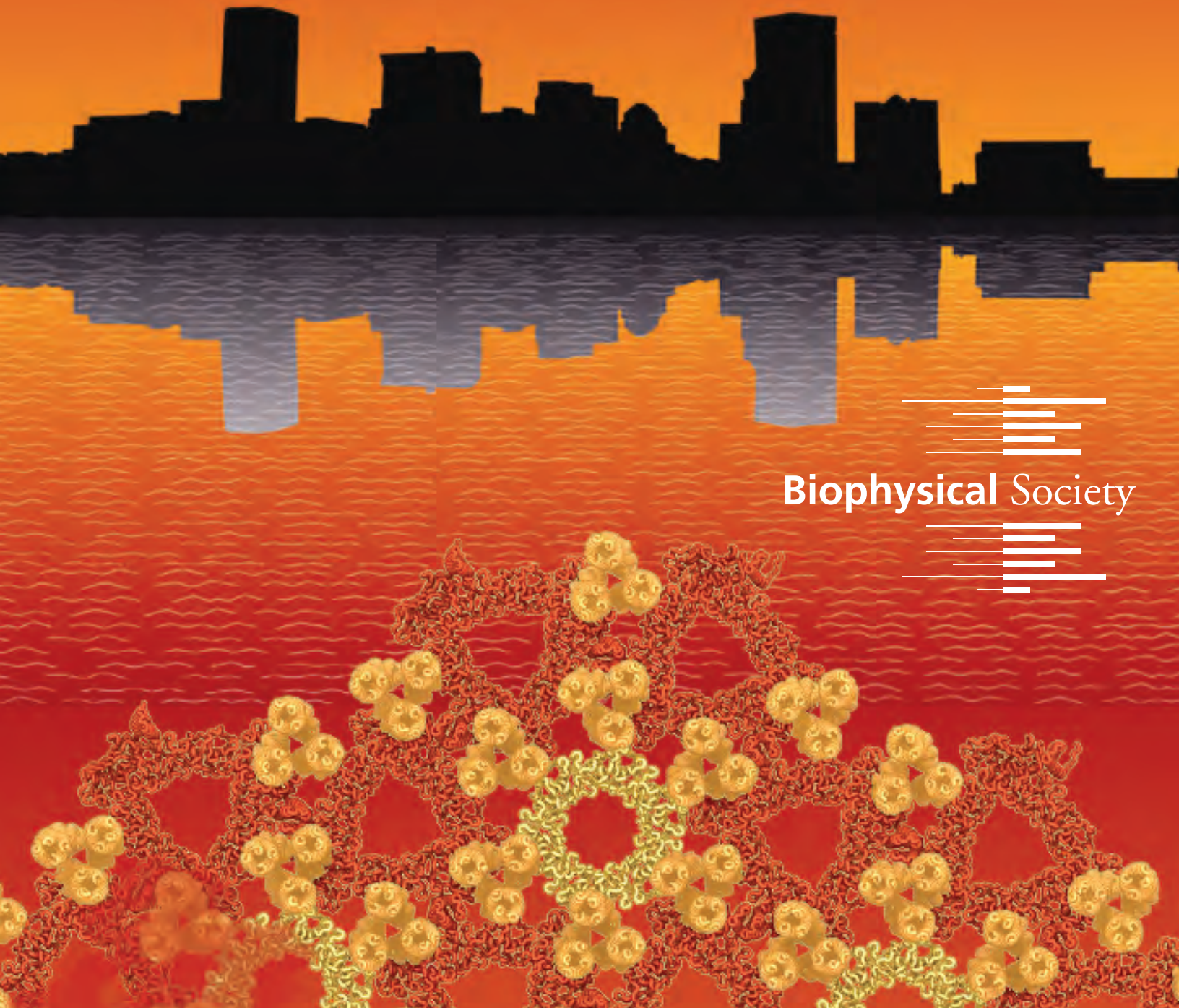


PROGRAM

BIOPHYSICAL SOCIETY 59<sup>TH</sup> ANNUAL MEETING

FEBRUARY 7-11, 2015 | BALTIMORE, MARYLAND



Biophysical Society

BRIDGING THE SCIENCES: COMPUTATION AND EXPERIMENT



# MOS-500 CD Spectrometer

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Stand alone or Stopped Flow...

## Detection modes

- Circular Dichroism
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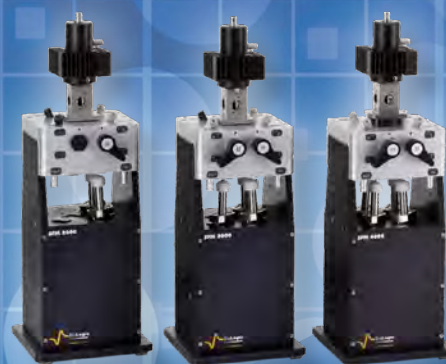
- SFM-4000 series stopped flow
- Single cell Peltier T control
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- NIR-CD to 1250nm
- Optical Rotary Dispersion
- DR-CD for powder samples
- Magnetic CD

## Features

- 163nm-950nm
- Auto optimizing optics
- Xe and XeHg sources
- 3 stage wavelength selection
- +/- 0.1nm wavelength accuracy
- Ultra low nitrogen consumption

## SFM-4000 Stopped Flow Series Options

- Dead time to <math><200\mu\text{s}</math>
- Low dead volume
- Mixing ratios from 1:1 to 1:100
- 2, 3, and 4 syringe, *upgradeable*  
*SFM-2000, SFM-3000, SFM-4000*
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- Compatible with MOS-500,  
MOS-200, MOS-DA
- *Options: T-jump, Titrator, Quench  
flow, Freeze quench, and more*



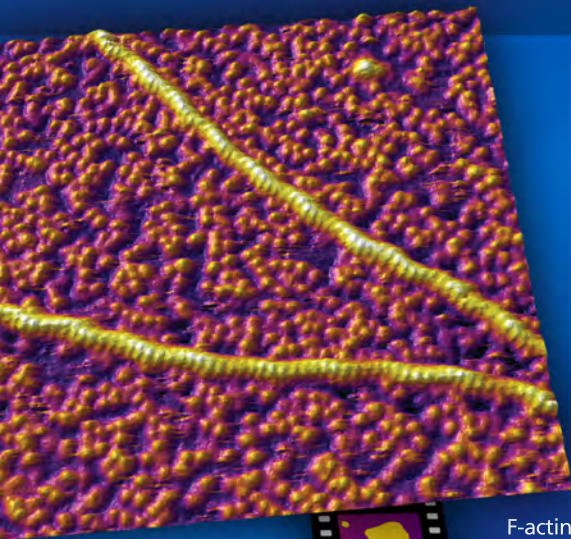
[www.bio-logic.info](http://www.bio-logic.info)





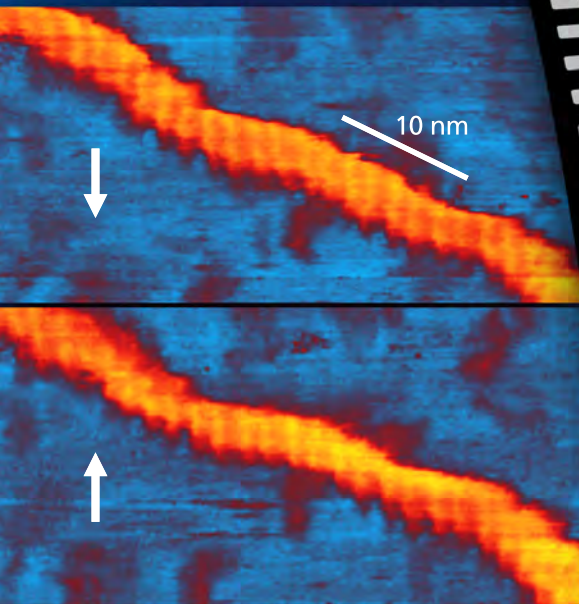
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11:30, Room A

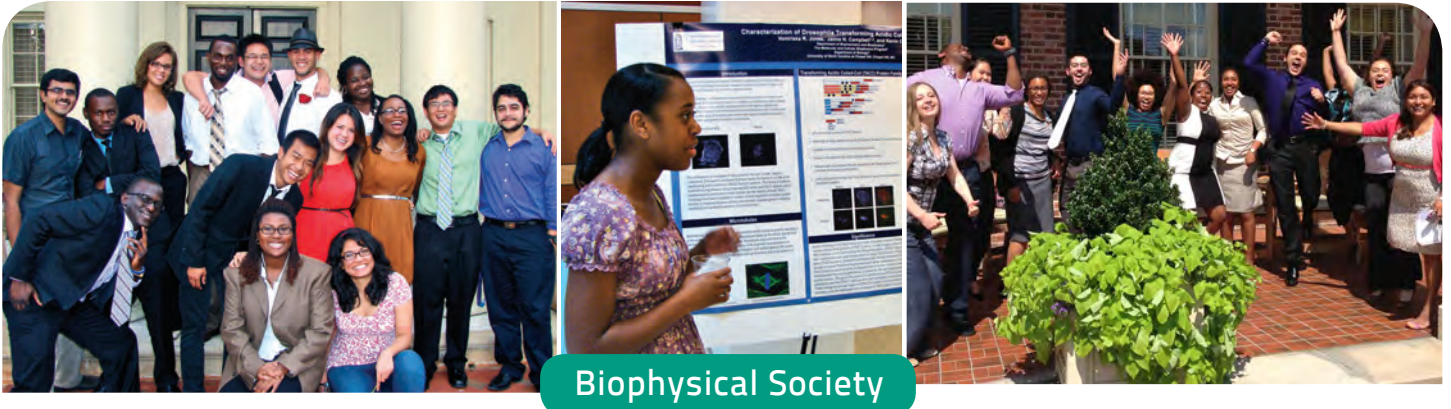
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Biophysical Society

# 2015 Summer Research Program in Biophysics

University of North Carolina at Chapel Hill

Priority Application Deadline: February 16, 2015

Interested in interdisciplinary science? Want to work in the fast-growing area of biomedical research? Looking to get some hands-on lab experience this summer? Check out the Summer Research Program in Biophysics, an 11 week course for undergraduate minority students at the University of North Carolina, Chapel Hill. Course expenses, travel costs, meals, and housing are covered.

## Course includes:

- Lectures with UNC faculty members and seminars with visiting professors from graduate programs across the country
- Mentored research experience
- Team-building activities and field trips

## Recommended Prerequisites:

- Studying quantitative science: chemistry, physics, biochemistry, and/or computer science
- 2 semesters of biology
- 2 semesters of calculus-level physics
- 3.0 cumulative or higher GPA in science courses

See what past students have to say about the Summer Research Program!

*"...this has been the most useful and wonderful summer of my college career. Not only have I learned academically, I have built multiple bridges that can only benefit me in the future."*

*"It has influenced me to take an additional science course at my university as well as has helped me create ideas for my senior project... the environment of the course created learning."*

*"I learned new lab techniques as well as worked on the project independently. I was able to complete my own experiments and when I had questions or hit a snag, my mentor was available to help."*

For more information or to recommend a student, email Ellen Mackall: [emackall@biophysics.org](mailto:emackall@biophysics.org), or visit [www.biophysics.org](http://www.biophysics.org).

# Thematic Meetings 2015

**New Biological Frontiers Illuminated  
by Molecular Sensors and Actuators**

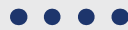
Taipei, Taiwan  
June 28-July 1



**Biophysics of Proteins and Surfaces:**

**Assembly, Activation, Signaling**

Madrid, Spain  
October 13-15



**Polymers and Self- Assembly:  
From Biology to Nanomaterials**

Rio de Janeiro, Brazil  
October 25-30



**Biophysics in the Understanding, Diagnosis  
and Treatment of Infectious Diseases**

Stellenbosch, South Africa  
November 16-20

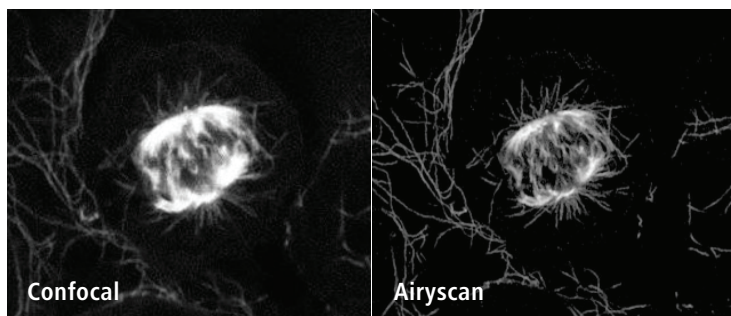


The moment your data change  
scientific minds.  
**This is the moment we work for.**



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Find out more at our exhibitor showcase:

**Technology Innovations from ZEISS, the New ZEISS LSM 880 Confocal  
with Airyscan and ZEISS Lightsheet Z.1.**

Sunday, February 8, 2015, 10:30am-12:00pm, Room B



We make it visible.



# 59<sup>th</sup> ANNUAL MEETING

FEBRUARY 7-11, 2015 | BALTIMORE, MARYLAND  
[www.biophysics.org/2015meeting](http://www.biophysics.org/2015meeting)

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(see page 53 for a list of SRAA Participants)



## National Lecturer

**Klaus Schulten**

University of Illinois at Urbana-Champaign

*Discoveries in Biophysics Through the Computational Microscope*

Monday, February 9, 2015, 8:00 PM, Baltimore Convention Center

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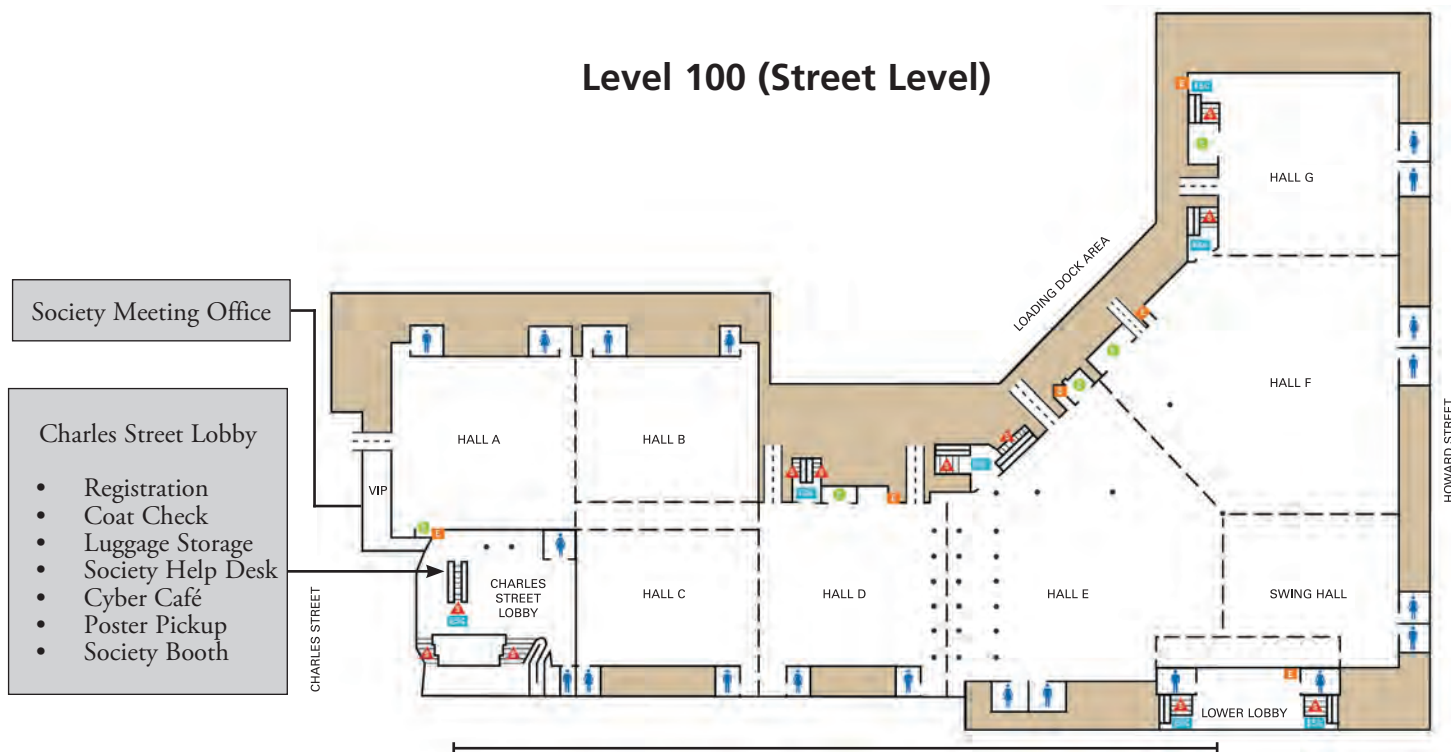
*As of January 9, 2015*





# Baltimore Convention Center Facilities

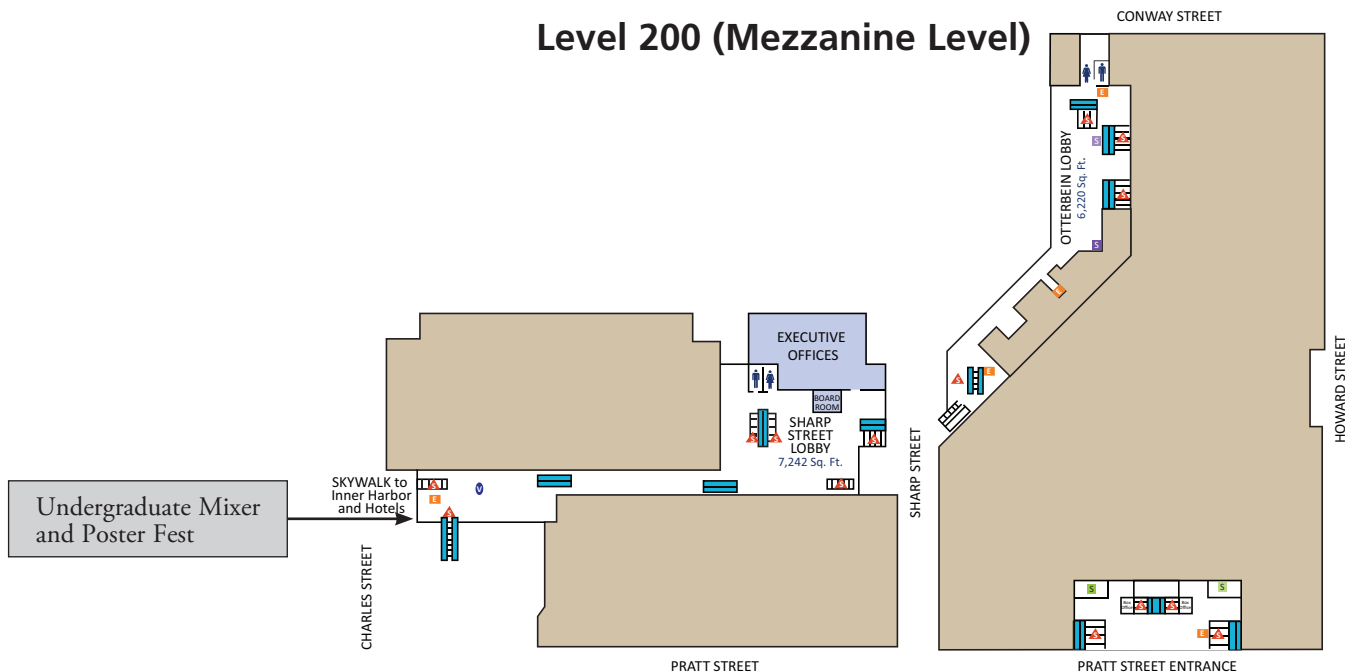
## Level 100 (Street Level)



**Hall A-E**

- Biomolecular Discovery Dome
- Posters & Exhibits
- Graduate and Postdoc Institution Fair
- Industry and Agency Opportunities Fair
- SRAA Competition
- Exhibits Office
- Exhibitor Presentations
- Image Contest

## Level 200 (Mezzanine Level)

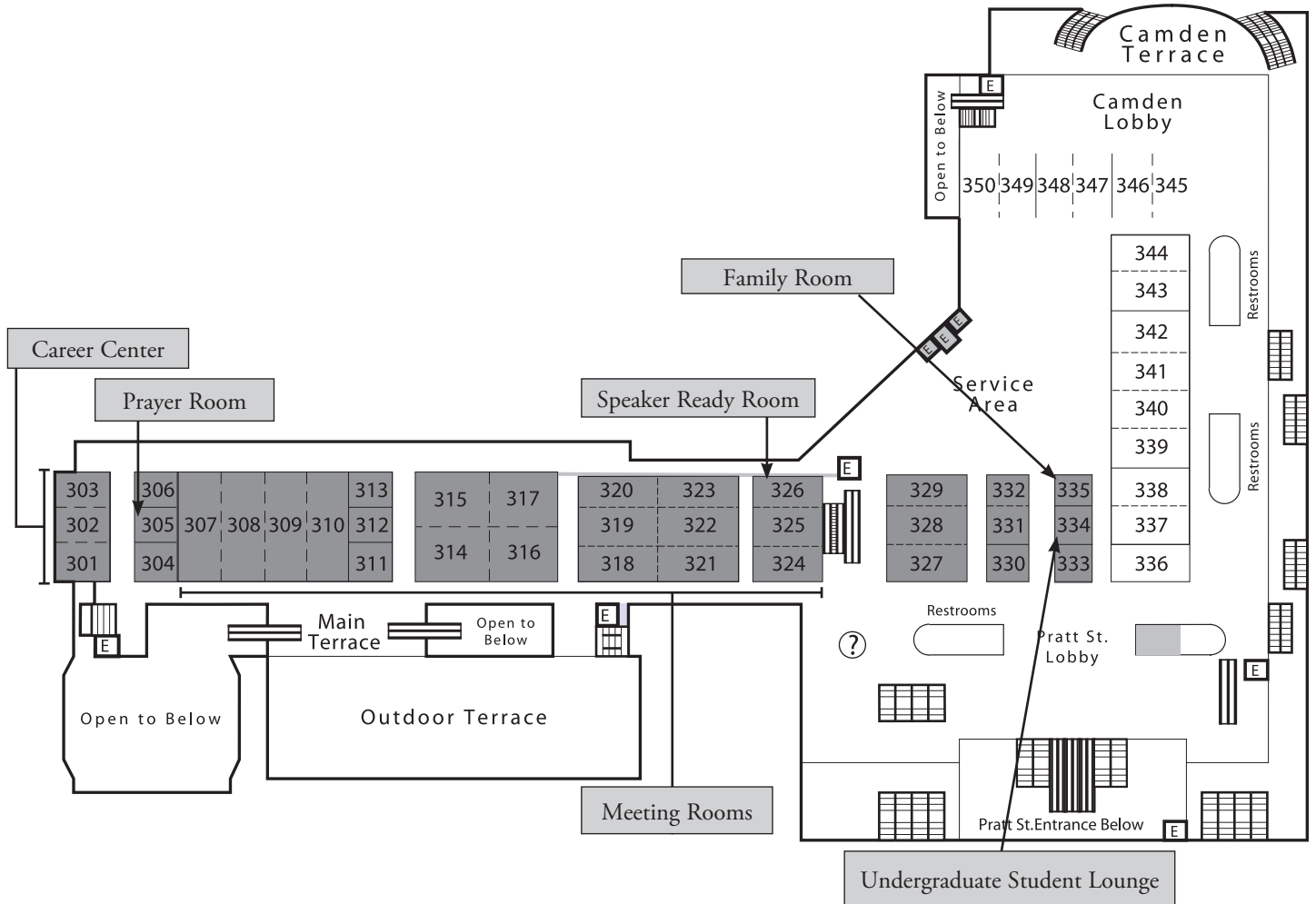


Undergraduate Mixer and Poster Fest



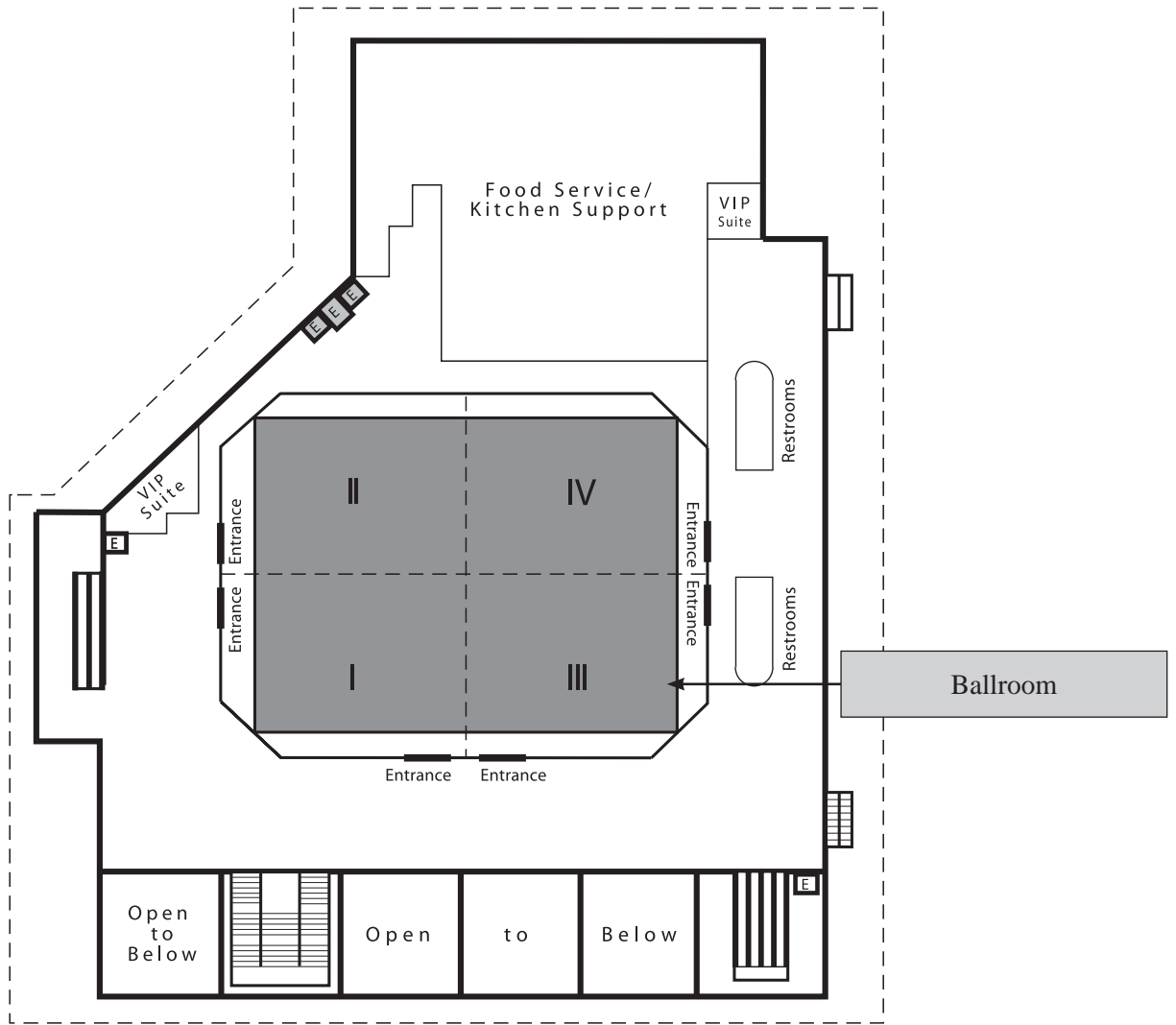
# Baltimore Convention Center Facilities

## Level 300 (Meeting Rooms)



# Baltimore Convention Center Facilities

## Level 400 (Ballroom)





## 2015 Program Committee

**Enrique De La Cruz**, Yale University, Co-Chair  
**Karen Fleming**, Johns Hopkins University, Co-Chair  
**Peter Hinterdorfer**, University of Linz, Austria  
**Vasanthi Jayaraman**, University of Texas Health Science Center  
**Amy Lee**, University of Iowa  
**Robert Nakamoto**, University of Virginia Health Science Center  
**E. Michael Ostap**, University of Pennsylvania  
**David Sept**, University of Michigan  
**Antoine van Oijen**, University of Wollongong, Australia  
**Claudia Veigel**, Ludwig Maximillians University, Germany

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**Edward Egelman**, President-Elect  
**Francisco Bezanilla**, Past President  
**Paul Axelsen**, Treasurer  
**Lukas Tamm**, Secretary

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**Samantha Harris**  
**Marcia Levitus**  
**Merritt Maduke**  
**Daniel Minor**  
**Jeanne Nerbonne**  
**David Yue**

#### *Term Ending 2016*

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

#### *Term Ending 2017*

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

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**Leslie Loew**, Editor-in-Chief  
**Nathan Baker**, Associate Editor  
**E. Michael Ostap**, Associate Editor  
**Dave Piston**, Associate Editor  
**Michael Pusch**, Associate Editor  
**Brian Salzberg**, Associate Editor  
**Stanislav Shvartsman**, Associate Editor  
**Claudia Steinem**, Associate Editor

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**Melissa DeSomma**, Governance & Administration Coordinator  
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**Beth Staehle**, Journal Manager  
**Ellen Weiss**, Director of Policy & Communications  
**Ray Wolfe**, Creative Designer & Systems Engineer  
**Alisha Yocum**, Director of Member Services & Publications  
**Ying Zhu**, Meetings Coordinator

## General Information

All functions will be held in the Baltimore Convention Center, unless otherwise noted.

### Badges

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

### Banking and Currency Exchange

Foreign currency exchange and other bank transactions can be done during regular bank business hours at Bank of America, 100 South Charles Street, Baltimore, MD 21201. ATMs are also available in the Baltimore Convention Center.

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

ATM is open 24 hours.

### Business Center, 300 Level

The Baltimore Convention Center provides a full service business center for the convenience of attendees and exhibitors. Services include photocopying, faxing, computer work stations, and printing services. Shipping is provided through UPS. The business center is located in the Pratt Street Lobby adjacent to Room 334. To contact the business center, call (410) 649-7194 or email [cjohnson@abcimaging.com](mailto:cjohnson@abcimaging.com).

Saturday–Wednesday 8:30 AM–5:00 PM

### Career Center, Room 301/302/303

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

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

### Certificates of Attendance

Certificates of Attendance may be obtained in person in the Society Meeting Office, in the VIP Lounge, or at the Society Help Desk located at registration in the Charles Street Lobby.

### Child Care

Child care is provided by KiddieCorp. On-site registration is available on a limited basis. Visit the BPS Meeting Office, in the VIP Lounge, for additional information.

### Coat Check/Luggage Storage, Charles Street Lobby

The cost is \$2.00 per checked item. Please do not bring luggage to meeting rooms. If you are planning to check items, please plan to arrive early to ensure that you are not late for sessions due to long lines.

Saturday	8:00 AM–7:30 PM
Sunday–Tuesday	7:30 AM–6:30 PM
Wednesday	7:30 AM–4:00 PM

### Daily Meet-Up

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

### Exhibits, Exhibit Hall A-E

The Exhibit Hall features the most advanced equipment, products, services, and publications available. A list of exhibitors as of 11/21/14 can be found beginning on page 188. Please see Addendum for those registered after 11/21/14.

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

### Exhibitor Coupons

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

### Family Room, Room 335

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

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

### First Aid, Exhibit Hall E

In case of medical emergency, dial x7055 from any house phone or (410) 649-7055 from a cell phone. The First Aid Room is located behind Hall E. For other minor medical needs, this room will be staffed with First Aid Administrators trained in First Aid Response during the hours below.

Saturday, February 7	8:30 AM–6:00 PM
Sunday, February 8	8:00 AM–6:00 PM
Monday, February 9	8:00 AM–6:00 PM and 7:30 PM–9:30 PM
Tuesday, February 10	8:00 AM–6:00 PM
Wednesday, February 11	8:00 AM–6:00 PM

### Hotel Telephone Numbers

Hilton Baltimore	443-573-8700
Baltimore Harbor Hotel	410-752-1100
Days Inn Inner Harbor	800-615-3107
Hampton Inn Baltimore/Downtown	410-685-5000
Hampton Inn and Suites Baltimore Inner Harbor	410-539-7888
Holiday Inn Inner Harbor	410-685-3500
Hotel Monaco	443-692-6170
Hyatt Regency	410-528-1234
Lord Baltimore Hotel	855-539-1928
Marriott Inner Harbor	410-962-0202
Marriott Waterfront	410-385-3000
Renaissance Harborplace	410-547-1200
Sheraton Inner Harbor	410-962-8300



## Individuals Requiring Assistance

Attendees requiring special assistance during the meeting should visit the Society Meeting Office in the VIP Lounge of the Baltimore Convention Center, or call (410) 649-6206. Society staff will do their best to accommodate requests; however, we cannot assure that special needs will be met without prior notice.

## Internet Access

Wireless internet access is available free-of-charge throughout the common areas of the Baltimore Convention Center, excluding the Exhibit Hall.

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

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

## Mobile App and Desktop Planner

The Biophysical Society's new "BPS 360" mobile application is available for download in the Apple App Store, Google Play, Windows Store, and as an HTML 5 website for all other devices. You can view/create schedules, view abstracts, and interact virtually with other attendees when using the app and sync it with the desktop planner.

## Parking

The Baltimore Convention Center does not include a public parking facility. There are many public garages located around the city and within walking distance of the Center.

## Photography

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

## Poster Pickup

Posters ordered in advance through Tray, Inc. will be available for pick up at the Baltimore Convention Center in the Charles Street Lobby near the entrance to the Exhibit Hall during the following hours:

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

## Poster Sessions, Exhibit Hall A-E

Sunday–Wednesday

The Exhibit Hall will open at 8:00 AM each morning. It will remain open for poster viewing until 10:00 PM each night, **except for Tuesday, when it will close at 4:30 PM for safety purposes during exhibit tear down.** Posters are arranged according to topic. Your poster board number begins with "B." On the day of presentation, authors assigned odd-

numbered poster boards should present from 1:45–2:45 PM (10:30–11:30 AM on Wednesday); even-numbered posters should present from 2:45–3:45 PM (11:30 AM–12:30 PM on Wednesday). Other hours, day or evening, may be posted by the authors as desired. Additionally, authors may leave notepaper so that visitors may request an appointment. **Abstracts submitted after October 1, 2014, are scheduled each day, Sunday–Wednesday, during the regular poster sessions. These board numbers will begin with "LB."** See Addendum for listing of abstracts.

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

## Prayer Room, Room 305

A room will be available for worship or other personal prayer from:

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

## Raffles

**Exhibitor Raffle:** Want to win an Apple iPad Air? Earn raffle entries by visiting with exhibitors Sunday, February 8, through Tuesday, February 10, to collect tickets. The more booths you visit, the more chances to win. Drop the raffle tickets at the Society Booth, in the Charles Street Lobby, by 3:00 PM Tuesday, February 10. The winner will be announced in the Exhibit Hall at 3:00 PM Tuesday afternoon—you must be present at the Meeting to win. Good luck!

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

## Registration Hours, Charles Street Lobby

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

## Social Media

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

Twitter: @BiophysicalSoc, use hashtag #BPS15  
Facebook: [www.facebook.com/biophysicalsociety](http://www.facebook.com/biophysicalsociety)  
Blog: [www.biophysicalsociety.wordpress.com](http://www.biophysicalsociety.wordpress.com)

## Society Booth, Charles Street Lobby

Stop by the Society Booth to purchase BPS merchandise, pick up Society publications, learn about Society programs, drop off exhibitor raffle tickets, or fill out a membership application.

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

**Society Meeting Office,  
VIP Lounge, Charles Street Lobby**  
Office Phone: (410) 649-6206

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

### **Speaker Ready Room, Room 326**

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

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

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

### **Transportation**

#### **Taxis**

Taxis will be available from the Charles Street Lobby at the Baltimore Convention Center.

Baltimore City Taxi 410-327-7777  
Arrow Cab 443-575-4111  
County Cab 443-575-4110  
Diamond Cab of Baltimore 410-947-3333  
Yellow Cab Cooperative, Inc 415-333-3333

### **Undergraduate Student Lounge, Room 334**

This special space is reserved for undergraduate meeting attendees looking for a place to relax or catch up on coursework they may be missing while at the Annual Meeting. Members of the Education Committee, which sponsors this lounge, will drop in to talk with student attendees about career paths and opportunities.

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

# **Biophysical Society Thematic Meetings 2015**

**New Biological Frontiers Illuminated  
by Molecular Sensors and Actuators**  
Taipei, Taiwan  
June 28-July 1

**Biophysics of Proteins and Surfaces:  
Assembly, Activation, Signaling**  
Madrid, Spain  
October 13-15

**Polymers and Self- Assembly:  
From Biology to Nanomaterials**  
Rio de Janeiro, Brazil  
October 25-30

**Biophysics in the Understanding, Diagnosis  
and Treatment of Infectious Diseases**  
Stellenbosch, South Africa  
November 16-20

## **Mark Your Calendars! Future BPS Annual Meetings**

### **60<sup>th</sup> Annual Meeting**

February 27–March 2, 2016  
Los Angeles, California

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

February 11–15, 2017  
New Orleans, Louisiana

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

February 17–21, 2018  
San Francisco, California



## Committee Meetings

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

### Friday, February 6

3:00 PM–4:30 PM

***New Council Orientation***  
Hilton Baltimore, Peale C

5:00 PM–9:00 PM

***Joint Council Reception, Dinner, and Meeting***  
Hilton Baltimore, Peale A-B

### Saturday, February 7

8:30 AM–11:00 AM

***Joint Council Meeting (continued)***  
Hilton Baltimore, Peale A-B

### Sunday, February 8

8:30 AM–10:30 AM

***Minority Affairs Committee (MAC) Meeting***  
Room 333

10:30 AM–12:30 PM

***International Relations Committee Meeting***  
Room 313

12:15 PM–2:15 PM

***Public Affairs Committee Meeting***  
Room 333

3:30 PM–5:00 PM

***Early Careers Committee Meeting***  
Room 333

6:00 PM–10:00 PM

***Biophysical Journal Editorial Board Dinner***  
The Center Club

### Monday, February 9

8:30 AM–10:30 AM

***Committee for Professional Opportunities  
for Women (CPOW) Meeting***  
Room 333

3:00 PM–5:00 PM

***Membership Committee Meeting***  
Room 333

### Tuesday, February 10

8:00 AM–9:00 AM

***Biophysical Society Business Meeting***  
Room 327/328

9:00 AM–10:00 AM

***Subgroup Chairs Meeting***  
Room 318

3:00 PM–5:00 PM

***Education Committee Meeting***  
Room 333

### Wednesday, February 11

8:00 AM–11:00 AM

***New Council Meeting***  
Room 318

12:00 PM–3:00 PM

***Publications Committee Meeting***  
Room 333

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*The Biophysical Society would like to thank Society members who serve on Council or Committees.*

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## Professional Development & Educational Sessions

The Society's committees have planned many professional development activities to take place during the Annual Meeting. Below is a schedule of all of those activities. Detailed descriptions of the sessions can be found in the daily program. In addition, a student lounge for undergraduates will be available Sunday, February 8, to Wednesday, February 11, in Room 334.

*Sessions in italics will be held in Career Center, Room 301/302/303.*

### Saturday, February 7, 2015

- 3:00 PM–4:00 PM *Networking: Optimizing Your Time at BPS 2015*  
 4:00 PM–5:00 PM Undergraduate Mixer and Poster Fest

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

1:00 PM–2:40 PM • 4:30 PM–5:30 PM

### Sunday, February 8, 2015

- 7:30 AM–8:30 AM Postdoctoral Breakfast  
 9:00 AM–10:00 AM *Selling Yourself to the Life Sciences Industry*  
 10:00 AM–5:00 PM Biomolecular Discovery Dome  
 10:30 AM–11:30 AM *Career Planning and Job Searching for Science Professionals: Academic Opportunities*  
 12:00 NOON–1:00 PM *Networking: Optimizing Your Time at BPS 2015*  
 1:30 PM–3:30 PM Navigating the Transition: Grad Student to Postdoc  
 2:00 PM–3:30 PM Teaching Science Like We Do Science: Integrating Research and Education  
 2:30 PM–3:30 PM *Having the Right Stuff: Outstanding Resumes/CVs for Outstanding Career Opportunities in Academia and Industry*  
 2:30 PM–4:00 PM Science Funding: Is It Time for a New Paradigm?  
 4:00 PM–5:00 PM *Beyond the Bench: Preparing for Your Career Transition in the Life Sciences*  
 5:30 PM–7:00 PM Mid-Career Mixer

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

8:30 AM–1:00 PM • 2:30 PM–6:00 PM

### Monday, February 9, 2015

- 7:30 AM–8:30 AM Graduate Student Breakfast  
 10:00 AM–11:00 AM *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)*  
 10:00 AM–5:00 PM Biomolecular Discovery Dome  
 11:30 AM–12:30 PM *Career Planning and Job Searching for Science Professionals: Academic Opportunities*

- 11:45 AM–1:15 PM Undergraduate Student Pizza “Breakfast”  
 1:00 PM–3:00 PM Graduate & Postdoc Institution Fair  
 1:00 PM–3:00 PM Grant Writing Workshop: How (Not) to Write Your NIH Grant Proposal  
 1:30 PM–3:00 PM Biophysics 101: Super Resolution Microscopy  
 2:15 PM–3:45 PM How to Get Your Scientific Paper Published  
 2:30 PM–3:30 PM *Selling Yourself to the Life Sciences Industry*  
 2:30 PM–4:00 PM Overcoming Unconscious Bias & Barriers in Science  
 2:30 PM–4:00 PM US Science Education in a Global Context  
 4:00 PM–5:00 PM *Successfully Navigating the International Job Search*

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

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

### Tuesday, February 10, 2015

- 9:30 AM–10:30 AM *Successfully Navigating the International Job Search*  
 10:00 AM–5:00 PM Biomolecular Discovery Dome  
 12:00 NOON–1:30 PM Funding Opportunities for Faculty at Primarily Undergraduate Institutions  
 12:00 NOON–2:00 PM Postdoc to Faculty Q&A: Transitions Forum and Luncheon\*\*  
 1:00 PM–3:00 PM Industry and Agency Opportunities Fair  
 1:30 PM–2:30 PM Conversation with NIGMS Director Jon Lorsch  
 2:30 PM–3:30 PM *Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)*  
 2:30 PM–4:30 PM Grant Opportunities for Early Career Faculty  
 3:00 PM–4:00 PM Networking with Minority Biophysicists: Resources & Opportunities

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

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

\* Slots for the one-on-one resume and career counseling sessions are available on a first-come, first-served basis and fill up quickly. You may sign up for a slot beginning at 12:00 NOON on Saturday, February 7 in the Career Center, Room 301-303. Please come prepared with resumes, CVs, and other appropriate materials.

