalhooly**, Babak Mamnoon, Jiha Kim, Sanku Mallik, Yongki Choi

Biosensors (Boards LB60 - LB63)

L2016-Pos BOARD LB60

BIOPHYSICAL PRINCIPLES OF BIOMACROMOLECULES DETECTION USING PIEZOCERAMIC BIOSENSOR. **Assel I. Akhmetova**, Igor V. Yaminsky

L2017-Pos BOARD LB61

IMAGING AND SENSING USING FLUORESCENT NANOPARTICLES IN THE NIR WINDOW. **Gili Bisker**

L2018-Pos BOARD LB62

PARALLEL NANOPORE SENSING PLATFORM WITH HIGH-BANDWIDTH. **Jiajun Wang**, Yi-Lun Ying, Yi-Tao Long

L2019-Pos BOARD LB63

SPATIAL PROFILING OF MRNA TRANSCRIPTS WITH SPECTRAL AND FLUORESCENCE LIFETIME IMAGING MICROSCOPY. **Jesus Flores**, Alexander Vallmitjana, Joshua Gu, Tam M. V

Exhibit Dates and Times

Tuesday, February 23.....	10:00 AM – 5:00 PM
Wednesday, February 24.....	10:00 AM – 5:00 PM
Thursday, February 25.....	10:00 AM – 5:00 PM
Friday, February 26.....	10:00 AM – 5:00 PM

Exhibitor Scavenger Hunt

Light up the Leaderboard! Complete as many Scavenger Hunt questions as possible and see your name rise to the top! You will find QR codes within each exhibitor's profile on the event website. Scan the QR code, answer the question, and earn points. The top two-point earners will win a prize. The Scavenger Hunt ends on Friday, February 26, at 5:00 PM. The winners will be announced on BPS' Social Media account shortly after the meeting ends on February 26. Winners will be contacted directly and mailed their prize upon the conclusion of the Virtual Annual Meeting.

Exhibitor Presentations

Exhibitor Presentations will take place throughout the Virtual Annual Meeting, Tuesday – Friday.
View pages 122-127 for detailed descriptions.

Tuesday, February 23

11:30 AM – 12:00 PM	Mad City Labs Inc
1:30 PM – 2:00 PM	Bruker
3:30 PM – 4:00 PM	Nikon Instruments Inc
4:00 PM – 4:30 PM	Horiba Scientific

Wednesday, February 24

11:30 AM – 12:00 PM	Bruker
1:30 PM – 2:00 PM	Leica Microsystems
3:30 PM – 4:00 PM	LUMICKS
4:00 PM – 4:30 PM	Carl Zeiss Microscopy LLC

Thursday, February 25

11:30 AM – 12:00 PM	Nanon Technologies
1:30 PM – 2:00 PM	Andor Technology
3:30 PM – 4:00 PM	Oxford Instruments NanoAnalysis
4:00 PM – 4:30 PM	Molecular Devices

Friday, February 26

1:30 PM – 2:00 PM	Curi Bio
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Elsevier	Nanon Technologies	

**As of January 8, 2020*

Exhibitor Presentations

Tuesday February 23

11:30 AM – 12:00 PM

Mad City Labs Inc

From iSCAT to SCATTIRSTORM: Adventures in Single-Molecule Microscopy

I will describe the design and application of two multi-modal microscopes built around the Mad City Labs RM21® single molecule microscope. The first system combines Interferometric Scattering (iSCAT) microscopy, developed by Philipp Kukura's lab, together with Total Internal Reflection Dark-Field (TIRDM). By labeling kinesin-1 motors on one head with a 30-nm gold nanoparticle, we were able to track motor stepping at 1 kHz temporal resolution and 1-2 nm spatial precision. This allowed us to clarify previously uncovered features of kinesin stepping. In collaboration with Luke Rice, we extended this system to understanding microtubule dynamics by labeling tubulin dimers with 20-nm gold nanoparticles and observing these tubulin reversibly binding at the plus-ends of growing microtubules. These tools have the potential to be applied broadly to single-molecule studies to increase the temporal resolution beyond what is traditionally accessible by fluorescence, while still maintaining the spatial resolution provided by point-spread function fitting. In the second part of the talk, I will describe our progress on a multi-modal microscope that we are using for a DOE-funded project to study the mechanism of cellulose degradation by cellulases for bioenergy applications. In particular, we have optimized the ability to combine Interference Reflection Microscopy (IRM) to image cellulose micro- and nanofibers with TIRF to simultaneously image fluorescently-labeled cellulase enzymes degrading the cellulose.

