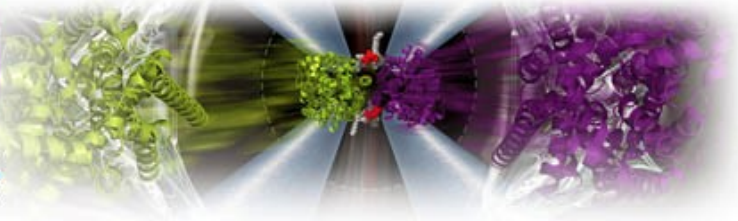


BPS19

63RD ANNUAL MEETING OF THE BIOPHYSICAL SOCIETY

BALTIMORE, MARYLAND • MARCH 2–6, 2019



Sunday, March 3
2:30 pm – 4:00 pm
Room 301
IonOptix

HIGH-CONTENT, HIGH-THROUGHPUT CALCIUM AND CONTRACTILITY MEASUREMENTS IN INTACT CARDIOMYOCYTES

High-content excitation-contraction coupling measurements in cardiomyocytes have historically been a slow, labor-intensive process requiring significant user involvement. While challenging, this methodology has proven itself essential throughout countless publications in the study of cardiac physiology and disease. Throughput, however, has limited the scope of calcium and contractility measurements and restricted study sample size and the number of conditions that can be tested in a given investigation. To improve the speed of data acquisition and analysis without compromising data quality, several advancements needed to be made to both the instrument hardware and software. Through its collaboration with IonOptix, CytoCypher's MultiCell system improves on the traditional instrument by introducing many innovative approaches, including a cutting-edge fast motorized microscope and automated processes to improve throughput while preserving data fidelity. The new MultiCell system provides high optical and temporal resolution calcium and cell shortening data as well as automatic, "single-click" analysis. New features focused on pipelining data acquisition have improved the reliability and reproducibility of data collection. The resulting methodology is orders of magnitude faster, permitting investigations with greater statistical power and higher confidence.

In this presentation, we will demonstrate the CytoCypher MultiCell high-throughput system for calcium and contractility measurements on intact, isolated myocytes. We will also show our protocols for these experiments, along with the analysis and statistical treatment of the resulting data sets. With this novel instrument, we have consistently acquired and analyzed data from over 1,000 cardiomyocytes per day.

Speaker

Michiel Helmes, CEO, CytoCypher/CSO, IonOptix