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

## Career Center Information

Room 301/302/303

**Alaina G. Levine** is a Contributor to National Geographic, science journalist, science and engineering careers consultant, professional speaker and corporate comedian. Her new book on networking strategies for scientists and engineers will be published by Wiley in 2015. As President of Quantum Success Solutions, a career consulting enterprise with a focus on advancing the professional development expertise of scientists and engineers, she has been advising emerging and established scientists and engineers about their careers for over a decade, and has consulted with tens of thousands of early- and mid-career scientific and engineering professionals. She has given over 600 workshops and seminars in the US and Europe and is the author of over 150 articles pertaining to science, engineering, science careers and business in such publications as *Science*, *Nature*, *Smithsonian*, *Scientific American*, *IEEE Spectrum*, *New Scientist*, and *COSMOS*. As a science careers journalist, Levine constantly researches employment trends in STEM fields and delivers up-to-date vital information about STEM career issues from interviews with hiring managers, decision-makers and recruiters in myriad industries. Levine is also a Contributor to *NatGeo*, where she writes and blogs for its website, and she pens the career columns for *Physics Today* and the American Physical Society's national publication, *APS News*.

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

## Job Postings

### Employers

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

### Job Applicants

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



Discover your future...

**Biophysical Society**  
Job Board

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



## Travel Grant Awardees

### CPOW

#### Sunday

**Xiang-qiang Chu**, Wayne State University  
295-Pos, B75

PROBING THE DOMAIN MOTIONS OF AN OLIGOMERIC PROTEIN FROM DEEP-SEA HYPERTHERMOPHILE BY NEUTRON SPIN ECHO.

**Hyeran Kang**, Yale University  
118-Plat

SITE-SPECIFIC CATION RELEASE DRIVES ACTIN FILAMENT SEVERING BY VERTEBRATE COFILIN.

**Melissa R. Miller**, University of California, Berkeley  
647-Pos, B427

EVOLUTIONARY DIVERSITY OF PROTEIN NANODOMAINS WITHIN MAMMALIAN SPERM.

**Giulia Palermo**, Swiss Federal Institute of Technology in Lausanne, Switzerland

297-Pos, B77

MOLECULAR MECHANISM OF RUTHENIUM AND GOLD ANTICANCER AGENTS IN THE ALLOSTERIC REGULATION OF THE HISTONE PROTEINS OF CHROMATIN.

**Judith H. Prieto**, Western Connecticut State University  
278-Pos, B58

GLUTATHIONE REDUCTASE OF *PLASMODIUM FALCIPARUM* AS AN ANTIMALARIAL DRUG TARGET OF METHYLENE BLUE.

**Andreja Šarlah**, University of Ljubljana, Slovenia

670-Pos, B450

MECHANO-CHEMICAL MODEL FOR THE STEPPING OF CYTOPLASMIC DYNEIN.

**Katelyn M. Spillane**, National Institute for Medical Research, United Kingdom

704-Pos, B484

CHARACTERIZING MECHANICAL FORCES DURING B CELL RESPONSES.

#### Monday

**Moriah R. Beck**, Wichita State University

1487-Pos, B438

PALLADIN NUCLEATES ACTIN ASSEMBLY AND REGULATES CYTOSKELETON ARCHITECTURE.

**Ivana Y. Kuo**, Yale University

893-Plat

DECREASED POLYCYSTIN 2 EXPRESSION ALTERS CALCIUM-CONTRACTION COUPLING AND CHANGES BETA-ADRENERGIC SIGNALING PATHWAYS.

**Fei Li**, Michigan State University

1543-Pos, B494

CRYSTAL STRUCTURES OF TRANSLOCATOR PROTEIN 18 KDA (TSPO) AND IDENTIFICATION OF A CHOLESTEROL BINDING ENHANCEMENT MOTIF.

#### Wednesday

**Juan Guan**, University of California, San Francisco

2737-Pos, B167

TRACKING CHROMOSOME CONFORMATION IN LIVE CELLS WITH CRISPR IMAGING.

**Loan K. Huynh**, University of Toronto, Canada

2605-Pos, B35

GLOBAL CONTACTS DIRECT HYDROPHOBIC COLLAPSE IN PROTEIN FOLDING.

**Elizabeth Martinez-Hernandez**, Loyola University of Chicago

2938-Pos, B368

GENETIC ABLATION OF KLHL1 ALTERS CAV3.2 EXPRESSION IN DRG NEURONS AND MECHANICAL PAIN TRANSMISSION.

**Yoshie Narui**, The Ohio State University

2847-Pos, B277

STRUCTURAL AND BIOPHYSICAL CHARACTERIZATION OF INNER EAR TIP LINK VARIANTS.

**Melanie Paillard**, Thomas Jefferson University

3075-Pos, B505

THE STOICHIOMETRY BETWEEN MICU1 AND MCU DETERMINES THE DIFFERENT MITOCHONDRIAL CA<sup>2+</sup> UPTAKE PHENOTYPES IN HEART AND LIVER.

**Nicoletta Savalli**, University of California, Los Angeles

2936-Pos, B366

β<sub>2a</sub> AND β<sub>3</sub> DIFFERENTIALLY MODULATE TIME- AND VOLTAGE-DEPENDENT PROPERTIES OF INDIVIDUAL VOLTAGE SENSORS IN THE HUMAN CAV1.2 CHANNEL.

### EDUCATION

#### Sunday

**Bryant L. Doss**, Arizona State University

706-Pos, B486

AFM INDENTATION REVEALS ACTOMYOSIN-BASED STIFFENING OF METASTATIC CANCER CELLS DURING INVASION INTO COLLAGEN I MATRICES.

**Satchal K. Erramilli**, Purdue University

723-Pos, B503

CONFORMATIONAL CHANGES AND COMPLEX FORMATION OF THE NON-CANONICAL RIBOSE ABC TRANSPORTER.

**Yifan Ge**, Indiana University Purdue University Indianapolis

441-Pos, B221

LIPOPOLYMER CROWDING IN POLYMER-TETHERED LIPID BILAYERS ALTERS LIPID MIXING BEHAVIOR AND PROTEIN SEQUESTRATION IN THE PRESENCE OF RAFT-MIMICKING LIPID MIXTURES.

**Kirill S. Grushin**, University of Texas Medical Branch at Galveston

881-Pos, B661

PS-GC NANODISCS ASSEMBLY FOR STRUCTURAL STUDIES OF COAGULATION PROTEINS AND THEIR COMPLEXES.

**Gregory Hoeprich**, University of Vermont

673-Pos, B453

KINESIN-2'S ROLE IN INTRACELLULAR CARGO TRANSPORT: NAVIGATING THE COMPLEX MICROTUBULE LANDSCAPE.

**Venkatramanan Krishnamani**, University of Iowa

190-Plat

DETERMINING THE FREE ENERGY OF MEMBRANE PROTEIN DIMERIZATION IN LIPID BILAYERS.

**Gage Leighton**, University of North Carolina at Charlotte  
246-Pos, B26

ENVIRONMENTAL AND MUTATION EFFECTS ON THE FOLDING AND DNA-BINDING OF THE PRIMARY DNA RECOGNITION SUBDOMAIN OF SLEEPING BEAUTY TRANSPOSASE.

**Geoffrey Li**, University of Minnesota  
304-Pos, B84

PROBING MULTIPLE TIMESCALE DYNAMICS OF PROTEIN KINASE A-INHIBITOR COMPLEXES.

**Fu-Cheng Liang**, California Institute of Technology  
265-Pos, B45

INTER-DOMAIN DYNAMICS OF A NOVEL CHAPERONE ENABLES EFFECTIVE CAPTURE OF MEMBRANE PROTEIN SUBSTRATES.

**Socheata Lim**, Western Connecticut State University  
278-Pos, B58

GLUTATHIONE REDUCTASE OF PLASMODIUM FALCIPARUM AS AN ANTIMALARIAL DRUG TARGET OF METHYLENE BLUE.

**Rong Liu**, Wayne State University  
714-Pos, B494

DELETION OF H2-CALPONIN IN MACROPHAGES FACILITATES CELL MOTILITY AND LIPID CLEARANCE: A NOVEL MECHANISM TO ATTENUATE ARTERIAL ATHEROSCLEROSIS.

**Lauren P. MacConnachie**, Wayne State University  
522-Pos, B302

THE MEMBRANE BENDING ACTION OF THE SYT-1 C2AB STUDIED ON SUPPORTED LIPID BILAYERS.

**Kathryn R. Monopoli**, University of Massachusetts  
476-Pos, B256

FORMING THE PSEUDOMONAS AERUGINOSA TRANSLOCON REQUIRES SIMULTANEOUS INCORPORATION OF PopB AND PopD.

**SooHyun Park**, Pennsylvania State University  
726-Pos, B506

RECONSTITUTION OF MULTIDRUG RESISTANCE EFFLUX PUMPS IN GIANT LIPOSOMES.

**Kayla M. Pate**, University of South Carolina  
331-Pos, B111

THE ABILITY OF POLYPHENOLS TO REDUCE  $\beta$ -INDUCED APOPTOSIS ASSOCIATED WITH ALZHEIMER'S DISEASE.

**Yang Qi**, Duke University  
293-Pos, B73

VISUALIZING THE INTER-DOMAIN MOTIONS OF A PATHOGENIC PROTEIN USING SPARSE RDC DATA.

**Tejeshwar C. Rao**, Wayne State University  
517-Pos, B297

SYNAPTOTAGMIN-1 AND SYNAPTOTAGMIN-7 DIFFER IN THEIR STIMULUS AND  $Ca^{2+}$ -DEPENDENCE OF ACTIVATION.

**Shyam Srivats**, University of Cambridge, United Kingdom  
642-Pos, B422

THE SIGMA1 RECEPTOR COMPETES WITH STIM1 TO BIND ORAI1 TO REGULATE STORE OPERATED CALCIUM ENTRY (SOCE).

**Kevin Stanley**, Illinois State University  
720-Pos, B500

$Na^+/K^+$  PUMP ION BINDING SITE INTERACTIONS REGULATE THE PROTON LEAK PATHWAY.

**Xiaolin Zhao**, Virginia Polytechnic Institute and State University  
472-Pos, B252

STRUCTURAL BASIS OF PHOSPHOINOSITIDE (PIP) RECOGNITION BY THE TIRAP PIP-BINDING MOTIF

## Monday

**David G. Ackerman**, Cornell University  
1217-Pos, B168

THE EFFECTS OF WALP PEPTIDES ON PHASE BEHAVIOR IN QUATERNARY LIPID MIXTURES: A MOLECULAR DYNAMICS STUDY.

**Ana C. Cadena**, University of San Francisco de Quito, Ecuador  
1596-Pos, B547

MOLECULAR DYNAMICS STUDIO OF POLY(VINYL ALCOHOL) MECHANICAL PROPERTIES FOR ITS INCORPORATION IN BONES STRUCTURES AS A PVA-PLA SUBSTRATE FOR TISSUE REGENERATION.

**Jung Hwa Cho**, University of Southern California  
900-Plat

NOVEL GENETICALLY ENCODED RATIO-METRIC CALCIUM INDICATORS.

**Marta d'Amora**, Italian Institute of Technology, Italy  
1090-Pos, B41

ZEBRAFISH LARVAE AS MODEL SYSTEM TO STUDY POSSIBLE TOXICITY OF SILVER NANOPARTICLES AT CYTOSKELETAL LEVEL BY MEANS OF ADVANCED MICROSCOPY.

**Swapneeta Date**, Texas Tech University Health Sciences Center  
1549-Pos, B500

THE HUMAN PROTON-COUPLED FOLATE TRANSPORTER: DETERMINATION OF CONFORMATION AND IDENTIFICATION OF THE FOLATE-BINDING POCKET.

**Milka Doktorova**, Weill Cornell Medical College  
1274-Pos, B225

COMPUTATIONAL MODELING OF THE N-TERMINUS OF THE HUMAN DOPAMINE TRANSPORTER (hDAT).

**David L. Dotson**, Arizona State University  
986-Plat

RECENT STRUCTURES AND MOLECULAR DYNAMICS SIMULATIONS OFFER NEW PERSPECTIVE ON  $Na^+/H^+$  ANTI-PORTERS.

**Fatma Asli Erdem**, Medical University Vienna, Austria  
1387-Pos, B338

PHOSPHORYLATION OF KV7 CHANNELS REGULATES THEIR PIP2 SENSITIVITY.

**Jinghua Ge**, University of North Carolina at Charlotte  
1505-Pos, B456

MACROMOLECULAR CROWDING MODULATES CROSS-BRIDGE PERFORMANCE.

**Boon Chong Goh**, University of Illinois at Urbana-Champaign  
1293-Pos, B244

UNRAVELING THE DUAL ROLE OF SURFACTANT PROTEIN A AT ATOMISTIC DETAIL.

**Ellyn J. Gray**, University of Michigan  
1450-Pos, B401

HEXADECANOL REVERSES ETHANOL INDUCED TADPOLE ANESTHESIA AND RAISES CRITICAL TEMPERATURES IN ISOLATED PLASMA MEMBRANE VESICLES.

**Zahid Hossain**, Stanford University  
1681-Pos, B632  
CLOUD EXPERIMENTATION FOR BIOLOGY: SYSTEMS ARCHITECTURE AND UTILITY FOR ONLINE EDUCATION AND RESEARCH.

**Ikenna D. Ivenso**, Texas Tech University  
1175-Pos, B126  
BROWNIAN DYNAMICS STUDY OF DNA SUPERCOIL RELAXATION.

**Alexis Jaramillo Cartagena**, Weill Cornell Medical College  
1458-Pos, B409  
EXPLORATIONS OF LIPID EFFECTS IN CYCLIC NUCLEOTIDE-GATED ION CHANNELS USING A NANODISC PLATFORM.

**Andrew J. Kalenkiewicz**, University of Michigan  
1082-Pos, B33  
IMPROVING SMALL MOLECULE DOCKING FOR BCL-XL VIA ACCELERATED MOLECULAR DYNAMICS WITH COSOLVENT.

**Myungshim Kang**, City University of New York, College of Staten Island  
1241-Pos, B192  
MULTISCALE SIMULATION OF CONCENTRATION-DEPENDANT INTERACTION OF HYDROPHOBIC DRUG WITH CELL MEMBRANE.

**Srinivasan Krishnan**, Texas Tech University Health Sciences Center  
990-Plat  
THE HYDROLYSIS CYCLE OF ATP-BINDING CASSETTE NUCLEOTIDE-BINDING DOMAINS.

**Wen Ma**, University of Illinois, Urbana-Champaign  
1063-Pos, B14  
RNA TRANSLOCATION COUPLED TO LARGE-SCALE CONFORMATIONAL TRANSITIONS OF A HEXAMERIC HELICASE.

**Asghar M. Razavi**, Temple University  
987-Plat  
UNDERSTANDING SELECTIVITY OF THE  $\text{Na}^+/\text{K}^+$ -ATPASE USING A COMPUTATIONAL APPROACH.

**Nicolaus Schmandt**, Case Western Reserve University  
963-Plat  
AN ELIC-GLIC CHIMERA REVEALS DISTINCT PATHWAYS OF ACTIVATION IN THE CYS-LOOP FAMILY OF RECEPTORS.

**Kristian T. Stipe**, University of Montana  
1223-Pos, B174  
LIPID DYNAMICS OF CARDIOLIPIN/DMPC AND CARDIOLIPIN/DOPC IN NANODISCS.

**Cassandra M. Theusch**, University of Wisconsin - Madison  
964-Plat  
DISULFIDE TRAPPING THE GABA-A RECEPTOR EXTRACELLULAR BETA-5/BETA-5' LOOP.

**Yifei Yang**, Yale University  
1076-Pos, B27  
CHARACTERIZATION OF PC2 CTERM CALCIUM-BINDING INTERACTION AND ITS STRUCTURAL IMPLICATIONS.

## Tuesday

**Brett E. Alcott**, Yale University  
2045-Pos, B182  
VIRAL MEMBRANE FUSION AT SINGLE PORE RESOLUTION.

**Nabil A. Alhakamy**, University of Kansas  
1933-Pos, B70  
DYNAMIC MEASUREMENTS OF MEMBRANE INSERTION POTENTIAL OF SYNTHETIC CELL PENETRATING PEPTIDE/pDNA/CA2<sup>+</sup> COMPLEXES.

**Kathrin Andrich**, Max-Dellbrueck-Centrum for Molecular Medicine, Germany  
1939-Pos, B76  
AMYLOIDOGENICITY OF IMMUNOGLOBULIN LIGHT CHAINS.

**Aishik Chakraborty**, The University of Kansas  
1932-Pos, B69  
TUG OF WAR IN LUNG SURFACTANT COMPONENTS: MINIB DOMINATES OVER CHOLESTEROL DURING LIPID DOMAIN FORMATION.

**Joshua P. Clark**, Kennesaw State University  
2141-Pos, B278  
PUTATIVE VOLTAGE SENSITIVE ENZYMES IN PROKARYOTES.

**Chengzhi He**, The University of British Columbia, Canada  
1783-Plat  
DIRECTLY OBSERVING THE REVERSIBLE UNFOLDING AND REFOLDING OF AN ALPHA/BETA PROTEIN BY SINGLE-MOLECULE ATOMIC FORCE MICROSCOPY.

**Bushra Husain**, University of Connecticut  
2003-Pos, B140  
FACTORS THAT INFLUENCE PKR DIMERIZATION AND ACTIVATION.

**Ofer Kimchi**, Princeton University  
2195-Pos, B332  
NON-MARKOVIAN PROTEIN DYNAMICS IN A NEAR-CRITICAL MEMBRANE MODEL.

**Adelaide Kingsland**, University of Washington  
1971-Pos, B108  
MISMATCHED DNA BASE PAIRS SHOW INCREASED CONFORMATIONAL FLUCTUATIONS.

**Eric Krueger**, Boise State University  
1765-Plat  
NANOPORE SENSORS FOR ANALYSIS OF CIRCULAR DNA TOPOLOGY.

**Nicholas A. Kurniawan**, FOM Institute AMOLF, Netherlands  
2286-Pos, B423  
MECHANICAL ADAPTABILITY OF CELL MIGRATION IN 3D COLLAGEN GELS.

**Dan C. Li**, Washington University School of Medicine  
2320-Pos, B457  
MOLECULAR DETERMINANTS OF SUBSTRATE SELECTIVITY IN OCT3 (SLC22A3).

**Holley E. Lynch**, University of Pittsburgh  
2290-Pos, B427  
HIGH LOCAL CURVATURE REDUCES MIGRATION RATE IN SPREADING MULTI-LAYER TISSUES.

**Isha D. Mehta**, Texas Woman's University  
2388-Pos, B525  
PREDICTION OF FUNCTIONALLY LINKED INTERFACE (FLIP) REGIONS IN RESIDUE INTERACTION NETWORK (RIN) MODELS OF PROTEIN STRUCTURES.

**Kacey Mersch**, University of Iowa  
1927-Pos, B64  
STRIPPING THE CLC-EC1 DIMERIZATION INTERFACE: AN INVESTIGATION INTO THE ROLE OF VAN DER WAALS INTERACTIONS IN MEMBRANE PROTEIN ASSEMBLY.

**Andrea C. Montero Oleas**, University of San Francisco de Quito, Ecuador  
2437-Pos, B574  
COMPUTER AIDED DESIGN OF APTAMER FOR PROTHROMBIN DETECTION IN BLOOD.



**Devasena Ponnalagu**, Drexel University College of Medicine  
1848-Plat  
MOLECULAR IDENTITY AND FUNCTIONAL  
CHARACTERIZATION OF CHLORIDE INTRACELLULAR  
CHANNEL (CLIC) PROTEINS IN CARDIAC MITOCHONDRIA.

**Krishna D. Reddy**, University of South Florida  
1945-Pos, B82  
THE INTRINSICALLY DISORDERED TERMINI OF ZDHHC  
S-PALMITOYLTRANSFERASES FACILITATE MULTIPLE  
REGULATORY FUNCTIONS.

**Rebika Shrestha**, University of Texas at Austin  
2019-Pos, B156  
DIRECT MEASUREMENT OF DIPOLE ELECTRIC FIELD IN  
MODEL MEMBRANES USING VIBRATIONAL SHIFTS OF  
p-CYANOPHENYLALANINE AND COUPLED WITH MOLECULAR  
DYNAMICS SIMULATIONS.

**Meng Zhang**, The Ohio State University  
1901-Pos, B38  
STUDY OF PROTON TRANSFER IN ESCHERICHIA COLI  
PHOTOLYASE.

**Kevin D. Zolman**, Montana State University  
2139-Pos, B276  
THE ROLE OF THE C2 DOMAIN OF VOLTAGE SENSING  
PHOSPHATASE (VSP).

### Wednesday

**Udeep Chawla**, University of Arizona  
2819-Pos, B249  
MEMBRANE-LIPID MEDIATED RHODOPSIN SIGNALING  
INVOLVES AN ENSEMBLE OF CONFORMATIONAL SUBSTATES.

**Cameron J. Jones**, Texas Woman's University  
2572-Pos, B2  
SYSTEMATIC PERTURBATION OF PROTEIN:PROTEIN  
INTERFACES MAY AID IN FUNCTIONAL CLASSIFICATION.

**Lishan Liu**, Miami University  
3102-Pos, B532  
PROBING THE SECONDARY STRUCTURE OF MEMBRANE  
PROTEINS WITH THE PULSED EPR TECHNIQUE: ELECTRON  
SPIN ECHO ENVELOPE MODULATION (ESEEM).

**John J. Michael**, Washington State University  
3006-Pos, B436  
FUNCTIONAL EFFECTS OF THE H1-HELIX OF RAT CARDIAC  
TROPONIN T ON CROSSBRIDGE DETACHMENT RATE IS  
DIFFERENTLY MODULATED BY  $\alpha$ - AND  $\beta$ -MYOSIN HEAVY  
CHAIN ISOFORMS.

**Souryvanh Nirasay**, University of Quebec at Montreal, Canada  
2747-Pos, B177  
POLYDOPAMINE AS AN EFFICIENT POLYMER TO PREPARE  
BIOLOGICALLY RELEVANT SUPPORTED LIPID BILAYERS.

**Erney Ramírez-Aportela**, Biological Research Centre, CSIC, Spain  
2667-Pos, B97  
MOLECULAR DYNAMICS AND ASSEMBLY SWITCH OF FTSZ  
FILAMENTS.

**Pierre Rodriguez-Aliaga**, University of California at Berkeley  
2536-Plat  
ROLE OF PORE LOOPS IN THE MECHANISM OF POLYPEPTIDE  
TRANSLOCATION BY A AAA+ PROTEASE MACHINE.

**Leo Serebryanny**, University of Illinois at Chicago  
2716-Pos, B146  
NUCLEAR ACTIN DYNAMICS REGULATE NUCLEAR  
ORGANIZATION AND TRANSCRIPTION.

**Hanif Vahedian-Movahed**, Rutgers University  
2709-Pos, B139  
SEQUENCE-SPECIFIC RNAP-DNA INTERACTIONS IN  
TRANSCRIPTION INITIATION AND ELONGATION:  
CORE RECOGNITION ELEMENT (CRE).

**Joshua V. Vermaas**, University of Illinois at Urbana-Champaign  
2815-Pos, B245  
STRENGTH, NOT DEPTH: AN EXPLORATION OF  
DIFFERENTIAL MEMBRANE BINDING KINETICS OF  
SYNAPTOTAGMIN-1 AND SYNAPTOTAGMIN-7 C2 DOMAINS.

## INTERNATIONAL RELATIONS

### Sunday

**Sherif Abbas**, Middle East Technical University, Turkey  
78-Plat  
EFFECT OF MOLECULAR CROWDING ON THE STRUCTURE  
AND DYNAMICS OF HUMAN APO AND HOLO TRANSFERRIN  
USING 2D-IR CORRELATION SPECTROSCOPY.

**Aritra Bej**, Indian Institute of Chemical Biology  
222-Pos, B2  
BACKBONE DYNAMICS MODULATES THE AMYLOIDOGENIC  
PROPENSITY OF TRANSTHYRETIN THROUGH NON-NATIVE  
INTERMEDIATES.

**Ganeko Bernardo-Seisdedos**, University of the Basque Country, Spain  
113-Plat  
CALMODULIN BINDING TO A NOVEL SITE IN THE AB  
MODULE OF Kv7.2 SUBUNIT'S REGULATES SURFACE  
EXPRESSION.

**Kim Dung T. Doan**, Osaka University, Japan  
861-Pos, B641  
MULTIMODAL IMAGING PROBING PLATFORM BASED  
ON UPCONVERTING RARE-EARTH DOPED Gd<sub>2</sub>O<sub>3</sub>  
NANOCRYSTALS.

**Alenka Guček**, University of Ljubljana, Slovenia  
514-Pos, B294  
FUSION PROPERTIES OF GLIOTRANSMITTER VESICLES IN  
CULTURED ASTROCYTES.

**Sabecha Hasnain**, Jawaharlal Nehru University, India  
582-Pos, B362  
A COMPUTATIONAL MODEL FOR E. COLI CYTOPLASM:  
DIFFUSION AND HYDRODYNAMICS.

**Jozef A. Liwo**, University of Gdansk, Poland  
788-Pos, B568  
A NOVEL METHOD FOR FORCE-FIELD CALIBRATION BASED  
ON MAXIMUM-LIKELIHOOD APPROACH AND THERMAL  
UNFOLDING DATA.

**Maria J. Marques-Carvalho**, University of Porto, Portugal  
110-Plat  
INTERACTION OF CALMODULIN WITH THE EAG1  
POTASSIUM CHANNEL.

**Valeria Marquez-Miranda**, Andrés Bello National University, Chile  
863-Pos, B643  
COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS OF  
THE SELF-ASSEMBLY OF AMPHIPHILIC DENDRIMERS AS GENE  
CARRIERS.

**Emiliano Perez Ipiña**, University of Buenos Aires, Argentina  
829-Pos, B609  
CONCENTRATION ESTIMATES FROM COUNTING  
INDIVIDUAL MOLECULES.

**Belinda K. Wright**, University of Western Sydney, Australia  
369-Pos, B149  
REAL-TIME ANALYSIS OF ENDOGENOUS NUCLEAR NADH  
IN DIFFERENTIATING CELLS USING THE SPECTRAL PHASOR  
APPROACH.

## Monday

**Ariel Afek**, Ben-Gurion University, Israel  
1028-Plat  
PROTEIN-DNA BINDING IN THE ABSENCE OF CONSENSUS  
BINDING MOTIF.

**Nicole Beard**, University of Canberra, Australia  
1338-Pos, B289  
DOXORUBICIN ALTERS CARDIOMYOCYTE CALCIUM  
REGULATION AND STIMULATES MITOCHONDRIAL  
SUPEROXIDE FLASH PRODUCTION.

**Alberto Hidalgo**, Complutense University of Madrid, Spain  
1240-Pos, B191  
BIOPHYSICAL EVALUATION OF DRUG IMPACT ON  
PULMONARY SURFACTANT PERFORMANCE.

**Daniel Klose**, University of Osnabrück, Germany  
1312-Pos, B263  
LIGHT-INDUCED SWITCHING OF HAMP DOMAIN  
CONFORMATION AND DYNAMICS REVEALED BY TIME-  
RESOLVED EPR SPECTROSCOPY.

**Ainara López-Córdoba**, Miguel Hernández University of Elche, Spain  
1670-Pos, B621  
SICM-BASED NANODELIVERY SYSTEM FOR LOCAL TRPV1  
STIMULATION.

**Tânia Patrícia Marques de Sousa**, University of Lisbon, Portugal  
1224-Pos, B175  
THE CYTOTOXIC BILE ACID DCA MODULATES APOPTOTIC  
SIGNALLING THROUGH ALTERATION OF MITOCHONDRIAL  
MEMBRANE PROPERTIES.

**Giuseppe Sancataldo**, Italian Institute of Technology  
1635-Pos, B586  
LIGHT SHEET FLUORESCENCE MICROSCOPY (LSFM) FOR  
TWO-PHOTON EXCITATION IMAGING OF THICK SAMPLES.

## Tuesday

**Araitz Alberdi**, University of the Basque Country, Spain  
1754-Plat  
DISRUPTION OF ASSEMBLY/CALMODULIN-BINDING  
COUPLING AND CALMODULIN-DEPENDENT POTENTIATION  
OF K<sub>v</sub>7.2 CHANNELS BY A EPILEPTOGENIC HELIX D  
MUTATION.

**Debipreeta Bhowmik**, Indian Institute of Chemical Biology  
1967-Pos, B104  
TARGETING HUMAN TELOMERIC G-QUADRUPLEX DNA  
BY BERBERINE ANALOGS: A COMPARATIVE BIOPHYSICAL  
INVESTIGATION.

**Anwesha Biswas**, Indian Institute of Technology, Bombay  
1968-Pos, B105  
STUDYING LIGAND BINDING AND SITE-SPECIFIC MODE OF  
DNA BINDING BY GAMMA-BUTYROLACTONE RECEPTOR  
PROTEIN CPRB FROM STREPTOMYCES COELICOLOR A3(2)  
USING TWO DIFFERENT FLUORESCENCE TECHNIQUES.

**Michal Cifra**, Academy of Sciences of the Czech Republic  
2257-Pos, B394  
MICROTUBULE ELECTRODYNAMICS ASSOCIATED WITH  
VIBRATIONAL NORMAL MODES.

**Silvia Cruz-Rangel**, Autonomous University of San Luis Potosí, Mexico  
2218-Pos, B355  
EXTRACELLULAR CHLORIDE REGULATES TMEM16A GATING.

**Istvan Csomos**, University of Debrecen, Hungary  
2100-Pos, B237  
CHELIDONINE INTERFERES WITH IL-6R/STAT3 SIGNALING IN  
UVEAL MELANOMA CELLS.

**José R. López-Blanco**, Institute of Physical Chemistry, Spain  
2382-Pos, B519  
INTEGRATIVE MODELING APPROACHES TO INTERPRET  
HIGH-RESOLUTION CRYO-EM RECONSTRUCTIONS.

**Dominic Narang**, Indian Institute of Science Education and Research,  
Mohali  
1938-Pos, B75  
THE ROLE OF STRUCTURAL DYNAMICS IN DETERMINING  
THE PRION STRAIN DIVERSITY.

**Jonathan E. Pacheco**, National Autonomous University of Mexico  
1923-Pos, B60  
IDENTIFICATION OF A CHOLESTEROL RECOGNITION/  
INTERACTION AMINO ACID CONSENSUS DOMAIN IN STIM1  
AND ITS ROLE IN SOCE.

**Francesca Pennacchiotti**, Italian Institute of Technology  
2414-Pos, B551  
QUANTITATIVE ANALYSIS OF ANCHORING PROTEINS OF  
THE INHIBITORY SYNAPSE THROUGH SINGLE MOLECULE  
LOCALIZATION TECHNIQUES.

**Chiara Peres**, Italian Institute of Technology  
2392-Pos, B529  
3 COLOR - 3 DIMENSIONAL STED NANOSCOPY.

**Cibele Rocha-Resende**, Federal University of Minas Gerais, Brazil  
2131-Pos, B268  
IMPAIRMENT IN ACETYLCHOLINE RELEASE BY  
CARDIOMYOCYTES LEADS TO ENHANCED PATHOLOGICAL  
HYPERTROPHY.

**Marianne Ruud**, University of Oslo, Norway  
2232-Pos, B369  
REGULATION OF CARDIOMYOCYTE T-TUBULE  
ORGANIZATION AND DENSITY BY VENTRICULAR WALL  
STRESS.

## Wednesday

**Marcelo T. Augusto**, Institute of Molecular Medicine, Portugal  
2814-Pos, B244  
ENHANCED HIV FUSION INHIBITORS EFFICACY REQUIRES  
MEMBRANE AFFINITY AND EXPOSURE OF THE POCKET  
BINDING DOMAIN OF C34 DERIVATIVES.

**Alessandro Borgia**, University of Zurich, Switzerland  
2532-Plat  
SURPRISING ABUNDANCE OF MISFOLDING DURING  
REFOLDING OF MULTIDOMAIN PROTEINS.

**Charles D. Cox**, Victor Chang Cardiac Research Institute, Australia  
2848-Pos, B278  
PROBING THE MECHANOSENSITIVITY OF PIEZO1 CHANNELS.

**Jessica Köth**, University of Cologne, Germany  
2923-Pos, B353  
VENTRICULAR L-TYPE CA<sup>2+</sup> CHANNELS AND EXPRESSION  
OF RGK PROTEINS IN MOUSE MODELS ASSOCIATED WITH  
DIABETES.

**Andrea Magri**, University of Catania, Italy  
3082-Pos, B512  
THE OVEREXPRESSION OF SUPEROXIDE DISMUTASE 1  
RESTORES GROWTH DEFECT IN A PORIN1-LESS YEAST STRAIN  
AND IMPROVES MITOCHONDRIAL METABOLISM.

**Jyotsana J. Parmar**, Indian Institute of Technology, Bombay  
2718-Pos, B148  
NUCLEOSOME KINETICS AND ACCESSIBILITY OF DNA.

**Maria Ryazantseva**, Russian Academy of Sciences  
2970-Pos, B400  
POSSIBLE ROLE OF STIM1 SENSOR SIGNAL IN MEMORY LOSS  
CONNECTED WITH FAMILIAL ALZHEIMER'S DISEASE.

**Likhesh Sharma**, Indian Institute of Science  
2582-Pos, B12  
ENGINEERING THE CYSTEINE MOTIF 'CXXC' INTO A  
PROTEIN IMPARTS IT NOVEL PROPERTIES.

**David V. Svintradze**, Tbilisi State University, Georgia  
2588-Pos, B18  
MOVING MACROMOLECULAR SURFACES UNDER  
HYDROPHOBIC/HYDROPHILIC STRESS.

**Algirdas Toleikis**, National Institute for Medical Research, United  
Kingdom  
2555-Plat  
INITIATION OF ASYMMETRIC ROLLING-CIRCLE PLASMID  
REPLICATION BY REPD STUDIED USING MAGNETIC  
TWEEZERS.

**Yolima P. Torres**, Pontifical Xavierian University, Colombia  
2869-Pos, B299  
MENTHOL-INDUCED CHANGES IN MESENCHYMAL STEM  
CELL DIFFERENTIATION.

**Dilek Yonar**, Middle East Technical University, Turkey  
3156-Pos, B586  
A NOVEL METHOD FOR EARLY DIAGNOSIS OF MALIGNANT  
PLEURAL MESOTHELIOMA FROM HUMAN SERUM SAMPLES:  
ATR-FTIR SPECTROSCOPY.

## MINORITY AFFAIRS

### Sunday

**Natnael B. Doilicho**, University of Chicago  
324-Pos, B104  
SURFACE INTERACTIONS RESTRICTS AMYLOID $\beta$  PEPTIDES  
MOVEMENTS RESULTING IN THEIR RAPID SELF-ASSEMBLY  
INTO  $\beta$  SHEETS; A MOLECULAR DYNAMICS STUDY.

**Vivian M. Gonzalez-Perez**, Washington University in St. Louis  
117-Plat  
BETA-2 AND GAMMA-1 AUXILIARY SUBUNITS COASSEMBLE  
IN THE SAME BK CHANNEL AND INDEPENDENTLY  
CONTRIBUTE TO REGULATION OF CHANNEL GATING.

**Carol J. Huseby**, The Ohio State University  
311-Pos, B91  
TAU FILAMENT LENGTH DISTRIBUTION REFLECTS END-TO-  
END ANNEALING.

**Abir Maarouf**, Wayne State University  
171-Plat  
RESOLVING NANOSCALE CURVATURE ON LIPID BILAYERS  
WITH POLARIZED LOCALIZATION MICROSCOPY.

**Kasturi Mitra**, University of Connecticut  
450-Pos, B230  
THERMOTROPIC BEHAVIOR OF CARDIOLIPIN AND  
DIMYRISTOYLPHOSPHATIDYLCHOLINE BILAYERS IN THE  
PRESENCE AND ABSENCE OF CALCIUM.

**Patricia Soto**, Creighton University  
461-Pos, B241  
PRION PROTEINS AND MECHANISMS OF INTERACTION  
WITH MODEL MEMBRANES.

### Monday

**Walter Gonzalez**, Florida International University  
1092-Pos, B43  
CHARACTERIZATION OF THE PHOTOPHYSICAL,  
THERMODYNAMIC AND STRUCTURAL PROPERTIES OF THE  
TERBIUM(III)-KCHIP3 COMPLEX.

**Aliana López de Victoria**, University of Central Florida  
1129-Pos, B80  
TARGETING THE HUMAN DEAD-BOX RNA HELICASE, DDX3,  
AS A NOVEL STRATEGY TO INHIBIT AGGRESSIVE BREAST  
CANCER METASTASIS.

**Sara Sizemore**, Arizona State University  
1154-Pos, B105  
CHARGE PATTERNING, SALT SCREENING AND DENATURANT  
EXPANSION IN THE CGRP NEUROPEPTIDE.

### Tuesday

**Andres T. Cavazos**, Indiana University Purdue University Indianapolis  
2076-Pos, B213  
AN INVESTIGATION OF WHETHER VITAMIN E  
PREFERENTIALLY INTERACTS WITH POLYUNSATURATED  
LIPIDS.

**Christal R. Davis**, University of Colorado Denver  
2349-Pos, B486  
COMBINED QM/MM STUDY OF THE TRANSLOCATION OF  
CHLORIDE IONS THROUGH ESCHERICHIA COLI CHLORIDE  
ION TRANSPORTERS.

**Joshua Francois**, University of California, San Diego  
2288-Pos, B425  
MECHANICS OF NEUTROPHIL MIGRATION IN THREE-  
DIMENSIONAL MATRICES.

**Kevin Hauser**, Stony Brook University  
1997-Pos, B134  
A HUMAN TRANSCRIPTION FACTOR IN SEARCH MODE.

### Wednesday

**Elton Jhamba**, Delaware State University  
3133-Pos, B563  
FLUORESCENCE ANISOTROPY MEASUREMENTS OF  
FLUOROSCEIN MIXED WITH FICOLL SOLUTIONS.

\* **Marisa Aikins**, Oberlin College  
MUCIN-ANTIBODY INTERACTIONS IN TRAPPING  
SALMONELLA TYPHI

\* **Samuel Rubin**, Pitzer College  
FOLDING MESO-STRINGS WITH PATTERNS OF  
HYDROPHOBICITY

\* **Edwin J. Alvarado**, University of Puerto Rico, Cayey  
LONGER LOOPS OF PSEUDOKNOTS WITH APPROPRIATE  
SEQUENCE FORM  
LOCAL TRIPLEX SEGMENTS THAT STABILIZE DNA  
MOLECULES

\* **Sydney Turner**, Xavier University of Louisiana  
PHOSPHOLIPID BIOSYNTHESIS AS AN ANTICANCER  
TARGET

\* See Addendum for programming.



## Ancillary Meetings

### **Society of General Physiologists Council Meeting**

Saturday, February 7, 8:00 AM–1:00 PM  
Room 318

### **Korean Biophysicists Meeting**

Sunday, February 8, 5:00 PM–6:30 PM  
Room 324/325

### **Biophysics Austria Mixer**

Sunday, February 8, 6:00 PM–7:00 PM  
Room 327/328/329

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

Tuesday, February 10, 8:00 PM–10:00 PM  
Room 330

# Biophysical *Journal*

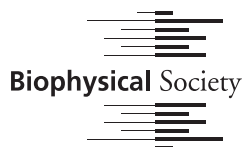
## Coffee with the Editors

### Be a part of the conversation!

Bring your questions, comments, and ideas to a discussion with members of the BJ Editorial Board.