Speaker

William Hancock, Department of Biomedical Engineering, Pennsylvania State University

1:30 PM – 2:00 PM

Bruker

Introduction to Super-Resolution Multiplexed Imaging Applications Using the Vutara VXL Platform For Single-Molecule and Widefield Imaging

This talk will introduce the next generation of the Vutara imaging platform, the VXL. While the VXL has been designed and optimized for single molecule localization microscopy, most current methods for super resolution microscopy are limited due to the limited number of dyes compatible with single molecule based super resolution techniques. This talk presents methods for imaging a series of consecutive targets within a sample using single molecule localization microscopy integrated with a software-controlled automated microfluidics system for probe multiplexing. Probe multiplexing allows for the imaging of more than four different targets within a cell. During this talk we will show examples using oligoSTORM and DNA-PAINT methods. OligoSTORM allows for the direct tracing of chromosomes within cells. We will show the three-dimensional trajectory of a multiplexed oligoPAINT labeled chromosome in individual human fibroblast cells using the Vutara platform. We will also show DNA-PAINT based single molecule localization data for antibody labeled targets in cell culture. We will also show how the Vutara can be used for ORCA, a widefield imaging technique that has been developed for high throughput sequential labelling of chromosome targets for generating 3D image data and single cell chromosome conformation maps (similar to Hi-C type data). The VXL with integrated fluidics and SRX software provides a powerful suite of tools for simultaneous imaging, localization, visualization and statistical analysis of multiplexed data.

Speaker

Robert Hobson, Applications Scientist, Bruker

3:30 PM – 4:00 PM

Nikon Instruments Inc

Using the Nikon Ti2 Inverted Platform as an Optical Bench

Flexibility and modularity are core principles underlying Nikon's imaging systems and components. In this presentation, we will discuss innovative solutions from Nikon that are designed to maximize flexibility and enable easy customization of both home-built microscopes and fully turn-key commercial systems. Learn how the Eclipse Ti2 with its expandable structure, multiple input and output ports, and easy access to the back-aperture plane can be used as an optical bench. Furthermore, Nikon's wide range of modular illumination devices from TIRF to photo-stimulation can be custom-combined for your unique application. For those requiring full access to the optical path, Nikon also offers the Ti2-Hardware Development Kit for introducing completely custom components. We will also discuss Nikon's latest objectives utilizing new immersion media and featuring industry-leading numerical aperture and working distance.

Speaker

Ian Ross, Senior Biosystems Applications Manager, Nikon Instruments Inc

4:00 PM – 4:30 PM

Horiba Scientific

Rapid, Optical Technique For Sensitive Characterization and Differentiation of OTC Canine Vaccines

The pharmaceutical industry increasingly relies on spectroscopy for quality assurance and has established, and conforms to, USP (United States Pharmacopeia) regulations. While some spectroscopic approaches (NIR, FT-IR and Raman) are common, the adoption of fluorescence spectroscopy has lagged, even though it has high specificity and sensitivity in many analyses in demand, and is conveniently amenable to chemometrics analysis.

We present identification and validation of “unknown” samples with 100% certainty based on A-TEEM fluorescence analysis of Solo-Jec brand canine vaccines from Boehringer Ingelheim VetMedica: Spectra-5, Spectra-6, Spectra-9, and Spectra-10, containing 5, 6, 9 and 10 vaccine combinations, respectively of coronavirus, hepatitis, adenovirus, parainfluenza, leptospirae, parvovirus, etc. A key consideration upon an established vaccine product release is specificity. Analytical techniques need to characterize the final product, and must also differentiate between it and all others made at the facility. The 3-D fluorescence molecular fingerprints of these vaccines were subjected to chemometric analysis through PARAFAC classification as well as XGBOOST discriminant analysis. The “most probable prediction” of unknown samples with 100% certainty was substantiated by the generated confusion matrix supporting the A-TEEM fluorescence claim to be a powerful addition to the arsenal of validation techniques. Two lots for each vaccine were measured on one instrument and were validated with a different lot, instrument and operator. The data analysis approaches used were each able to differentiate between the vaccine products. Even Spectra-9 and Spectra-10, that differ ONLY by a coronavirus component based on publicly available SDS data, were readily distinguished.