<b>Sunday, February 8</b>	1:45 PM–2:15 PM	Membranes
	2:15 PM–2:45 PM	Molecular Machines, Motors & Nanoscale Biophysics
	2:45 PM–3:15 PM	Biophysical Reviews
	3:15 PM–3:45 PM	Mixed Sections
<b>Monday, February 9</b>	10:15 AM–10:45 AM	Proteins and Nucleic Acids
	2:15 PM–2:45 PM	Cell Biophysics
<b>Tuesday, February 10</b>	10:15 AM–10:45 AM	Channels and Transporters
	3:15 PM–3:45 PM	Systems Biophysics

**Located at the Society Booth in the Charles Street Lobby**



# Friday, February 6, 2015

## Daily Program Summary

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

8:00 AM–5:00 PM	Exhibitor Registration	Charles Street Lobby
8:00 AM–5:00 PM	Drug Discovery Satellite Meeting XV	Room 307/308
3:00 PM–4:30 PM	New Council Orientation	Hilton Baltimore, Peale C
3:00 PM–5:00 PM	Registration	Charles Street Lobby
5:00 PM–9:00 PM	Joint Council Reception, Dinner, and Meeting	Hilton Baltimore, Peale A-B

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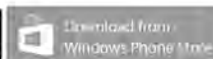
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# Friday, February 6

**8:00 AM–5:00 PM, CHARLES STREET LOBBY**  
**Exhibitor Registration**

**8:00 AM–5:00 PM, ROOM 307/308**  
**Drug Discovery Satellite Meeting XV**

*Sponsored by Biolin Scientific, ChanTest Corporation; Cytocentrics;  
Molecular Devices LLC; and Nanion Technologies*

## **Co-Chairs**

*Morten Sunesen, Biolin Scientific*

*Chris Mathes, ChanTest Corporation*

*Thomas Knott, Cytocentrics*

*James Costantin, Molecular Devices LLC*

*Niels Fertig, Nanion Technologies GMBH*

The symposia will feature presentations from scientists using automated electrophysiology and other emerging technologies from pharmaceutical and biotechnology companies and academia who are actively involved in ion channel drug discovery. Presentations will be focused in the following areas:

- Integration of automated electrophysiology into the drug discovery process and its results
- Applications of automated electrophysiology for ion channel drug discovery (with an emphasis on new and/or novel applications)
- New developments of automated electrophysiology and other emerging technologies

**3:00 PM–4:30 PM, HILTON BALTIMORE, PEALE C**  
**New Council Orientation**

**3:00 PM–5:00 PM, CHARLES STREET LOBBY**  
**Registration**

**5:00 PM–9:00 PM, HILTON BALTIMORE, PEALE A-B**  
**Joint Council Reception, Dinner, and Meeting**



# Saturday, February 7, 2015

## Daily Program Summary

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

8:00 AM–1:00 PM	Society of General Physiologists Council Meeting	Room 318
8:00 AM–6:30 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:30 AM–11:00 AM	Joint Council Meeting	Hilton Baltimore, Peale A-B
9:00 AM–5:10 PM	Subgroup: Membrane Structure and Assembly	Ballroom II
9:00 AM–7:00 PM	Subgroup: Bioenergetics	Room 314/315
9:15 AM–1:30 PM	Subgroup: Molecular Biophysics	Room 321/322/323
10:00 AM–5:15 PM	Subgroup: Mechanobiology	Room 316/317
10:00 AM–6:30 PM	Subgroup: Intrinsically Disordered Proteins	Room 324/325
10:45 AM–5:10 PM	Subgroup: Biopolymers in vivo	Room 330
12:00 PM–6:00 PM	Subgroup: Nanoscale Biophysics	Ballroom IV
12:00 PM–7:00 PM	Career Center	Room 301/302/303
1:00 PM–5:00 PM	Subgroup: Biological Fluorescence	Ballroom III
1:00 PM–6:00 PM	Subgroup: Membrane Biophysics	Ballroom I
1:00 PM–6:15 PM	Subgroup: Motility	Room 307/308
1:00 PM–6:30 PM	Subgroup: Exocytosis & Endocytosis	Room 331/332
1:30 PM–4:05 PM	Subgroup: Permeation & Transport	Room 309/310
3:00 PM–4:00 PM	Career Center Workshop Networking: Optimizing Your Time at BPS 2015	Room 301/302/303
4:00 PM–5:00 PM	Undergraduate Mixer and Poster Fest	Mezzanine
5:00 PM–7:00 PM	Opening Mixer	Charles Street Lobby
5:00 PM–7:00 PM	First-Time Attendee Drop By	Room 311
6:00 PM–10:00 PM	Poster Viewing	Hall C
6:30 PM–7:30 PM	Education, Minority Affairs, and Professional Opportunities for Women Committees Travel Awardee Reception	Room 327/328/329

# Saturday, February 7

8:00 AM–1:00 PM, ROOM 318

## Society of General Physiologists Council Meeting

8:00 AM–6:30 PM, CHARLES STREET LOBBY

## Registration/Exhibitor Registration

8:30 AM–11:00 AM, HILTON BALTIMORE, PEALE A-B

## Joint Council Meeting

9:00 AM–5:10 PM, BALLROOM II

## Subgroup

## Membrane Structure and Assembly

### Subgroup Chair

*Marjorie Longo, University of California, Davis*

1-SUBG 9:00 AM

PHOSPHATIDYLGLYCEROL ASYMMETRY AND TRANSLOCATION IN LIPID MEMBRANES. **John Conboy**

2-SUBG 9:35 AM

CONTROL OF MEMBRANE ASYMMETRY BY P4-ATPASES. **Todd R. Graham**

3-SUBG 10:10 AM

COMPUTER SIMULATIONS OF LIPID FLIP-FLOP AND MEMBRANE ASYMMETRY. **D. Peter Tieleman**

10:45 AM COFFEE BREAK

4-SUBG 11:05 AM

INVESTIGATING THE MECHANISMS OF NON-RANDOM SPHINGOLIPID ORGANIZATION IN THE PLASMA MEMBRANES OF FIBROBLAST CELLS. **Mary L. Kraft**, Jessica F. Frisz, Haley A. Klitzing, Robert L. Wilson, Ashley Yeager, Vladimir Lizunov, Joshua J. Zimmerberg, Peter K. Weber

5-SUBG 11:40 AM

NANOSCALE STRUCTURE AND DYNAMICS OF THE LIQUID ORDERED PHASE. **Sodt J. Alexander**, Klaus Gawrisch, Richard W. Pastor, **Edward R. Lyman**

12:15 PM BREAK

6-SUBG 1:15 PM

PROBING MEMBRANE PROTEIN SEQUESTRATION AND OLIGOMERIZATION IN POLYMER-TETHERED PHOSPHOLIPID BILAYERS CONTAINING RAFT-MIMICKING LIPID MIXTURES. **Christoph Naumann**

7-SUBG 1:50 PM

PROTEIN CROWDING MODULATES THE SHAPE AND CONTENT OF CURVED MEMBRANES AND COATED VESICLES. **Jeanne Stachowiak**

8-SUBG 2:25 PM

DIRECT MONOLAYER PACKING IMBALANCE AND PHOSPHOLIPID FLIP-FLOP: TWO MECHANISMS OF LOCAL BILAYER DEFORMATION. APPLICATION TO MITOCHONDRIAL CRISTAE OF WILD-TYPE AND CARDIOLIPIN-DEFICIENT MUTANT. **Nada Khalifat**, Mohammad Rahimi, Anne-Florence Bitbol,

Michel Seigneuret, Jean-Baptiste Fournier, Nicolas Puff, Marino Arroyo, **Miglena I. Angelova**

3:00 PM COFFEE BREAK

9-SUBG 3:20 PM

PROTEIN SPATIAL DISTRIBUTION DEPENDS ON MEMBRANE CURVATURE. **Patricia Bassereau**, Coline Prévost, Mijo Simunovic, Sophie Aimon, Gilman Toombes, Andrew Callan-Jones

10-SUBG 3:55 PM

STRUCTURAL BASIS OF MEMBRANE CURVATURE RECOGNITION BY THE ALPS MOTIFS. **Liza Mouret**, Lydie Vamparys, Joachim Moser von Filseck, Patrick Fuchs, Arnaud Bondon, **Guillaume Drin**

11-SUBG 4:30 PM T.E. THOMPSON AWARD LECTURE  
MUSINGS AT MID-CAREER: WHAT IS SO SPECIAL ABOUT OMEGA-3 FATTY ACIDS? **Scott Feller**

5:10 PM BUSINESS MEETING

9:00 AM–7:00 PM, ROOM 314/315

## Subgroup Bioenergetics

### Subgroup Co-Chairs

*Jan Hoek and György Hajnóczky, Thomas Jefferson University*

### MORNING SYMPOSIUM: THE MITOCHONDRIAL GENOME

NO ABSTRACT 9:00 AM

SELECTIVE TARGETING OF MTDNA SEQUENCES AND APPLICATIONS TO THERAPY. **Carlos Moraes**

NO ABSTRACT 9:30 AM

NEW PARADIGMS FOR REGULATION OF HUMAN MITOCHONDRIAL TRANSCRIPTION. **Craig Cameron**

12-SUBG 10:00 AM

MITOCHONDRIAL DNA STRESS PRIMES THE ANTIVIRAL INNATE IMMUNE RESPONSE. **Phillip West**

10:30 AM COFFEE BREAK

NO ABSTRACT 11:00 AM

MTDNA TOPOISOMERASES. **Yves Pommier**

NO ABSTRACT 11:30 AM

NEW INSIGHTS INTO THE CAUSES OF MITOCHONDRIAL GENOME INSTABILITY. **Brett Kaufman**

### AFTERNOON SYMPOSIUM: MITOCHONDRIAL OUTER MEMBRANE TRANSPORT SYSTEMS: STRUCTURE, PROPERTIES, AND PHYSIOLOGICAL IMPLICATIONS

1:45 PM PRESENTATION OF THE YOUNG BIOENERGETICIST AWARD

13-SUBG 2:00 PM

HIGH RESOLUTION CRYSTAL STRUCTURES OF TRANSLOCATOR PROTEIN 18 KDA (TSPO) REVEAL LIGAND BINDING SITES AND EFFECTS OF A HUMAN SINGLE POLYMORPHISM. **Shelagh Ferguson-Miller**, Fei Li, Jian Liu, Yi Zheng, Lance Valls, R. Michael Garavito

14-SUBG 2:30 PM

TRANSLOCATOR PROTEIN IN MITOCHONDRIAL CHOLESTEROL TRANSPORT AND THE PHARMACOLOGY OF STEROIDOGENESIS. **Vassilios Papadopoulos**

**No ABSTRACT 3:00 PM**  
BAX CHANNELS: COOPERATIVITY AND VOLTAGE GATING.  
**Marco Colombini**

**3:30 PM COFFEE BREAK**

**No ABSTRACT 4:00 PM**  
STRUCTURE-GUIDED SIMULATIONS ILLUMINATE THE  
MECHANISM OF ATP TRANSPORT THROUGH VDAC1.  
**Jeff Abramson**

**15-SUBG 4:30 PM**  
VOLTAGE DEPENDENT ANION CHANNELS (VDAC) AND  
REGULATION OF MITOCHONDRIAL METABOLISM.  
**John J. Lemasters**

**5:00 PM GENERAL DISCUSSION**

**5:15 PM SUBGROUP BUSINESS MEETING**

**7:00 PM SUBGROUP DINNER**

**9:15 AM–1:30 PM, ROOM 321/322/323**

### **Subgroup Molecular Biophysics**

**Subgroup Chair**  
*Zev Bryant, Stanford University*

#### **DYNAMICS OF MACROMOLECULAR MACHINES AND ASSEMBLIES**

**9:15 AM OPENING REMARKS**

**16-SUBG 9:30 AM**  
BENDING, TWISTING, POPPING: PROTEIN AND NUCLEIC-  
ACID REMODELING BY ATP-DEPENDENT MACHINES AND  
SWITCHES. **James Berger**

**No ABSTRACT 10:00 AM**  
SINGLE-MOLECULE ANALYSIS OF NUCLEOTIDE EXCISION  
REPAIR PATHWAYS. **Terence Strick**

**17-SUBG 10:30 AM**  
DIRECT OBSERVATION OF STRUCTURE-FUNCTION  
RELATIONSHIPS IN NUCLEIC ACID PROCESSING ENZYMES.  
**Yann Chemla**

**11:00 AM COFFEE BREAK**

**11:15 AM SUBGROUP BUSINESS MEETING**

**No ABSTRACT 11:30 AM**  
VISUALIZING HOMOLOGOUS RECOMBINATION AT THE  
SINGLE-MOLECULE LEVEL USING DNA CURTAINS.  
**Eric Greene**

**No ABSTRACT 12:00 PM**  
ENGINEERING MOLECULAR FUNCTIONS - SMALL-  
MOLECULE SENSORS AND CONTROLLABLE MACHINES.  
**Tanja Kortemme**

**No ABSTRACT 12:30 PM**  
VISUALIZING THE STRUCTURAL PLASTICITY OF THE  
CYTOSKELETON. **Gregory M. Alushin**

**18-SUBG 1:00 PM**  
HIGH-RESOLUTION MAPPING OF INTRACELLULAR  
FLUCTUATIONS USING CARBON NANOTUBES. **Nikta Fakhri**

**1:30 PM CONCLUDING REMARKS**

**10:00 AM–5:15 PM, ROOM 316/317**

### **Subgroup Mechanobiology**

**Subgroup Chair**  
*Dennis Discher, University of Pennsylvania*

**10:00 AM JUNIOR INVESTIGATOR TALKS SELECTED  
FROM SUBMITTED ABSTRACTS**

**11:30 AM “LIGHTNING TALKS” ON MECHANOBIOLOGY**

**12:00 PM LUNCH BREAK**

**19-SUBG 1:05 PM**  
ACTIN CORTEX MECHANICS AND CELL SHAPE CONTROL IN  
MIGRATION AND DIVISION. **Ewa K. Paluch**

**20-SUBG 1:40 PM**  
STIFFNESS SENSING THROUGH MYOSIN II MINIFILAMENTS.  
**Ulrich S. Schwarz**

**No ABSTRACT 2:15 PM**  
CELL MIGRATION. **Kenneth Yamada**

**2:50 PM BREAK**

**21-SUBG 3:10 PM**  
ADAPTATIVE RESPONSE OF CELL CYTOSKELETON  
RHEOLOGY AND ORDERING GOVERNS MATRIX RIGIDITY  
SENSING. Mukund Gupta, Bibhu Sarangi, Andrew Callan-Jones, Rene-  
Marc Mege, Raphael Voituriez, **Benoit Ladoux**

**22-SUBG 3:45 PM**  
MOLECULAR MECHANISMS OF CONTRACTILITY-BASED  
CELLULAR MECHANOSENSING. **Douglas N. Robinson**

**23-SUBG 4:20 PM**  
DYNEIN TEAMS ASSEMBLE ON LIPID RAFTS TO GENERATE  
LARGE FORCES ON PHAGOSOMES. **Roop Mallik**

**24-SUBG 4:55 PM**  
INVESTIGATION OF THE ENVZ/OMPR BACTERIAL  
SIGNALING SYSTEM USING SINGLE PARTICLE TRACKING  
AND SINGLE MOLECULE FORCE SPECTROSCOPY. **Yong Hwee  
Foo**, Ricksen Surya Winardhi, Jie Yan, Linda Kenney

**5:15 PM BUSINESS MEETING**

**10:00 AM–6:30 PM, ROOM 324/325**

### **Subgroup Intrinsically Disordered Proteins**

**Subgroup Chair**  
*Elizabeth Komives, University of California, San Diego*

#### **INTRINSICALLY DISORDERED PROTEINS IN THEIR CELLULAR SETTINGS**

**10:00 AM DATABASE DISCUSSION**

**10:20 AM BUSINESS MEETING**

**12:30 PM WELCOME AND ANNOUNCEMENTS**

**12:40 PM INTRODUCTION OF OPENING KEYNOTE SPEAKER**

**No ABSTRACT 12:45 PM**  
SINGLE-MOLECULE BIOPHYSICS OF INTRINSIC PROTEIN  
DISORDER. **Ashok Deniz**, Keynote Speaker



**No ABSTRACT 1:25 PM**  
COOPERATIVE EFFECTS AND STRUCTURAL DYNAMICS IN THE INTRINSICALLY DISORDERED PROTEIN OSTEOPOINTIN. **Dariusz Hinderberger**

**25-SUBG 1:55 PM**  
INTRINSIC DISORDER, EPIGENETICS, AND LEUKEMIA - THE MLL-AF9 SAGA. **John Bushweller**, Aravinda Kuntimaddi, Jeremy Thorpe, Nicholas Achille, Alyson Lokken, Ritambhara Singh, Mazhar Adli, Nancy Zeleznik-Le

**2:25 PM** SHORT TALKS BY POSTDOCTORAL AWARDEES

**26-SUBG 2:55 PM**  
DECODING PROTEIN PLASTICITY FROM SINGLE MOLECULES TO LARGE COMPLEXES. **Edward A. Lemke**

**3:20 PM** COFFEE BREAK

**No ABSTRACT 3:45 PM**  
STUDYING PROTEINS AT ATOMIC RESOLUTION IN LIVE CELLS: FROM SCIENCE FICTION TO REALITY. **Phil Selenko**

**27-SUBG 4:15 PM**  
THE ROLE OF PROTEIN DISORDER AND SELF-ASSOCIATION IN THE FORMATION OF CELLULAR BODIES. Melissa R. Marzahn, Jihun Lee, Amandine Palud, Suresh Marada, Amanda Nourse, J. Paul Taylor, Stacey K. Ogden, **Tanja Mittag**

**No ABSTRACT 4:45 PM**  
AN INTRINSICALLY DISORDERED LINKER PLAYS A CRITICAL ROLE IN BACTERIAL CELL DIVISION. **Petra Levin**

**No ABSTRACT 5:15 PM**  
SPACE AND TIME IN IDP-MEDIATED INTRACELLULAR PHASE TRANSITIONS. **Clifford P. Brangwynne**

**5:45 PM** INTRODUCTION OF CLOSING KEYNOTE SPEAKER

**No ABSTRACT 5:50 PM**  
CONDITIONALLY DISORDERED CHAPERONES. **Ursula Jakob**, Keynote Speaker

**6:30 PM** CLOSING REMARKS

**10:45 AM–5:10 PM, ROOM 330**

## **Subgroup Biopolymers in vivo**

### **Subgroup Chair**

*Silvia Cavagnero, University of Wisconsin, Madison*

### **INTERACTION NETWORKS IN LIVING SYSTEMS**

**10:45 AM** BUSINESS MEETING

**12:55 PM** INTRODUCTION BY THE PROGRAM CO-CHAIRS, JOAN SHEA AND SARAH WOODSON

**28-SUBG 1:00 PM**  
DYNAMICS OF BACTERIAL RIBOSOME ASSEMBLY IN CELLS. **James R. Williamson**

**No ABSTRACT 1:30 PM**  
TRACKING SINGLE MRNAS IN LIVE CELLS. **Robert Singer**

**No ABSTRACT 2:00 PM**  
NEUROTRANSMITTER TRANSLOCATION: INSIGHTS FROM NETWORK MODELS AND MULTISCALE SIMULATIONS. **Ivet Bahar**

**2:30 PM** TALK CHOSEN FROM SUBMITTED ABSTRACTS

**2:50 PM** COFFEE BREAK

**29-SUBG 3:20 PM**  
ASSEMBLING THE PIECES OF PROTEIN PUZZLES. **Gerhard Hummer**, Pilar Cossio, Amir Bahrami, Alfredo Jost López, Jürgen Köfinger

**30-SUBG 3:50 PM**  
PROBING SPATIOTEMPORAL REGULATION OF SIGNAL TRANSDUCTION IN LIVING CELLS. **Jin Zhang**

**4:20 PM** TALK CHOSEN FROM SUBMITTED ABSTRACTS

**31-SUBG 4:40 PM**  
SUPER-RESOLUTION FLUORESCENCE IMAGING WITH STORM. **Xiaowei Zhuang**, Keynote Speaker

**5:10 PM** CONCLUDING REMARKS

**12:00 PM–6:00 PM, BALLROOM IV**

## **Subgroup Nanoscale Biophysics**

### **Subgroup Chair**

*Laura Finzi, Emory University*

**No ABSTRACT 12:00 PM**  
NANOSCALE CONTROL OF ACTIN POLYMERIZATION BY A FORMIN-CAPPING PROTEIN 'DECISION-MAKING' COMPLEX AT THE FILAMENT BARBED END. **Jeff Gelles**

**32-SUBG 12:30 PM**  
INSIGHTS INTO NUCLEIC ACIDS STRUCTURAL DYNAMICS WITH SINGLE MOLECULE FRET STUDIES. **Victoria Birkedal**

**33-SUBG 1:00 PM**  
ULTRASTABLE AFM: IMPROVED STABILITY, PRECISION, AND BANDWIDTH FOR BIO-AFM. **Thomas T. Perkins**

**34-SUBG 1:30 PM**  
REVEALING STRUCTURE AND DYNAMICS OF TELOMERE MAINTENANCE PROTEINS ON DNA: ONE MOLECULE AT A TIME. **Hong Wang**, Jianguo Lin, Parminder Kaur, Preston Countryman, Patricia Opresko, Susan Smith, Jane Tao

**2:00 PM** COFFEE BREAK

**No ABSTRACT 2:30 PM**  
NATIVE PROTEINS CHARACTERIZATION USING NANOPORES. **Amit Meller**

**3:00 PM** STUDENT TALKS CHOSEN FROM ABSTRACTS

**35-SUBG 4:00 PM**  
REVEALING THE MECHANICAL REGULATION OF HEMOSTASIS WITH NOVEL APPROACHES IN SINGLE-MOLECULE MANIPULATION. **Wesley P. Wong**

**No ABSTRACT 4:30 PM**  
LABEL-FREE OPTICAL DETECTION OF SINGLE NANOSCOPIC BIOPARTICLES. **Vahid Sandoghdar**

**5:00 PM** BUSINESS MEETING

**6:00 PM** SUBGROUP DINNER

12:00 PM–7:00 PM, ROOM 301/302/303

## Career Center

1:00 PM–5:00 PM, BALLROOM III

## Subgroup Biological Fluorescence

### Subgroup Chair

*Enrico Gratton, University of California, Irvine*

**NO ABSTRACT 1:00 PM**

DECONSTRUCTING ORGANOGENESIS USING FLUORESCENCE MICROSCOPY. **Kandice Tanner**

**36-SUBG 1:30 PM**

ENGINEERING OF BACTERIAL PHYTOCHROMES FOR IN VIVO IMAGING. **Vladislav Verkhusha**

**37-SUBG 2:00 PM**

FLUORESCENCE NANOSCOPY BY POLARIZATION MODULATION (SPOD) AND POLARIZATION ANGLE NARROWING (EXPAN). **Peter J. Walla**, Nour Hafi, Grunwald Matthias, Laura S. Jess, Timo Aspelmeier, Zagrebelski Martha, Dominik Pfennig, Martin Korte, Axel Munk

**38-SUBG 2:30 PM**

UNDERSTANDING GENE EXPRESSION HETEROGENEITY IN LIVING CELLS WITH SINGLE-MOLECULE FLUORESCENCE MICROSCOPY. **Daniel Larson**

**3:00 PM COFFEE BREAK**

**39-SUBG 3:20 PM**

METABOLIC IMAGING OF LIVING TISSUES BY FLUORESCENCE LIFETIME MICROSCOPY (FLIM) AND ENDOGENOUS BIOMARKERS. **Chiara Stringari**

**NO ABSTRACT 3:50 PM**

DYNAMICS AND SEGREGATION OF PROTEIN AGGREGATES DURING ASYMMETRIC CELL DIVISION. **Rong Li**

**4:20 PM YOUNG FLUORESCENCE INVESTIGATOR AWARD AND LECTURE**

**4:40 PM THE GREGORIO WEBER AWARD AND LECTURE**

1:00 PM–6:00 PM, BALLROOM I

## Subgroup Membrane Biophysics

### Subgroup Chair

*Baron Chanda, University of Wisconsin-Madison*

### 50 YEARS OF MWC: A MODERN PERSPECTIVE OF ALLOSTERY IN ION CHANNELS

**1:00 PM OPENING REMARKS**

**NO ABSTRACT 1:05 PM**

COUPLED CONFORMATIONAL CHANGES AND ALLOSTERY IN CHANNEL GATING. **Richard Aldrich**

**40-SUBG 1:35 PM**

ALLOSTERIC MUTANT PHENOTYPES INVESTIGATED ON AN  $\alpha 1$  GLYCINE RECEPTOR TRANSMEMBRANE STRUCTURE. **Pierre-Jean Corringer**

**NO ABSTRACT 2:05 PM**

STRUCTURAL ANALYSIS OF NMDA RECEPTOR. **Hiro Furukawa**

**41-SUBG 2:35 PM**

THERMODYNAMICS OF ACHR ACTIVATION. **Anthony Auerbach**

**3:05 PM SUBGROUP BUSINESS MEETING & COFFEE BREAK**

**NO ABSTRACT 3:40 PM**

NOVEL INSIGHTS INTO THE STRUCTURE AND MECHANISM OF PROTON AND SODIUM/CALCIUM EXCHANGERS. **José D. Faraldo-Gómez**

**42-SUBG 4:10 PM**

STRUCTURAL DETERMINANTS OF TRPV CHANNEL ACTIVATION AND MODULATION. **Rachelle Gaudet**

**43-SUBG 4:40 PM**

CONFORMATIONAL MOTIONS OF K<sup>+</sup> CHANNEL RCK DOMAINS. **Brad Rothberg**

**5:10 PM DAVID YUE MEMORIAL EVENT**

**6:00 PM COLE AWARD AND DINNER**

1:00 PM–6:15 PM, ROOM 307/308

## Subgroup Motility

### Subgroup Co-Chairs

*Samantha Harris, University of Arizona*

*Jeffrey R. Moore, Boston University*

**1:00 PM INTRODUCTION**

**1:10 PM SHORT TALKS SELECTED FROM SUBMITTED ABSTRACTS**

**NO ABSTRACT 1:40 PM**

BOTH COMPETITION AND COORDINATION AMONG OPPOSING MOTORS REGULATE ORGANELLE MOTILITY. **Erika Holzbaur**

**2:10 PM COFFEE BREAK**

**44-SUBG 2:30 PM**

MULTIPLY REGULATION OF CYTOPLASMIC DYNEIN MOTILITY. **Richard J. McKenney**, Walter Huynh, Minhajuddin Sjarjuddin, Marvin Tanenbaum, Gira Bhabha, Ronald D. Vale

**NO ABSTRACT 3:00 PM**

MAPPING MYOSIN'S STRUCTURAL KINETIC LANDSCAPE FOR BASIC AND THERAPEUTIC DISCOVERY. **Joseph Muretta**

**3:30 PM BUSINESS MEETING & COFFEE BREAK**

**NO ABSTRACT 4:00 PM**

ENGINEERING CYTOSKELETAL MOTORS. **Zev Bryant**

**45-SUBG 4:30 PM**

THE KINETICS UNDERLYING THE VELOCITY OF SMOOTH MUSCLE MYOSIN FILAMENT SLIDING ON ACTIN FILAMENTS IN VITRO. Brian D. Haldeman, Richard K. Brizendine, Diego Alcalá, Kevin C. Facemyer, Josh E. Baker, **Christine R. Cremona**

**5:00 PM COFFEE BREAK**

**NO ABSTRACT 5:20 PM**

CROSSING THE BRIDGE BETWEEN MUSCLE CONTRACTION AND INTRACELLULAR CARGO TRANSPORT. **David Warshaw**

**6:15 PM CLOSING REMARKS**

1:00 PM–6:30 PM, ROOM 331/332

## Subgroup Exocytosis & Endocytosis

### Subgroup Chair

*Gary Matthews, Stony Brook University*

1:00 PM STUDENT TALKS SELECTED FROM POSTERS

46-SUBG 1:45 PM  
MAPPING THE MOLECULAR DYNAMICS OF CLATHRIN  
MEDIATED ENDOCYTOSIS. **Christien J. Merrifield**

2:15 PM COFFEE BREAK

47-SUBG 2:30 PM  
HAIR CELL RIBBON SYNAPSE FUNCTION - DIFFERENTLY  
OPTIMIZED FOR HEARING AND BALANCE. Soroush G Sadeghi,  
Sonja J Pyott, Zhou Yu, **Elisabeth Glowatzki**

48-SUBG 3:00 PM  
ULTRAFAST RECYCLING OF SYNAPTIC VESICLES.  
**Shigeki Watanabe**, Thorsten Trimbuch, Marcial Camacho-Perez,  
Benjamin Rost, Christian Rosenmund, Erik M. Jorgensen

49-SUBG 3:30 PM  
COMPLEXIN-MEDIATED INHIBITION OF VESICLE FUSION:  
CONSERVED FUNCTIONS FROM WORM TO MOUSE.  
**Jeremy Dittman**, Rachel Wragg, Daniel Radoff, David Snead, Yongming  
Dong, Jihong Bai, David Eliezer

4:00 PM COFFEE BREAK

50-SUBG 4:15 PM KATZ AWARD LECTURE  
KNOWN UNKNOWN IN EXOCYTOSIS. **Ronald W. Holz**

5:30 PM BUSINESS MEETING

6:30 PM RECEPTION AND SUBGROUP DINNER

1:30 PM–4:05 PM, ROOM 309/310

## Subgroup Permeation & Transport

### Subgroup Chair

*Emad Tajkhorshid, University of Illinois at Urbana-Champaign*

51-SUBG 1:30 PM  
VOLTAGE-GATED SODIUM CHANNELS: STRUCTURE AND  
FUNCTION OF COMPLEXES WITH SODIUM CHANNEL  
BLOCKERS. **B. A. Wallace**

2:05 PM STUDENT/POSTDOC RESEARCH HIGHLIGHT I  
LIGAND DISCOVERY FOR THE ALANINE-SERINE-CYSTEINE  
TRANSPORTER (ASCT2, SLC1A5) FROM HOMOLOGY  
MODELING AND VIRTUAL SCREENING. **Claire Colas**, Christoph  
Grewer, Armanda Gameiro, Thomas Albers, Kurnvir Singh, Nicholas J.  
Otte, Helen Shere, Bonomi Massimiliano, Jeff Holst, Avner Schlessinger.  
(SEE 270-POS FOR ABSTRACT)

NO ABSTRACT 2:30 PM  
AN INSIDE JOB: NA<sup>+</sup>/H<sup>+</sup> EXCHANGERS LINK ENDOSOMAL PH  
TO NEUROLOGICAL DISORDERS. **Rajini Rao**

3:05 PM STUDENT/POSTDOC RESEARCH HIGHLIGHT II  
TOWARDS THERMODYNAMIC CHARACTERIZATION OF  
TRANSPORT CYCLE IN SECONDARY TRANSPORTERS USING  
ENHANCED SAMPLING TECHNIQUES. **Mahmoud Moradi**, Giray  
Enkavi, Emad Tajkhorshid. (SEE 718-POS FOR ABSTRACT)

NO ABSTRACT 3:30 PM  
CONDUCTION IN CONNEXIN HEMICHANNELS FROM  
MOLECULAR DYNAMICS SIMULATIONS. **Mounir Tarek**

4:05 PM BUSINESS MEETING

3:00 PM–4:00 PM, ROOM 301/302/303

## Career Center Workshop Networking: Optimizing Your Time at BPS 2015

You surely have heard that *networking* is a key component of the successful job search. The term itself often conjures up negative thoughts and reactions to the uninitiated, sometimes to the point of paralysis. Professional conferences (such as BPS 2015) provide endless networking opportunities. If, however, your perception of networking means tackling someone at the coffee station while thrusting your CV in his/her hands, you may want to stop in on this session. The practice of networking has become so much easier with the advent of the internet. We will discuss what hope to get out of your presence at the meeting, how to set objectives beforehand, and how to meet those objective once you arrive (while minimizing anxiety).

4:00 PM–5:00 PM, MEZZANINE

## Undergraduate Mixer and Poster Fest

A social and scientific mixer for all undergraduate students attending the meeting. Come meet other undergraduates and learn about their research projects. Undergraduates listed as co-authors on posters are welcome to practice their poster presentation in a less formal setting, even if not listed as the presenting author. For undergrads who will be presenting during the standard scientific sessions, the mixer provides an additional opportunity to hone presentation skills. Limited presentation spots may be available for those who did not pre-register. Check with the Society Office in the VIP Lounge in the Charles Street Lobby. Organized by the Education Committee.

5:00 PM–7:00 PM, CHARLES STREET LOBBY

## Opening Mixer

All registered attendees are welcome to attend this cash bar and light refreshments reception. *Sponsored by Biochemistry*

5:00 PM–7:00 PM, ROOM 311

## First-Time Attendee Drop By

Is this your first time attending a Biophysical Society Annual Meeting? Wondering what to do first? Feeling overwhelmed? Wondering how to get the most out of your time? Drop by the First-Time Attendee event on Saturday evening during the Opening Mixer to learn how to navigate the meeting. Society staff and Membership Committee Members will be on hand to answer your questions about the meeting and help you get the most from your time at the BPS 2015 Baltimore meeting.

6:00 PM–10:00 PM, HALL C

## Poster Viewing

6:30 PM–7:30 PM, ROOM 327/328/329

## Education, Minority Affairs, and Professional Opportunities for Women Committees Travel Awardee Reception

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

### Speaker

Linda Columbus, University of Virginia



# Sunday, February 8, 2015

## Daily Program Summary

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

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7:30 AM–8:30 AM	Postdoctoral Breakfast	Room 327/328/329
7:30 AM–9:00 AM	Exhibitor Presentation: FEI Company Cryo-TEM Workflow Solutions: A New Era for 3D Structural Biology	Hall C, Room A
7:30 AM–5:00 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:00 AM–6:30 PM	Career Center	Room 301/302/303
8:00 AM–10:00 PM	Poster Viewing	Hall C
8:15 AM–10:15 AM	<b>Symposium: Regulated Protein Bridges Connecting Membranes: STIM Proteins in Cellular Signaling</b> Chair: <i>Richard Lewis, Stanford University</i>  SINGLE-MOLECULE STUDIES OF THE ER CALCIUM SENSOR STIM1. <i>Richard Lewis</i> TUNING THE TAPS: STIM1 AND STIM2 REGULATORY MECHANISMS. <i>Barbara A. Niemeyer</i> GATING MECHANISMS OF STORE-OPERATED CRAC CHANNELS. <i>Murali Prakriya</i> THE MECHANICS OF STIM-ORAI COMMUNICATION. <i>Patrick Hogan</i>	Ballroom I
8:15 AM–10:15 AM	<b>Symposium: Mechanosensors</b> Chair: <i>Marcos Sotomayor, Ohio State University</i>  THE MINIMAL CADHERIN-CATENIN COMPLEX BINDS TO ACTIN FILAMENTS UNDER FORCE. <i>Alexander Dunn</i> MECHANISMS AND MECHANOSENSITIVITY: EXCEPTIONAL CADHERINS FOR HEARING AND BALANCE. <i>Marcos Sotomayor</i> MECHANICAL FORCES IN B CELL ACTIVATION. <i>Pavel Tolar</i> NAVIGATING A MAZE - SENSING AND RESPONDING TO MECHANICAL OBSTACLES DURING CELLULAR INVASIVE GROWTH. <i>Anja Geitmann</i>	Ballroom II
8:15 AM–10:15 AM	Platform: Molecular Simulation: Structure and Interactions	Ballroom III
8:15 AM–10:15 AM	Platform: Protein-Nucleic Acid Interactions I	Ballroom IV
8:15 AM–10:15 AM	Platform: Protein Structure and Conformation I	Room 307/308
8:15 AM–10:15 AM	Platform: Membrane Physical Chemistry I	Room 309/310
8:15 AM–10:15 AM	Platform: Ion Channels, Pharmacology, and Disease	Room 314/315
8:15 AM–10:15 AM	Platform: Kinesins, Dyneins, and Other MT-based Motors	Room 316/317
8:30 AM–10:30 AM	Minority Affairs Committee Meeting	Room 333
9:00 AM–10:00 AM	Career Center Workshop: Selling Yourself to the Life Sciences Industry	Room 301/302/303
10:00 AM–5:00 PM	Biomolecular Discovery Dome	Hall C
10:00 AM–5:00 PM	Exhibits	Hall C
10:15 AM–11:00 AM	Coffee Break	Hall C
10:30 AM–11:30 AM	Career Center Workshop Career Planning and Job Searching for Science Professionals: Academic Opportunities	Room 301/302/303
10:30 AM–12:00 PM	Exhibitor Presentation: Carl Zeiss Microscopy LLC Technology Innovations from ZEISS, the New ZEISS LSM 880 Confocal with Airyscan and the ZEISS Lightsheet Z.1	Hall C, Room B
10:30 AM–12:30 PM	International Relations Committee Meeting	Room 313

10:45 AM–12:45 PM	<p><b>Symposium: New and Notable</b>  <b>Co-Chairs:</b> <i>Enrique De La Cruz, Yale University, and Karen Fleming, Johns Hopkins University</i></p> <p>SINGLE MOLECULE MECHANICS – TOWARDS HIGH THROUGHPUT. <i>Michelle Wang</i>  TRANSPORT THROUGH CARBON NANOTUBE PORINS IN LIPID MEMBRANES. <i>Aleksandr Noy</i>  MECHANISMS OF EBOLA VIRUS IMMUNE EVASION. <i>Gaya Amarasinghe</i>  A VIRUS THAT INFECTS A HYPERTHERMOPHILE ENCAPSIDATES A-FORM DNA. <i>Frank DiMaio</i>  MECHANISMS OF AMPA RECEPTOR ACTIVATION AND DESENSITIZATION INVESTIGATED BY X-RAY CRYSTALLOGRAPHY, DEER AND CRYO-ELECTRON MICROSCOPY. <i>Katharina Duerr</i>  RHEOSTATS AND TOGGLE SWITCHES FOR MODIFYING PROTEIN FUNCTION. <i>Liskin Swint-Kruse</i>  THE PRINCIPLES OF LIPID SCRAMBLING: STRUCTURAL INSIGHTS FROM A TMEM16 FAMILY MEMBER. <i>Janine Brunner</i></p>	Ballroom I
10:45 AM–12:45 PM	<p><b>Symposium: Systems Biology Approaches in Neuroscience</b>  <b>Chair:</b> <i>Kristin Branson, Howard Hughes Medical Institute</i></p> <p>MAPPING BEHAVIOR TO NEURAL ANATOMY USING MACHINE VISION AND THERMOGENETICS. <i>Kristin Branson</i>  VARIABILITY, ROBUSTNESS AND HOMEOSTASIS IN NEURONS AND NETWORKS. <i>Eve Marder</i>  IMAGING THE CONNECTOME. <i>Jeff Lichtman</i>  SPACE-TIME WIRING SPECIFICITY SUPPORTS DIRECTION SELECTIVITY IN THE RETINA. <i>Sebastian Seung</i></p>	Ballroom II
10:45 AM–12:45 PM	<b>Platform: Voltage-gated K Channels I</b>	Ballroom III
10:45 AM–12:45 PM	<b>Platform: Cytoskeletal Mechanics, Dynamics, Motility, and Myosins</b>	Ballroom IV
10:45 AM–12:45 PM	<b>Platform: RNA Structure, Translation, and Splicing</b>	Room 307/308
10:45 AM–12:45 PM	<b>Platform: Membrane Pumps, Transporters, and Exchangers I</b>	Room 309/310
10:45 AM–12:45 PM	<b>Platform: Enzymes and Protein Function</b>	Room 314/315
10:45 AM–12:45 PM	<b>Platform: Membrane Dynamics</b>	Room 316/317
12:00 PM–1:00 PM	<b>Career Center Workshop</b> <b>Networking: Optimizing Your Time at BPS 2015</b>	Room 301/302/303
12:15 PM–2:15 PM	<b>Public Affairs Committee Meeting</b>	Room 333
12:30 PM–1:30 PM	<b>International Travel Awardee Luncheon</b>	Room 327/328/329
12:30 PM–2:00 PM	<b>Exhibitor Presentation: TA Instruments</b> <b>Technology Advances in Ultrasensitive Isothermal Titration Calorimetry</b>	Hall C, Room B
1:30 PM–3:00 PM	<b>Navigating the Transition: Grad Student to Postdoc</b>	Room 324/325
1:30 PM–3:00 PM	<b>Breaking into Industry: How to Find and Apply for an Internship</b>	Hall C, Room A
1:45 PM–3:00 PM	<b>Snack Break</b>	Hall C
2:00 PM–3:30 PM	<b>Teaching Science Like We Do Science: Integrating Research and Education Workshop</b>	Room 331/332
2:30 PM–3:30 PM	<b>Career Center Workshop - Having the Right Stuff:</b> <b>Outstanding Resumes/CVs for Outstanding Opportunities in Academia and Industry</b>	Room 301/302/303
2:30 PM–4:00 PM	<b>Science Funding: Is it Time for a New Paradigm?</b>	Room 321/322/323
2:30 PM–4:00 PM	<b>Exhibitor Presentation: Bruker Nano Surfaces</b> <b>Super-Resolution Microscopy and Its Applications in Fast and Complex Biological Systems</b>	Hall C, Room B
3:30 PM–5:00 PM	<b>Early Careers Committee Meeting</b>	Room 333
3:30 PM–5:00 PM	<b>Exhibitor Presentation: Wyatt Technology Corporation</b> <b>The Light Scattering Toolkit for Biophysical Characterization:</b> <b>Lab Essentials for Enhancing Studies of Purification, Crystallization, Formulation, Conjugation, Conformation, and Interactions</b>	Hall C, Room A
4:00 PM–5:00 PM	<b>Career Center Workshop</b> <b>Beyond the Bench: Preparing for Your Career Transition in the Life Sciences</b>	Room 301/302/303
4:00 PM–6:00 PM	<p><b>Symposium: Emergent Properties and Collective Behaviors of Complex Systems</b>  <b>Chair:</b> <i>Aaron Dinner, University of Chicago</i></p> <p>SCALING LAWS GOVERNING GROWTH AND DIVISION OF SINGLE BACTERIAL CELLS. <i>Aaron Dinner</i>  DRIVING WITH THE BRAKES ON: AN INCOHERENT TRANSCRIPTIONAL CIRCUIT PATTERNS THE DROSOPHILA EMBRYO. <i>Angela DePace</i>  TEMPORAL FREQUENCY OF DIRECTIONAL SENSING AND COLLECTIVE MIGRATION IN DICTYOSTELIUM. <i>Satoshi Sawai</i>  THE EMERGENCE OF HEART FAILURE AS A CONSEQUENCE OF MYOCARDIAL METABOLIC DYSFUNCTION. <i>Daniel A. Beard</i></p>	Ballroom I

4:00 PM–6:00 PM	<p><b>Symposium: Protein Evolution and Allosteric Networks</b>  <b>Chair:</b> <i>Corey Wilson, Yale University</i></p> <p>UNDERSTANDING ENZYME MOLECULAR EVOLUTION TOWARD THERMAL ADAPTATION USING MULTISTATE COMPUTATIONAL PROTEIN DESIGN. <i>Corey J. Wilson</i>  ALLOSTERIC NETWORKS IN THROMBIN. <i>Elizabeth Komives</i>  THE EVOLUTION OF ENZYME MECHANISMS AND FUNCTIONAL DIVERSITY. <i>Janet Thornton</i>  EXPERIMENTAL RECONSTRUCTION OF THE MECHANISMS OF ANCIENT PROTEIN EVOLUTION. <i>Joe Thornton</i></p>	Ballroom II
4:00 PM–6:00 PM	<p><b>Symposium: Cardiomyopathies and Contractile Proteins</b>  <b>Chair:</b> <i>Leslie Leinwand, University of Colorado</i></p> <p>MYOSIN MYOPATHIES. <i>Leslie Leinwand</i>  POSTTRANSLATIONAL MODIFICATION OF TITIN DOMAINS AS A MAIN REGULATOR OF MYOCARDIAL STIFFNESS. <i>Wolfgang A. Linke</i>  MYBPC3 GENE THERAPY FOR NEONATAL SARCOMERIC CARDIOMYOPATHIES. <i>Lucie Carrier</i>  AN INTEGRATIVE APPROACH TO THIN FILAMENT CARDIOMYOPATHIES: FROM MOLECULAR AND COMPUTATIONAL BIOPHYSICS TO MICE. <i>Jil Tardiff</i></p>	Ballroom III
4:00 PM–6:00 PM	<b>Platform: Optical Microscopy and Super-Resolution Imaging I</b>	Ballroom IV
4:00 PM–6:00 PM	<b>Platform: TRP Channels</b>	Room 307/308
4:00 PM–6:00 PM	<b>Platform: Protein Lipid Interactions I</b>	Room 309/310
4:00 PM–6:00 PM	<b>Platform: Protein Assemblies</b>	Room 314/315
4:00 PM–6:00 PM	<b>Platform: Member Organized Session: Protein Nanoassemblies and Networks in Bacterial Chemotaxis and Other Two-Component Signaling Systems</b>	Room 316/317
4:30 PM–6:00 PM	<b>Exhibitor Presentation: OriginLab Corporation</b> Data Analysis and Graphing Using Origin 2015	Hall C, Room B
5:00 PM–6:30 PM	<b>Korean Biophysicists Meeting</b>	Room 324/325
5:30 PM–7:00 PM	<b>Mid-Career Mixer</b>	Hilton Baltimore, Johnson
6:00 PM–7:00 PM	<b>Biophysics Austria Mixer</b>	Room 327/328/329
6:00 PM–9:00 PM	<b>Student Research Achievement Award (SRAA) Poster Competition</b>	Hall C
7:30 PM–9:30 PM	<p><b>Workshop: Stabilizing Membrane Proteins</b>  <b>Chair:</b> <i>Linda Columbus, University of Virginia</i></p> <p>EVOLVING STABLE GPCRS FOR DRUG SCREENING AND STRUCTURAL ANALYSIS. <i>Andreas Plueckthun</i>  ENGINEERING GPCRS FOR IMPROVED THERMOSTABILITY TO FACILITATE STRUCTURE DETERMINATION. <i>Christopher G. Tate</i>  INVESTIGATING MEMBRANE PROTEIN FOLDING. <i>James U. Bowie</i>  TUNING MICELLE DIMENSIONS AND PROPERTIES FOR STABILIZING MEMBRANE PROTEIN FOLD AND FUNCTION. <i>Linda Columbus</i></p>	Ballroom I
7:30 PM–9:30 PM	<p><b>Workshop: NMR of Complex Systems</b>  <b>Chair:</b> <i>Isabelle Marcotte, University of Quebec at Montreal, Canada</i></p> <p>STRUCTURE-BASED MECHANISM FOR RETROVIRAL PRIMER ANNEALING. <i>Victoria D'Souza</i>  ALLOSTERIC REGULATION OF THE SARCOPLASMIC RETICULUM <math>Ca^{2+}</math>-ATPASE BY PHOSPHOLAMBAN AND SARCOLIPIN USING SOLID-STATE NMR SPECTROSCOPY. <i>Gianluigi Veglia</i>  ON THE BACTERIAL CELL WALL BY LIQUID STATE, STANDARD AND DNP SOLID STATE NMR. <i>Jean-Pierre Simorre</i>  SOLID-STATE NMR STUDY OF INTACT MICROALGAE. <i>Isabelle Marcotte</i></p>	Ballroom II
7:30 PM–9:30 PM	<p><b>Workshop: Artificial Cells: Understanding and Engineering</b>  <b>Chair:</b> <i>Margaret Johnson, Johns Hopkins University</i></p> <p>THE ENGINEERING OF ARTIFICIAL CELLULAR SYSTEMS USING SYNTHETIC BIOLOGY APPROACHES. <i>Cheemeng Tan</i>  ENGINEERING SYNTHETIC RIBOSOMES IN VITRO. <i>Michael Jewett</i>  MEASURING GENE EXPRESSION IN FLY EMBRYOS: FROM SINGLE MOLECULES TO NETWORK DYNAMICS. <i>Thomas Gregor</i>  EVOLUTION EXPERIMENT WITH TRANSLATION-COUPLED RNA REPLICATION SYSTEM. <i>Tetsuya Yomo</i></p>	Ballroom III

# Sunday, February 8

7:30 AM–8:30 AM, ROOM 327/328/329

## Postdoctoral Breakfast

*Supported by the Burroughs Wellcome Fund*

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

7:30 AM–9:00 AM, HALL C, ROOM A

## Exhibitor Presentation

### FEI Company

#### FEI Cryo-TEM Workflow Solutions: A New Era for 3D Structural Biology

A new frontier exists in unraveling interactive biological and biochemical processes and pathways at the macromolecular level. Of critical importance is the three-dimensional visualization of macromolecular structures and molecular machines in their native functional state. Three techniques play a major role in orchestrating this.

Nuclear magnetic resonance (NMR) has the capability to study specific protein domains or fragments and their functional role in protein folding and dynamics and in ligand binding whereas X-Ray crystallography (XRD) allows visualizing high-resolution but more static 3D structures of apo and liganded proteins, mainly in a monomeric or dimeric state after crystallization. To unravel more physiologically relevant situations however, it is essential to visualize multimeric complexes in their tertiary and quaternary state and their interaction with other complexes. By performing typical cryo-TEM applications like single particle analysis or tomography, this can be achieved. In this so-called translational methodology, cryo-TEM thus provides complementary information to NMR and XRD that can be crucial for drug discovery, e.g. in terms of a better understanding of the mechanism of action inferred from the EM structure of the physiologically relevant complex. This will eventually contribute to answer real biologically as well as medically relevant questions.

Latest developments in the cryo-TEM workflow have brought the 3 major structural biology technologies closer together. Now, finally, a continuum has been reached on all important aspects with regards to resolution and macromolecular scales which allows for the full deployment of the combination of these technologies.

Here, we will illustrate the historical context of these technologies with respect to one another and show how latest developments have reached the critical requirements to fully unleash the power of structural biology in not just answering fundamental questions, but actually contribute to curing diseases and improving health. Also, we will discuss the future of structural biology based on the latest developments of the FEI workflow and its components with a special focus on the advances in contrast enhancement (phase plates) and (direct electron) detection.

#### Presenter

Chris Arthur, Applications Engineer, FEI Company

7:30 AM–5:00 PM, CHARLES STREET LOBBY

## Registration/Exhibitor Registration

8:00 AM–6:30 PM, ROOM 301/302/303

## Career Center

8:00 AM–10:00 PM, HALL C

## Poster Viewing

8:15 AM–10:15 AM, BALLROOM I

## Symposium Regulated Protein Bridges Connecting Membranes: STIM Proteins in Cellular Signaling

#### Chair

*Richard Lewis, Stanford University*

52-SYMP 8:15 AM

SINGLE-MOLECULE STUDIES OF THE ER CALCIUM SENSOR STIM1. **Richard Lewis**

53-SYMP 8:45 AM

TUNING THE TAPS: STIM1 AND STIM2 REGULATORY MECHANISMS. **Barbara A. Niemeyer**

54-SYMP 9:15 AM

GATING MECHANISMS OF STORE-OPERATED CRAC CHANNELS. **Murali Prakriya**

55-SYMP 9:45 AM

THE MECHANICS OF STIM-ORAI COMMUNICATION. **Patrick Hogan**

8:15 AM–10:15 AM, BALLROOM II

## Symposium Mechanosensors

#### Chair

*Marcos Sotomayor, Ohio State University*

56-SYMP 8:15 AM

THE MINIMAL CADHERIN-CATENIN COMPLEX BINDS TO ACTIN FILAMENTS UNDER FORCE. **Craig Buckley, Jiongyi Tan, William Weis, W. James Nelson, Alexander Dunn**

57-SYMP 8:45 AM

MECHANISMS AND MECHANOSENSITIVITY: EXCEPTIONAL CADHERINS FOR HEARING AND BALANCE. **Marcos Sotomayor**

58-SYMP 9:15 AM

MECHANICAL FORCES IN B CELL ACTIVATION. **Pavel Tolar**

59-SYMP 9:45 AM

NAVIGATING A MAZE - SENSING AND RESPONDING TO MECHANICAL OBSTACLES DURING CELLULAR INVASIVE GROWTH. **Carlos Agudelo, Amir Sanati Nezhad, Mahmood Ghanbari, Muthukumaran Packirisamy, Anja Geitmann**

8:15 AM–10:15 AM, BALLROOM III

## Platform Molecular Simulation: Structure and Interactions

#### Co-Chairs

*Oliver Beckstein, Arizona State University*

*Alexander Shug, Karlsruhe Institute of Technology, Germany*



**60-PLAT 8:15 AM**  
 ROLE OF DESOLVATION IN THERMODYNAMICS AND KINETICS OF LIGAND BINDING TO A PROTEIN.  
**Jagannath Mondal**, Richard Friesner, Bruce J. Berne

**61-PLAT 8:30 AM**  
 INSIGHTS INTO THE STABILIZING ROLE OF CHOLESTEROL FOR THE AMYLOID PRECURSOR PROTEIN. **Martina Audagnotto**, Matteo Dal Peraro

**62-PLAT 8:45 AM**  
 PHARMACOPHORE MODELING USING SITE-IDENTIFICATION BY LIGAND COMPETITIVE SATURATION (SILCS) METHOD WITH MULTIPLE PROBE MOLECULES.  
**Wenbo Yu**, E. Prabhu Raman, Sirish Kaushik Lakkaraju, Lei Fang, Alexander D. MacKerell Jr.

**63-PLAT 9:00 AM**  
 QUANTIFYING MACROMOLECULAR CONFORMATIONAL TRANSITION PATHWAYS. **Oliver Beckstein**, Sean L. Seyler, Avishek Kumar, Michael F. Thorpe

**64-PLAT 9:15 AM**  
 COMPUTATIONAL DESIGN OF REPEAT-PROTEINS WITH A PREDEFINED GEOMETRY. **Sebastian Rämisch**, Ulrich Weininger, Jonas Martnison, Mikael Akke, Ingemar André

**65-PLAT 9:30 AM**  
 COMPUTATIONAL PREDICTION OF G-QUADRUPLEX FORMATION. **Jacob S. Calvert**, Alex Kreig, Saurabh Sinha, Sua Myong

**66-PLAT 9:45 AM**  
 PROTEIN AND RNA STRUCTURE PREDICTION BY INTEGRATION OF CO-EVOLUTIONARY INFORMATION INTO MOLECULAR SIMULATION. Eleonora De Leonardis, Benjamin Lutz, Simona Cocco, Remi Monasson, Hendrik Szurmant, Martin Weigt, **Alexander Schug**

**67-PLAT 10:00 AM**  
 STRUCTURAL ENSEMBLES OF INTRINSICALLY DISORDERED PROTEINS USING MOLECULAR DYNAMICS SIMULATION.  
**Sarah Rauscher**, Vytautas Gapsys, Bert de Groot, Helmut Grubmüller

8:15 AM–10:15 AM, BALLROOM IV

### Platform Protein-Nucleic Acid Interactions I

#### Co-Chairs

*Svea Grieb, Technical University of Dresden, Germany*  
*Beat Fierz, Ecole Polytechnique Fédérale de Lausanne, Switzerland*

**68-PLAT 8:15 AM**  
 BINDING COMPETITION STUDIED WITH SINGLE MOLECULE FRET: THE INTEGRON RECOMBINASE OUTCOMPETES THE SINGLE-STRANDED DNA BINDING PROTEIN FOR ITS RECOMBINATION SITE. **M. Svea Grieb**, Varsha Natarajan, Marko Swoboda, Michael Schlierf

**69-PLAT 8:30 AM**  
 SINGLE-MOLECULE FRET FOR DYNAMIC STRUCTURAL BIOLOGY: DNA POLYMERASE I STRUCTURE AND MECHANISM WITH ANGSTROM PRECISION. **Marko Sustarsic**, Timothy Craggs, Johannes Hohlbein, Andrew Cuthbert, Nicholas Taylor, Hendrik Kaju, Majid Mosayebi, Jonathan Doye, Achillefs N. Kapanidis

**70-PLAT 8:45 AM**  
 HETEROCHROMATIN ASSEMBLY AND DYNAMICS ON THE SINGLE MOLECULE LEVEL. Sinan Kilic, Bachmann Andreas, Louise Bryan, **Beat Fierz**

**71-PLAT 9:00 AM**  
 RNA UNWINDING BY THE HELICASE MTR4P AND THE TRAMP COMPLEX INVESTIGATED VIA HIGH-RESOLUTION OPTICAL TRAPPING. **Eric M. Patrick**, Sukanya Srinivasan, Eckhard Jankowsky, Matthew J. Comstock

**72-PLAT 9:15 AM**  
 ELECTROSTATIC INTERACTION EFFECTS ON THE BINDING OF SPLICEOSOMAL U1A PROTEIN-SL2 RNA HAIRPIN.  
**Zhaleh Ghaemi**, Irisbel Guzman, Martin Gruebele, Zaida Luthey-Schulten

**73-PLAT 9:30 AM**  
 CHROMOSOME REORGANIZATION BY THE HIGHLY COOPERATIVE DPS PROTEIN. **Natalia Vtyurina**, David Dulin, Margreet Docter, Nynke Dekker, Anne Meyer, Elio Abbondanzieri

**74-PLAT 9:45 AM**  
 ASYMMETRIC NUCLEOSOME DISASSEMBLY WITH DISRUPTED HISTONES REVEALED BY TIME RESOLVED SMALL ANGLE X-RAY SCATTERING WITH CONTRAST VARIATION.  
**Yujie Chen**, Joshua M. Tokuda, Traci Topping, Julie L. Sutton, Steve P. Meisburger, Suzette A. Pabit, Lisa M. Gloss, Lois Pollack

**75-PLAT 10:00 AM**  
 UNDERSTANDING WITHOUT READING: ANALOGUE ENCODING OF PHYSICOCHEMICAL PROPERTIES OF PROTEINS IN THEIR COGNATE MESSENGER RNA.  
**Anton A. Polyansky**, Mario Hlevnjak, Bojan Zagrovic

8:15 AM–10:15 AM, ROOM 307/308

### Platform Protein Structure and Conformation I

#### Co-Chairs

*Silvina Matysiak, University of Maryland*  
*Michelle Peckham, University of Leeds, United Kingdom*

**76-PLAT 8:15 AM**  
 ROLE OF INTERFACES IN PEPTIDE FOLDING AND AGGREGATION. **Sai Janani Ganesan**, Silvina Matysiak

**77-PLAT 8:30 AM**  
 COMBINING NEUTRON REFLECTIVITY AND HYDROGEN DEUTERIUM EXCHANGE MASS SPECTROMETRY TO RESOLVE STRUCTURAL DETAILS OF MEMBRANE ASSOCIATED PROTEINS. **Michael S. Kent**, Bulent Akgun, Hirsh Nanda, Gregory F. Pirrone, John Engen

**78-PLAT 8:45 AM INTERNATIONAL TRAVEL AWARDEE**  
 EFFECT OF MOLECULAR CROWDING ON THE STRUCTURE AND DYNAMICS OF HUMAN APO AND HOLO TRANSFERRIN USING 2D-IR CORRELATION SPECTROSCOPY. **Sherif Abbas**, Feride Severcan, Parvez I. Haris

**79-PLAT 9:00 AM**  
 STRUCTURAL INSIGHT INTO THE PHOSPHOINOSITIDE-REGULATED CELLULAR DYNAMICS OF ALPHA-ACTININ.  
**Andrea Ghisleni**, Euripides De Almeida Ribeiro, Nikos Pinotsis, Mark R. Holt, Pauline Bennett, Kristina Djinovic-Carugo, Mathias Gautel

**80-PLAT 9:15 AM**  
 DETERMINING HOW MANY IONIC INTERACTIONS ARE NEEDED FOR THE HIGH STABILITY OF SINGLE ALPHA HELICAL (SAH) DOMAINS. Marcin D. Wolny, Matthew R. Batchelor, Peter J. Knight, Emanuele Paci, **Michelle Peckham**

**81-PLAT 9:30 AM**

NMR EVIDENCE FOR UNUSUAL BIFURCATED HYDROGEN BONDING IN THE TXXH ALPHA-HELIX N-CAPPING MOTIF.

**Matthew R. Preimesberger**, Ananya Majumdar, Tural Aksel, Kevin Sforza, Doug Barrick, Juliette T.J. Lecomte

**82-PLAT 9:45 AM**

OXIDATION INCREASES THE STRENGTH OF THE METHIONINE-AROMATIC INTERACTION. **Andrew K. Lewis**, Alessandro Cembran, Tiffany L. Senkow, Ryan Mahling, Gabriella T. Perell, Megan R. McCarthy, Cheng Her, Benjamin T. Horn, Christopher C. Valley, Christine B. Karim, Jiali Gao, William C. Pomerantz, David D. Thomas, Anne Hinderliter, Jonathan N. Sachs

**83-PLAT 10:00 AM**

ELECTROSTATICS INSIDE THE SECY TRANSLOCON. **Sara Capponi**, Stephen H. White

**8:15 AM–10:15 AM, ROOM 309/310**

## Platform Membrane Physical Chemistry I

### Co-Chairs

*Rumiana Dimova, Max Planck Institute of Colloids and Interfaces, Germany*

*Ilya Levental, University of Texas Health Medical Center*

**84-PLAT 8:15 AM**

DIFFERENTIATION OF PLASMA MEMBRANE COMPOSITION AND PHYSICAL PROPERTIES. **Ilya Levental**, Kandice R. Levental

**85-PLAT 8:30 AM**

REAL-TIME IMAGING OF NANOSCOPIC LIPID DOMAINS USING ISCAT. Gabrielle de Wit, John S. H. Danial, Philipp Kukura, **Mark I. Wallace**

**86-PLAT 8:45 AM**

A FUNDAMENTAL FORCE THAT REGULATES NANO-CLUSTERING OF PROTEINS IN BIOLOGICAL MEMBRANES. **Kranthi Kiran Mandadapu**, Shachi Katira, Suriyanarayanan Vaikuntanathan, Berend Smit, David Chandler

**87-PLAT 9:00 AM**

THEORY OF REGISTERED AND ANTIREGISTERED PHASE SEPARATION IN MIXED AMPHIPHILIC BILAYERS.

**John J. Williamson**, Peter D. Olmsted

**88-PLAT 9:15 AM**

HOW GM1 AFFECTS THE PHASE STATE AND MECHANICAL PROPERTIES OF PHOSPHOLIPID MEMBRANES. Nico Fricke, **Rumiana Dimova**

**89-PLAT 9:30 AM**

EXAMINING THE EFFECTS OF CHOLESTEROL: LAURDAN AND PATMAN SEE IT DIFFERENTLY. **Emma R. Moulton**, Kelsey J. Hirsche, Monica L. Hobbs, Morgan M. Schwab, John D. Bell

**90-PLAT 9:45 AM**

ORIENTATIONAL TEXTURE OF MEMBRANE DOMAINS: EFFECT OF LIPID COMPOSITION AND BINDING OF A BACTERIAL TOXIN. **Adam C. Simonsen**, Jes Dreier, Vita Solovyeva, Jonas C. Jeppesen, Jonathan Brewer

**91-PLAT 10:00 AM**

PLASMA MEMBRANE VESICLE CRITICAL TEMPERATURE SCALES WITH GROWTH TEMPERATURE IN A ZEBRAFISH CELL LINE. Margaret Burns, Jing Wu, Kathleen Wisner, **Sarah Veatch**

**8:15 AM–10:15 AM, ROOM 314/315**

## Platform Ion Channels, Pharmacology, and Disease

### Co-Chairs

*David Busath, Brigham Young University*

*Lyanne Schlichter, University of Toronto, Canada*

**92-PLAT 8:15 AM**

MOLECULAR DYNAMICS OF AMANTADINE BLOCK IN M2 OF INFLUENZA A: WT VS S31N. Mitchell L. Gleed, Harris Ioannidis, Antonios Kolocouris, **David D. Busath**

**93-PLAT 8:30 AM**

POTENTIATION OF CFTR GATING BY AN ENERGETICALLY ADDITIVE MECHANISM. **Han-I Yeh**, Jiunn- Tyng Yeh, Tzyh-Chang Hwang

**94-PLAT 8:45 AM**

AFFINITY CALCULATIONS FOR LIPOPHILIC MODULATORS BINDING TO ISOLATED SITES ON GABA(A) RECEPTORS.

**Sruthi Murlidaran**, Reza Salari, Grace Brannigan

**95-PLAT 9:00 AM**

SLC6A14 MODIFIES FLUID SECRETORY CAPACITY OF CYSTIC FIBROSIS AFFECTED EPITHELIUM BY ENHANCING CFTR CHANNEL FUNCTION. **Saumel Ahmadi**, Catherine Luk, Sunny Xia, Michelle Di Paola, Timothy Chung, Johanna Rommens, Christine Bear

**96-PLAT 9:15 AM**

ENHANCED ACTIVATION OF AN AMINO-TERMINALLY TRUNCATED ISOFORM OF VOLTAGE-GATED PROTON CHANNEL HVCN1 ENRICHED IN MALIGNANT B CELLS. Elayne Hondares, Mark Brown, Boris Musset, Deri Morgan, Vladimir V. Cherny, Christina Taubert, Mandeep K. Bhamrah, David Coe, Federica Marelli-Berg, John G. Gribben, Martin JS Dyer, Melania Capasso, **Thomas E. DeCoursey**

**97-PLAT 9:30 AM**

POSITIVE KCA CHANNEL GATING MODULATORS WITH SELECTIVITY FOR KCA3.1. **Brandon M. Brown**, Nichole Coleman, Vladimir Yarov-Yarovoy, Heike Wulff

**98-PLAT 9:45 AM**

EXPRESSION AND CONTRIBUTIONS OF TRPM7 AND KCA2.3/SK3 CHANNELS TO THE INCREASED MIGRATION AND INVASION OF MICROGLIA IN ANTI-INFLAMMATORY ACTIVATION STATES. Tamjeed Siddiqui, Starlee Lively, Roger Ferreira, Raymond Wong, **Lyanne Schlichter**

**99-PLAT 10:00 AM**

ATOMIC BASIS FOR POTASSIUM CHANNEL POTENTIATION BY A NOVEL CLASS OF ANTI-EPILEPTIC DRUGS. **Robin Y. Kim**, Michael C. Yau, Stephan A. Pless, Jason D. Galpin, Christopher A. Ahern, Harley T. Kurata

**8:15 AM–10:15 AM, ROOM 316/317**

## Platform Kinesins, Dyneins, and Other MT-based Motors

### Co-Chairs

*Sarah Rice, Northwestern University*

*Etsuko Muto, Riken Brain Science Institute, Japan*

**100-PLAT 8:15 AM**

KINESIN-5 ACTS AS A MICROTUBULE STABILIZER, POLYMERASE AND PLUS-TIP TRACKER. Yalei Chen, **William O. Hancock**

**101-PLAT 8:30 AM**

WHY ARE KINESIN-2 KIF3AB AND KIF3AC SO PROGRESSIVE?  
**Stephanie Guzik-Lendrum**, Katherine C. Rank, Brandon Bensel, Ivan Rayment, Susan P. Gilbert

**102-PLAT 8:45 AM**

SRC KINASE PHOSPHO-REGULATION OF THE HUMAN MITOTIC KINESIN EG5. **Sarah Rice**, Kathleen M. Gifford, Joshua S. Waitzman, Taylor Poor, Barbara Mann, Patricia Wadsworth

**103-PLAT 9:00 AM**

EMERGENCE OF LARGE-SCALE VORTICES OF MICROTUBULES COLLECTIVELY DRIVEN BY AXONEMAL DYNEINS. Naoki Kanatani, **Kazuhiro Oiwa**

**104-PLAT 9:15 AM**

ULTRASTRUCTURE OF DYNACTIN COMPLEX: A MEDIATOR OF CYTOPLASMIC DYNEIN. **Saikat Chowdhury**, Stephanie A. Ketcham, Trina A. Schroer, Gabriel C. Lander

**105-PLAT 9:30 AM**

A MECHANICAL SWITCH FROM DIFFUSION TO DIRECTIONAL MOTION ACTIVATES ATPASE IN DYNEIN MOTOR. Seiichi Uchimura, Takashi Fujii, Hiroko Takazaki, Rie Ayukawa, Yosuke Nishikawa, Itsushi Minoura, You Hachikubo, Genji Kurisu, Kazuo Sutoh, Takahide Kon, Keiichi Namba, **Etsuko Muto**

**106-PLAT 9:45 AM**

CYTOPLASMIC DYNEIN RING TILTING DETECTED BY COMBINED POLTIRF AND SUB-PIXEL PARTICLE TRACKING OF SEMICONDUCTOR QUANTUM RODS. **Lisa G. Lippert**, Tali Dadosh, Benjamin T. Diroll, Jeffrey T. Hallock, Christopher B. Murray, Erika LF Holzbaur, Samara L. Reck-Peterson, Yale E. Goldman

**107-PLAT 10:00 AM**

BIDIRECTIONAL HELICAL MOTILITY OF CYTOPLASMIC DYNEIN AROUND MICROTUBULES. **Sinan Can**, Mark DeWitt, Ahmet Yildiz

**8:30 AM–10:30 AM, ROOM 333**

**Minority Affairs Committee Meeting**

**9:00 AM–10:00 AM, ROOM 301/302/303**

**Career Center Workshop**

**Selling Yourself to the Life Sciences Industry**

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

**10:00 AM–5:00 PM, HALL C**

**Biomolecular Discovery Dome**

Visit this 3-D portable Dome, sponsored by the Public Affairs Committee, to see how difficult biophysical topics can be made accessible to high school students and the public. Short videos that communicate the excitement of looking at macromolecular complexes and understanding the molecular basis for life are being shown throughout the week.

**10:00 AM–5:00 PM, HALL C**

**Exhibits**

**10:15 AM–11:00 AM, HALL C**

**Coffee Break**

**10:30 AM–11:30 AM, ROOM 301/302/303**

**Career Center Workshop  
 Career Planning and Job Searching for  
 Science Professionals:  
 Academic Opportunities**

Learn how to create a flexible career plan for yourself, and identify and leverage your skills, expertise and experience to find a career (not just a job) that is right for you. Special emphasis will be placed on tips for finding and launching a career in academia, but we will also incorporate the development of a contingency plan for the unexpected twists and turns in life.

**10:30 AM–12:00 PM, HALL C, ROOM B**

**Exhibitor Presentation  
 Carl Zeiss Microscopy**

**Technology Innovations from ZEISS, the New ZEISS LSM 880 Confocal with Airyscan and the ZEISS Lightsheet Z.1**

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

The LSM 880 with Airyscan allows you to use multicolor samples with any label and get image quality like you've never seen before. With Airyscan you are always able to select the optimal acquisition strategy for your sample: Simply decide whether you want to gain 1.7x higher resolution in all three dimensions – resulting in a 5x smaller confocal volume. Or push the sensitivity beyond the limits of all conventional confocals. Or use the increase in signal-to-noise ratio to speed up your image acquisition.

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

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

**Presenters**

Joseph Huff, Product Marketing Manager, Laser Scanning and Superresolution Microscopy, Carl Zeiss Microscopy LLC  
 Scott Olenych, Product Marketing Manager, Imaging Products, Carl Zeiss Microscopy LLC

**10:30 AM–12:30 PM, ROOM 313**

**International Relations Committee Meeting**

10:45 AM–12:45 PM, BALLROOM I

## Symposium New and Notable

### Co-Chairs

*Enrique De La Cruz, Yale University*  
*Karen Fleming, Johns Hopkins University*

**NO ABSTRACT 10:45 AM**  
SINGLE MOLECULE MECHANICS – TOWARDS HIGH THROUGHPUT. **Michelle Wang**

**NO ABSTRACT 11:02 AM**  
TRANSPORT THROUGH CARBON NANOTUBE PORINS IN LIPID MEMBRANES. **Aleksandr Noy**

**NO ABSTRACT 11:19 AM**  
MECHANISMS OF EBOLA VIRUS IMMUNE EVASION. **Gaya Amarasinghe**

**NO ABSTRACT 11:36 AM**  
A VIRUS THAT INFECTS A HYPERTHERMOPHILE ENCAPSIDATES A-FORM DNA. **Frank DiMaio**

**NO ABSTRACT 11:53 AM**  
MECHANISMS OF AMPA RECEPTOR ACTIVATION AND DESENSITIZATION INVESTIGATED BY X-RAY CRYSTALLOGRAPHY, DEER AND CRYO-ELECTRON MICROSCOPY. **Katharina Duerr**

**NO ABSTRACT 12:10 PM**  
RHEOSTATS AND TOGGLE SWITCHES FOR MODIFYING PROTEIN FUNCTION. **Liskin Swint-Kruse**

**NO ABSTRACT 12:27 PM**  
THE PRINCIPLES OF LIPID SCRAMBLING: STRUCTURAL INSIGHTS FROM A TMEM16 FAMILY MEMBER. **Janine Brunner**

10:45 AM–12:45 PM, BALLROOM II

## Symposium Systems Biology Approaches in Neuroscience

### Chair

*Kristin Branson, Howard Hughes Medical Institute*

**108-SYMP 10:45 AM**  
MAPPING BEHAVIOR TO NEURAL ANATOMY USING MACHINE VISION AND THERMOGENETICS. **Kristin Branson, Alice A. Robie**

**NO ABSTRACT 11:15 AM**  
VARIABILITY, ROBUSTNESS AND HOMEOSTASIS IN NEURONS AND NETWORKS. **Eve Marder**

**109-SYMP 11:45 AM**  
IMAGING THE CONNECTOME. **Jeff Lichtman**

**NO ABSTRACT 12:15 PM**  
SPACE-TIME WIRING SPECIFICITY SUPPORTS DIRECTION SELECTIVITY IN THE RETINA. **Sebastian Seung**

10:45 AM–12:45 PM, BALLROOM III

## Platform Voltage-gated K Channels I

### Co-Chairs

*Timothy Jegla, Pennsylvania State University*  
*Ramon La Torre, University of Valparaíso, Chile*

**110-PLAT 10:45 AM INTERNATIONAL TRAVEL AWARDEE**  
INTERACTION OF CALMODULIN WITH THE EAG1 POTASSIUM CHANNEL. **Maria J. Marques-Carvalho, João H. Morais-Cabral**

**111-PLAT 11:00 AM**  
EFFECTS OF THE ACCESSORY SUBUNIT T1 ON THE EXTERNAL ARCHITECTURE OF BK CHANNEL. **Willy Carrasquel-Ursulaez, Juan P. Castillo, Yenisleidy Lorenzo, Romina Sepulveda, Daniel Aguayo, Francisco Bezanilla, Fernando D. Gonzalez-Nilo, Ramon Latorre**

**112-PLAT 11:15 AM**  
ENHANCED VOLTAGE-CLAMP FLUOROMETRY ASSIGNS DISTANCE CONSTRAINTS TO BK CHANNEL VSD STRUCTURAL TRANSITIONS. **Antoni Pantazis, Riccardo Olcese**

**113-PLAT 11:30 AM INTERNATIONAL TRAVEL AWARDEE**  
CALMODULIN BINDING TO A NOVEL SITE IN THE AB MODULE OF KV7.2 SUBUNITS REGULATES SURFACE EXPRESSION. **Ganeko Bernardo-Seisdedos, Juncal Fernandez-Orth, Carolina Gomis-Perez, Alessandro Alaimo, Aritz Alberdi, Covadonga Malo, Pilar Areso, Alvaro Villarreal**

**114-PLAT 11:45 AM**  
A POINT MUTATION CAUSING EPISODIC ATAXIA REVEALS FUNCTIONAL LINK BETWEEN VOLTAGE SENSOR AND SELECTIVITY FILTER IN SHAKER KV CHANNELS. **Dimitri Petitjean, Rikard Blunck**

**115-PLAT 12:00 PM**  
EVOLUTIONARY ORIGINS OF THE SHAKER FAMILY OF VOLTAGE-GATED POTASSIUM CHANNELS. **Xiaofan Li, Hansi Liu, Sarah A. Rhodes, Liana Trigg, Fortunay H. Diatta, Jessica K. Sassic, David K. Simmons, Mark Q. Martindale, Timothy Jegla**

**116-PLAT 12:15 PM**  
ALTERNATIVE SPLICING MODULATES KV CHANNEL CLUSTERING THROUGH A MOLECULAR 'BALL AND CHAIN' MECHANISM. **Nitzan Zandany, Shir Marciano, Elhanan Magidovich, Rinat Yehezkel, Tzilhav Shem-Ad, Limor Lewin, Uri Abdu, Irit Orr, Ofer Yifrach**

**117-PLAT 12:30 PM MINORITY AFFAIRS TRAVEL AWARDEE**  
BETA-2 AND GAMMA-1 AUXILIARY SUBUNITS COASSEMBLE IN THE SAME BK CHANNEL AND INDEPENDENTLY CONTRIBUTE TO REGULATION OF CHANNEL GATING. **Vivian M. Gonzalez-Perez, Xiao-Ming Xia, Christopher J. Lingle**



10:45 AM–12:45 PM, BALLROOM IV

### Platform

## Cytoskeletal Mechanics, Dynamics, Motility, and Myosins

#### Co-Chairs

*Michael Greenberg, University of Pennsylvania*

*Harvey Chin, Columbia University*

**118-PLAT** 10:45 AM CPOW TRAVEL AWARDEE

SITE-SPECIFIC CATION RELEASE DRIVES ACTIN FILAMENT SEVERING BY VERTEBRATE COFILIN. **Hyeran Kang**, Michael J. Bradley, Wenxiang Cao, Kaifeng Zhou, Elena E. Grintsevich, Alphée Michelot, Emil Reisler, Charles V. Sindelar, Mark Hochstrasser, Enrique M. De La Cruz

**119-PLAT** 11:00 AM

HOW ACTIN INITIATES THE MOTOR ACTIVITY OF MYOSIN. Virginia Ropars, Bin Zong, Paola Llinas, Tatiana Isabet, Lin Song, H. Lee Sweeney, **Anne Houdusse**

**120-PLAT** 11:15 AM

STRUCTURAL BASIS FOR CALCIUM REGULATION OF THE MOTOR FUNCTION OF MYOSIN-5A. Mei Shen, Sanduo Zheng, Wen-Bo Zhang, Zekuan Lu, **Xiang-dong Li**

**121-PLAT** 11:30 AM

STRUCTURAL DETERMINANTS OF MYOSIN I MECHANOSENSING: THE N TERMINAL REGION. **Michael J. Greenberg**, Tianming Lin, Henry Shuman, E. Michael Ostap

**122-PLAT** 11:45 AM

MYOSIN 5 SIDE STEPS ALONG ACTIN. Jaime Ortega-Arroyo, Joanna Andrecka, Yasuharu Takagi, James R. Sellers, **Philipp Kukura**

**123-PLAT** 12:00 PM

PROBING LIPID VESICLE TRANSPORT IN 3D BY TEAMS OF MYOSIN VA MOTORS AT SUSPENDED ACTIN INTERSECTIONS IN VITRO. **Andrew T. Lombardo**, M. Yusuf Ali, Guy G. Kennedy, Kathleen M. Trybus, David M. Warshaw

**124-PLAT** 12:15 PM

MEASUREMENTS AND SIMULATIONS OF THE FISSION YEAST CYTOKINETIC RING TENSION DURING CONSTRICTION. **Harvey F. Chin**, Erdem Karatekin, Thomas D. Pollard, Ben O'Shaughnessy

**125-PLAT** 12:30 PM

A MINIMAL SYSTEM TO ESTABLISH MICROTUBULE-BASED CELL POLARITY *IN VITRO*. **Núria Taberner**, Pierre Recouvreur, Sophie Roth, Marileen Dogterom

10:45 AM–12:45 PM, ROOM 307/308

### Platform

## RNA Structure, Translation, and Splicing

#### Co-Chairs

*Jeffrey Kieft, University of Colorado, Denver*

*Aaron Hoskins, University of Wisconsin-Madison*

**126-PLAT** 10:45 AM

BALANCED INTERACTIONS BETWEEN RIBOSOMAL SUBUNITS ALLOW RAPID LARGE-SCALE ROTATION. **Lars V. Bock**, Christian Blau, Andrea C. Vaiana, Helmut Grubmüller

**127-PLAT** 11:00 AM

REAL-TIME OBSERVATION OF DNA RECOGNITION BY THE RNA-GUIDED ENDONUCLEASE CAS9 USING SINGLE-MOLECULE FRET. **Digvijay Singh**, Samuel H. Sternberg, Jingyi Fei, Jennifer A. Doudna, Taekjip Ha

**128-PLAT** 11:15 AM

STRUCTURAL POLYMORPHISM OF CAG RNA REPEATS INVESTIGATED BY SINGLE-MOLECULE MECHANICAL UNFOLDING. **Pan T. Li**, William Stephenson

**129-PLAT** 11:30 AM

HOW FLAVIVIRUSES USE A UNIQUE 'SLIPKNOT-LIKE' STRUCTURE TO MECHANICALLY CONFOUND A CELLULAR EXONUCLEASE AND PRODUCE PATHOGENIC RNA. Erich G. Chapman, David A. Costantino, Jennifer L. Rabe, Stephanie L. Moon, Jay C. Nix, Jeffrey Wilusz, **Jeffrey S. Kieft**

**130-PLAT** 11:45 AM

MAPPING LONG NON-CODING RNA STRUCTURES WITH FRAGMENTATION AND NEXT-GENERATION SEQUENCING. **Jeffrey Viereggs**, William Richter, Alex Ruthenburg

**131-PLAT** 12:00 PM

U2 SNRNA CONFORMATION IS REGULATED BY CUS2 TO FACILITATE DEAD-BOX PROTEIN LOADING. U. Sandy Tretbar, **Aaron Hoskins**

**132-PLAT** 12:15 PM

RNA FLEXIBILITY DEPENDS ON STRUCTURAL CONTEXT. **Julie Sutton**, Lois Pollack

**133-PLAT** 12:30 PM

SINGLE-MOLECULE STUDIES OF KISSING LOOP INTERACTIONS IN GUANINE RIBOSWITCH. **Maumita Mandal**

10:45 AM–12:45 PM, ROOM 309/310

### Platform

## Membrane Pumps, Transporters, and Exchangers I

#### Co-Chairs

*Gregory Verdon, Imperial College London, United Kingdom*

*Joseph Mindell, NIH/NINDS*

**134-PLAT** 10:45 AM

STRUCTURE AND BIOCHEMICAL CHARACTERIZATION OF THE MAMMALIAN FRUCTOSE TRANSPORTER GLUT5.

**Gregory Verdon**, Hae Joo Kang, Saba Abdul-Hussein, Abdul Aziz Qureshi, Michihiro Kasahara, So Iwata, Norimichi Nomura, David Drew

**135-PLAT** 11:00 AM

THE CONFORMATIONAL DYNAMICS OF A SECONDARY MULTIDRUG TRANSPORTER ARE MODULATED BY THE LIPID BILAYER COMPOSITION. **Chloé Martens**

**136-PLAT** 11:15 AM

THERMODYNAMIC FEATURES OF IIAGLC INHIBITION OF SUGAR SYMPORTERS. **Hariharam Parmeswaran**, Balasubramaniam Dhandayuthapani, Alan Peterkofsky, Ronald H. Kaback, Lan Guan

**137-PLAT** 11:30 AM

TRANSPORT COUPLING STOICHIOMETRY DETERMINATION OF ELECTROGENIC SECONDARY TRANSPORTERS.