Fluorescence EEMs (Excitation-Emission Matrix) solve the longstanding issue of imperfect quantification (a result of the Inner Filter Effect) by directly incorporating a UV spectrophotometer in the fluorometer. This allows the simultaneous acquisition in situ of a UV/VIS/NIR-absorbance spectrum for the real-time Inner Filter Effect (IFE) correction of the fluorescence spectrum, improving quantification accuracy and extending the usable range of concentrations over which quantification can be performed. A-TEEM (Absorbance Transmission Excitation Emission Matrix) is fully validatable using United States Pharmacopeia monograph USP <853>, given that the novel aspect of simultaneous acquisition of the UV/VIS/NIR absorbance spectrum for IFE correction is fully compatible with validation protocols. This spectroscopic approach provides a complete and traceable optical fingerprint for liquid samples that performs a similar role to chromatographic methods, and compared to other spectroscopic methodologies is faster, less expensive and can operate in production environments.

Speaker

Karoly Csatorday, Business Development Manager, Horiba Scientific

Wednesday, February 24

11:30 AM – 12:00 PM

Bruker

Bruker's BioAFM Nano-Toolkit for Investigation of Mechanics, Structures and Dynamic Processes in Life Science

The ability of atomic force microscopy (AFM) to obtain three-dimensional topography images of biomolecules and complexes with nanometer resolution, and optical tweezers (OT) to measure sub-piconewton molecular forces under near-physiological conditions remains unmatched by other single molecule techniques. JPK BioAFM has developed the new NanoWizard® 4 XP and NanoRacer AFM's, and Nanotracker2 (NT2) optical tweezers to set the bar even higher in these areas. The NW4XP is capable of high-speed study of the time-resolved dynamics associated with cellular processes; Nanoracer is designed for studying single molecule dynamics at 50 frames/sec; and NT2 can measure intra/inter molecular forces with multiple laser/trap options (up to 10 mW). With the latest scanner technologies inbuilt into NW4XP, NT2 and their compact design also allows full integration of AFM and OT into advanced commercially available light microscopy techniques. This seminar will focus on how the advances in Bruker's latest BioAFM can be applied to study a wide-range of biological samples, from individual biomolecules to mammalian cells and tissues in real-time, in-situ experiments. We will present examples of how we are able to resolve the nanoscale structure of individual biomolecules at high-speed scan rates (150 - 5000 Hz), follow the dynamic reorganization of the membrane-associated cytoskeleton of living cells at high-temporal and high-spatial resolution, and automatically map the topography of cell cultures across the entire area of the microscope stage. We will also introduce our new scanning electrochemical microscopy (SECM) module and discuss the full suite of BioAFM modes and accessories for studying the nanomechanical properties of cells and tissues, including direct correlation of multiparametric, quantitative AFM and super-resolution (STED) datasets.

Speaker

Samrat Dutta, Sales Applications Scientist, Bruker

1:30 PM – 2:00 PM

Leica Microsystems

High Photon-Count Rate FCS and STED-FCS to Study Diffusion Dynamics in Live Cells

Investigating diffusion dynamics of proteins and small molecules has become a routine measurement all across the life sciences, chemistry and physics. It provides valuable insights into reaction dynamics, oligomerization, molecular interactions or cellular (membrane) heterogeneities [1]. Fluorescence correlation spectroscopy (FCS) is a versatile tool to determine diffusion dynamics in membranes (2D diffusion) and solution or the cytoplasm (3D diffusion). Measuring the intensity fluctuations over time due to the diffusion of molecules through the observation volume is the basis for FCS. Temporal autocorrelation of the signal allows for the calculation of the autocorrelation curve which provides insights into the underlying dynamics as well as the concentration of the observed species [2]. Until now, the concentration regime for reliable measurements has been limited by the detection electronics which could not efficiently and accurately time-tag photons at high photon-count rates. This restricted the range of measurable fluorophore concentrations and data quality of the FCS recordings, especially in combination with super-resolution stimulated emission depletion (STED)-FCS.

In this talk, we will show the applicability and reliability of FCS at high photon-count rates (average intensities of more than 1 MHz and concentrations higher than 1 μ M) using novel detection equipment based on hybrid detectors, namely HyD SMDs, and real-time gigahertz sampling of the photon stream using the Leica SP8 STED FALCON FCS implementation [3]. By measuring the diffusion of fluorophores in solution and cytoplasm of live cells, as well as in model and cellular membranes, we show that accurate diffusion and concentration measurements are possible in these previously inaccessible high photon count regimes on a turn-key instrument. This may reduce the bias when performing live cell measurements where varying expression levels occur routinely and increases the experimental flexibility. In STED-FCS data quality suffers from the fluorescence depletion and can be greatly improved by using higher confocal count rates. The presented data show a path towards robust FCS and STED-FCS measurements in living cells.