**Gabriel A. Fitzgerald**, Christopher Mulligan, Joseph A. Mindell

**138-PLAT** 11:45 AM

LIGAND-DEPENDENT CONFORMATIONAL CYCLE OF THE NA<sup>+</sup>/HYDANTOIN TRANSPORTER MHP1. **Kelli Kazmier**, Shruti Sharma, Shahidul M. Islam, Benoit Roux, Hassane S. Mchaourab

**139-PLAT** 12:00 PM

A KEY ROLE FOR TM5 IN THE NA<sup>+</sup>-COUPLED ALTERNATING-ACCESS MECHANISM REVEALED BY COMPUTATIONAL ANALYSIS OF THE MHST STRUCTURES. Zheng Li, **Sebastian Stolzenberg**, Matthias Quick, Lina Malinauskaite, Poul Nissen, Harel Weinstein, Jonathan A. Javitch, Lei Shi

**140-PLAT 12:15 PM**

THE NA1 BINDING SITE IN THE HUMAN SODIUM-PHOSPHATE COTRANSPORTER NAPI-IIA. **Cristina Fenollar-Ferrer**, **Monica Patti**, **Andreas Werner**, **Thomas Knoepfel**, **Ian C. Forster**, **Lucy R. Forrest**

**141-PLAT 12:30 PM**

FUNCTIONAL IDENTIFICATION OF THE NA1 SITE OF THE PHOSPHATE COTRANSPORTER NAPI-IIA. **Monica Patti**, **Cristina Fenollar-Ferrer**, **Andreas Werner**, **Thomas Knöpfel**, **Lucy Forrest**, **Ian Forster**

**10:45 AM–12:45 PM, ROOM 314/315**

## **Platform Enzymes and Protein Function**

### **Co-Chairs**

*Kenneth Mills, College of the Holy Cross  
Amy Whitaker, Texas A&M University*

**142-PLAT 10:45 AM**

IDENTIFICATION OF BIOCHEMICALLY DISTINCT PROPERTIES OF THE SUMO CONJUGATION PATHWAY IN *PLASMODIUM FALCIPARUM*. **Katherine Reiter**, **Jurgen Bosch**, **Michael J. Matunis**

**143-PLAT 11:00 AM**

UNDERSTANDING E2 MECHANISM USING NMR. **Emily A. Todd**, **Douglas R. Putney**, **Christopher E. Berndsen**, **Nathan T. Wright**

**144-PLAT 11:15 AM**

PROTEIN SPLICING: REGULATION BY TEMPERATURE AND OXIDATION STATE OF NON-CANONICAL INTEINS. **Kenneth Mills**, **Julie Reitter**, **Michael Nicastrì**, **Kathryn Colleli**, **Jennie Williams**

**145-PLAT 11:30 AM**

DYNAMICS OF A NATURALLY HIDDEN STATE RESTRICTS ADENYLATE KINASE ACTIVITY. **Magnus Wolf-Watz**, **Michael Kovermann**

**146-PLAT 11:45 AM**

FUNCTIONAL UNFOLDING IN *E. COLI* ADENYLATE KINASE. **Jeremy A. Anderson**, **Vincent J. Hilser**

**147-PLAT 12:00 PM**

PROPAGATION OF THE ALLOSTERIC SIGNAL IN *BACILLUS STEAROTHERMOPHILUS* PHOSPHOFRUCTOKINASE EXAMINED BY METHYL-TROSY NMR. **Amy M. Whitaker**, **Mandar T. Naik**, **Gregory D. Reinhart**

**148-PLAT 12:15 PM**

MICROSECOND-RESOLUTION RECORDING OF T4 LYSOZYME OBSERVES A BROWNIAN RATCHET. **Maxim V. Akhterov**, **Yongki Choi**, **Tivoli J. Olsen**, **Patrick C. Sims**, **Mariam Iftikhar**, **O. Tolga Gul**, **Brad L. Corso**, **Gregory A. Weiss**, **Philip G. Collins**

**149-PLAT 12:30 PM**

HUMAN NEURAMINIDASE ENZYMES ALTER THE LATERAL MOBILITY AND FUNCTION OF INTEGRIN RECEPTORS. **Christopher W. Cairo**

**10:45 AM–12:45 PM, ROOM 316/317**

## **Platform Membrane Dynamics**

### **Co-Chairs**

*Tyler Reddy, Oxford University, United Kingdom  
Gabriel Montaño, Los Alamos National Laboratory*

**150-PLAT 10:45 AM**

NOTHING TO SNEEZE AT: A FULL-SCALE COMPUTATIONAL MODEL OF THE HUMAN INFLUENZA VIRION. **Tyler Reddy**, **David Shorthouse**, **Daniel Parton**, **Elizabeth Jefferys**, **Philip W. Fowler**, **Matthieu Chavent**, **Marc Baaden**, **Mark S.P. Sansom**

**151-PLAT 11:00 AM**

ROLE OF MEMBRANE-BENDING PROTEINS AS MEMBRANE TENSION SENSORS IN CELL MIGRATION. **Toshiki Itoh**

**152-PLAT 11:15 AM**

EXPERIMENT AND SIMULATION REVEAL THE BENDING PROPERTIES OF NANOSCOPIC LIPID DOMAINS. **Jonathan D. Nickels**, **Michael Ohl**, **Xiaolin Cheng**, **Christopher Stanley**, **Frederick Heberle**, **Robert Standaert**, **John Katsaras**

**153-PLAT 11:30 AM**

ANALYSIS OF MEMBRANE DOMAINS BY FREEZE-FRACTURE REPLICAS LABELING EM. **Sho Takatori**, **Tsuyako Tatematsu**, **Takuya Akano**, **Jun Matsumoto**, **Jinglei Cheng**, **Toyoshi Fujimoto**

**154-PLAT 11:45 AM**

IMAGING SUB-DIFFRACTION MEMBRANE CURVATURE DYNAMICS DURING CLATHRIN MEDIATED ENDOCYTOSIS. **Adam D. Hoppe**, **Shalini Low-Nam**, **Brandon L. Scott**, **Jason G. Kerkvliet**

**155-PLAT 12:00 PM**

LONG ACYL CHAIN SPHINGOLIPIDS GOVERN VISIBLE MICRODOMAINS AND CHOLESTEROL IN BOTH MODEL AND PLASMA MEMBRANES. **Kevin C. Courtney**, **Congyu Zhang**, **Xiaohui Zha**

**156-PLAT 12:15 PM**

USING LIPOPOLYSACCHARIDES TO CREATE 3-D MULTICOMPONENT BIOMIMETIC MEMBRANES ON SOLID SUPPORTS. **Kirstie L. Swingle**, **Peter G. Adams**, **Gabriel A. Montano**

**157-PLAT 12:30 PM**

GPI-ANCHORED PROTEINS DO NOT RESIDE IN ORDERED DOMAINS IN THE LIVE CELL PLASMA MEMBRANE. **Eva Sevcsik**, **Mario Brameshuber**, **Martin Fölser**, **Julian Weghuber**, **Alf Honigsmann**, **Gerhard J. Schütz**

**12:00 PM–1:00 PM, ROOM 301/302/303**

## **Career Center Workshop Networking: Optimizing Your Time at BPS 2015**

You surely have heard that *networking* is a key component of the successful job search. The term itself often conjures up negative thoughts and reactions to the uninitiated, sometimes to the point of paralysis. Professional conferences (such as BPS 2015) provide endless networking opportunities. If, however, your perception of networking means tackling someone at the coffee station while thrusting your CV in his/her hands, you may want to stop in on this session. The practice of networking has become so much easier with the advent of the internet. We will discuss what hope to get out of your presence at the meeting, how to set objectives beforehand, and how to meet those objective once you arrive (while minimizing anxiety).

12:15 PM–2:15 PM, ROOM 333  
**Public Affairs Committee Meeting**

12:30 PM–1:30 PM, ROOM 327/328/329  
**International Travel Awardee Luncheon**

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

12:30 PM–2:00 PM, HALL C, ROOM B  
**Exhibitor Presentation  
TA Instruments**

**Technology Advances in Ultrasensitive Isothermal Titration Calorimetry**

TA Instruments introduces the Affinity ITC, with all new technology for advanced isothermal titration calorimetry. Isothermal Titration Calorimetry is the most effective analytical tool for simply and accurately measuring A/B interactions, especially protein-protein binding. Isothermal Titration Calorimetry provides complete thermodynamics and kinetics without labelling, fixing, or otherwise altering the sample of interest. All new technology from TA Instruments improves the sample throughput, usability, and data quality of all isothermal titration calorimetry experiments.

All-new advanced stirring technology and an innovative isolated injection system improves baseline stability, and mixing homogeneity while applying minimal perturbation to the material of interest. For large-scale screening and high throughput testing, an all-new unattended sample handling system automates up to 96 full titrations and continuous unattended operation for multiple days. Based around a 96-well plate format and multiple wash/rinse containers, the Affinity ITC Auto will greatly increase laboratory productivity without sacrificing sensitivity or reproducibility. The Affinity ITC is available in both the standard (1.0 mL) and low volume (190  $\mu$ L) cell sizes, extending the range of applications for which automation is available. This presentation will include data examples and tech tips on experimental design using the Affinity ITC Auto.

**Presenter**

Dile Holton, TA Instruments - Waters LLC, Microcalorimetry Product Manager

1:30 PM–3:00 PM, ROOM 324/325  
**Navigating the Transition  
Grad Student to Postdoc**

This session, organized by the Early Careers Committee, is designed for graduate students curious about the process of moving from graduate school to a postdoctoral position. A panel of current postdocs will share their experiences with choosing a postdoctoral position and making the transition from graduate school into postdoctoral training.

**Speakers**

Marcelo Diaz-Bustamante, Johns Hopkins University  
David Jones, University of Wisconsin-Madison  
Prakash Subramanyam, Columbia University

1:30 PM–3:00 PM, HALL C, ROOM A  
**Breaking into Industry: How to Find and  
Apply for an Internship**

Are you interested in pursuing a career in industry? Stop by to hear from a panel of experts who work in bio-related industries. The panel will discuss how to find, select, and apply for industry internships, providing attendees with useful tools and resources.

1:45 PM–3:00 PM, HALL C  
**Snack Break**

2:00 PM–3:30 PM, ROOM 331/332  
**Teaching Science Like We Do Science:  
Integrating Research and Education  
Workshop**

This workshop will feature speakers who have taught biophysics topics using engaging and effective techniques in the classroom, and authentic, discovery-based undergraduate labs.

**Speakers**

Pete Nelson, Benedictine University  
Leslie Leinwand, University of Colorado, Boulder  
Brian Helmke, University of Virginia

2:30 PM–3:30 PM, ROOM 301/302/303  
**Career Center Workshop  
Having the Right Stuff: Outstanding  
Resumes/CVs for Outstanding Opportunities  
in Academia and Industry**

Resumes/CVs don't get you jobs, they get you interviews. Learn the secrets of making your resume/CV one that stands out from the crowd, ensuring it will actually be read, and articulates your value to the organization and your field. Session will also include advice on how to develop your own 30-second brand statement which you can use in networking, and informational and job interviews.

2:30 PM–4:00 PM, ROOM 321/322/323  
**Science Funding:  
Is it Time for a New Paradigm?**

Public funding has played a key role in supporting the scientific enterprise in the United States and abroad. But with government budgets flat and little political will to change any time soon, scientists are wondering not only how to keep their labs afloat, but also what the future holds for research moving forward. During this informal moderated discussion, BPS members from around the globe will talk about how science is funded in other countries, both from government and private sources.

**Moderator**

Suzanne Scarlata, Stony Brook University

**Participants**

Hongwei Wang, Tsinghua University, China  
Paul Matsudaira, National University of Singapore  
Bonnie Wallace, University of London, United Kingdom  
Andreas Pluckthun, University of Zurich, Switzerland

2:30 PM–4:00 PM, HALL C, ROOM B  
**Exhibitor Presentation  
Bruker Nano Surfaces**

**Super-Resolution Microscopy and Its Applications in Fast and Complex Biological Systems**

Super-resolution microscopy has revolutionized the field of biological imaging by providing new insights into biological processes in fields as diverse as developmental biology, neuroscience, cardiovascular research, genetics, infectious disease, and DNA/chromatin structure. The Vutara 350 super-resolution microscope offers a ten-fold improvement in resolution in comparison to traditional light microscopy techniques and is capable of achieving resolutions of 20 nm laterally and 50 nm axially. The Vutara 350 is based on a patented 3D biplane single molecule localization platform. We will discuss the basic principles of operation and features of the Vutara 350 super-resolution microscope. The capability to do 3D multicolor imaging, high speed live cell imaging, 3D particle tracking, and



z-stacking in various biological systems such as cells, tissue, drosophila, C. elegans, bacteria and virus makes the Vutara 350 very versatile.

**Presenter**

Jeff Stuckey, Product Marketing Manager, Bruker Nano Surfaces

3:30 PM–5:00 PM, ROOM 333

### Early Careers Committee Meeting

3:30 PM–5:00 PM, HALL C, ROOM A

### Exhibitor Presentation Wyatt Technology Corporation

#### The Light Scattering Toolkit for Biophysical Characterization: Lab Essentials for Enhancing Studies of Purification, Crystallization, Formulation, Conjugation, Conformation, and Interactions

Biophysical techniques based on static and dynamic light scattering address many of the key analytical challenges associated with proteins, oligonucleotides, vesicles and other biomacromolecules. This workshop covers the following topics:

1. Batch DLS – traditional cuvette-based dynamic light scattering (DLS) is a fast, easy means of estimating macromolecular and nanoparticle size distributions to assess protein aggregation or the sizes of virus-like particles or drug delivery nanovehicles. In microwell-plate format, DLS is a high-productivity tool useful for optimizing formulation or crystallization conditions with minimal sample consumption or manual labor.
2. SEC-MALS and SEC-DLS – coupling of multi-angle static light scattering (MALS) and DLS detection to size-exclusion chromatography to assess molar mass, size, conformation and conjugation, in solution, independently of column calibration and non-ideal sample-column interactions. In addition to readily assessing aggregation and fragmentation in line with SEC purification, SEC-MALS analyzes protein conjugates such as glycoproteins or membrane proteins bound to surfactant micelles, determining protein oligomeric state and the mass of glycans, polysaccharides or surfactant modifying the protein.
3. FFF-MALS and FFF-DLS – coupling of MALS and DLS to a field-flow fractionation (FFF) device to achieve accurate characterization of macromolecules and nanoparticles from 1-1000 nm, even when soluble and insoluble components are both present in the solution. It does not employ a stationary phase; FFF separates without shear and with minimal surface interactions. FFF produces high-resolution size distributions thanks to true hydrodynamic separation upstream of the light scattering detectors. It also offers the benefits of post-separation downstream analysis by spectroscopy for additional information on samples.
4. CG-MALS – coupling MALS to a composition-gradient device results in a uniquely powerful system for characterizing complex biomolecular interactions, label-free and immobilization-free. Because MALS measures molar masses it is one of the most useful techniques for analyzing multi-domain, multi-protein interactions that go beyond standard 1:1 interactions including systems exhibiting cooperativity and allostery. CG-MALS determines the affinity and absolute molecular stoichiometry of self and/or heteroassociating systems from pM to mM.

**Presenter**

Stephanie Cope, Applications Scientist, Wyatt Technology Corporation

4:00 PM–5:00 PM, ROOM 301/302/303

### Career Center Workshop Beyond the Bench: Preparing for Your Career Transition in the Life Sciences

There are numerous alternative career options for the seasoned bench scientist who may have decided to take his/her talents and apply them in a new direction. This transition can be accomplished without having to matriculate in another graduate program, and this session explores the how's and why's of making such a transition. Be prepared to talk about the role you are thinking about moving into, why you may have chosen this alternative path, and what successes you may have had thus far.

4:00 PM–6:00 PM, BALLROOM I

### Symposium Emergent Properties and Collective Behaviors of Complex Systems

**Chair**

Aaron Dinner, University of Chicago

158-SYMP 4:00 PM

SCALING LAWS GOVERNING GROWTH AND DIVISION OF SINGLE BACTERIAL CELLS. **Aaron Dinner**

159-SYMP 4:30 PM

DRIVING WITH THE BRAKES ON: AN INCOHERENT TRANSCRIPTIONAL CIRCUIT PATTERNS THE DROSOPHILA EMBRYO. **Angela DePace**

160-SYMP 5:00 PM

TEMPORAL FREQUENCY OF DIRECTIONAL SENSING AND COLLECTIVE MIGRATION IN DICTYOSTELIUM. **Satoshi Sawai**

161-SYMP 5:30 PM

THE EMERGENCE OF HEART FAILURE AS A CONSEQUENCE OF MYOCARDIAL METABOLIC DYSFUNCTION. **Daniel A. Beard**

4:00 PM–6:00 PM, BALLROOM II

### Symposium Protein Evolution and Allosteric Networks

**Chair**

Corey Wilson, Yale University

162-SYMP 4:00 PM

UNDERSTANDING ENZYME MOLECULAR EVOLUTION TOWARD THERMAL ADAPTATION USING MULTISTATE COMPUTATIONAL PROTEIN DESIGN. **Corey J. Wilson**

163-SYMP 4:30 PM

ALLOSTERIC NETWORKS IN THROMBIN. **Elizabeth Komives**

164-SYMP 5:00 PM

THE EVOLUTION OF ENZYME MECHANISMS AND FUNCTIONAL DIVERSITY. **Janet Thornton**

NO ABSTRACT 5:30 PM

EXPERIMENTAL RECONSTRUCTION OF THE MECHANISMS OF ANCIENT PROTEIN EVOLUTION. **Joe Thornton**

4:00 PM–6:00 PM, BALLROOM III

### Symposium Cardiomyopathies and Contractile Proteins

**Chair**

Leslie Leinwand, University of Colorado

165-Symp 4:00 PM

MYOSIN MYOPATHIES. **Leslie Leinwand**

166-Symp 4:30 PM

POSTTRANSLATIONAL MODIFICATION OF TITIN DOMAINS AS A MAIN REGULATOR OF MYOCARDIAL STIFFNESS. **Wolfgang A. Linke**

167-Symp 5:00 PM

MYBPC3 GENE THERAPY FOR NEONATAL SARCOMERIC CARDIOMYOPATHIES. **Lucie Carrier**



**168-Symp 5:30 PM**

AN INTEGRATIVE APPROACH TO THIN FILAMENT CARDIOMYOPATHIES: FROM MOLECULAR AND COMPUTATIONAL BIOPHYSICS TO MICE. **Jil Tardiff**

4:00 PM–6:00 PM, BALLROOM IV

**Platform****Optical Microscopy and Super-Resolution Imaging I****Co-Chairs**

*Keith Lidke, University of New Mexico*  
*Christopher Kelly, Wayne State University*

**169-Plat 4:00 PM**

REFLECTED BEAM LIGHT-SHEET MICROSCOPY FOR WHOLE-CELL 3D SUPER-RESOLUTION IMAGING. **Marjolein BM Meddens**, Sheng Liu, Conrad D. James, Keith A. Lidke

**170-PLAT 4:15 PM**

PROBING THE TRANSCRIPTION CYCLE IN REAL-TIME WITH 3D SUPERRESOLUTION INTERFEROMETRY. **Guanshi Wang**, Jesse Hauver, Zachary Thomas, Seth A. Darst, Alexandros Pertsinidis

**171-PLAT 4:30 PM MINORITY AFFAIRS TRAVEL AWARDEE**

RESOLVING NANOSCALE CURVATURE ON LIPID BILAYERS WITH POLARIZED LOCALIZATION MICROSCOPY. **Abir Maarouf**, Rebecca Lynn Meerschaert, Christopher V. Kelly

**172-PLAT 4:45 PM**

SPATIAL AND FUNCTIONAL ORGANIZATION OF BACTERIAL SUBCELLULAR STRUCTURES IN SUPERRESOLUTION. **Jie Xiao**, Carla Coltharp, Xiaoli Weng, Jackson Buss, Xinxing Yang, Arvin Lagda

**173-PLAT 5:00 PM**

DISEASE PHENOTYPING WITH SUB-RESOLUTION PRECISION BY SINGLE MOLECULE TRACKING IN LIVE ANIMALS. Hong Zhan, Ramunas Stanciauskas, Christian Stigloher, Kevin Dizon, Maelle Jospin, Jean-Louis Bessereau, **Fabien Pinaud**

**174-PLAT 5:15 PM**

SUPER RESOLUTION FLUORESCENCE MICROSCOPY BY CATHODOLUMINESCENCE-ACTIVATED EXCITATION. **Connor G. Bischak**, Craig L. Hetherington, Jake T. Precht, Claire E. Stachelrodt, Zhe Wang, Darrell G. Schlom, Naomi S. Ginsberg

**175-PLAT 5:30 PM**

3D SUPERRESOLUTION MICROSCOPY BY SUPERCRITICAL ANGLE DETECTION. **Joran Deschamps**, Markus Mund, Jonas Ries

**176-PLAT 5:45 PM**

SUPER RESOLUTION IMAGING AND TRACKING OF PROTEIN-PROTEIN INTERACTIONS IN SUB DIFFRACTION CELLULAR SPACE. **Zhen Liu**, Dong Xing, Qian Peter Su, Yun Zhu, Jiamei Zhang, Xinyu Kong, Boxin Xue, Sheng Wang, Hao Sun, Yile Tao, Yujie Sun

4:00 PM–6:00 PM, ROOM 307/308

**Platform****TRP Channels****Co-Chairs**

*Elenora Zakharian, University of Illinois College of Medicine*  
*Jie Zheng, University of California, Davis*

**177-Plat 4:00 PM**

SURFACE CHARACTERIZATION AND MEMBRANE INTERACTION OF DOUBLE-KNOT TOXIN, AN ACTIVATOR OF TRPV1 CHANNELS. **Chanhyung Bae**, Andres Jara-Oseguera, Dmitriy V. Krepkov, Jaeha Ryu, Jae Il Kim, Kenton J. Swartz

**178-PLAT 4:15 PM**

HIGH TEMPERATURE SENSITIVITY IS INTRINSIC TO VOLTAGE-GATED POTASSIUM CHANNELS. **Fan Yang**, Jie Zheng

**179-PLAT 4:30 PM**

PERMEATION AND DYNAMICS OF AN OPEN-ACTIVATED TRPV1 CHANNEL. **Carmen Domene**, Leonardo Darre, Simone Furini

**180-PLAT 4:45 PM**

THE L596-W733 BOND BETWEEN S4-S5 LINKER AND TRP DOMAIN MAINTAINS BASAL ACTIVITY AND ENABLES INACTIVATION OF TRPV4. **Jinfeng Teng**, Stephen Loukin, Andriy Anishkin, Ching Kung

**181-PLAT 5:00 PM**

COMPARATIVE SEQUENCE ANALYSIS SUGGESTS A UNIFIED GATING MECHANISM FOR TRP CHANNELS. **Vincenzo Carnevale**, Eugene Palovcak, Lucie Delemotte, Michael Klein

**182-PLAT 5:15 PM**

EFFECTS OF INACTIVATION OF TRPM7 KINASE ACTIVITY ON ITS CHANNEL ACTIVITY IN MICE. Taku Kaitsuka, Chiaki Katagiri, Pavani Beesetty, Kenji Nakamura, Siham Hourani, Kazuhito Tomizawa, **J. Ashot Kozak**, Masayuki Matsushita

**183-PLAT 5:30 PM**

TEMPERATURE AND VOLTAGE COUPLING TO TRPM8 CHANNEL OPENING. Natalia Raddatz, **Juan P. Castillo**, Carlos Gonzalez, Osvaldo Alvarez, Ramon Latorre

**184-PLAT 5:45 PM**

TRPM8 IS AN IONOTROPIC TESTOSTERONE RECEPTOR. Swapna Asuthkar, Lusine Demirkhanyan, Xiaohui Sun, Pia Elustondo, Vivek Krishnan, Padmamalini Baskaran, Kiran Kumar Velpula, Baskaran Thyagarajan, Evgeny Pavlov, **Eleonora Zakharian**

4:00 PM–6:00 PM, ROOM 309/310

**Platform****Protein Lipid Interactions I****Co-Chairs**

*Blake Mertz, West Virginia University*  
*Svetla Stoilova-McPhie, University of Texas Medical Branch at Galveston*

**185-PLAT 4:00 PM**

EXPERIMENTAL AND COMPUTATIONAL STUDIES OF PULMONARY SURFACTANT PROTEIN SP-B INTERACTING WITH LIPID BILAYERS. **Mohammad Hassan Khatami**, Ivan Saika-Voivod, Valerie Booth

**186-PLAT 4:15 PM**

CREATION OF WATER-SOLUBLE INTEGRAL MEMBRANE PROTEINS USING AN ENGINEERED AMPHIPATHIC PROTEIN "SHIELD". **Dario Mizrachi**

**187-PLAT 4:30 PM**

VALIDATING THE RETINAL FLIP OF RHODOPSIN USING MOLECULAR DYNAMICS. Jun Feng, **Blake Mertz**

**188-PLAT 4:45 PM**

HIV GP41-ANTIBODY INTERACTION AT THE VIRAL MEMBRANE INTERFACE DEFINED BY EPR SPECTROSCOPY. **Likai Song**, Zhen-Yu J. Sun, Mikyung Kim, Pavanjeet Kaur, Gerhard Wagner, Ellis L. Reinherz

**189-PLAT 5:00 PM**  
SMALL ANGLE NEUTRON AND X-RAY SCATTERING REVEAL CONFORMATIONAL DIFFERENCES IN DETERGENTS AFFECTING RHODOPSIN ACTIVATION. **Utsab Shrestha**, Debsindhu Bhowmik, Suchithranga Perera, Udeep Chawla, Andrey V. Struts, Vito Graziano, Shuo Qian, William T. Heller, Michael F. Brown, Xiang-Qiang Chu

**190-PLAT 5:15 PM EDUCATION TRAVEL AWARDEE**  
DETERMINING THE FREE ENERGY OF MEMBRANE PROTEIN DIMERIZATION IN LIPID BILAYERS. **Venkatramanan Krishnamani**, Kacey Mersch, Rahul Chadda, Ankita Chadda, Janice Robertson

**191-PLAT 5:30 PM**  
A FRET ANALYSIS OF THE FTSB-FTSL TRANSMEMBRANE DOMAIN INTERACTIONS OF THE E.COLI DIVISOME SUGGESTS A HIGHER ORDER OLIGOMERIC COMPLEX WITH A 1:1 STOICHIOMETRY. **Ambalika S. Khadria**, Alessandro Senes

**192-PLAT 5:45 PM**  
MEMBRANE-INDUCED DIMERIZATION OF COAGULATION FACTOR VIII. Daniela Dalm, Kirill Grushin, Jaimy Miller, Montgomery Pettitt, **Svetla Stoilova-McPhie**

**4:00 PM–6:00 PM, ROOM 314/315**

### **Platform Protein Assemblies**

#### **Co-Chairs**

*Jungsan Sohn, Johns Hopkins Medical Institute*  
*Eric May, University of Connecticut*

**193-PLAT 4:00 PM**  
THE COOPERATIVE ASSEMBLY OF IFI16 FILAMENTS ON DSDNA PROVIDES INSIGHTS INTO HOST DEFENSE STRATEGY. **Jungsan Sohn**, Seamus Morrone, Tao Wang, Richard Hooy

**194-PLAT 4:15 PM**  
A HELICAL TRANSPORT MECHANISM FOR TYPE III SECRETION. Rashmi Gupta, **Gregory Bubnis**, Christian Goosmann, Adam Lange, Helmut Grubmueller, Michael Kolbe

**195-PLAT 4:30 PM**  
UNRAVELING THE LINK BETWEEN NONLINEAR MECHANICS, MICROSTRUCTURE, AND MOLECULAR PACKING OF FIBRIN. **Nicholas A. Kurniawan**, Jos Grimbergen, Izabela K. Piechocka, Karin A. Jansen, Fred C. MacKintosh, Jaap Koopman, Gijse H. Koenderink

**196-PLAT 4:45 PM**  
DIMERIZATION OF THE PTEN TUMOR SUPPRESSOR AND ITS STRUCTURAL CHARACTERIZATION BY SAXS. **Frank Heinrich**, Hirsh Nanda, Srinivas Chakravarthy, Rakesh K. Harishchandra, Arne Gericke, Alonzo H. Ross, Mathias Lösche

**197-PLAT 5:00 PM**  
MOLECULAR SIMULATIONS OF THE CAPSID RELEASE AND MEMBRANE BINDING PROCESSES OF FLOCK HOUSE LYTIC PEPTIDES. **Allyn R. Brice**, Shivangi Nangia, Eric R. May

**198-PLAT 5:15 PM**  
RECONSTITUTION OF MULTIVALENT PDZ DOMAIN BINDING TO THE SCAFFOLD PROTEIN PSD-95 REVEALS TERNARY-COMPLEX SPECIFICITY OF COMBINATORIAL INHIBITION. James J. McCann, Ucheor Choi, **Mark Bowen**

**199-PLAT 5:30 PM**  
QUANTIFYING PROTEIN-PROTEIN BINDING ENERGY AND ENTROPY USING MOLECULAR DYNAMICS SIMULATIONS. **Sunhwan Jo**, Wei Jiang, Benoit Roux

**200-PLAT 5:45 PM**  
GENERATION OF ELECTROCHEMICAL GRADIENT FROM PEPTIDE SELF-ASSEMBLY. **Sha Li**, Anil K. Mehta, Anton Sidorov, Thomas M. Orlando, David G. Lynn

**4:00 PM–6:00 PM, ROOM 316/317**

### **Platform Member Organized Session: Protein Nanoassemblies and Networks in Bacterial Chemotaxis and other Two-component Signaling Systems**

#### **Co-Chairs**

*Lynmarie Thompson, University of Massachusetts*  
*Sriram Subramaniam, NIH*

**201-PLAT 4:00 PM**  
INSIGHTS FROM PHOSPHORYLATION PROFILING OF AN AUTOREGULATED TWO-COMPONENT SYSTEM. Rong Gao, **Ann Stock**

**202-PLAT 4:15 PM**  
HYDROGEN EXCHANGE REVEALS DIFFERENCES BETWEEN BACTERIAL CHEMORECEPTOR SIGNALING STATES. Seena S. Koshy, Xuni Li, Stephen J. Eyles, Robert M. Weis, **Lynmarie K. Thompson**

**203-PLAT 4:30 PM**  
DISULFIDE TRAPPING AND SPECTROSCOPIC STUDIES OF BACTERIAL CHEMOSENSORY CORE SIGNALING COMPLEXES: PROBING MOLECULAR MECHANISMS OF COMPLEX ASSEMBLY AND RECEPTOR-REGULATED ON-OFF SWITCHING. **Joseph J. Falke**, Kene N. Piasta, Marie Balboa, Jane Duplantis, Hayden Swisher, Michael Turvey

**204-PLAT 4:45 PM**  
FLAGELLAR MOTOR ARCHITECTURE. **Frederick W. Dahlquist**

**205-PLAT 5:00 PM**  
STRUCTURE AND DYNAMICS OF THE RECEPTOR:KINASE COMPLEX THAT MEDIATES BACTERIAL CHEMOTAXIS. **Brian R. Crane**

**206-PLAT 5:15 PM**  
HAMP: THE CPU DOMAIN OF BACTERIAL CHEMORECEPTORS. **John Parkinson**

**207-PLAT 5:30 PM**  
SIGNAL INTEGRATION BY BACTERIAL CHEMOSENSORY COMPLEXES. **Victor Sourjik**

**208-PLAT 5:45 PM**  
ARCHITECTURE AND ASSEMBLY OF CHEMORECEPTOR ARRAYS AS SEEN BY ELECTRON CRYOTOMOGRAPHY. **Ariane Briegel**

**4:30 PM–6:00 PM, HALL C, ROOM B**

### **Exhibitor Presentation OriginLab Corporation**

#### **Data Analysis and Graphing Using Origin 2015**

Origin is an easy-to-use software application with data analysis and publication-quality graphing for science and engineering. This workshop will cover key features including importing data from multiple sources including Excel and third-party file formats, LabVIEW connectivity, creating and customizing multi-panel graphs, graphical exploration and analysis, curve fitting, peak analysis, signal processing, and statistics. Time

saving features such as templates for graphing and analysis, batch plotting and batch analysis will be presented. Application examples using Origin's programming environment will also be presented.

The workshop will also cover key new features and improvements in the latest version:

Ease-of-use features including graph preview and comment tool tip in Project Explorer, search for string in project, search for functions in dialogs, redesigned axis dialog, enhanced legend, and custom categorical order. New graph types including Heat Map, Kernel Density Plot, Column Scatter Plot. Improvements to profile plot, box plot, contour plot, bubble scale, and color scale. New analysis tools for Distribution Fit, ANOVA of unbalanced data, t-Test on rows. Tool to append worksheets, remove or combine duplicate values, and improved pivot table. Integration of Python as scripting language in Origin.

**Presenter**

Easwar R. Iyer, VP of Technology, OriginLab Corporation

**5:00 PM–6:30 PM, ROOM 324/325**

**Korean Biophysicists Meeting**

**5:30 PM–7:00 PM, HILTON BALTIMORE, JOHNSON**

**Mid-Career Mixer**

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

**6:00 PM–7:00 PM, ROOM 327/328/329**

**Biophysics Austria Mixer**

**6:00 PM–9:00 PM, HALL C**

**Student Research Achievement Award (SRAA) Poster Competition**

See page 53 for list of participants.

*Sponsored by Biochemistry.*

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

**7:30 PM–9:30 PM, BALLROOM I**

**Workshop**

**Stabilizing Membrane Proteins**

**Chair**

*Linda Columbus, University of Virginia*

**209-WKSHP 7:30 PM**

EVOLVING STABLE GPCRS FOR DRUG SCREENING AND STRUCTURAL ANALYSIS. **Andreas Plueckthun**

**210-WKSHP 8:00 PM**

ENGINEERING GPCRS FOR IMPROVED THERMOSTABILITY TO FACILITATE STRUCTURE DETERMINATION.

**Christopher G. Tate**

**211-WKSHP 8:30 PM**

INVESTIGATING MEMBRANE PROTEIN FOLDING.

**James U. Bowie**

**212-WKSHP 9:00 PM**

TUNING MICELLE DIMENSIONS AND PROPERTIES FOR STABILIZING MEMBRANE PROTEIN FOLD AND FUNCTION.

**Linda Columbus**

**7:30 PM–9:30 PM, BALLROOM II**

**Workshop**

**NMR of Complex Systems**

**Chair**

*Isabelle Marcotte, University of Quebec at Montreal, Canada*

**213-WKSHP 7:30 PM**

STRUCTURE-BASED MECHANISM FOR RETROVIRAL PRIMER ANNEALING. **Victoria D'Souza**

**214-WKSHP 8:00 PM**

ALLOSTERIC REGULATION OF THE SARCOPLASMIC RETICULUM  $Ca^{2+}$ -ATPASE BY PHOSPHOLAMBAN AND SARCOLIPIN USING SOLID-STATE NMR SPECTROSCOPY.

**Gianluigi Veglia**

**215-WKSHP 8:30 PM**

ON THE BACTERIAL CELL WALL BY LIQUID STATE, STANDARD AND DNP SOLID STATE NMR.

**Jean-Pierre Simorre**

**216-WKSHP 9:00 PM**

SOLID-STATE NMR STUDY OF INTACT MICROALGAE.

**Isabelle Marcotte**

**7:30 PM–9:30 PM, BALLROOM III**

**Workshop**

**Artificial Cells: Understanding and Engineering**

**Chair**

*Margaret Johnson, Johns Hopkins University*

**217-WKSHP 7:30 PM**

THE ENGINEERING OF ARTIFICIAL CELLULAR SYSTEMS USING SYNTHETIC BIOLOGY APPROACHES. **Cheemeng Tan**

**218-WKSHP 8:00 PM**

ENGINEERING SYNTHETIC RIBOSOMES IN VITRO.

**Michael Jewett**

**219-WKSHP 8:30 PM**

MEASURING GENE EXPRESSION IN FLY EMBRYOS: FROM SINGLE MOLECULES TO NETWORK DYNAMICS.