Speakers

Giulia Ossato, Product Manager, Leica Microsystems
Julia Roberti, Product Manager, Leica Microsystems
Falk Schneider, University of Oxford

[1] E. Sezgin et al., "Measuring nanoscale diffusion dynamics in cellular membranes with super-resolution STED-FCS," *Nat. Protoc.*, vol. 14, no. 4, pp. 1054–1083, Apr. 2019.

[2] J. Lackowicz, *Principles of Fluorescence Spectroscopy*, Third. Boston, MA: Springer US, 2006.

[3] F. Schneider et al., "High photon count rates improve the quality of super-resolution fluorescence fluctuation spectroscopy," *J. Phys D: Appl. Phys.*, vol. 53, no. 16, 2020

3:30 PM – 4:00 PM

LUMICKS

Correlative Force–Fluorescence Measurements to Reveal the Dynamic Life of Single Biomolecules: Latest Technology Advancements by LUMICKS, and Latest Findings on Protein Disaggregation by Professor Sander Tans

To decipher complex molecular interactions, you need to be able to observe a biological process from multiple points of view. Using LUMICKS' groundbreaking C-Trap® Optical Tweezers – Fluorescence & Label-free Microscopy, you can simultaneously visualize individual molecules in real time and measure dynamic biological processes in great detail.

During our webinar, we will reveal how our latest technology development, the Trap Distance Lock, allows you to measure biomolecular equilibrium dynamics with unprecedented stability over extremely long periods of time. This new feature offers the ultimate system stability that enables you to capture the rarest, fastest, and smallest conformational changes that underlie the energy landscapes of biomolecules.

After a brief introduction by LUMICKS, we are honored to give the floor to our invited speaker Prof. Sander Tans who will present his work on polypeptide loop extrusion using correlative force–fluorescence measurements. Re-dissolving protein aggregates is crucial to cells, but the molecular basis has remained unknown. Using combined optical tweezers and single-molecule fluorescence detection, Prof. Tans and his team showed that the disaggregase ClpB extrudes loops of protein chains through its central pore, and hence forcibly extracts protein chains from aggregates. The data reveal notable processivity, power, step-dynamics, and switching between translocation modes. Protein disaggregation can thus be highly deterministic and energy-driven process, while polypeptide loop extrusion may be exploited by other systems including p97/cdc48.

Speakers

Olivier Heyning, CEO and Founder, LUMICKS
Aida Llauró Portell, Senior Application Scientist, LUMICKS
Sander Tans, AMOLF and Delft University of Technology, The Netherlands

4:00 PM – 4:30 PM

Carl Zeiss Microscopy LLC

Discovering the Subcellular Dynamics of Life with ZEISS Lattice Lightsheet 7

In order to best understand the world around us it is necessary to observe microscopic specimens in as natural a state as possible. This requires a transition from imaging fixed to live specimens and expanding from 2D to 3D model organisms. The drive towards live-cell imaging over long timeframes and at high volume speeds brings new challenges. There is evidence that traditional imaging techniques can influence the behaviour of specimens due to phototoxicity, thus affecting the integrity of the results.

The most influential technological breakthroughs which address these challenges have been modifications to the shape of the excitation light. Classical laser-based imaging approaches utilize a gaussian excitation beam which is focussed to a spot or a sheet and scanned as required to excite the sample. As an alternative approach, Bessel beams have been combined to introduce a structured pattern to the beam profile. The resulting 'lattice' of light has many benefits for live imaging. The most notable are a reduction of light exposure due to significant improvement in signal to noise while maintaining high resolution and optical sectioning. With lattice-lightsheet microscopy it is possible to capture dynamics at previously unreachable combinations of acquisition speed and resolution over hours and even days.

This talk will describe how the ZEISS Lattice Lightsheet 7 makes long-term volumetric imaging of living cells with subcellular resolution possible without having to change your standard sample preparation protocols to accommodate the instrument. With automatic alignment and easy acquisition workflows, lattice light-sheet imaging is now as accessible as using a standard inverted microscope.

Join us for this webinar to learn how ZEISS Lattice Lightsheet 7 allows you to discover the subcellular dynamics of life.