**Thomas Gregor**

**220-WKSHP 9:00 PM**

EVOLUTION EXPERIMENT WITH TRANSLATION-COUPLED RNA REPLICATION SYSTEM. **Tetsuya Yomo**

# SUNDAY POSTER SESSIONS

*Below is the list of poster presentations of abstracts submitted by October 1. The list of late abstracts scheduled for Sunday is available in the Program addendum. All abstracts are available through the desktop planner and mobile app.*

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

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM**

**EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

<b>Board Numbers</b>	<b>Category</b>
B1–B27	Protein Structure and Conformation I
B28–B45	Protein Folding and Chaperones
B46–B66	Protein-Small Molecule Interactions I
B67–B88	Protein Dynamics and Allostery I
B89–B115	Intrinsically Disordered Proteins (IDP) and Aggregates I
B116–B136	DNA Replication, Recombination, and Repair
B137–B168	Protein-Nucleic Acid Interactions I
B169–B187	Membrane Dynamics I
B188–B205	Membrane Active Peptides and Toxins I
B206–B231	Membrane Structure I
B232–B258	Protein-Lipid Interactions I
B259–B280	Membrane Receptors and Signal Transduction I
B281–B302	Exocytosis and Endocytosis
B303–B331	Calcium Signaling I
B332–B347	Cardiac, Smooth, and Skeletal Muscle Electrophysiology I
B348–B362	Biopolymers in Vivo
B363–B392	Voltage-gated K Channels I
B393–B408	TRP Channels I
B409–B427	Ion Channel Regulatory Mechanisms I
B428–B443	Cardiac Muscle Regulation I
B444–B471	Kinesins, Dyneins, and Other Microtubule-based Motors
B472–B494	Cell Mechanics, Mechanosensing, and Motility I
B495–B515	Membrane Pumps, Transporters, and Exchangers I
B516–B528	Emerging Techniques and Approaches
B529–B559	Molecular, Cellular, and Systems Neuroscience
B560–B589	Molecular Dynamics I
B590–B613	Single-Molecule Spectroscopy
B614–B639	Force Spectroscopy and Scanning Probe Microscopy
B640–B668	Micro- and Nanotechnology I

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



## Protein Structure and Conformation I (Boards B1-B27)

- 221-Pos BOARD B1**  
CHASING UNFOLDING INTERMEDIATES OF IG LIGHT CHAINS WITH RESIDUAL STRUCTURES THAT COULD FIT IN AN AMYLOID CORE. **Gilberto Valdes-Garcia**, Cesar Millan-Pacheco, Nina Pastor
- 222-Pos BOARD B2 INTERNATIONAL TRAVEL AWARDEE**  
BACKBONE DYNAMICS MODULATES THE AMYLOIDOGENIC PROPENSITY OF TRANSTHYRETIN THROUGH NON-NATIVE INTERMEDIATES. **Aritra Bej**, Jitendra K. Das, Shyam S. Mall, Sujoy Mukherjee
- 223-Pos BOARD B3**  
SELF-REPLICATION OF TRANSTHYRETIN AMYLOID AGGREGATES FROM NATIVE TETRAMERS IN VITRO. **Mentor Mulaj**, Tatiana Miti, Martin Muschol
- 224-Pos BOARD B4**  
SAS PROFILE CORRELATIONS REVEAL THE HIERARCHICAL NATURE OF SAS DATA AND SUGGEST NEW SCORING STRATEGIES. **Michael Nilges**, Yannick G. Spill
- 225-Pos BOARD B5**  
COMPUTATIONAL MODELING OF BETA-FIBRILS. **Hamed Tabatabaei Ghomi**, Elizabeth M. Topp, Markus M. Lill
- 226-Pos BOARD B6**  
THE RESVERATROL DERIVATIVE PICEATANNOL ALTERS THE CONFORMATION OF ALZHEIMER'S DISEASE ASSOCIATED A $\beta$  PROTEIN AGGREGATES. **Yiyang Wang**, Melissa A. Moss
- 227-Pos BOARD B7**  
EFFECT OF HYDROPHOBIC RESIDUES ON INTERFACIAL FIBRILLIZATION KINETICS. **Samantha McBride**, Chris Tilger, Amir Hirsra
- 228-Pos BOARD B8**  
AGGREGATION PROPENSITY OF PRION IS KINETICALLY CONTROLLED BY INTRAMOLECULAR DIFFUSION OF PROTEIN CHAIN. **Kinshuk R. Srivastava**, Lisa J. Lapidus
- 229-Pos BOARD B9**  
PROBING TEMPERATURE DEPENDENT CONFORMATION CHANGE OF CALMODULIN PROTEIN USING MOLECULAR DYNAMICS SIMULATIONS. **Sunita Negi**
- 230-Pos BOARD B10**  
UNDERSTANDING FORCE-FIELD BIAS IN PIN1WW. **Alexandra Iuga**
- 231-Pos BOARD B11**  
"PUSH AND PULL" HYPOTHESIS TO UNIFY THE PHYSICAL AND CHEMICAL UNFOLDING OF PROTEINS. **Guilherme A. de Oliveira**, Jerson L. Silva
- 232-Pos BOARD B12**  
PROBE THE HEME IRON LIGAND AND CONFORMATIONAL CHANGE OF MISFOLDED STATES OF CYTOCHROME C THROUGH EPR SPECTROSCOPY. **Qing Huang**, Zhigang Ke, Guohua Yao, Shanshan Ma, Jonathan Soffer
- 233-Pos BOARD B13**  
CONSTANT PH SIMULATIONS WITH THE DOUBLE RESERVOIR PH REPLICAS EXCHANGE. **Ana Damjanovic**, Benjamin T. Miller, Asim Okur, Bertrand Garcia-Moreno, Bernard R. Brooks

- 234-Pos BOARD B14**  
DETERMINANTS OF DOMAIN SWAPPING IN STAPHYLOCOCCAL NUCLEASE. **Meredith Peck**, Ilaria Caturegli, Jamie L. Schlessman, Aaron Robinson, Bertrand Garcia-Moreno E.
- 235-Pos BOARD B15**  
MOLECULAR BASIS OF TETRAMERIZATION AND PH-GATING IN THE KCSA POTASSIUM CHANNEL CYTOPLASMIC DOMAIN. Guy Kamnesky, Orel Hirschhorn, Hadassa Shaked, Jingfei Chen, Lishan Yao, **Jordan H. Chill**
- 236-Pos BOARD B16**  
CHARACTERIZING A NEW METAL BINDING SITE IN S100B. **Zephan Melville**, Kristen Varney, Michael Cavalier, Sean Stowe, Dylan Weber, Eric Toth, David Weber
- 237-Pos BOARD B17**  
NMR CHARACTERIZATION OF AN UNUSUAL 37 KDA EPIMERIZATION DOMAIN OF YERSINABACTIN SYNTHETASE. **Scott R. Nichols**, Dominique P. Frueh
- 238-Pos BOARD B18**  
FIBRINOGEN HYDRODYNAMIC PROPERTIES FROM NMR-DIFFUSION STUDIES. **Rustem I. Litvinov**, Bulat Z. Idiyatullin, Dilyafuz R. Bakirova, Dzhigangir A. Faizullin, Rauf H. Kurbanov, John W. Weisel, Yuriy F. Zuev
- 239-Pos BOARD B19**  
SITE-RESOLVED MEASUREMENTS OF PROTEIN HYDRATION DYNAMICS. **Bryan S. Marques**, Christine Jorge, Nathaniel V. Nucci, Bertrand E. Garcia-Moreno, A. Joshua Wand
- 240-Pos BOARD B20**  
INTERNAL CAVITIES AND THEIR ROLE AS DETERMINANTS OF PRESSURE UNFOLDING OF PROTEINS. **Jose A. Caro**, Mariano Dellarole, Martin Fossat, Jamie L. Schlessman, Christian Roumestand, Catherine A. Royer, Bertrand Garcia-Moreno E
- 241-Pos BOARD B21**  
CRYSTAL STRUCTURES OF STREPTOCOCCUS PYOGENES CAS2 PROTEIN AT VARIOUS PH CONDITIONS. **Ugeene Jeong**
- 242-Pos BOARD B22**  
CRYSTAL STRUCTURES OF STREPTOCOCCUS PYOGENES AND XANTHOMONAS ORYZAE CAS5D PROTEINS. **Donghyun Ka**, Euiyoung Bae
- 243-Pos BOARD B23**  
UNDERSTANDING STRUCTURAL AND DYNAMIC EFFECTS INDUCED BY KEY COMPONENTS OF THE HCV POLYMERASE REPLICATION COMPLEX. **Ester Sesmero**, Ian F. Thorpe
- 244-Pos BOARD B24**  
MODELING MACROMOLECULAR BODIES USING 3D MEDIAL AXIS TRANSFORMS AND NORMAL MODE ANALYSIS. Lance Edens, Adam Goler, Suhyun Yoon, James A. Brozik, **David J. Keller**
- 245-Pos BOARD B25**  
SIMULATING PROTEIN AND NUCLEIC ACID DYNAMICS ON THE MICROSECOND TO MILLISECOND TIMESCALE. **Hai Nguyen**, James Maier, He Huang, Victoria Perrone, Alberto Perez, Carlos Simmerling
- 246-Pos BOARD B26 EDUCATION TRAVEL AWARDEE**  
ENVIRONMENTAL AND MUTATION EFFECTS ON THE FOLDING AND DNA-BINDING OF THE PRIMARY DNA RECOGNITION SUBDOMAIN OF SLEEPING BEAUTY TRANSPOSASE. **Gage Leighton**, Tatiana Konnova, Irina Nesmelova

**247-Pos BOARD B27**

CPSF30, A NOVEL NON-CLASSICAL ZINC FINGER PROTEIN THAT UTILIZES IRON & ZINC COORDINATION FOR RNA RECOGNITION. **Geoffrey Shimberg**, Jamie Michalek, Andria Rodrigues, Timothy Stemmler, Sarah Michel

## Protein Folding and Chaperones (Boards B28-B45)

**248-Pos BOARD B28**

TRANSITION PATH TIMES IN PROTEIN FOLDING STUDIED BY STRUCTURE-BASED SIMULATION. **Mashiho Ito**, Shoji Takada

**249-Pos BOARD B29**

FOLDING RATES FROM THERMODYNAMICS SIMULATIONS: APOAZURIN AS AN EXAMPLE. **Dirar M. Homouz**, Margaret S. Cheung

**250-Pos BOARD B30**

BARRIERLESS TRANSITION IDENTIFIED DURING FOLDING OF BARSTAR BY USING TIME-RESOLVED FRET FROM 5-FLUOROTRYPTOPHAN. **Guruswamy Krishnamoorthy**, Anju Yadav, Jayant Udgaonkar

**251-Pos BOARD B31**

DEVELOPMENT OF THE LINE CONFOCAL SYSTEM FOR THE SINGLE MOLECULE TRACKING OF FAST FOLDING DYNAMICS OF PROTEINS. **Hiroyuki Oikawa**, Kiyoto Kamagata, Munehito Arai, Atsuhito Fukasawa, Hiroaki Yokota, Toru Ide, Satoshi Takahashi

**252-Pos BOARD B32**

COILED COIL PROBES CAPTURE THE MECHANICAL UNFOLDING PATHWAY OF A LARGE PROTEIN. **Qing Li**, Zackary N. Scholl, Piotr E. Marszalek

**253-Pos BOARD B33**

FAST CLOSURE OF LONG LOOPS AT THE INITIATION OF FOLDING OF GLOBULAR PROTEINS STUDIED BY FRET BASED METHODS. **Elisha Haas**

**254-Pos BOARD B34**

BASIC RESIDUE AT POSITION 14 IS NOT REQUIRED FOR FAST ASSEMBLY AND DISASSEMBLY KINETICS IN NEURAL CADHERIN. **Nagamani Vunnam**, Nathan I. Hammer, Susan Pedigo

**255-Pos BOARD B35**

EFFECTS OF CROWDING AGENTS AND VOLUME EXCLUSION ON AMYLOID BETA FIBRILLATION. **Joe Hakim**, Santiago Schnell

**256-Pos BOARD B36**

ENTHALPY MEDIATED PROTEIN STABILIZATION BY MACROMOLECULAR CROWDING. **Michael Senske**, Lisa Törk, Benjamin Born, Martina Havenith, Christian Herrmann, Simon Ebbinghaus

**257-Pos BOARD B37**

CROWDING AND THE ORIGIN OF ENTHALPIC DEPLETION FORCES IN PROTEIN INTERACTIONS. **Daniel Harries**, Liel Sapir

**258-Pos BOARD B38**

PROTEIN-PROTEIN INTERACTIONS AFFECT NATIVE STATE STABILITY IN CROWDED ENVIRONMENTS. **Alan E. van Giessen**, Bryanne Macdonald, Shannon McCarley, Sundus Noeen, Rabeb Layouni

**259-Pos BOARD B39**

THERMALLY INDUCED STRUCTURAL CHANGES IN AN ARMADILLO REPEAT PROTEIN SUGGEST A NOVEL THERMOSENSOR MECHANISM IN A MOLECULAR CHAPERONE. Paul Nicholls, Paul Bujalowski, Jose Barral, **Andres Oberhauser**

**260-Pos BOARD B40**

CCT5: A MODEL PROTEIN FOLDING MACHINE. **Kelly M. Knee**, Dipali Patel, Oksana Sergeeva, John J. Kelly, Jay M. Janz, Jonathan A. King, Wyatt Yue, Christine Bulawa

**261-Pos BOARD B41**

HOW DO GROUP II CHAPERONINS DISTINGUISH THEIR PARTIALLY FOLDED SUBSTRATES FROM THE NATIVE STATES? **Jonathan A. King**, Oksana Sergeeva, Kelly M. Knee

**262-Pos BOARD B42**

REAL TIME NMR FOLDING STUDY OF THE HUMAN GAMMA D CRYSTALLIN IN THE PRESENCE OF METAL IONS. **Lina Rivillas-Acevedo**, Liliana Quintanar, Jonathan King, Carlos Amero

**263-Pos BOARD B43**

MODULATION OF THE  $\alpha$ -CRYSTALLIN CHAPERON ACTIVITY INDUCED BY CHANGES IN THE EXPOSED SURFACE. **Marco De Spirito**, Michela Chiarpotto, Gabriele Ciasca, Giuseppe Maulucci, Valentina Palmieri, Massimiliano Papi

**264-Pos BOARD B44**

CHAPERONES RESCUE LUCIFERASE FOLDING BY SEPARATING ITS DOMAINS. **Zackary N. Scholl**, Weitao Yang, Piotr Marszalek

**265-Pos BOARD B45 EDUCATION TRAVEL AWARDEE**

INTER-DOMAIN DYNAMICS OF A NOVEL CHAPERONE ENABLES EFFECTIVE CAPTURE OF MEMBRANE PROTEIN SUBSTRATES. **Fu-Cheng Liang**, Camille McAvoy, Samantha Piskiewicz, Gerard J. Kroon, Maria Yamout, Peter Wright, Shu-ou Shan

## Protein-Small Molecule Interactions I (Boards B46-B66)

**266-Pos BOARD B46**

DETERMINATION OF BIOMOLECULAR INTERACTIONS USING MICROSCALE THERMOPHORESIS. **Nicole Bouley Ford**

**267-Pos BOARD B47**

RATIONAL DESIGN OF SURFACE MODIFIED NANOPARTICLES FOR MODULATION OF AMYLOID BETA AGGREGATION. **Nicholas P. van der Munnik**

**268-Pos BOARD B48**

PROBING THE DEPENDENCE OF PH ON SUGAR BINDING AND PROTEIN STRUCTURE IN A POLYSACCHARIDE LYASE. Sook Wong, **Jeffery B. Klauda**

**269-Pos BOARD B49**

PROBING THE ROLE OF CONFORMATIONAL ENTROPY IN PROTEIN-INHIBITOR BINDING. **Kyle Harpole**, Senthil Kumar Ganesan, Wolfgang Peti, A. Joshua Wand

**270-Pos BOARD B50**

LIGAND DISCOVERY FOR THE ALANINE-SERINE-CYSTEINE TRANSPORTER (ASCT2, SLC1A5) FROM HOMOLOGY MODELING AND VIRTUAL SCREENING. **Claire Colas**, Christoph Grewer, Armanda Gameiro, Thomas Albers, Kurnvir Singh, Nicholas J. Otte, Helen Shere, Bonomi Massimiliano, Jeff Holst, Avner Schlessinger

**271-Pos BOARD B51**  
THERMODYNAMIC PROPERTIES OF ELP-LABELLED DOXORUBICIN, A DRUG DELIVERY SYSTEM. **Valeria Zai-Rose**

**272-Pos BOARD B52**  
UNDERSTANDING THE FUNCTION OF A PRO-ANGIOGENIC POLYPEPTIDE HFGF-1 WITH A CANCER INHIBITOR IMATINIB. **Tulsi Modi**, Oluwadamilola Filani, Jason Payne, Raja Murthy

**273-Pos BOARD B53**  
A SHARED BINDING SITE FOR PROPOFOL AND THIOFENTAL IN ELIC. **Monica N. Kinde**, Weiming Bu, Edom Seyoum, Qiang Chen, Marta M. Wells, David D. Mowrey, Roderic G. Eckenhoff, Yan Xu, Pei Tang

**274-Pos BOARD B54**  
CRYSTAL VIEW OF ANESTHETICS AND ALCOHOLS BOUND IN THE PORE OF ELIC. **Qiang Chen**, Monica N. Kinde, Aina E. Cohen, Pei Tang, Yan Xu

**275-Pos BOARD B55**  
ANALYSIS OF ANTIFOLATE DRUGS WITH DISEASE TISSUE SPECIFICITY. **Siobhan M. Deis**, Charles E. Dann III

**276-Pos BOARD B56**  
PKA-DEPENDENT POTENTIATION MECHANISMS OF HUMAN CFTR ACTIVITY. **Guangyu Wang**

**277-Pos BOARD B57**  
KINASE STRUCTURAL DYNAMICS ENABLES TIGHT AND SELECTIVE BINDING OF INHIBITORS. **Roman V. Agafonov**, Chris Wilson, Vanessa Buosi, Renee Otten, Dorothee Kern

**278-Pos BOARD B58** EDUCATION TRAVEL AWARDEE  
CPOW MID-CAREER TRAVEL AWARDEE  
GLUTATHIONE REDUCTASE OF *PLASMODIUM FALCIPARUM* AS AN ANTIMALARIAL DRUG TARGET OF METHYLENE BLUE. **Socheata Lim**, Judith H. Prieto

**279-Pos BOARD B59**  
EFFECTS OF MOLECULAR CROWDING ON THE BINDING AFFINITY OF DIHYDROFOLATE FOR DIHYDROFOLATE REDUCTASE. **Michael R. Duff**, Elizabeth E. Howell

**280-Pos BOARD B60**  
QUANTIFYING THE INFLUENCE OF THE CROWDED CYTOPLASM ON SMALL BIOMOLECULE DIFFUSION VIA HOMOGENIZATION THEORY. **Peter M. Kekenus-Huskey**, Caitlin E. Scott

**281-Pos BOARD B61**  
SPECIFIC OR GENERAL - IT IS ALL ABOUT SOLUTE INTERACTIONS WITH THE PORE. **Ekaterina M. Nestorovich**, Sergey M. Bezrukov

**282-Pos BOARD B62**  
USING SEDIMENTATION VELOCITY TO INVESTIGATE THE NUCLEOTIDE-LINKED ASSEMBLY OF E. COLI CLPA. **Ryan P. Stafford**, Aaron L. Lucius

**283-Pos BOARD B63**  
MACROMOLECULAR CROWDER AND LIGAND COMPETE FOR THE CLOSED DOMAIN CLEFT OF MALTOSE BINDING PROTEIN. **Archishman Ghosh**, Huan-Xiang Zhou

**284-Pos BOARD B64**  
CHARACTERIZATION OF THE CALCIUM-BINDING AND PEPTIDE-BINDING PROPERTIES OF ARRYTHMOGENIC CALMODULIN MUTANTS. **Shane D. Walton**, Norma M. Elizaga, Hsiang-Ting Ho, Jalal K. Siddiqui, Andrew J. O'Neil, Bin Liu, Sandor Gyorke, Jonathan P. Davis

**285-Pos BOARD B65**  
LIPOYLATION MECHANISM OF P. FALCIPARUM MITOCHONDRIAL PROTEINS. **Alfredo J. Guerra**, Gustavo A. Afandor, Russell P. Swift, Sean T. Prigge

**286-Pos BOARD B66**  
UNDERSTANDING THE MOLECULAR DETERMINANTS OF CAPSAICIN MODE OF ACTION. **Khaled M. Elokely**, Eugene Palovack, Lucie Delemotte, Vincenzo Carnevale, Michael L. Klein

## Protein Dynamics and Allostery I (Boards B67-B88)

**287-Pos BOARD B67**  
FORMATION AND DEGRADATION OF INTERMEDIATE HEMOGLOBIN POLYMERS ARE RESPONSIBLE FOR THE COOPERATIVITY OF OXYGEN BINDING ISOTHERMS. **Enrico Bucci**, Stefania Pucciarelli, Mauro Angeletti

**288-Pos BOARD B68**  
ROLE OF IONIC STRENGTH AND THE BOHR EFFECT IN MODULATING THERMODYNAMIC PROFILES ASSOCIATED WITH CO ESCAPE IN RICE NON-SYMBIOTIC HEMOGLOBIN 1. **David Butcher**, Jaroslava Miksovska

**289-Pos BOARD B69**  
THE "CAGED" STATE, THE TRANSITION STATE OF THE REGULATION OF OXYGEN-AFFINITY IN HEMOGLOBIN. **Takashi Yonetani**, Kenji Kanaori

**290-Pos BOARD B70**  
UNDERSTANDING THERMODYNAMICS OF CONFORMATIONAL CHANGE IN THE F-ATPASE. **Nicholas Leioatts**, Helmut Grubmüller

**291-Pos BOARD B71**  
KINETIC CONTROL OF O<sub>2</sub> REACTIVITY IN H-NOX DOMAINS. **Abdelkrim Benabbas**, Yuhan Sun, Weiqiao Zeng, Sandhya Muralidharan, Elizabeth Boon, Paul Champion

**292-Pos BOARD B72**  
PROBING FLEETING INTERACTIONS IN LARGE AND DYNAMIC NONRIBOSOMAL PEPTIDE SYNTHETASES WITH NOVEL NMR METHODS. **Dominique P. Frueh**, Andrew C. Goodrich, Bradley J. Harden, Scott R. Nichols, Subrata H. Mishra

**293-Pos BOARD B73** EDUCATION TRAVEL AWARDEE  
VISUALIZING THE INTER-DOMAIN MOTIONS OF A PATHOGENIC PROTEIN USING SPARSE RDC DATA. **Yang Qi**, Jeffrey W. Martin, Anthony Yan, Francois Thelot, Bruce R. Donald, Terrence G. Oas

**294-Pos BOARD B74**  
MAPPING THE CONFORMATIONAL DYNAMICS OF THE SCAFFOLD PROTEIN PSD-95. **Claus A.M. Seidel**, Jakub Kubiak, Suren Felekyan, Daniel Rohrbeck, James J. McCann, Mark E. Bowen



- 295-Pos BOARD B75 CPOW MID-CAREER TRAVEL AWARDEE**  
 PROBING THE DOMAIN MOTIONS OF AN OLIGOMERIC PROTEIN FROM DEEP-SEA HYPEROTHERMOPHILE BY NEUTRON SPIN ECHO. Debsindhu Bhowmik, Gurpreet Kaur Dhindsa, Andrew J. Rusek, Kurt Van Delinder, Utsab Shrestha, Joseph D. Ng, Melissa Sharp, Laura R. Stingaciu, **Xiang-qiang Chu**
- 296-Pos BOARD B76**  
 THE MECHANISM OF POPULATION SHIFTING AMONG TRANSITION STATES OF ADENYLATE KINASE. **Yuqing Wang**, Emre Onuk, Lee Makowski
- 297-Pos BOARD B77 CPOW TRAVEL AWARDEE**  
 MOLECULAR MECHANISM OF RUTHENIUM AND GOLD ANTICANCER AGENTS IN THE ALLOSTERIC REGULATION OF THE HISTONE PROTEINS OF CHROMATIN. **Giulia Palermo**, Tina Riedel, Curt Alexander Davey, Paul Joseph Dyson, Ursula Rothlisberger
- 298-Pos BOARD B78**  
 CHARACTERIZING NUCLEOTIDE DEPENDENT ALLOSTERY IN G-PROTEINS WITH MOLECULAR DYNAMICS AND NORMAL MODE ANALYSIS. **Xin-Qiu Yao**, Lars Skjærven, Barry J. Grant
- 299-Pos BOARD B79**  
 THE EFFECT OF CRYSTAL CONTACT FORCES ON PROTEIN INTRAMOLECULAR DYNAMICS. **Andrea Markelz**, Katherine Niessen, Mengyang Xu
- 300-Pos BOARD B80**  
 THERMODYNAMIC AND DYNAMIC BASIS FOR THE BROADENED LIGAND SPECIFICITY OF A TIAM2 PDZ DOMAIN MUTANT. **Ernesto J. Fuentes**, Xu Liu, Lisa C. Golden, Liping Yu
- 301-Pos BOARD B81**  
 RELATIVE MECHANICAL FLEXIBILITY OF UBIQUITIN FAMILY PROTEINS: A STUDY USING ELASTIC NETWORK MODEL. **Ranjan Sarkar**, Hemachandra Kotamarthi, A.S.R. Koti, Ravi Venkatramani
- 302-Pos BOARD B82**  
 MOTION AND CONFORMATIONAL ENTROPY IN PROTEIN FUNCTION: CREATION OF AN NMR-BASED ENTROPY METER. Vignesh Kasinath, Kyle W. Harpole, Veronica R. Moorman, Kathleen G. Valentine, Kendra K. Frederick, Kim A. Sharp, **Joshua Wand**
- 303-Pos BOARD B83**  
 A TOOL SET TO MAP DYNAMIC ALLOSTERIC NETWORKS THROUGH THE NMR CHEMICAL SHIFT COVARIANCE ANALYSIS (CHESCA). Stephen Boulton, Madoka Akimoto, Rajeevan Selvaratnam, Amir Bashiri, **Giuseppe Melacini**
- 304-Pos BOARD B84 EDUCATION TRAVEL AWARDEE**  
 PROBING MULTIPLE TIMESCALE DYNAMICS OF PROTEIN KINASE A-INHIBITOR COMPLEXES. **Geoffrey Li**, Jonggul Kim, Frank Chao, Leanna McDonald, Gianluigi Veglia
- 305-Pos BOARD B85**  
 LONG-RANGE PROTEIN VIBRATIONS DEPENDENCE ON LIGAND BINDING: RATE PROMOTING MOTIONS. **Katherine A. Niessen**, Edward Snell, Andrea G. Markelz
- 306-Pos BOARD B86**  
 RHODOPSIN PHOTOACTIVATION DYNAMICS REVEALED BY QUASI-ELASTIC NEUTRON SCATTERING. **Debsindhu Bhowmik**, Utsab Shrestha, Suchithranga M. d. c. Perera, Udeep Chawla, Eugene Mamontov, Michael F. Brown, Xiang-Qiang Chu
- 307-Pos BOARD B87**  
 ROLE OF STRUCTURAL FLEXIBILITY OF CPSRP43 IN BINDING SUBSTRATES DURING POST-TRANSLATIONAL TARGETING. Feng Gao, Alicia D. Kight, Rory C. Henderson, Srinivas Jayanthi, Parth Patel, Robyn L. Goforth, T.K.S. Kumar, Ralph L. Henry, **Colin D. Heyes**
- 308-Pos BOARD B88**  
 FLUCTUATIONS WITHIN THE HYDROGEN BOND NETWORK MODULATE COOPERATIVITY ACROSS THE CONFORMATIONAL ENSEMBLE OF PROTEIN STRUCTURES. **Brittany K. Smith**, Donald J. Jacobs, Dennis R. Livesay
- Intrinsically Disordered Proteins (IDP) and Aggregates I (Boards B89-B115)**
- 309-Pos BOARD B89**  
 ANOMALOUS STIFFNESS CHANGES OF TAU PROTEIN IN X-RAY SINGLE MOLECULE OBSERVATIONS. **Masahiro Shimura**, Yuufuku Matsushita, Keigo Ikezaki, Kouhei Ichiyangi, Tomohiro Miyasaka, Sekiguchi Hiroshi, Yasuo Ihara, Yuji C. Sasaki
- 310-Pos BOARD B90**  
 SIMULATION OF THE DISTRIBUTION OF DISORDERED TAU PROTEINS AROUND ITS AMYLOID FIBRIL CORE. Liang Xu, Martin Margittai, Ruth Nussinov, **Buyong Ma**
- 311-Pos BOARD B91 MINORITY AFFAIRS TRAVEL AWARDEE**  
 TAU FILAMENT LENGTH DISTRIBUTION REFLECTS END-TO-END ANNEALING. **Carol J. Huseby**, Ralf Bundschuh, Jeff Kuret
- 312-Pos BOARD B92**  
 PARAMETER DISTRIBUTION ANALYSIS OF TAU FRAGMENT K18 FIBRILLIZATION. **Eri Nakatani-Webster**, Shaylin L. Higgins, Abhinav Nath
- 313-Pos BOARD B93**  
 HOW UNFOLDED IS TAU? **Arash Foroutan**, Anne Skaja Robinson
- 314-Pos BOARD B94**  
 DISEASE RELATED POINT MUTATIONS AND SOLUTION CONDITIONS DETERMINE FIBRILLIZATION BEHAVIOR OF  $\alpha$ -SYNUCLEIN. **Arshdeep Sidhu**, Ine Segers Nolten, Vinod Subramaniam
- 315-Pos BOARD B95**  
 FIBRIL BREAKING ACCELERATES  $\alpha$ -SYNUCLEIN FIBRILLIZATION. **Volodymyr V. Shvadchak**, Mireille M.A.E. Claessens, Vinod Subramaniam
- 316-Pos BOARD B96**  
 EXPLORING THE PHASE SPACE OF ALPHA-SYNUCLEIN WITH REPLICIA EXCHANGE SIMULATIONS. **Marcin A. Nowosielski**, Peter G. Bolhuis
- 317-Pos BOARD B97**  
 SINGLE MOLECULE FLUORESCENCE ASSAY OF ALPHA SYNUCLEIN DIMERIZATION. **Zhengjian Lv**, Alexey V. Krasnoslobodtsev, Yuliang Zhang, Daniel Ysselstein, Jean-Christophe Rochet, Scott Blanchard, Yuri L. Lyubchenko
- 318-Pos BOARD B98**  
 ALPHA SYNUCLEIN'S ANOMALOUS STRUCTURAL FLUCTUATIONS IN X-RAY SINGLE MOLECULE OBSERVATIONS. **Naruki Hara**, Masahiro Shimura, Yuufuku Matsushita, Keigo Ikezaki, Hiroshi Sekiguchi, Yasushi Kawata, Yuji C. Sasaki



**319-Pos BOARD B99**

STUDYING  $\alpha$ -SYNUCLEIN MISFOLDING THROUGH FÖRSTER RESONANCE ENERGY TRANSFER. **Conor M. Haney**, Rebecca F. Wissner, E. James Petersson

**320-Pos BOARD B100**

INVESTIGATING THE TRIMETHYLAMINE N-OXIDE (TMAO) INDUCED STRUCTURE OF  $\alpha$ -SYNUCLEIN. **John J. Ferric**, Rebecca F. Wissner, E James Petersson

**321-Pos BOARD B101**

FROM MONOMERS, DIMERS TO OLIGOMERS: HOW METAL IONS REGULATE AMYLOID BETA PORTEINS IN AMYLOID FORMATION? **Liang Xu**, Buyong Ma

**322-Pos BOARD B102**

TRANSIENT BINDING OF ZN(II) REDIRECTS AMYLOID BETA PEPTIDE FROM FIBRIL FORMATION. **Astrid Graslund**, Axel Abelein, Jens Danielsson

**323-Pos BOARD B103**

SITE-SPECIFIC DYNAMICS OF  $A\beta_{1-23}$  AMYLOID FORMATION AND FIBRILLAR CONFIGURATION USING AN UNNATURAL AMINO ACID. **Deguo Du**, Haiyang Liu, Richard Lantz, Patrick Cosme, Andrew C. Terentis, Ewa P. Wojcikiewicz, Rolando Oyola

**324-Pos BOARD B104 MINORITY AFFAIRS TRAVEL AWARDEE**

SURFACE INTERACTIONS RESTRICTS AMYLOID- $\beta$  PEPTIDES MOVEMENTS RESULTING IN THEIR RAPID SELF-ASSEMBLY INTO  $\beta$  SHEETS; A MOLECULAR DYNAMICS STUDY. **Natnael B. Doilicho**, Karl F. Freed, Esmael J. Haddadian

**325-Pos BOARD B105**

BINDING OF  $A\beta$  MONOMER TO DMPC BILAYER USING ISOBARIC-ISOTHERMAL REPLICA EXCHANGE MOLECULAR DYNAMICS. **Christopher Lockhart**, Dmitri K. Klimov

**326-Pos Board B106**

AMYLOID- $\beta$  OLIGOMERS: NOW FOR THE STRUCTURE IN THE MEMBRANE. Debanjan Bhowmik, Sudipta Maiti, Kaustubh Mote, Bappaditya Chandra, Perunthiruthy Madhu

**327-Pos BOARD B107**

SMALLER LIPOSOMES ACCELERATE THE FIBRILLATION OF AMYLOID  $\beta$  (1-40). **Mayu S. Terakawa**

**328-Pos BOARD B108**

AMYLOID FIBRIL NUCLEATION IN REVERSE MICELLES. **Gozde Eskici**, Paul Axelsen

**329-Pos BOARD B109**

MICROTUBULE NETWORKS MODULATE CELLULAR SUSCEPTIBILITY TO  $A\beta$ -MEDIATED TOXICITY. Nicole Shमितko-Klingensmith, Jonathan W. Boyd, **Justin Legleiter**

**330-Pos BOARD B110**

RECONFIGURATION OF THE ALZHEIMER'S PEPTIDE KINETICALLY CONTROLS AGGREGATION IN ALZHEIMER'S DISEASE. Srabasti Acharya, **Lisa J. Lapidus**

**331-Pos BOARD B111 EDUCATION TRAVEL AWARDEE**

THE ABILITY OF POLYPHENOLS TO REDUCE  $A\beta$ -INDUCED APOPTOSIS ASSOCIATED WITH ALZHEIMER'S DISEASE. **Kayla M. Pate**, McCall Rogers, Melissa Moss

**332-Pos BOARD B112**

SELF-PROPAGATIVE REPLICATION OF AMYLOID- $\beta$  OLIGOMERS IN ALZHEIMER DISEASE. **Dexter N. Dean**, Amit Kumar, Kayla M. Pate, Melissa A. Moss, Vijayaraghavan Rangachari

**333-Pos BOARD B113**

ALZHEIMER'S PROTECTIVE A2T MUTATION CHANGES THE CONFORMATIONAL LANDSCAPE OF THE  $A\beta_{1-42}$  MONOMER DIFFERENTLY THAN DOES THE A2V MUTATION. **Payel Das**

**334-Pos BOARD B114**

THE EFFECT OF PEPTOIDS ON  $A\beta$  AGGREGATION AND NF- $\kappa$ B ACTIVATION IN ALZHEIMER'S DISEASE. Kelly Moore, **Lauren M. Wolf**, J. Phillip Turner, Melissa A. Moss, Shannon Servoss

**335-Pos BOARD B115**

EFFECTS OF CARBON NANOPARTICLES ON THE AGGREGATION OF ALZHEIMERS BETA-AMYLOID PEPTIDE. Yunxiang Sun, Luogang Xie, Dongdong Lin, Xinju Yang, **Guanghong Wei**

**DNA Replication, Recombination, and Repair (Boards B116-B136)****336-Pos BOARD B116**

SINGLE MOLECULE STUDIES OF RPA'S SEQUENTIAL BINDING TO SSDNA REVEALS A HIGHLY STIFF AND STABLE STATE INDUCED BY THE BINDING OF ZINC. **Jin Chen**, Shimin Le, Walter J. Chazin, Jie Yan

**337-Pos BOARD B117**

STUDIES OF THE FTSK DNA TRANSLOCASE USING TWO-COLOR TETHERED FLUOROPHORE MOTION. **Peter F J May**, Pawel Zawadzki, Lidia K. Arciszewska, David Sherratt, Achillefs N. Kapanidis

**338-Pos BOARD B118**

UNRAVELING THE INTERPLAY BETWEEN SINGLE-STRANDED DNA-BINDING PROTEIN, DNA POLYMERASE AND SINGLE-STRANDED DNA. **Jordi Cabanas Danes**, Tjalle P. Hoekstra, Iddo Heller, Erwin J.G. Peterman, Gijs J.L. Wuite

**339-Pos BOARD B119**

MECHANISTIC INSIGHTS OF HEXAMERIC HELICASE FUNCTION PROVIDED BY SINGLE-MOLECULE FRET. **Sean M. Carney**, Sanford Leuba, Michael Trakselis

**340-Pos BOARD B120**

EFFECTS OF DNA STRUCTURAL AND TOPOLOGICAL CONSTRAINTS ON HMGA2 BINDING. **Xiaodan Zhao**, Peter Dröge, Jie Yan

**341-Pos BOARD B121**

SINGLE-MOLECULE ANALYSIS OF TRANSCRIPTION-COUPLED REPAIR. **Jun Fan**, Nigel Savery, Nicolas Joly, Terence Strick

**342-Pos BOARD B122**

INVESTIGATION OF THE TUS-TER BLOCKING EFFICACY DURING THE CHROMOSOME REPLICATION OF LIVE ESCHERICHIA COLI CELLS. **Sriram Tiruvadi Krishnan**, M. Charl Moolman, Roy de Leeuw, Jacob W.J. Kerssemakers, Nynke H. Dekker

**343-Pos BOARD B123**

EXTREMOPHILE DNA PHOTOLYASES: DNA REPAIR UNDER EXTREME CONDITIONS. **Sudipto Munshi**, Brittany N. Stroud, Yvonne M. Gindt, Robert J. Stanley

**344-Pos BOARD B124**

STRUCTURE AND NANO-MECHANICS OF DNA DURING THE INITIAL STAGES OF METHYL-DIRECTED MISMATCH REPAIR. **Eric A. Josephs**, Piotr E. Marszalek

**345-Pos BOARD B125**

DIRECT VISUALIZATION OF DNA REPLICATION CONFLICTS IN THE BACTERIAL CELL. **Sarah Mangiameli**, Houra Merrikh, Paul Wiggins

**346-Pos BOARD B126**

RECG INTERACTION WITH THE DNA REPLICATION FORK. THE ROLE OF E. COLI SSB PROTEIN. **Zhiqiang Sun**, Hui Yin Tan, Piero Bianco, Yuri Lyubchenko

**347-Pos BOARD B127**

INTERPLAY MUTS WITH  $\beta$  CLAMP ON MISMATCHED DNA. **Jungsic Oh**, Daehyung Kim, Won-Ki Cho, Jiaquan Liu, Slobodan Jergic, Nicholas Dixon, Richard Fishel, Jong-bong Lee

**348-Pos BOARD B128**

INFLUENCE OF DNA CONFORMATION AND REPAIR ENZYME ON GUANINE AND 8-OXOGUANINE BASE FLIPPING. **Giuseppe La Rosa**, Martin Zacharias

**349-Pos BOARD B129**

ELASTICITY-DRIVEN SINGLE STRANDED GAP CREATION MECHANISM BY AN EXONUCLEASE III/AP ENDONUCLEASE. **Sangmi Jee**, Hyeryeon Im, Hyosang Lee, Gwangrog Lee

**350-Pos BOARD B130**

HOW DOES THE REPLICATION MACHINERY DEAL WITH ROADBLOCKS: A SINGLE-MOLECULE INVESTIGATION. **Enrico Monachino**, Ramon A. van der Valk, Slobodan Jergic, Nicholas E. Dixon, Remus Th. Dame, Antoine M. van Oijen

**351-Pos BOARD B131**

REAL-TIME RECA FILAMENT DISASSEMBLY IN THE PRESENCE OF RECX MONITORED USING SINGLE-MOLECULE MANIPULATION BY OPTICAL TWEEZERS. **Georgii Pobegalov**, Alexandr Alekseev, Anton Sabantsev, Alexey Melnikov, Mikhail Khodorkovskiy, Dmitry Baitin

**352-Pos BOARD B132**

TOWARD ADDING COMPLEXITY IN SINGLE MOLECULE FRET STUDIES OF DNA MISMATCH REPAIR. **Keith Weninger**, Pengyu Hao, Yue Yang, Elizabeth J. Sacho, Ruoyi Qiu

**353-Pos BOARD B133**

CARDIOPROTECTIVE EFFECT OF EXERCISE TRAINING IN HEART FAILURE RATS: EXERCISE TRAINING REDUCES OXIDATIVE STRESS INDUCED NUCLEAR GENOMIC FRAGMENTATION. **Karin Solvang-Garten**, Morteza Esmacili, Tone Bathen, Morten Høydal, Muhammad Shakil Ahmed, Håvard Attramdal, Øyvind Ellingsen, Tomas Stølen

**354-Pos BOARD B134**

ENHANCED DYNAMICS OF MISMATCHED BASE PAIRS ASSOCIATED WITH MSH2-MSH6 RECOGNITION. **Yan Li**, Manju Hingorani, Ishita Mukerji

**355-Pos BOARD B135**

RESOLVING THE KINETIC STATES OF A PROOFREADING DNA POLYMERASE. **Szu-Ning Lin**, Jordi Cabanas Danes, Tjalle P. Hoekstra, Douwe Kamsma, Gerrit Sitters, Martin Depken, Remus T. Dame, Gijs Wuite

**356-Pos BOARD B136**

BINDING DYNAMICS OF THE HOLLIDAY JUNCTION WITH YEAST MUTS HOMOLOG MSH4-MSH5. **Sudipta Lahiri**, Manju Hingorani, Ishita Mukerji

**Protein-Nucleic Acid Interactions I  
(Boards B137-B168)****357-Pos BOARD B137**

ELUCIDATING THE TRANSITION DYNAMICS OF HIV-1 REVERSE TRANSCRIPTASE USING SINGLE MOLECULE FRET. **Mahipal Ganji**, Elio Abbondanzieri

**358-Pos BOARD B138**

NUCLEOTIDES LINKAGE ANALYSIS OF RECBCD DNA HELICASE. **Vera Gaydar**, Arnon Henn

**359-Pos BOARD B139**

SINGLE-MOLECULE STUDIES ON DNA TRANSPORTATION MOTORS WITH COMMON REVOLUTION MECHANISM WITHOUT ROTATION. **Mario Vieweger**, Zhengyi Zhao, Hui Zhang, Peixuan Guo

**360-Pos BOARD B140**

SINGLE-MOLECULE STUDY OF DED1 HELICASES USING A HAIRPIN SUBSTRATE. Saurabj Raj, Debjani Bagchi, Josette Banroques, Kyle Tanner, **Vincent Croquette**

**361-Pos BOARD B141**

REVOLUTION MOTORS IN CELL FOR TRANSPORTATION OF LENGTHY CHROMOSOME WITHOUT COILING OR TORQUE. **Zhengyi Zhao**, Peixuan Guo

**362-Pos BOARD B142**

THE MECHANISM OF ROLLING CIRCLE DNA REPLICATION AND THE ROLES OF INITIATOR PROTEIN REPD. Lesley F. Southerden, **Martin R. Webb**

**363-Pos BOARD B143**

COOPERATIVE ACTIVITY OF SARS CORONAVIRUS NSP13 HELICASE CHARACTERIZED BY SINGLE MOLECULE FRET. **Hyeryeon Im**, Sangmi Jee, Gwangrog Lee

**364-Pos BOARD B144**

MEASURING THE KINETICS OF RESTRICTION ENDONUCLEASES WITH SINGLE MOLECULE RESOLUTION. **Allen C. Price**, Stefano Gambino, Briana Mousely, Lindsay Cathcart, Janelle Winship, Maximilian Benz

**365-Pos BOARD B145**

DYNAMIC CONTROL OF PROCESSIVITY DURING DNA DEGRADATION BY A RING-SHAPED NUCLEASE. Suyeon Park, Jungmin Yoo, **Gwangrog Lee**

**366-Pos BOARD B146**

THE EFFECT OF SINGLE-STRANDED DNA BINDING PROTEIN RPA2 ON XPD HELICASE PROCESSIVITY. **Barbara Stekas**, Zhi Qi, Masayoshi Honda, Maria Spies, Yann Chemla

**367-Pos BOARD B147**

THE ROLE OF DNA SHAPE IN NUCLEOSOME FORMATION AND POSITIONING. **Joshua P. Lequieu**, Gordon S. Freeman, Juan J. de Pablo

**368-Pos BOARD B148**

POLYMORPHISM OF HISTONE TAIL INTERACTIONS IN NUCLEOSOME. **Alexey K. Shaytan**, Grigory A. Armeev, Victor B. Zhurkin, David Landsman, Anna R. Panchenko

**369-Pos BOARD B149 INTERNATIONAL TRAVEL AWARDEE**  
REAL-TIME ANALYSIS OF ENDOGENOUS NUCLEAR NADH IN DIFFERENTIATING CELLS USING THE SPECTRAL PHASOR APPROACH. **Belinda K. Wright**, Mark R. Jones, Michelle A. Digman, Enrico Gratton

**370-Pos BOARD B150**  
PLASMID-ENCODED NONCODING RNA REGULATES CHROMOSOMAL GENE EXPRESSION. **Wei-Syuan Wang**, Ya-Chiao Lee, Jogadhenu Syama Sundar Prakash, Sue Lin-Chao

**371-Pos BOARD B151**  
TRMBL2 PROTEIN FROM THERMOCOCCUS KODAKARENSIS COMPETES WITH HISTONES FOR DNA BINDING AND FORMS FILAMENTOUS NUCLEOPROTEIN COMPLEXES THAT AFFECT DNA STRUCTURAL STATE. **Artem K. Efremov**, Yuanyuan Qu, Hugo Maruyama, Ci J. Lim, Kunio Takeyasu, Jie Yan

**372-Pos BOARD B152**  
FREE ENERGY PROFILES FOR NUCLEOSOMAL DNA UNWRAPPING. **Hidetoshi Kono**, Shun Sakuraba, Hisashi Ishida

**373-Pos BOARD B153**  
STUDIES OF THE COMPACTION MECHANISMS OF DNA-BINDING PROTEINS USING HORIZONTAL MAGNETIC TWEEZERS. **Roberto Jr Fabian**, Christopher Tyson, Abhijit Sarkar

**374-Pos BOARD B154**  
EFFECTS OF CATIONIC RESIDUES AND BASE SEQUENCE IN NUCLEIC ACID BINDING OF HISTONE-DERIVED ANTIMICROBIAL PEPTIDES. **Sukin Sim**, Penny Wang, Brittany Beyer, Mala L. Radhakrishnan, Donald E. Elmore

**375-Pos BOARD B155**  
EFFECT OF AN OXIDATIVE GUANINE LESION ON NUCLEOSOME STABILITY. **Liana Goehring**, Maggie Klureza, Erika Norabuena, Sara Barnes, Elizabeth Jamieson, Megan E. Nunez

**376-Pos BOARD B156**  
ELUCIDATION OF DNA PACKAGING AND MISPACKAGING IN SPERM NUCLEI BY X-RAY SCATTERING. James M. Hutchison, James Ritchie, **Donald C. Rau**

**377-Pos BOARD B157**  
YEAST HMGB PROTEINS BOTH DISRUPT AND COMPACT NUCLEOSOMES. **Ran Huo**, Micah J. McCauley, Nicole Becker, Molly H. Nelson Holte, Uma Muthurajan, Karolin Luger, L James Maher III, Nathan Israeloff, Mark C. Williams

**378-Pos BOARD B158**  
THE EFFECT OF HU PROTEIN ON LAC-REPRESSOR-MEDIATED DNA LOOPING. **Yan Yan**, Sandip Kumar, Laura Finzi, David D. Dunlap

**379-Pos BOARD B159**  
USING CONTRAST VARIATION WITH SAXS TO VISUALIZE DNA DISSOCIATION FROM NUCLEOSOME CORE PARTICLES. **Joshua M. Tokuda**, Yujie Chen, Traci Topping, Lisa M. Gloss, Lois Pollack

**380-Pos BOARD B160**  
EFFECTS OF HISTONE VARIANTS MACROH2A AND H2A.Z ON NUCLEOSOME DYNAMICS. **Samuel Bowerman**, Jeff Wereszczynski

**381-Pos BOARD B161**  
HISTONE PHOSPHORYLATION COMBINED WITH ACETYLATION DRAMATICALLY INCREASE NUCLEOSOME ACCESSIBILITY. **Matthew S. Brehove**, Tao Wang, Justin North, Yi Luo, Jennifer Ottesen, Karolin Luger, Michael G. Poirier

**382-Pos BOARD B162**  
GLUCOCORTICOID RECEPTOR-DNA DISSOCIATION KINETICS MEASURED IN VITRO REVEAL EXCHANGE ON THE SECOND TIMESCALE. **Rolando W. De Angelis**, Qin Yang, David L. Bain

**383-Pos BOARD B163**  
GLOBAL CHARACTERIZATION OF TRANSCRIPTION FACTOR LOCALIZATION AND PARTITIONING IN ESCHERICHIA COLI. **Nathan J. Kuwada**, Paul A. Wiggins

**384-Pos BOARD B164**  
UNRAVELING THE STRUCTURAL, DYNAMIC, THERMODYNAMIC, AND KINETIC HETEROGENEITY IN DNA SITE RECOGNITION BY STRUCTURALLY HOMOLOGOUS ETS TRANSCRIPTION FACTORS. **Gregory M. K. Poon**, Shuo Wang, Gaofei He, Ana Tolic, Miles H. Linde, James K. Bashkin, W. David Wilson

**385-Pos BOARD B165**  
CHARACTERIZING THE BINDING LANDSCAPE AROUND DNA: IS DNA A SLIDE? **Ignacia Echeverria**, Garegin A. Papoian

**386-Pos BOARD B166**  
UNDERSTANDING THE TRANSCRIPTIONAL AND TRANSLATIONAL REGULATORY ROLES OF NON-CLASSICAL NEURAL ZINC FINGER PROTEINS INVOLVED IN THE DEVELOPMENT OF THE NERVOUS SYSTEM. **M. Mohsin Khan**, Sarah L.J. Michel, Marie C. Heffern, Thomas J. Meade, Kellie Hom

**387-Pos BOARD B167**  
MOLECULAR CROWDING ENHANCES FACILITATED DIFFUSION OF TWO HUMAN DNA GLYCOSYLASES. **Shannen L. Cravens**, Joseph D. Schonhoft, Meng Rowland, Alyssa Rodriguez, James T. Stivers

**388-Pos BOARD B168**  
KINETIC MECHANISMS OF TARGET LOCATION BY INDUCIBLE TRANSCRIPTION FACTOR EGR-1. **Alexandre Esadze**, Catherine A. Kemme, Anatoly B. Kolomeisky, Junji Iwahara

## Membrane Dynamics I (Boards B169-B187)

**389-Pos BOARD B169**  
HYDRATION-MODULATED COLLECTIVE DYNAMICS OF MEMBRANE LIPIDS ARE REVEALED BY SOLID-STATE  $^2\text{H}$  NMR RELAXATION. **Trivikram R. Molugu**, Soohyun K. Lee, Constantin Job, Michael F. Brown

**390-Pos BOARD B170**  
SPOT VARIATION FCS IN THE 2D ISING MODEL. **Margaret Burns**, Sarah Veatch

**391-Pos BOARD B171**  
UNIVERSAL APPROACH TO FRAP ANALYSIS OF ARBITRARY BLEACHING PATTERNS. **Daniel Blumenthal**, Leo Goldstien, Michael Edidin, Levi A. Gheber

**392-Pos BOARD B172**  
FASTER CALCULATIONS OF DIFFUSION CONSTANTS FOR LIPIDS, WATER AND PROTEINS. Michael Lerner, **Gwendolyn A. Clafin**, Rodoula Kyvelou-Kokkaliaris, Hoang Tran

**393-Pos BOARD B173**  
THE EFFECT OF LIPID BILAYERS ON MEMBRANE-BOUND PROTEINS. **Kayla Sapp**, Lutz Maibaum



**394-Pos BOARD B174**

STRUCTURAL AND DYNAMICAL PROPERTIES OF POPC BILAYERS SUPPORTED ON NANOPOROUS SUBSTRATES.