Speaker

Renée Dalrymple, Product Marketing Manager – Life Sciences Lattice Line, Carl Zeiss Microscopy LLC

Thursday, February 25

11:30 AM – 12:00 PM

Nanion Technologies

Automated Electrophysiology For Any Kinetics: Ion Channels & Transporters

Ion channels and transporters are important physiological and pharmacological targets. Electrophysiology remains the gold standard for studying these important targets and automation of the technique ensures higher throughput is achieved whilst maintaining high data quality. In this virtual symposium, Nanion Technologies provides two case studies where automated patch clamp (APC) or solid-supported membrane (SSM)-based electrophysiology devices were used in different applications. After a short greeting by Dr. Niels Fertig (CEO), Nanion Technologies will welcome two exceptional speakers, Dr. Nina Braun (University of Copenhagen) and Dr. Matthias Quick (Columbia University).

Dr. Nina Braun presents recent work, with focus on establishing a high-throughput protocol to conduct functional and pharmacological investigations of non-canonical amino acids (ncAA)-containing hASIC1a (human acid-sensing ion channel 1a) variants in transiently transfected mammalian cells. Incorporation of ncAAs can endow proteins with novel functionalities, such as crosslinking or fluorescence. Function of these variants in ion channels can be studied with great precision using standard electrophysiology, but this approach is typically labor intensive and low throughput. During the study, three different photocrosslinking ncAAs were introduced into 103 positions and the function of the resulting 309 variants was assessed with SyncroPatch 384i automated patch-clamp platform, demonstrating that the approach is efficient and versatile, as it is amenable to assessing even complex pharmacological modulation by peptides. The data show that the acidic pocket is a major determinant for current decay and live-cell crosslinking provides insight into the hASIC1a-psalmotoxin-1 interaction. Overall, this protocol aims to enable future APC-based studies of ncAA-containing ion channels in mammalian cells.

Next, Dr. Matthias Quick is focusing on the study of ion-dependent transporters with special emphasis on Na⁺ or H⁺-coupled symporters. Whereas flux studies with radiolabeled solutes use the target protein reconstituted in proteoliposomes provided a wealth of information, the determination of the thermodynamically-coupled solute transport-associated flux of H⁺ or Na⁺ has been challenging. By using the SURFE2R N1 SSM platform, his team was able to quickly collect data of solute transport-associated flux of co-transported ions across the membrane of proteoliposomes containing different target proteins. Additionally, with SURFE2R technology it is possible to collect data for a full kinetic characterization of a target protein such as its dependence on substrate and ion concentrations, pH, and potential essential additives, as well as its substrate recognition profile. The SURFE2R system also enables the use of a wide range of substrates that are readily commercially available, avoiding the use of radiolabeled compounds.

Speakers

Nina Braun, Post-Doctoral Fellow, Department of Drug Design and Pharmacology, University of Copenhagen
Matthias Quick, Associate Professor of Neurobiology (Psychiatry), Columbia University Medical Center (CUMC)

1:30 PM – 2:00 PM

Andor Technology

SRRF-Stream+ - A Flexible and Effective Solution For Real-Time and Live Cell Super-Resolution Microscopy

Much of the inner workings of the cell are hidden from view below the classical diffraction limit of light-based imaging microscopy. Super-resolution techniques such as STORM, PALM, STED and SIM have smashed past this barrier and have helped enable cell biology to be studied in considerably more detail.

However, there are limitations to these techniques especially when considering live cell imaging. Super-resolution techniques may require costly microscopy equipment, high illumination intensities, long acquisition times or specialised fluorophores. SRRF (Super-resolution Radial Fluctuations) offers an alternative software-based approach that counters many of these limitations (Gustafsson et al 2016).

Specifically, it allows for super resolution at low illumination intensities, using standard fluorophores on a conventional microscope. Understandably SRRF has become widely used. One development of SRRF is SRRF-Stream. This version is exclusive to Andor Technology and optimizes GPU processing to unlock real-time live super-resolution from a microscope.

We now present an updated version of SRRF-Stream called “SRRF-Stream+” which allows for improvements in the image quality over the original version of SRRF-Stream. We also show that SRRF-Stream+ can be used on Andor Sona back-illuminated sCMOS cameras having previously been available solely on Andor iXon EMCCD cameras. These new developments add to the previous benefits of SRRF-Stream, making it an even more flexible and useful part of the microscopists imaging toolbox.