**Nalvi D. Duro**, Marion Gjika, Larry Scott, Sameer Varma

**395-Pos BOARD B175**

STUDY OF MIN PROTEIN-INDUCED MEMBRANE WAVES IN VITRO. **Yu-Ming Tu**, Ling Chao, Yu-Ling Shih, Hsiao-Lin Lee

**396-Pos BOARD B176**

RAPID ASSESSMENT OF INTRACYTOSOLIC MEMBRANES IN BACTERIA BY FLUORESCENCE MICROSCOPY. **Kyle Whiddon**, Michael C. Konopka

**397-Pos BOARD B177**

HOW RELIABLE ARE MOLECULAR DYNAMICS SIMULATIONS OF MEMBRANE ACTIVE ANTIMICROBIAL PEPTIDES. Yukun Wang, Jakob P Ulmschneider, **Shidi Zhao**

**398-Pos BOARD B178**

DYNAMIC STRUCTURAL/AMPHIPHILIC "PORTRAIT" OF BIOMEMBRANES AS THEIR FUNDAMENTAL PROPERTY RELEVANT TO FUNCTION: RESULTS OF ATOMISTIC SIMULATIONS. **Roman G. Efremov**, Darya V. Pyrkova, Nikolay A. Krylov, Pavel E. Volynsky, Anton A. Polyansky

**399-Pos BOARD B179**

MONTE CARLO SIMULATIONS OF PHASE-SEPARATED MEMBRANES. **Thomas Torng**

**400-Pos BOARD B180**

PLASMA MEMBRANE NANOPLATFOMRS ARE DISSOLVED BY OXIDIZED PHOSPHOLIPIDS. **Mario Brameshuber**, Eva Sevcik, Christina Manner, Benedikt Rosboth, Albin Hermetter, Gerhard J. Schuetz

**401-Pos BOARD B181**

HIGH-SPEED SINGLE-PARTICLE TRACKING REVEALS LIPID DYNAMICS IN HETEROGENEOUS RAFT-CONTAINING MEMBRANES. Ying-Hsiu Lin, Hsiao-Mei Wu, **Chia-Lung Hsieh**

**402-Pos BOARD B182**

NATURE AND SIZE OF GANGLIOSIDE GM1 NANO-DOMAINS IN LIPID BILAYERS AS REVEALED BY ADVANCED TIME-RESOLVED FLUORESCENCE TECHNIQUES. **Radek Sachl**, Mariana Amaro, Alena Koukalova, Gockan Aydogan, Ilya Mikhalyov, Jana Humpolickova, Martin Hof

**403-Pos BOARD B183**

TRANSIENT EFFECT OF CALCIUM INFLUX ON PIP<sub>2</sub> CLUSTERS AND CHOLESTEROL-STABILIZED NANO-DOMAINS IN THE INNER PLASMA MEMBRANE LEAFLET OF INTACT CELLS. **Weixiang Jin**, Arnd Pralle

**404-Pos BOARD B184**

MEMBRANE CYTOSKELETAL CHANGES DURING IN-SITU TO INVASIVE PROGRESSION OF BREAST CANCER CELLS OBSERVED BY MULTI-SCALE DIFFUSION ANALYSIS OF TRANSMEMBRANE PROTEINS. **Muhammed F. Simsek**, Arnd Pralle

**405-Pos BOARD B185**

'IN VIVO IN SILICO': EFFECTS OF MEMBRANE COMPLEXITY ON PROTEIN-LIPID INTERACTIONS, LIPID NANO-DOMAINS AND CURVATURE. **Heidi Koldsø**, Mark S. P. Sansom

**406-Pos BOARD B186**

MORPHOLOGICAL MODIFICATIONS OF THE EARLY SECRETORY PATHWAY IN DIFFERENTIATING SKELETAL MUSCLE CELLS. **Emiliana Giacomello**, Paolo Ronchi, Rainer Pepperkok

**407-Pos BOARD B187**

PHASE TRANSITION AND FORMATION OF TRANSMEMBRANE PORE IN STRETCHED PHOSPHOLIPID BILAYER INCLUDING CHOLESTEROL: MOLECULAR DYNAMICS SIMULATION.

**Taiki Shigematsu**, Kenichiro Koshiyama, Shigeo Wada

## Membrane Active Peptides and Toxins I (Boards B188-B205)

**408-Pos BOARD B188**

CHARACTERIZING THE SHIGA TOXIN-RECEPTOR INTERACTION. **Swati Venkat**, Mathias Lösche, Adam D. Linstedt

**409-Pos BOARD B189**

COMPARATIVE ANALYSIS OF BLOCK BY POLY-ETHYLENEGLYCOL OF CANONICAL AND LOW-CONDUCTANCE OLIGOMERIC ASSEMBLIES OF ALPHA-HEMOLYSIN: MECHANISTIC IMPLICATIONS. Ekaterina Zaitseva, Gerhard Baaken, **Jan C. Behrends**

**410-Pos BOARD B190**

AEROLYSIN BLOCK BY SINGLE POLYETHYLENEGLYCOL OLIGOMERS: MASS SENSITIVITY AND VOLTAGE DEPENDENCE. **Gerhard Baaken**, Laurent Bacri, Juan Pelta, Abdelghani Oukhaled, Jan C. Behrends

**411-Pos BOARD B191**

POLYAMIDOAMINE DENDRIMERS AS UNIVERSAL PORE-BLOCKING BINARY TOXIN INHIBITORS. **Nnanya U. Kalu**, Veronica Wright, Philip Förstner, Fabienne Bayer, Susanne Felsen, Christina Förtsch, David Y. W. Ng, Tanja Weil, Holger Barth, Ekaterina M. Nestorovich

**412-Pos BOARD B192**

IMAGING THE ASSEMBLY OF PERFRINGOLYSIN O. **Michael J. Senior**, Alejandro P. Heuck, Robert J. C. Gilbert, Mark I. Wallace

**413-Pos BOARD B193**

KEY RESIDUES IN VIBRIO CHOLERAE CYTOLYSIN INVOLVED IN MEMBRANE BINDING. **Swastik De**, Adele Bubnys, Jinsol Hyun, Rich Olson

**414-Pos BOARD B194**

PHYSICO-CHEMICAL MEMBRANE PROPERTIES REVEAL A STRUCTURAL ELEMENT INVOLVED IN THE ADAPTATION OF ACTINOPORINS TO CHOLESTEROL-RICH MEMBRANES. **Koldo Morante**, José Manuel Martínez Caaveiro, Koji Tanaka, Juan Manuel González-Mañas, Kouhei Tsumoto

**415-Pos BOARD B195**

TARANTULA TOXINS USE COMMON SURFACES FOR INTERACTING WITH KV AND ASIC ION CHANNELS. Maryam Zamanian, Chanhyung Bae, **Kanchan Gupta**, Mirela Milesco, Dmitriy Krepkij, Drew Tilley, Jon Sack, Vladimir Yarov-Yarovoy, Jae II Kim, Kenton Swartz

**416-Pos BOARD B196**

TRANSLOCATION OF CATIONIC AMPHIPATHIC PEPTIDES ACROSS PHOSPHOLIPID BILAYERS. **Paulo F. Almeida**

**417-Pos BOARD B197**

ARGININE-GLYCOSAMINOGLYCAN INTERACTION REGULATES PENETRATION EFFICIENCY OF ARGININE-RICH CELL-PENETRATING PEPTIDES IN BIOLOGICAL MEMBRANE. **Yuki Takechi**, Yuto Yanagisawa, Kazuchika Nishitsuji, Kenji Uchimura, Toru Kawakami, Kohsaku Kawakami, Keiichiro Okuhira, Hiroyuki Saito



**418-Pos BOARD B198**

USING ENHANCED SAMPLING MOLECULAR DYNAMICS TECHNIQUES TO PROBE THE THERMODYNAMICS OF PHILIP PEPTIDE INSERTION INTO A MODEL LIPID BILAYER. **Yue Ren**, Blake Mertz

**419-Pos BOARD B199**

SPECIFIC DELIVERY OF AURISTATINS TO TUMOR CELLS USING PHILIP. **Kelly Burns**, Matthew Robinson, Damien Thévenin

**420-Pos BOARD B200**

THE TRIATOMA VIRUS STRUCTURAL PROTEIN VP4 INDUCES MEMBRANE PERMEABILITY THROUGH DYNAMIC PORES. Rubén Sánchez-Eugenia, Julen Goikolea, David Gil-Cartón, Lissete Sánchez-Magraner, **Diego M A Guérin**

**421-Pos BOARD B201**

PREDICTING FUNCTIONAL INTERACTIONS IN THE INFLUENZA HEMAGGLUTININ TRANSMEMBRANE DOMAIN VIA SIMULATION. **Matthew J. Eckler**, Peter M. Kasson

**422-Pos BOARD B202**

RANDOMLY SELECTED HYDROPHOBIC PEPTIDES INHIBIT LASSA PSEUDOVIRUS. **Andrew Hoffmann**

**423-Pos BOARD B203**

BILAYER PERTURBATION IS A PREDICTIVE PARAMETER FOR ANTIMALARIAL DEVELOPMENT. **Nicole Ramsey**, Olaf Andersen

**424-Pos BOARD B204**

PREDICTING DRUG TOXICITY: EARLY DETECTION OF LIKELY FAILURES IN DRUG DEVELOPMENT. **R. Lea Sanford**, Wesley Chao, Jeanne Chiaravalli-Giganti, Antonio Luz, J. Fraser Glickman, Olaf S. Andersen

**425-Pos BOARD B205**

UNDERSTANDING THE FUNCTION OF THE CYCLIC ANTIFUNGAL LIPOPEPTIDE FENGYCIN USING ALL-ATOM MD SIMULATION. **Sreyoshi Sur**, Alan Grossfield

## Membrane Structure I (Boards B206-B231)

**426-Pos BOARD B206**

SCATTERING FROM Laterally Heterogeneous Vesicles: An Analytical Form Factor for Multiple Domains. **Frederick A. Heberle**, Vinicius N.P. Anghel, John Katsaras

**427-Pos BOARD B207**

EXPERIMENTAL ASSESSMENT OF TILT-DEPENDENT THERMAL FLUCTUATIONS IN LIPID BILAYERS.

**Michael S. Jablin**, Kiyotaka Akabori, John F. Nagle

**428-Pos BOARD B208**

STRUCTURAL EFFECTS OF UREA AND TMO ON LIPID BILAYERS. **Sergio S. Funari**, Joana Valerio

**429-Pos BOARD B209**

DPPC MONOLAYERS EXHIBIT AN ADDITIONAL PHASE TRANSITION AT HIGH SURFACE PRESSURE. **Chen Shen**, Jorge B. de la Serna, Bernd Struth, Beate Klösgen

**430-Pos BOARD B210**

HIGH RESOLUTION STRUCTURE OF THE RIPPLE PHASE OF DMPC BILAYERS. Kiyotaka Akabori, **John F. Nagle**

**431-Pos BOARD B211**

CATION EFFECTS ON ZWITTERIONIC LIPID MULTILAYERS. **Merrell A. Johnson**, Soenke Seifert, Horia I. Petrache

**432-Pos BOARD B212**

ATOMICALLY DETAILED LIPID BILAYER MODELS FOR THE INTERPRETATION OF SCATTERING DATA. Joseph Fogarty, Jianjun Pan, **Sagar A. Pandit**

**433-Pos BOARD B213**

VAN DER WAALS INTERACTIONS OF LIPID MEMBRANES IN HIGHLY POLARIZABLE SOLUTIONS. **Ryan Z. Lybarger**, Horia I. Petrache

**434-Pos BOARD B214**

CHELATING AGENT INDUCTION OF MULTIPHASE COEXISTENCE IN LIPID MULTILAYERS. **Michael Weisman**, Merrell A. Johnson, Bruce D. Ray, Horia I. Petrache

**435-Pos BOARD B215**

HYDROCARBON THICKNESS DICTATES CHOLESTEROL'S LOCATION, ORIENTATION AND MOTION IN A PHOSPHOLIPID BILAYER. **Drew Marquardt**, Brad Van Oosten, Frederick A. Heberle, Norbert Kucerka, Stephen Wassall, Robert Standaert, John Katsaras, Thad A. Harroun

**436-Pos BOARD B216**

MEMBRANE DOMAIN INTERACTIONS BY MONTE CARLO TYPE ANALYSIS OF OSMOTIC STRESS DATA. **Benjamin Kollmitzer**, Peter Heftberger, Heinz Amenitsch, Rudolf Podgornik, John F. Nagle, Georg Pabst

**437-Pos BOARD B217**

HOW DO CHOLESTEROL AND SATURATED SPHINGOLIPIDS AFFECT ACYL CHAIN ORDER IN THE FLUID PHASE OF BINARY POPC BILAYERS - A STUDY WITH 1-OLEOYL-2-PROPRIONYL-DPH-SN-GLYCERO-3-PHOSPHOCHOLINE. **Oskar Engberg**, Henrik Nurmi, Thomas Nyholm, J.P. Slotte

**438-Pos BOARD B218**

PARTITIONING OF THE TRANSMEMBRANE PEPTIDE GWALP23 BETWEEN LO AND LD PHASES IN MACRO AND NANOSCALE DOMAINS. NANOMETER-SCALE DOMAINS CAN BE TREATED AS A PHASE. **Thais A. Enoki**, Sarah Kim, Fred A. Heberle, Gerald W. Feigenson

**439-Pos BOARD B219**

CELL CYCLE POSITION DETERMINES CRITICAL TEMPERATURES IN PLASMA MEMBRANE VESICLES. **Erin M. Gray**, Sarah L. Veatch

**440-Pos BOARD B220**

MOLECULAR AND MECHANICAL MANIPULATION OF MEMBRANE DOMAINS IN PLANAR SUPPORTED BILAYERS. **Rochelle Warner**, Tyler Floden, Ahmed A. Heikal, Erin D. Sheets

**441-Pos BOARD B221 EDUCATION TRAVEL AWARDEE**

LIPOPOLYMER CROWDING IN POLYMER-TETHERED LIPID BILAYERS ALTERS LIPID MIXING BEHAVIOR AND PROTEIN SEQUESTRATION IN THE PRESENCE OF RAFT-MIMICKING LIPID MIXTURES. **Yifan Ge**, Jiayun Gao, Amanda P. Siegel, Noor F. Hussain, Rainer Jordan, Christoph A. Naumann

**442-Pos BOARD B222**

WHY CHOLESTEROL SHOULD BE FOUND LARGELY IN THE CYTOPLASMIC LEAF OF THE PLASMA MEMBRANE. **Michael Schick**, Ha Giang

**443-Pos BOARD B223**

DO GEL PHASE LIPID BILAYERS BEHAVE LIKE EULER ELASTICA? **Patrick M. Diggins**, Zachary McDargh, Markus Deserno

**444-Pos BOARD B224**  
REVISITING THE LINK BETWEEN LIPID MEMBRANE ELASTICITY AND MICROSCOPIC CONTINUUM MODELS. **M. Mert Terzi**, Kaushik Dayal, Luca Deseri, Markus Deserno

**445-Pos BOARD B225**  
MOLECULAR LEVEL MODELING OF THE EFFECTS OF CHARGE AND SUGARS ON THE PHASE EQUILIBRIUM OF MODEL LIPID BILAYERS. **Shauna Celeste Kennard**, Mark J. Uline

**446-Pos BOARD B226**  
EDGE STRUCTURE OF THROUGH PORE IN LIPID MEMBRANE. **Sergey A. Akimov**, Arseniy A. Mukovozov, Oleg V. Batishchev

**447-Pos BOARD B227**  
BOLALIPID MEMBRANES: ELASTICITY THEORY APPROACH. **Timur R. Galimzyanov**, Petr I. Kuzmin, Sergey A. Akimov

**448-Pos BOARD B228**  
PHYSICAL PROPERTIES AND MEMBRANE PACKING IN HYBRID ARCHAEOSONES. **Umme Ayesa**, Parkson L.G. Chong

**449-Pos BOARD B229**  
TEMPERATURE-DEPENDENT LIPID PHASE TRANSITIONS OCCURRING IN HIGHER ORGANISMS. Norman L. Gershfeld, **Ralph Nossal**

**450-Pos BOARD B230 MINORITY AFFAIRS TRAVEL AWARDEE**  
THERMOTROPIC BEHAVIOR OF CARDIOLIPIN AND DIMYRISTOYLPHOSPHATIDYLCHOLINE BILAYERS IN THE PRESENCE AND ABSENCE OF CALCIUM. **Kasturi Mitra**, Christine Schwall, Arlene Arlene Albert, Nathan Alder

**451-Pos BOARD B231**  
LAMELLAR-HEXAGONAL TRANSITION KINETICS EXHIBIT AN EXPONENTIAL DEPENDENCE ON TEMPERATURE. Nathan L. Meyers, Peter L. Cook, **Paul E. Harper**

## Protein-Lipid Interactions I (Boards B232-B258)

**452-Pos BOARD B232**  
PH-DEPENDENT CONFORMATIONAL CHANGES IN THE INFLUENZA A M2 FULL-LENGTH PROTEIN IN LIPID BILAYERS. **E. Vindana Ekanayake**, Riqiang Fu, Timothy A. Cross

**453-Pos BOARD B233**  
CONFORMATIONAL CHANGES OF THE ABC TRANSPORTER MCJD REVEALED BY MOLECULAR DYNAMICS SIMULATIONS. **Ruo-Xu Gu**, Valentina Corradi, Gurpreet Singh, Konstantinos Beis, Peter Tieleman

**454-Pos BOARD B234**  
PROLINES AROUND HYPOTHETICAL ACTIVE SITE ARE IMPORTANT FOR THE STRUCTURE AND DYNAMICS OF THE OUTER MEMBRANE PROTEIN G FROM PSEUDOMONAS AERUGINOSA. **Iga Kucharska**, Lukas Tamm

**455-Pos BOARD B235**  
ANALYZING THE VIABILITY OF VARIOUS NATIVE MEMBRANE MIMICS FOR MEMBRANE PROTEINS USING SITE-DIRECTED SPIN LABELING EPR. **Megan M. Dunagan**, Indra D. Sahu, Rongfu Zhang, Andrew Craig, Robert McMarrick, Gary A. Lorigan

**456-Pos BOARD B236**  
THE STRUCTURE OF THE OLIGOMERS FORMED BY THE CAVEOLIN MEMBRANE PROTEINS. **Shuqi Wang**, Yanli Zhang, Xinyan Zhang, Sorin Luca

**457-Pos BOARD B237**  
EXPRESSION AND PURIFICATION OF HUMAN A2B RECEPTOR FOR SPECTROSCOPIC CHARACTERIZATION. **Arash Foroutan**, Anne S. Robinson

**458-Pos BOARD B238**  
EFFECT OF AN APOPTOTIC MEMBRANE RAFT ON THE CONFORMATIONAL AND DYNAMICAL CHANGES OF CALRETICULIN. Lingyun Wang, Joanne E. Murphy-Ullrich, **Yuhua Song**

**459-Pos BOARD B239**  
BINDING OF HALICTINE ANTIMICROBIAL PEPTIDES TO MODEL MEMBRANES COMPOSED OF POPC:POPG PHOSPHOLIPIDS. **Tatiana M. Domingues**, Katia R. Perez, Karin A. Riske

**460-Pos BOARD B240**  
THE BEGINNING OF THE END: CARDIOLIPIN, CYTOCHROME C AND THE APOPTOTIC TRIGGER. **Evan S. O'Brien**, Nathaniel V. Nucci, Brian Fuglestad, Kathleen G. Valentine, A. Joshua Wand

**461-Pos BOARD B241 MINORITY AFFAIRS TRAVEL AWARDEE**  
PRION PROTEINS AND MECHANISMS OF INTERACTION WITH MODEL MEMBRANES. **Patricia Soto**, William Graft, Roger Gonzalez, Chad Nieri, Bo Zhao, Jason C. Bartz

**462-Pos BOARD B242**  
FUNCTIONAL CHARACTERIZATION OF HUMAN RHODOPSIN MUTATIONS BY FLUORESCENCE IMAGING. **Caihong Jiang**

**463-Pos BOARD B243**  
COEXISTENCE OF NATIVE-LIKE AND NON-NATIVE MISFOLDED FERRICYTOCHROME C ON THE SURFACE OF CARDIOLIPIN CONTAINING LIPOSOMES. **Leah A. Pandiscia**, Reinhard Schweitzer-Stenner

**464-Pos BOARD B244**  
NEISSERIAL OPA PROTEIN DYNAMICS AND INTERACTION WITH HOST CEACAM RECEPTORS. **Marissa K. Kieber**, Tsega Solomon, Linda Columbus

**465-Pos BOARD B245**  
MEMBRANE PROTEIN MISFOLDING ENFORCES THE POSITIVE-INSIDE RULE. **Nicholas B. Last**, Christopher Miller

**466-Pos BOARD B246**  
DEVELOPING A UNIVERSAL STERIC TRAPPING STRATEGY FOR STUDYING FOLDING AND STABILITY OF HELICAL MEMBRANE PROTEINS. Ruiqiong Guo, Kristen A. Gaffney, Xuefei Huang, **Heedeok Hong**

**467-Pos BOARD B247**  
STUDYING MEMBRANE PROTEIN FOLDING BY MOLECULAR DYNAMICS SIMULATIONS. **Jan Domanski**, Mark Sansom, Philip Stansfeld, Robert Best

**468-Pos BOARD B248**  
IDENTIFYING THE OLIGOMERIZATION STATE OF DEGP IN THE ABSENCE AND PRESENCE OF SUBSTRATE. **Shawn M. Costello**, Ashlee M. Plummer, Karen G. Fleming

**469-Pos BOARD B249**  
THEORETICAL PREDICTION OF MUTATIONS IMPROVING THERMAL STABILITY OF ADENOSINE A2A RECEPTOR. Yuta Kajiwara, **Satoshi Yasuda**, Yuki Takamuku, Takeshi Murata, Masahiro Kinoshita

**470-Pos BOARD B250**

BIOINFORMATIC METHODS FOR THE RAPID IDENTIFICATION OF THERMOSTABILIZING MUTANTS. **David B. Sauer**, Nathan K. Karpowich, Da-Neng Wang

**471-Pos BOARD B251**

INTERACTION OF THE PHAGE ENDOLYSIN PLYC WITH MODEL MEMBRANES. **Marilia Barros**, Tarek Vennemann, Frank Heinrich, Daniel Nelson, Mathias Lösche

**472-Pos BOARD B252 EDUCATION TRAVEL AWARDEE**

STRUCTURAL BASIS OF PHOSPHOINOSITIDE (PIP) RECOGNITION BY THE TIRAP PIP-BINDING MOTIF. **Xiaolin Zhao**, Shuyan Xiao, Sam Berk, Anne M. Brown, David R. Bevan, Geoffrey Armstrong, Daniel G.S. Capelluto

**473-Pos BOARD B253**

MECHANISM OF ACTION OF SALT ADAPTATION MUTATIONS IN ARTEMIA FRANCISCANA. **Jessica Eastman**, Sukanyalakshmi Chebrolu, Pablo Artigas

**474-Pos BOARD B254**

DETERMINING OLIGOMERIC ORDER OF A MEMBRANE PROTEIN BY DOUBLE ELECTRON-ELECTRON RESONANCE SPECTROSCOPY. **Sergey Milikisiyants**, Shenlin Wang, Rachel Munro, Matthew Donohue, Leonid S. Brown, Tatyana I. Smirnova, Vladimir Ladizhansky, **Alex I. Smirnov**

**475-Pos BOARD B255**

NUCLEOTIDE-DEPENDENT MEMBRANE INTERACTION AND DIMERIZATION OF K-RAS4B. **Hyunbum Jang**, Shaoyong Lu, Mayukh Chakrabarti, Lyuba Khavrutskii, Nadya I. Tarasova, Vadim Gaponenko, Ruth Nussinov

**476-Pos BOARD B256 EDUCATION TRAVEL AWARDEE**

FORMING THE PSEUDOMONAS AERUGINOSA TRANSLOCON REQUIRES SIMULTANEOUS INCORPORATION OF POPB AND POPD. **Kathryn R. Monopoli**, Alejandro P. Heuck

**477-Pos BOARD B257**

INVESTIGATING THE FUNCTIONAL ROLE OF THE TRANSMEMBRANE SEGMENTS OF YTA10, A SUBUNIT OF THE MAAA PROTEASE, IN MEMBRANE PROTEIN DEGRADATION. **Hunsang Lee**, Hyun Kim

**478-Pos BOARD B258**

OLIGOMER STOICHIOMETRY OF MEMBRANE-BOUND PROTEINS INVOLVED IN A COOPERATIVE PARTITION EQUILIBRIUM: A HOMO-FRET STUDY. Ana M. Melo, A. Fedorov, M. Prieto, **Ana Coutinho**

## Membrane Receptors and Signal Transduction I (Boards B259-B280)

**479-Pos BOARD B259**

ACTIVATION AND DRUG DESIGN OF A MUSCARINIC G-PROTEIN COUPLED RECEPTOR. **Yinglong Miao**, J. Andrew McCammon

**480-Pos BOARD B260**

ALLOSTERIC EFFECTS OF G-PROTEIN COUPLED RECEPTOR HETEROMERIZATION: RELEVANCE TO PSYCHOSIS. **Jason Younkin**, Lia Baki, Amr Ellaithy, Diomedes E. Logothetis

**481-Pos BOARD B261**

MICROTUBULES SHAPE GPCR SPATIOTEMPORAL MEMBRANE ORGANIZATION AND FUNCTION BY SCAFFOLDING

CORTICAL SIGNALING HUBS. Sandra de Keijzer, Marjolein B.M. Meddens, Samantha L. Schwartz, Peter J. Bosch, Ben Joosten, Johannes S. Kanger, Vinod Subramaniam, Diane S. Lidke, **Alessandra Cambi**

**482-Pos BOARD B262**

LOCALIZATION AND DYNAMICS OF BETA-ADRENERGIC RECEPTOR MEDIATED EGFR TRANSACTIVATION ON MICRO-PATTERNED SURFACES. **Peter Lanzerstorfer**, Ulrike Müller, Diana Zindel, Otmar Höglinger, Cornelius Krasel, Moritz Bünemann, Julian Weghuber

**483-Pos BOARD B263**

MEMBRANE CURVATURE REGULATES THE LOCALIZATION OF G PROTEIN COUPLED RECEPTORS AND RAS ISOFORMS. **Dimitrios Stamou**, Kadla Rosholm, Alexander Damalas, Nikos Hatzakis, Volker Wirth, Karen Martinez, Natascha Leijnse, Lene Oddershede, Poul Martin Bendix, Soren Pedersen

**484-Pos BOARD B264**

MOLECULAR SIGNATURES OF G-PROTEIN COUPLED RECEPTORS IN PANCREATIC CANCER USING SUPER-RESOLUTION MICROSCOPY. Raphael Jorand, Ottavia Golfetto, Sunetra Biswas, Steven J. Tobin, Huiying Zhang, Vladana Vukojevic, **Tijana Jovanovic-Talisman**

**485-Pos BOARD B265**

REAL TIME OBSERVATION OF LIGAND BINDING TO A GPCR: CONFORMATIONAL SELECTION GOVERNS THE ABILITY OF RETINALS TO BIND OPSIN. **Christopher T. Schafer**, David L. Farrens

**486-Pos BOARD B266**

NOVEL CHEMICAL BIOLOGY METHODS ILLUMINATE THE FUNCTION OF SINGLE G PROTEIN-COUPLED RECEPTORS. **Thomas Huber**, Thomas P. Sakmar

**487-Pos BOARD B267**

POLYMER-BASED NANODISCS FOR STUDYING STRUCTURE AND DYNAMICS OF G-PROTEIN-COUPLED RECEPTORS. **Jana Broecker**, Takefumi Morizumi, Wei-Lin Ou, Oliver P. Ernst

**488-Pos BOARD B268**

TRACKING VOLTAGE-SENSITIVE MOVEMENTS OF THE M2 MUSCARINIC ACETYLCHOLINE RECEPTOR. **Michael F. Priest**, Noa Dekel, Ofra Barchad-Avitzur, Yair Ben-Chaim, Francisco Bezanilla

**489-Pos BOARD B269**

BETA-ARRESTIN BIASED SIGNALING AT A CLASS A GPCR: MODELING THE ORG27569 INDUCED CB1/BETA-ARRESTIN 1 COMPLEX. **Dow P. Hurst**, Diane L. Lynch, Derek M. Shore, Michael C. Pitman, Patricia H. Reggio

**490-Pos BOARD B270**

MOLECULAR DETERMINANTS AND KINETIC PARAMETERS OF LIGAND BINDING TO G PROTEIN-COUPLED RECEPTORS USING MARKOV STATE MODEL ANALYSIS. **Sebastian Schneider**, Davide Provasi, Marta Filizola

**491-Pos BOARD B271**

LCK CLUSTER DYNAMICS IN LIVE CELLS. **Florian Baumgart**, Andreas Arnold, Gerhard Schütz

**492-Pos BOARD B272**

THE B CELL RECEPTOR DICTATES ITS LOCAL LIPID ENVIRONMENT. **Matthew B. Stone**, Sarah L. Veatch



**493-Pos BOARD B273**  
FCAEPSILONRI SIGNAL PROPAGATION IS REGULATED THROUGH TRANSIENT BINDING OF SYK.  
**Samantha L. Schwartz**, Mara P. Steinkamp, Cedric Cleyrat, Bridget S. Wilson, Keith A. Lidke, Diane S. Lidke

**494-Pos BOARD B274**  
ESTABLISHING THE STRUCTURAL RULES FOR LIGAND RECOGNITION, SIGNALING AND ASSEMBLY IN INNATE IMMUNE RECEPTORS. Nils A. Berglund, Mark A. Febbraio, Robert C. Ford, James I. Godfroy 3rd, Daniel A. Holdbrook, Vasileios E. Kargas, Syma Khalid, Graeme I. Lancaster, Hang Yin, **Peter J. Bond**

**495-Pos BOARD B275**  
THE T CELL RECEPTOR RESIDES IN ORDERED PLASMA MEMBRANE NANODOMAINS THAT AGGREGATE UPON T CELL ACTIVATION. **Ingela Parmryd**, Astrid Riehl, Jelena Dinic, Jeremy Adler

**496-Pos BOARD B276**  
REINFORCEMENT OF INTEGRIN-MEDIATED T-LYMPHOCYTE ADHESION BY TNF. Qian Li, Dieter Adam, **Christine Selhuber-Unkel**

**497-Pos BOARD B277**  
PLASMA MEMBRANE ORGANIZATION PROMOTES CD36 SIGNAL TRANSDUCTION IN ENDOTHELIAL CELLS. John Githaka Maringa, Anthony Vega, Michael W. Davidson, Khuloud Jaqaman, **Nicolas Touret**

**498-Pos BOARD B278**  
SUPER-RESOLUTION IMAGING OF IGE-FC $\epsilon$ RI STIMULATED WITH STRUCTURALLY DEFINED LIGANDS. **Eshan D. Mitra**, Sarah A. Shelby, David Holowka, Barbara Baird

**499-Pos BOARD B279**  
SENDING INNATE IMMUNE SIGNALS ACROSS THE MEMBRANE: A MULTISCALE SIMULATION APPROACH TO TOLL-LIKE RECEPTOR ASSEMBLY. **Vasileios E. Kargas**, Daniel A. Holdbrook, James I. Godfroy III, Hang Yin, Robert C. Ford, Peter J. Bond

**500-Pos BOARD B280**  
A DNA ORIGAMI PLATFORM FOR PROTEIN INTERACTION ANALYSIS. **Viktorija Motsch**, Roland Hager, Eva Sevcsik, Friedrich Schäffler, Stefan Howorka, Gerhard Schütz

## Exocytosis and Endocytosis (Boards B281-B302)

**501-Pos BOARD B281**  
CLOSURE OF PRE-EXISTING  $\Omega$  PROFILES MEDIATES COMPENSATORY ENDOCYTOSIS, ENDOCYTOSIS OVERSHOOT AND BULK ENDOCYTOSIS. **Wonchul Shin**, Hsueh-Cheng Chiang, Peter J. Wen, Jiansong Sheng, Ling-Gang Wu

**502-Pos BOARD B282**  
HOW HALF-COATED JANUS PARTICLES ENTER CELLS.  
**Yuan Gao**, Yan Yu

**503-Pos BOARD B283**  
INTERACTIONS OF LIPOSOMAL OPA PROTEINS WITH HUMAN CELL SURFACE CEACAM RECEPTORS. **Jason Kuhn**

**504-Pos BOARD B284**  
ANTIBODY INDUCED PLAP ENDOCYTOSIS IS DEPENDENT ON THE STRUCTURE AND AMOUNT OF STEROLS IN CELLULAR PLASMA MEMBRANE. **Ji Hyun Kim**, Deborah Brown, Erwin London

**505-Pos BOARD B285**  
CELL SPREADING SIZE REGULATES SIZE OF CLATHRIN-COATED PITS THROUGH TENSION. **Allen Liu**, Xinyu Tan, Johanna Heureaux

**506-Pos BOARD B286**  
SYNAPTIC VESICLE TURNOVER IN HUMAN BRAIN SYNAPTOSOMES. Arup R. Nath, Ilea Larente, Taufik Valiante, **Elise F. Stanley**

**507-Pos BOARD B287**  
CONTROLLING STIMULUS-SECRETION COUPLING IN ADRENAL CHROMAFFIN CELLS: A NOVEL ROLE FOR THE SEROTONIN TRANSPORTER? **Rebecca L. Brindley**, Randy D. Blakely, Kevin P.M. Currie

**508-Pos BOARD B288**  
FUSION OF LYOSOMES WITH SECRETORY VESICLE LEADS TO EXCESSIVE UNCONTROLLED EXOCYTOSIS IN MUCOLIPIDOSIS TYPE IV. **Malini Ahuja**, Soonhong Park, MinSeuk Kim, Eugen Brailoiu, Shmuel Muallem

**509-Pos BOARD B289**  
TRPV1 ACTIVATION MODULATES ACETYLCHOLINE RELEASE AT MYONEURAL JUNCTIONS. **Baskaran Thyagarajan**, Joseph Potian, Padmamalini Baskaran, Joseph J. McArdle

**510-Pos BOARD B290**  
ANALYSIS OF KINETICALLY DISTINGUISHED SYNAPTIC SUBTYPES IN HIPPOCAMPAL NEURONS. **Andreas W. Henkel**

**511-Pos BOARD B291**  
A MATCHED FILTER ALGORITHM CAN ACCURATELY DETECT AMPEROMETRIC SPIKES RESULTING FROM QUANTAL EXOCYTOSIS AND SEED A CURVE-FITTING ALGORITHM FOR ESTIMATION OF SPIKE PARAMETERS. **Supriya Balaji Ramachandran**, Kevin D. Gillis

**512-Pos BOARD B292**  
ETHNIC DIFFERENCES IN INSULIN GRANULE EXOCYTOSIS. **Joon Ha**, Arthur Sherman

**513-Pos BOARD B293**  
QUANTITATIVE IMAGING OF THE EXOCYTOSIS MACHINERY ASSEMBLY. Nikhil R. Gandasi, **Sebastian Barg**

**514-Pos BOARD B294 INTERNATIONAL TRAVEL AWARDEE**  
FUSION PROPERTIES OF GLIOTRANSMITTER VESICLES IN CULTURED ASTROCYTES. **Alenka Guček**, Jernej Jorgačevski, Priyanka Singh, Claudia Geisler, Nina Vardjan, Marko Kreft, Alexander Egner, Robert Zorec

**515-Pos BOARD B295**  
PROBING THE INTERACTION BETWEEN SYNAPTOTAGMIN-1 AND SNARES USING MUTATIONS IN SNAP-25. **Melanie Schupp**, Jakob Balslev Sørensen



**516-Pos BOARD B296**

INDUCTION OF HIPPOCAMPAL SYNAPSES ON FUNCTIONALIZED MICROPATTERNS. **Julia Trahe**, Ulrike Keller, Yaroslav Tsytsyura, Jana Huve, Carsten Reissner, Markus Missler, Jacob Piehler, Jurgen Klingauf

**517-Pos BOARD B297 EDUCATION TRAVEL AWARDEE**

SYNAPTOTAGMIN-1 AND SYNAPTOTAGMIN-7 DIFFER IN THEIR STIMULUS AND  $Ca^{2+}$ -DEPENDENCE OF ACTIVATION. **Tejeshwar C. Rao**, Andrew R. Peleman, David R. Giovannucci, Arun Anantharam

**518-Pos BOARD B298**

THE IDENTIFICATION OF VAMPS IN B-LYMPHOCYTES. **Marie Kelly-Worden**, Fatimah Albrekkan, Michael Dugan, KyLeigh Harnish, Laura Gomez-Jaramillo, Antonio Campos-Caro

**519-Pos BOARD B299**

COMPLEXIN: MASTERPIECE IN VESICLE CYCLING AND RELEASE. Eduardo Quiroz-Manriquez, Hector Fonseca-Velez, **Ramon A. Jorquera**

**520-Pos BOARD B300**

ENVIRONMENTAL PERTURBATIONS THAT CAUSE STRUCTURAL CHANGES IN THE SNARE PROTEIN SNAP-25. **Jaron J. Hansen**, Timothy T. Harris, Bryce J. Parkinson, Joshua L. Bryan, Katrina J. Welker, Brian J. Buckner, Dixon J. Woodbury

**521-Pos BOARD B301**

GRANUPHILIN C2A DOMAIN AS A COINCIDENCE DETECTOR FOR PHOSPHATIDYLSERINE AND PHOSPHOINOSITIDES. **Abena Watson-Siriboe**, Tatyana A. Lyakhova, Jefferson D. Knight

**522-Pos BOARD B302 EDUCATION TRAVEL AWARDEE**

THE MEMBRANE BENDING ACTION OF THE SYT-1 C2AB STUDIED ON SUPPORTED LIPID BILAYERS. **Lauren P. MacConnachie**, Neo C. Poyiadji, Tejeshwar C. Rao, Arun Anantharam

**Calcium Signaling I (Boards B303-B331)****523-Pos BOARD B303**

COMPUTATIONAL SYSTEM ANALYSIS OF  $Ca^{2+}$  SIGNALING IN THE PANCREATIC BETA-CELLS. **Leonid E. Fridlyand**, Louis H. Philipson

**524-Pos BOARD B304**

ACIDIC CALCIUM STORES CONTRIBUTE TO SECRETORY ACTIVITY FOLLOWING ELEVATION OF CAMP IN THE SALIVARY GLAND. **John Imbery**, Sura Khuder, Amanda Weiss, James T. Slama, David R. Giovannucci

**525-Pos BOARD B305**

MECHANICS REGULATES ATP-STIMULATED CALCIUM RESPONSE IN FIBROBLAST CELLS. **Josephine Lembong**, Benedikt Sabass, Bo Sun, Matthew E. Rogers, Howard A. Stone

**526-Pos BOARD B306**

CALCIUM MOVEMENT IN CARDIAC MITOCHONDRIA. **Liron Boyman**, George S. B. Williams, Aristide C. Chikando, Ramzi J. Khairallah, Sarah Kettlewell, Christopher W. Ward, Godfrey L. Smith, Joseph P. Y. Kao, W J. Lederer

**527-Pos BOARD B307**

CALCIUM DYNAMICS AND HOMEOSTASIS IN BREAST CANCER ONCOGENESIS. **Donna Dang**, José P. Llongueras, Rajini Rao

**528-Pos BOARD B308**

DIFFERENTIAL EFFECTS OF PLC-COUPLED RECEPTORS ON INTRACELLULAR CALCIUM OSCILLATIONS IN HEK293 CELLS. **Gary S. Bird**, James W. Putney Jr.