Speaker

Alan Mullan, Product Application Specialist – Microscopy Cameras, Andor Technology

3:30 PM – 4:00 PM

Oxford Instruments NanoAnalysis

Multi-Colour Electron Microscopy: Using Energy Dispersive X-ray Spectrometry to Image and Analyse Biological Samples

The visualisation and analysis of life science samples has been a challenge throughout the history of electron microscopy. Biological sample preparation and the absence or addition of contrasting agents often play a key role in the development of imaging methodology. But the signals generated in an electron microscope are mostly underutilised by biologists. While energy dispersive x-ray spectrometry (EDS) has been used in materials science for many decades, sample stability and detector sensitivity have prevented a broader adoption in life sciences until recently [1]. Multi-colour electron microscopy (MCEM) combines elemental information about samples produced using EDS with ultrastructural electron data, providing a powerful and informative imaging technique [2].

MCEM addresses key research topics for the biological electron microscopist. What is it, where is it and how much? Using examples from biomedical research, animal cells and tissues, and plant cell biology, this talk will demonstrate how the addition of elemental maps to electron images contributes key information that could be used for a variety of biological imaging applications, such as region of interest profiling or automated segmentation of volumetric data). EDS is not only a powerful imaging tool, providing accurate identification of stains, labels, and ultrastructural features, but it can also be used to conduct analysis on the relative quantities of a wide range of elements, providing compositional data on native elements and exogenous features.

Speaker

Louise Hughes, Product Manager Life Science, Oxford Instruments

[1] Pirozzi, N.M., Hoogenboom, J.P. and Giepmans, B.N., 2018. ColorEM: analytical electron microscopy for element-guided identification and imaging of the building blocks of life. *Histochemistry and cell biology*, 150(5), pp.509-520.

[2] Scotuzzi, M., Kuipers, J., Wensveen, D.I., De Boer, P., Hoogenboom, J.P. and Giepmans, B.N., 2017. Multi-color electron microscopy by element-guided identification of cells, organelles and molecules. *Scientific reports*, 7(1), pp.1-8.

4:00 PM – 4:30 PM

Molecular Devices

Streamlining Electrophysiology Data Acquisition and Analysis in Ion Channel Study with Axon pCLAMP 11 Software

Axon pCLAMP™ 11 software suite provides ion channel researchers with greater capability in electrophysiology data acquisition and analysis. Recent updates to this include an improved Protocol Editor, which allows the user to more easily create complex experimental protocols with many command stimulations, as well as a new Batch Analysis feature which streamlines analysis of multiple data sets. In this webinar, Dr. Jeffrey Tang will highlight these and other new features in pCLAMP 11 to streamline the data acquisition and analysis in your ion channel study, and how this software package allows you to perform more experiments and obtain more data in your electrophysiology research.

Speaker

Jeffrey Tang, Senior Application Scientist, Molecular Devices

Friday, February 26

1:30 PM – 2:00 PM

Curi Bio

Bioengineering the Cell Environment for More Mature and Predictive 2D and 3D Models

Cells in the body use a variety of cues (structural, mechanical, electrochemical, etc.) from the extracellular matrix (ECM) to develop and mature physiologically. These influential cues help regulate a broad spectrum of processes such as cell signaling, division, and differentiation. Many in vitro platforms seek to combine and incorporate these cues into the cell's microenvironment but often fail, suffering from lack of reproducibility and incompatibility with other well-established end-point assays.

Here, we demonstrate biomimetic in vitro platforms capable of reliably reproducing these essential cues. These platforms markedly improve the structural and functional development of a variety of cell types, including stem cells, cardiomyocytes, muscle cells, and more. These cutting-edge strategies can be deployed in both 2D and 3D model systems for high-throughput assessment of metabolism, electrophysiology, and contractility. We describe how the differentiation of stem cells can be enhanced by providing a more biomimetic culture environment, with a particular focus on iPSC-derived cardiomyocytes and skeletal muscle cells. Further, we highlight how an active mechanical environment combined with aligned cell-nanotopography cues improves adhesion, signaling, and polarity across many cell applications. Finally, we demonstrate how to scale these technologies to 3D organoid systems, and how these approaches can improve the development of in vitro disease models to support the discovery of new therapies.

Speaker

Hamed Ghazizadeh, Product Manager, Curi Bio

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BioDesign Research, a Science Partner Journal

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BioDesign Research is an online Open Access journal published in affiliation with Nanjing Agricultural University (NAU) and distributed by the American Association for the Advancement of Science (AAAS). The journal is dedicated to information exchange in the interdisciplinary field of biosystems design. Its unique mission is to pave the way toward the predictable de novo design and assessment of engineered or reengineered living organisms using rational or automated methods to address global challenges in health, agriculture, and the environment.

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Ervasti, J. M., 1143-Pos
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