**529-Pos BOARD B309**

MODULATING CALCIUM ENTRY INTO MICROVASCULAR ENDOTHELIUM BY CONTROLLING MEMBRANE POTENTIAL DURING SUBMAXIMAL MUSCARINIC RECEPTOR ACTIVATION. **Erik J. Behringer**, Steven S. Segal

**530-Pos BOARD B310**

REDUCED IP3-MEDIATED  $Ca^{2+}$  SIGNALING IN AUTISM SPECTRUM DISORDERS IN THE CONTEXT OF FRAGILE X AND TUBEROUS SCLEROSIS SYNDROMES. **Galina Schmunk**, Bryan J. Boubion, Ian F. Smith, Ian Parker, John Jay Gargus

**531-Pos BOARD B311**

BUFFERING EFFECTS ON THE LCC CURRENT AND SPATIOTEMPORAL  $Ca^{2+}$  DYNAMICS. **Libet Garber**, Maura Greiser M.D., George S. B. Williams, W. Jonathan Lederer

**532-Pos BOARD B312**

VENTRICULAR WALL STRESS PREDICTS DISRUPTION OF CARDIOMYOCYTE T-TUBULE STRUCTURE AND  $Ca^{2+}$  HOMEOSTASIS ACROSS THE INFARCTED HEART. **Michael Frisk**, Emil KS Espe, Åsmund T. Røe, J Magnus Aronsen, Lili Zhang, Ulla H. Enger, Ole M. Sejersted, Ivar Sjaastad, Ivar Sjaastad, William E. Louch

**533-Pos BOARD B313**

PHYSICAL COUPLING BETWEEN SERCA2 AND PDE3A REGULATES SERCA2 ACTIVITY IN CARDIOMYOCYTES. **Jonas Skogestad**

**534-Pos BOARD B314**

PURIFIED IGGs FROM TYPE 2 DIABETES WITH ATRIAL FIBRILLATION INDUCE INTRACELLULAR CALCIUM RELEASE IN CARDIOMYOCYTES THROUGH IP3 PATHWAY. Yanhong Luo, Mark B. Zimering, **Zui Pan**

**535-Pos BOARD B315**

STRETCH ACTIVATED CHANNEL ACTIVATION CAN PROMOTE OR SUPPRESS CARDIAC ALTERNANS. **Samuel Galice**, Donald M. Bers, Daisuke Sato

**536-Pos BOARD B316**

A NOVEL ROLE FOR B-TYPE NATRIURETIC PEPTIDE AND PHOSPHODIESTERASE 2A IN CARDIAC SYMPATHETIC NEURONS FROM PREHYPERTENSIVE RATS. **Dan Li**, Guoliang Hao, Kun Liu, Lavinia Woodward, Demetris Ioannides, Chieh-Ju Lu, David J. Paterson

**537-Pos BOARD B317**

REDUCED HEART RATE IN MICE HARBORING AN SR LUMINAL  $Ca^{2+}$  SENSOR MUTATION (E4872Q) IS LINKED TO ABNORMAL  $Ca^{2+}$  RELEASE AND PACEMAKER FUNCTION IN ISOLATED CARDIOMYOCYTES DERIVED FROM THE MUTANT RYR CLONE. **Syevda Sirenko**, Ihor Zahanich, Yelena Tarasova, Daniel R. Riordon, Wenqian Chen, Wayne S.R. Chen, Edward G. Lakatta

**538-Pos BOARD B318**

PHOSPHORYLATION-DEPENDENT SYNCHRONIZATION OF RANDOM SPONTANEOUS LOCAL DIASTOLIC  $Ca^{2+}$  RELEASES REGULATES ACTION POTENTIAL FIRING RHYTHMICITY OF PACEMAKER CELLS. **Dongmei Yang**, Alexey E. Lyashkov, Yael Yaniv, Bruce D. Ziman, Edward G. Lakatta

**539-Pos BOARD B319**

ELECTRON-CONFORMATIONAL TRANSFORMATIONS IN NANOSCOPIC RYR2 CHANNELS GOVERN BOTH THE HEART'S CONTRACTION AND BEATING. **Alexander Moskvín**, Alexander Ryvkin, Nikolay Zorin, Kirill Soulim, Bogdan Yaparov, Olga Solovyova, Vladimir Markhasin

**540-Pos BOARD B320**

MG56, A MEMBER OF THE MBOAT FAMILY OF PROTEINS, REGULATES INTRACELLULAR CALCIUM SIGNALING IN STRIATED MUSCLE. **Matthew Sermersheim**, Xinyu Zhou, Ki Ho Park, Pei-Hui Lin, Jacob Yount, Wayne Chen, Miyuki Nishi, Hiroshi Takeshima, Jianjie Ma

**541-Pos BOARD B321**

CISPLATIN-INDUCED CACHEXIA IN RATS CAUSES ALTERATIONS IN SKELETAL MUSCLE CALCIUM HOMEOSTASIS. Elena Conte, Adriano Fonzino, Sabata Pierno, Giulia Maria Camerino, Maria Cannone, Kejla Musaraj, Laura Rizzi, Elena Bresciani, Antonio Torsello, Diana Conte, **Antonella Liantonio**

**542-Pos BOARD B322**

STIM1 ENHANCES SR  $Ca^{2+}$  CONTENT THROUGH INHIBITING PHOSPHOLAMBAN IN RAT VENTRICULAR MYOCYTES. **Guiling Zhao**, Didier X. P. Brochet, Tianyu Li, Paul Rosenberg, W. Jonathan Lederer

**543-Pos BOARD B323**

REGULATION OF CALCINEURIN BY CALCIUM-BINDING COUSINS. Lisa D. Weaver, Brandon R. Uribe, Maria F. Núñez Hernandez, Michael C. Rendleman, Sean A. Klein, Susan E. O'Donnell, **Madeline A. Shea**

**544-Pos BOARD B324**

IDENTIFY THE BINDING INTERFACE BETWEEN CALSENILIN AND PRESENILIN 1 C-TERMINAL FRAGMENT. **Khoa N. Pham**, Jaroslava Miksovska

**545-Pos BOARD B325**

ROLE OF MITOCHONDRIAL  $Ca^{2+}$  UNIPORTER IN RADIATION-INDUCED CELL DAMAGE. **Xibao Liu**, Baijuan Gong, Hwei Ling Ong, Kwong Tai Cheng, Madesh Muniswamy, Indu S. Ambudkar

**546-Pos BOARD B326**

DIVERSITY OF MITOCHONDRIAL  $Ca^{2+}$  SIGNALING: EVIDENCE FROM GENETICALLY ENCODED PROBES. **Xiaohua Zhang**, Naohiro Yamaguchi, Lars Cleemann, Martin Morad

**547-Pos BOARD B327**

ANALYSIS OF ATP PRODUCTION EFFICIENCY OF BEAT-TO-BEAT CALCIUM FLUCTUATIONS IN CARDIAC MITOCHONDRIA. **Sangeeta Shukla**, W. Jonathan Lederer, M. Saleet Jafri

**548-Pos BOARD B328**

IN VIVO TEMPERATURE SENSITIVITY OF THE CALCIUM AFFINITY OF FLUO-5F AND MAG-FLUO4. **Brian M. Hagen**, Joseph P.Y. Kao, W. Jonathan Lederer

**549-Pos BOARD B329**

A NOVEL RED FLUORESCENCE CALCIUM INDICATOR FOR FUNCTIONAL ANALYSIS OF GPCRS AND CALCIUM CHANNEL TARGETS. Qin Zhao, Haitao Guo, George Yi, **Jinfang Liao**, Zhenjun Diwu

**550-Pos BOARD B330**

COUPLING INTERACTIONS OF THE DIMERIC SOAR UNIT OF STIM1 WITH ORAI1 CHANNELS. **Yandong Zhou**, Xizhuo Wang, Xianming Wang, Natalia A. Loktionova, Xiangyu Cai, Xiangyu Cai, Youjun Wang, Donald L. Gill

**551-Pos BOARD B331**

TRANSLOCATION BETWEEN  $PI(4,5)P_2$ -POOR AND  $PI(4,5)P_2$ -RICH MICRODOMAINS DURING STORE DEPLETION DETERMINES STIM1 CONFORMATION AND GATING OF ORAI1. **Shmuel Muallem**, Jozsef Maléth, Seok Choi, Malini Ahuja

## Cardiac, Smooth, and Skeletal Muscle Electrophysiology I (Boards B332-B347)

**552-Pos BOARD B332**

DIFFERENTIAL EFFECTS OF ANTIARRHYTHMIC DRUGS VERNAKALANT AND FLECAINIDE ON HUMAN TWO-PORE-DOMAIN  $K^+$  CHANNELS. **Dierk Thomas**, Claudia Seyler, Patrick A. Schweizer, Hugo A. Katus

**553-Pos BOARD B333**

CLASSIFYING THE ELECTROPHYSIOLOGICAL EFFECTS OF CHRONOTROPIC DRUGS ON HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES USING VOLTAGE SENSITIVE DYES AND SUPERVISED MACHINE LEARNING. **Christopher M. Heylman**, Rupsa Datta, Bruce R. Conklin, Steven C. George, Enrico Gratton

**554-Pos BOARD B334**

SPARFLOXACIN, A FLUOROQUINOLONE ANTIBIOTIC, SLOWS INACTIVATION OF L-TYPE  $Ca^{2+}$  CURRENT IN NEONATAL RAT VENTRICULAR MYOCYTES. **Jaek Gon Kim**, Sang Woong Park, Hun Ji Kim, Hana Cho, Young Min Bae

**555-Pos BOARD B335**

ON-CHIP QUASI-*IN VIVO* PREDICTIVE CARDIOTOXICITY ASSAY USING SPATIOTEMPORAL FLUCTUATION MEASUREMENT ON HUMAN CARDIOMYOCYTE CELL-NETWORK. **Fumimasa Nomura**, Tomoyuki Kaneko, Hideyuki Terazono, Kenji Yasuda

**556-Pos BOARD B336**

LABEL-FREE HIGH-THROUGHPUT CARDIOTOXICITY ASSAYS USING COMBINED IMPEDANCE AND EXTRACELLULAR FIELD POTENTIAL MEASUREMENTS. Corina T. Bot, Sonja Stoelzle-Feix, David R. Guinot, Ulrich Thomas, Ulrich Thomas, Leo Doerr, Matthias Beckler, George Okeyo, Joerg Oestreich, **Rodolfo J. Haedo**, Michael George, Niels Fertig

**557-Pos BOARD B337**

A NOVEL CLASSIFICATION METHOD WITH SUPERIOR PREDICTION OF DRUG ARRHYTHMIA RISK. **Megan A. Cummins**, Eric A. Sobie

**558-Pos BOARD B338**

ELECTROPHYSIOLOGY OF CARDIAC TISSUE SLICES BEFORE, DURING, AND AFTER STRETCH. Ken Wang, Razik Mu-u-min, Derek Terrar, David GJ Gavaghan, Peter Kohl, **Christian Bollensdorff**

**559-Pos BOARD B339**

DUAL SPIKES OF CATECHOLAMINE RELEASES FROM SYMPATHETIC NERVES IN RODENT HEART SLICES FOLLOWING HYPOXIA-REPERFUSION AS RECORDED BY A NOVEL ELECTROCHEMICAL METHOD. Bing Liu, Shu Guo, Jing Lü, Xinjiang Kang, Yun Xiu, Jingli Gu, Yu Mu, Qian Lei, Bin Liu, Kun Liu, Lihuan Li, Changhe Wang, Jimin Cao, **Zhuan Zhou**

**560-Pos BOARD B340**

ELECTRONIC EXPRESSION OF IK1 IN HUMAN INDUCED PLURIPOTENT STEM CELL DERIVED CARDIOMYOCYTES REVEALS ATRIAL VS VENTRICULAR SPECIFIC PROPERTIES. Aaron D. Kaplan, Glenna C.L. Bett, **Randall L. Rasmusson**

**561-Pos BOARD B341**

NORMALIZATION OF ACTION POTENTIAL PROPERTIES IN HUMAN INDUCED PLURIPOTENT STEM CELL DERIVED CARDIOCYTES BY ELECTRONIC EXPRESSION OF IK1. Aaron D. Kaplan, Agnieszka Lis, Randall L. Rasmusson, **Glenna C L Bett**

**562-Pos BOARD B342**

ACTIVATION OF  $Ca^{2+}$ -DEPENDENT CATION CURRENT BY FLUID SHEAR FORCE IN ATRIAL MYOCYTES. Min-Jeong Son, **Joon-Chul Kim**, Ju Chen, Sun-Hee Woo

**563-Pos BOARD B343**

STIM1 INCREASES  $Ca^{2+}$  STORES IN THE SARCOPLASMIC RETICULUM OF ADULT FELINE VENTRICULAR MYOCYTES. **Constantine Troupes**, Steven Houser

**564-Pos BOARD B344**

REGIONAL HETEROGENEITY OF THE INWARDLY RECTIFYING POTASSIUM CURRENT IN THE CANINE HEART. **Brian Panama**, Tanya Zeina, Lini Thomas, Robert Goodrow, Vladislav Nesterenko, Jacqueline Treat, Jonathan Cordeiro

**565-Pos BOARD B345**

TRANSIENT OUTWARD  $K^+$  CURRENT UNDERLIES HETEROGENEITY OF ACTION POTENTIAL DURATION AND EARLY AFTERDEPOLARIZATION FROM RIGHT VENTRICLE IN TRANSGENIC RABBIT MODEL OF LONG QT TYPE 1.

**Bum-Rak Choi**, Weiyan Li, Dmitry Terentyev, Colin Rees, Radmila Terenteva, Taeyun Kim, Xuwen Peng, Zhilin Qu, Alain Karma, Gideon Koren

**566-Pos BOARD B346**

ACTION POTENTIAL REPOLARIZATION IN EQUINE HEARTS. **Kirstine Calloe**, Philip J. Pedersen, Maria de los Angeles Tejada, Kristian L. Poulsen, Søren Grubb, Rikke Buhl, Dan A. Klaerke

**567-Pos BOARD B347**

OVEREXPRESSION OF ADENYLYL CYCLASE 8 (AC8) IN MICE INCREASES INTRINSIC HEART RATE (IHR) AND REDUCES HEART RATE VARIABILITY (HRV), AND DETACHES HR AND HRV FROM AUTONOMIC MODULATION. **Michael G. Matt**, Ismayil Ahmet, Oliver Monfredi, Kenta Tsutsui, Edward G. Lakatta

**Biopolymers in Vivo (Boards B348-B362)****568-Pos BOARD B348**

A SENSOR FOR QUANTIFICATION OF MACROMOLECULAR CROWDING IN LIVING CELLS. **Arnold J. Boersma**, Boqun Liu, Bert Poolman

**569-Pos BOARD B349**

DESOLVATION ENERGY: A RATIONALE FOR CHANGES IN BINDING AFFINITY AS MEASURED BY ITC. **Daryl K. Eggers**, Jennifer M. Le, Duc N. Pham, Nhi T. Nham, Frankie A. Contreras

**570-Pos BOARD B350**

RAPIDLY INDUCIBLE DE NOVO SYNTHESIS OF HYDROGELS IN LIVING CELLS. **Takanari Inoue**

**571-Pos BOARD B351**

EXCLUDED VOLUME EFFECTS INSIDE THE LIVING CELL. **David Gnutt**, Mimi Gao, Oliver Brylski, Matthias Heyden, Simon Ebbinghaus

**572-Pos BOARD B352**

MACROMOLECULAR CROWDING IN THE CYTOSOL: UNDERAPPRECIATED OR OVERESTIMATED? **Joost Groen**, David Foschepoth, Arnold J. Boersma, Hiromi Imamura, Hans A. Heus, Wilhelm T.S. Huck

**573-Pos BOARD B353**

THERMODYNAMICS AND KINETICS OF MULTI-PROTEIN BINDING IN CROWDED ENVIRONMENTS. **Youngchan Kim**, Jeetain Mittal

**574-Pos BOARD B354**

REAL-TIME TRANSCRIPTION INITIATION BY E.COLI RNA POLYMERASE IN VITRO AND IN VIVO. **Anne Plochowitz**, Diego Duchi Llumigusin, Pawel Zawadzki, Afaf H. El-Sagheer, Tom Brown, Achillefs N. Kapanidis

**575-Pos BOARD B355**

A DISORDER-BASED STRATEGY FOR THE INTRODUCTION OF ALLOSTERIC, "HILL-TYPE" COOPERATIVITY INTO ARTIFICIAL RECEPTORS. **Anna J. Simon**, Alexis Vallée-Bélisle, Francesco Ricci, Herschel M. Watkins, Kevin W. Plaxco

**576-Pos BOARD B356**

STRUCTURE-FUNCTION RELATIONS AND RIGIDITY PERCOLATION IN BIOPOLYMER NETWORKS IN LIVE TISSUE UNDER SHEAR: BOVINE ARTICULAR CARTILAGE AS A MODEL SYSTEM. Jesse L. Silverberg, **Moumita Das**, Aliyah R. Barrett, Poul B. Petersen, Lawrence J. Bonassar, Itai Cohen

**577-Pos BOARD B357**

NUCLEAR DAMAGE IN HIGHLY CONSTRAINED MIGRATION: FROM LAMINA DEFECTS TO DNA BREAKS. **Jerome Irianto**, Avathamsa Athirasala, Rocky Diegmiller, Irena Ivanovska, Dennis E. Discher

**578-Pos BOARD B358**

THE KINETICS OF NASCENT PROTEIN FOLDING UPON RELEASE FROM THE RIBOSOME. **Rayna M. Addabbo**, Hon Nam Lam, Brian Arnold, Silvia Cavagnero

**579-Pos BOARD B359**

DIFFUSION COEFFICIENT AS A FUNCTION OF MASS FOR GLOBULAR BIOMOLECULES. **Michael J. Saxton**

**580-Pos BOARD B360**

DEVELOPING A NANOCARRIER FOR TARGETED DELIVERY OF CARDIO-PROTECTIVE AGENTS. **Nasr N. Alrabadi**, Jennifer I. Lai, Chi L. Pham, Adrina F. Varda, Paul K. Witting, Margaret Sunde

**581-Pos BOARD B361**

THE NONRANDOM NATURE OF WEAK INTERACTIONS BETWEEN PROTEINS AND BYSTANDER MACROMOLECULES IN CELLULAR ENVIRONMENTS. **Sanbo Qin**, Huan-Xiang Zhou

**582-Pos BOARD B362 INTERNATIONAL TRAVEL AWARDEE**

A COMPUTATIONAL MODEL FOR E.COLI CYTOPLASM: DIFFUSION AND HYDRODYNAMICS. **Sabeeha Hasnain**, Christopher L. McClendon, Monica Tremont Hsu, Matthew P. Jacobson, Pradipta Bandyopadhyay

**Voltage-gated K Channels I (Boards B363-B392)****583-Pos BOARD B363**

MOVEMENTS OF THE KV2.1 AND KV6.4 S4 SEGMENTS IN HETEROTETRAMERIC KV2.1/KV6.4 CHANNELS. **Elke Bocksteins**, Dirk J. Snyders, Miguel Holmgren

**584-Pos BOARD B364**

ION CHANNELS AND SALT BRIDGES: QUANTUM CALCULATIONS SHOW UNUSUAL EFFECTS. **Alisher M. Kariev**, Michael E. Green



- 585-Pos BOARD B365**  
STATE DEPENDENT PHOTO-CROSSLINKING OF THE IKS CHANNEL COMPLEX DEMONSTRATES MOVEMENT OF KCNE1 AT PRE-OPENING MEMBRANE POTENTIALS. **Christopher I. Murray**, Maartje Westhoff, Yasmeen Maurice, Jodene Eldstrom, David Fedida
- 586-Pos BOARD B366**  
TESTING THE HYDRATION STATUS OF THE SHAKER-K CHANNEL VOLTAGE SENSOR DOMAIN WITH SUGARS. **Ignacio Díaz-Franulic**, David Naranjo
- 587-Pos BOARD B367**  
THE EFFECT OF D<sub>2</sub>O ON THE INACTIVATION KINETICS AND RECOVERY FROM SLOW INACTIVATION OF SHAKER-IR K<sup>+</sup> CHANNELS. Tibor G. Szanto, Orsolya Szilagyi, **Gyorgy Panyi**
- 588-Pos BOARD B368**  
NON-CANONICAL START CODONS REINITIATE TRANSLATION IN N-TERMINAL TRUNCATED KV CHANNELS. **Tanja Kalstrup**, Rikard Blunck
- 589-Pos BOARD B369**  
ACTIVATION GATE REGION INFLUENCES STOICHIOMETRY OF HETEROMERIC SHAKER FAMILY CHANNELS. **Aditya Pisupati**, William J. Horton, Keith Mickolajczyk, Xiaofan Li, Jose Chu, William O. Hancock, Timothy Jegla
- 590-Pos BOARD B370**  
ION PERMEATION IN POTASSIUM CHANNELS INVOLVES DIRECT COULOMB KNOCK-ON BETWEEN IONS. **Ulrich Zachariae**, David A. Kopfer, Chen Song, Tim Gruene, George M. Sheldrick, Bert L. de Groot
- 591-Pos BOARD B371**  
DYNAMICS OF THE KCSA SELECTIVITY FILTER PROBED USING INTRINSIC TYROSINE FLUORESCENCE. **H Raghuraman**, Eduardo Perozo
- 592-Pos BOARD B372**  
ROLE OF THE S6-PXP MOTIF IN U-TYPE INACTIVATION OF HETEROTETRAMERIC KV2.1/KV6.4 CHANNELS. **Jeroen I. Stas**, Elke Bocksteins, Alain J. Labro, Dirk J. Snyders
- 593-Pos BOARD B373**  
VOLTAGE DEPENDENCE OF BK CHANNELS GATING RING MOTION STUDIED BY STATE DEPENDENT FRET. **Pablo Miranda**, Teresa Giraldez, Miguel Holmgren
- 594-Pos BOARD B374**  
QUANTITATIVE MAPPING OF INTERACTIONS IN THE VOLTAGE-SENSOR PORE INTERFACE OF THE SHAKER POTASSIUM CHANNEL. **Kevin Oelstrom**, Ana Fernandez-Mariño, Baron Chanda
- 595-Pos BOARD B375**  
BINDING OF QUATERNARY AMMONIUM IONS TO A POTASSIUM CHANNEL. **Dylan O. Burdette**, Adrian Gross
- 596-Pos BOARD B376**  
STRUCTURE AND DYNAMICS OF THE MTHK K<sup>+</sup> CHANNEL SELECTIVITY FILTER DURING GATING. **David J. Posson**, Céline Boiteux, Toby W. Allen, Crina M. Nimigeon
- 597-Pos BOARD B377**  
RECONSTITUTION AND MEASUREMENT OF ION CHANNEL ENSEMBLES IN DROPLET BILAYERS. **Viksita Vijayvergiya**, Shiv Acharya, Jacob Schmidt
- 598-Pos BOARD B378**  
THE CONFORMATION OF KCSA'S SELECTIVITY FILTER INFLUENCES THE OPENING OF ITS ACTIVATION GATE. **Cholpon Tilegenova**, D. Marien Cortes, Luis G. Cuello
- 599-Pos BOARD B379**  
ENGINEERING HERG CHANNEL INNER CAVITY WITHIN KCSA STRUCTURE. **Luis G. Cuello**, D. Marien Cortes
- 600-Pos BOARD B380**  
PIP2 MODIFIES THE FREE ENERGY OF THE KV1.2 VOLTAGE-SENSOR ACTIVATION. **Marina A. Kasimova**, Lucie Delemotte, Michael L. Klein, Vincenzo Carnevale, Mounir Tarek
- 601-Pos BOARD B381**  
K<sup>+</sup>-DEPENDENT SELECTIVITY AND EXTERNAL CALCIUM BLOCK OF SHAB POTASSIUM CHANNELS. **Froylan Gomez-Lagunas**, Elisa Carrillo
- 602-Pos BOARD B382**  
TIME-DEPENDENT VOLTAGE SENSOR RELAXATION IN HERG CHANNELS. **Samrat Thouta**, Yu Patrick Shi, Stanislav Sokolov, Yen May Cheng, Tom W. Claydon
- 603-Pos BOARD B383**  
BLOCK OF HERG BY EXTRACELLULAR CALCIUM AND OTHER DIVALENT IONS. Andrew Nguyen, Alice Wong, Angad Oberoi, Thuyvy Le, **Alan Miller**
- 604-Pos BOARD B384**  
EXTERNAL PROTONS DESTABILIZE THE RELAXED STATE OF THE HERG CHANNEL VOLTAGE SENSOR. **Yu Patrick Shi**, Samrat Thouta, Yen May Cheng, Tom W. Claydon
- 605-Pos BOARD B385**  
NOVEL VOLTAGE PROTOCOLS FOR DETERMINING HERG CHANNEL KINETICS. **Gary R. Mirams**, Kylie Beattie, James B. Louttit, Teun de Boer, David J. Gavaghan
- 606-Pos BOARD B386**  
STOICHIOMETRY OF A HERG1 AGONIST ON CHANNEL GATING. **Wei Wu**, Alison Gardner, Frank Sachse, Michael Sanguinetti
- 607-Pos BOARD B387**  
MOLECULAR ORIGINS OF STATE-DEPENDENT HERG1 BLOCKADE BY DOFETILIDE. **Yibo Wang**, Laura Perissinotti, Jiqing Guo, Henry J. Duff, Sergei Yu. Noskov
- 608-Pos BOARD B388**  
THE ROLE OF MET-691 IN HEME-DEPENDENT REGULATION SUPPORTS THE PRESENCE OF A CYTOCHROME-C-LIKE STRUCTURE IN HUMAN BK CHANNELS. **Taleh Yusifov**, Nicoletta Savalli, Saemi Park, Antonios Pantazis, Riccardo Olcese
- 609-Pos BOARD B389**  
THE HEME-BOUND HUMAN BK CHANNEL GATING RING IS A CO SENSOR. **Taleh Yusifov**, Nicoletta Savalli, Stefan H. Heinemann, Toshinori Hoshi, Riccardo Olcese
- 610-Pos BOARD B390**  
A NOVEL APPROACH FOR LOCATING THE SITES OF DRUG ACTION ON BK CHANNELS. **Yanyan Geng**, Alice Butler, Lawrence B. Salkoff, Karl M. Magleby
- 611-Pos BOARD B391**  
CADMIUM COORDINATION BY CYSTEINES INTRODUCED IN THE BK INNER PORE AND ITS STRUCTURAL AND FUNCTIONAL IMPLICATIONS. **Yu Zhou**, Xiaoming Xia, Christopher J. Lingle



**612-Pos BOARD B392**

MUTATIONS IN THE S4/S5 LINKER AND S6 OF SLO1 ABLATE THE RESPONSE TO THE NOVEL BK CHANNEL OPENER GOSLO-SR-5-6. **Arvind Kshatri**, Tim I. Webb, Roddy J. Large, Adebola Morayo Akande, Subhrangsu Roy, Gerard P. Sergeant, Noel G. McHale, Keith D. Thornbury, Mark A. Hollywood

**TRP Channels I (Boards B393-B408)****613-Pos BOARD B393**

A MECHANISM FOR DETECTING THE RATE OF TEMPERATURE CHANGE IN DROSOPHILA. **Junjie Luo**, Wei L. Shen, Craig Montell

**614-Pos BOARD B394**

ELECTROPHYSIOLOGICAL CHARACTERIZATION OF INTERNAL AND EXTERNAL LIGANDS ON TRPA1. **Andrea Bruggemann**, Markus Rapedius, Tom Götze, Claudia Haarmann, Ilka Rinke, Marius Vogel, Timo Stengel, Johannes Stiehler, Michael George, Niels Fertig

**615-Pos BOARD B395**

COOLING DOWN TRP CHANNEL: COLD AND CHEMO-SENSITIVITY OF THE HUMAN TRPA1. **Mohamed Kreir**, Lavanya Moparthi, Edward D. Högestätt, Urban Johanson, Andrea Bruggemann, Peter M. Zygmunt, Niels Fertig

**616-Pos BOARD B396**

THE ROLE OF TRPA1 AND TRPV1 CHANNELS IN OROFACIAL PAIN. **Roberta Gualdani**, Stefania Ceruti, Giulia Magni, Davide Merli, Lorenzo di Cesare Mannelli, Oscar Francesconi, Barbara Richichi, Giancarlo la Marca, Carla Ghelardini, Maria Rosa Moncelli, Cristina Nativi

**617-Pos BOARD B397**

PROBING TEMPERATURE SENSING OF THERMAL TRP CHANNELS BY CALORIMETRY. **Kiran Andra**, Anoop Saxena, Beiyang Liu, Feng Qin

**618-Pos BOARD B398**

ROLE OF TRPV1 CHANNELS IN GLIOMA CELL VIABILITY AND SURVIVAL. **Yelena Nersesyan**, Swapna Asuthkar, Kiran K. Velpula, Xiaohui Sun, Lusine Demirkhanyan, Eleonora Zakharian

**619-Pos BOARD B399**

DIETARY CAPSAICIN AND EXERCISE: ANALYSIS OF A TWO-PRONGED APPROACH TO COUNTERACT OBESITY. **Vivek Krishnan**, Kevin Fettel, Baskaran Thyagarajan

**620-Pos BOARD B400**

PROTON AS A DUAL REGULATOR FOR TRPV1. **Bo Hyun Lee**, Jie Zheng

**621-Pos BOARD B401**

UNRAVELING ALLOSTERIC COUPLING MECHANISMS IN THE TRPV1 CHANNEL. **Andrés Jara-Oseguera**, Kenton J. Swartz

**622-Pos BOARD B402**

MOLECULAR MECHANISM OF TRPV1 ACTIVATION BY CAPSAICIN. Fan Yang, **Xian Xiao**, Wei Cheng, Wei Yang, Vladimir Yarov-Yarovoy, Jie Zheng

**623-Pos BOARD B403**

INSIGHT INTO THE STRUCTURE OF TETRAMER HTRPV1 FROM HOMOLOGY MODELING, MOLECULAR DOCKING, MOLECULAR DYNAMICS SIMULATION AND VIRTUAL SCREENING. **Zhiwei Feng**

**624-Pos BOARD B404**

THE MOLECULAR DETERMINANTS OF PI(4,5)P2 BINDING TO TRPV1 CHANNELS. **Horacio Poblete**, Ingrid Oyarzún, Pablo Olivero, Jeffrey Comer, Matías Zuñiga, Romina Sepulveda, David Báez-Nieto, Carlos González, Fernando Gonzalez-Nilo, Ramón Latorre

**625-Pos BOARD B405**

PREPARATION AND EVALUATION OF PLGA COATED CAPSAICIN MAGNETIC NANOPARTICLES FOR TARGET SITE-SPECIFIC PAIN THERAPEUTICS. **Mrudhula Baskaran**, Baskaran Thyagarajan

**626-Pos BOARD B406**

DISSOCIATION RATES AS ONE OF THE DIFFERENTIATING FACTORS FOR HYPERTHERMIC AND NON-HYPERTHERMIC TRPV1 ANTAGONISTS. **Laykea Tafesse**, Gang Wu, Kevin Carlin, Toshiyuki Asaki, Toshiyuki Kanemasa, Victor Ilyin

**627-Pos BOARD B407**

A SINGLE-RESIDUE SWITCH FOR HIGH TEMPERATURE DEPENDENCE OF THERMAL TRPV3 CHANNELS. **Beiyang Liu**, Feng Qin

**628-Pos BOARD B408**

THE SPIDER TOXIN GSMTX-4 BLOCKS TRPV4 CATION CHANNELS EXPRESSED IN HEK-293 CELLS. Christian SJ Kesselring, Mirjam Krautwald, Yaxin Zhang, **Heinrich Brinkmeier**

**Ion Channel Regulatory Mechanisms I (Boards B409-B427)****629-Pos BOARD B409**

USE-DEPENDENT ACTIVATION OF NEURONAL KV1.2 CHANNEL COMPLEXES. **Victoria A. Baronas**, Brandon R. McGuinness, Yury Y. Vilin, Robin Y. Kim, Arohumam Kan, Runying Yang, Harley T. Kurata

**630-Pos BOARD B410**

THE IMPACT OF CHOLESTEROL ON GIRK CHANNELS DEPENDS ON A TRANSMEMBRANE REGION OF THE CHANNELS. **Avia Rosenhouse-Dantsker**

**631-Pos BOARD B411**

THE SIGNIFICANCE AND MECHANISMS OF CLUSTERING BY SLC4 COTRANSPORTERS IN THE PLASMA MEMBRANE. **Harry Gill**

**632-Pos BOARD B412**

THE ROLE OF ROS IN TETHERING CFTR WITHIN CERAMIDE PLATFORMS AT THE PLASMA MEMBRANE. **Asmahan AbuArish**, Paul W. Wiseman, John W. Hanrahan

**633-Pos BOARD B413**

REFINEMENT AND EVALUATION OF A CFTR HOMOLOGY MODEL AND IDENTIFICATION OF RESIDUES CONTROLLING CHANNEL GATING. Gorman Stock, Guiying Cui, Nael A. McCarty, **James C. Gumbart**

**634-Pos BOARD B414**

SOLUTION NMR TO INVESTIGATE GATING IN THE NAK CHANNEL. **Joshua Brettmann**, Andrew Meiburg, Katherine Henzler-Wildman

**635-Pos BOARD B415**

A NEW CLASS OF POSITIVE GATING MODULATORS OF HKV3.2 CHANNELS: INSIGHTS INTO THE MECHANISM OF ACTION. **Qiansheng Liang**, Giuseppe Alvaro, Charles Large, Manuel Covarrubias

**636-Pos BOARD B416**

PKA REDUCES THE RAT AND HUMAN  $K_{CA} 3.1$  CURRENT, CAM BINDING AND  $Ca^{2+}$  SIGNALING, WHICH REQUIRES SER332/334 IN THE CAM-BINDING C TERMINUS.

**Raymond Wong**, Lyanne C. Schlichter

**637-Pos BOARD B417**

CARDIAC SODIUM CHANNEL: ACTIVATION BY CAM INVOLVES A NAV1.5-NAV1.5 INTERACTION. Sandra B. Gabelli, Agedi Boto, Victoria Halpernin, Mario A. Bianchet, Federica Farinelli, Srinivas Aripirala, **Jesse B. Yoder**, Jean Jakoncic, Gordon F. Tomaselli, Mario Amzel

**638-Pos BOARD B418**

CALMODULATION OF VOLTAGE-GATED CALCIUM CHANNELS BY BLUE LIGHT. **Jacqueline Niu**, Manu Ben-Johny, Paul J. Adams, David T. Yue

**639-Pos BOARD B419**

PEGYLATED CHOLESTEROL AND METHYL-BETA-CYCLODEXTRIN ARE MODULATORS OF L-TYPE CALCIUM CHANNEL CURRENT AND DECREASE MEMBRANE CAPACITANCE IN VASCULAR SMOOTH MUSCLE CELLS.

**Rikuo Ochi**, Sachin A. Gupte

**640-Pos BOARD B420**

NMDA RECEPTOR INHIBITION OF L-TYPE CALCIUM CHANNELS VIA ER CALCIUM DEPLETION AND ACTIVATION OF STIM1 IN CULTURED HIPPOCAMPAL NEURONS.

**Philip J. Dittmer**, Mark L. Dell'Acqua, William A. Sather

**641-Pos BOARD B421**

DEFINING POST AS A MODULATOR OF STIM1 FUNCTION DURING T CELL ACTIVATION. **Christina Go**, Robert Hooper, Joseph Kedra, Jonathan Soboloff

**642-Pos BOARD B422 EDUCATION TRAVEL AWARDEE**

THE SIGMA1 RECEPTOR COMPETES WITH STIM1 TO BIND ORAI1 TO REGULATE STORE OPERATED CALCIUM ENTRY (SOCE). **Shyam Srivats**, Dilshan Balasuriya, Mathias Pasche, Robert Vistal, Colin W. Taylor, Mike J. Edwardson, Ruth D. Murrell-Lagnado

**643-Pos BOARD B423**

FUNCTIONAL INTERACTION OF AN ORAI1 PORE RESIDUE WITH THE INACTIVATION DOMAIN OF STIM1.

**Franklin M. Mullins**, Richard S. Lewis

**644-Pos BOARD B424**

STIM1 BINDING TO BOTH THE N' AND C' TERMINI OF ORAI1 IS CRITICAL FOR GATING OF CRAC CHANNELS. **Raz Palty**, Cherise Stanley, Ehud Isacoff

**645-Pos BOARD B425**

CLUSTERING OF INWARD RECTIFIER POTASSIUM CHANNELS IN A PIP2-CONTAINING MEMBRANE: A MOLECULAR DYNAMICS SIMULATION STUDY. **Anna L. Duncan**, Heidi Koldsø, Mark S. P. Sansom

**646-Pos BOARD B426**

DIRECT CONTACTS OF  $K^+$  IONS IN THE SELECTIVITY FILTER ENABLE THE HIGH CONDUCTANCE OF  $K^+$  CHANNELS.

**Chen Song**, David A. Köpfer, Tim Gruene, George M. Sheldrick, Mark S. P. Sansom, Ulrich Zachariae, Bert L. de Groot

**647-Pos BOARD B427 CPOW TRAVEL AWARDEE**

EVOLUTIONARY DIVERSITY OF PROTEIN NANODOMAINS WITHIN MAMMALIAN SPERM. **Melissa R. Miller**, Sam J. Kenny, Steven A. Mansell, Ke Xu, Polina Lishko

**Cardiac Muscle Regulation I  
(Boards B428-B443)****648-Pos BOARD B428**

A FRET-BASED ASSAY FOR MONITORING ACTIONS OF CALCIUM SENSITIZERS ON THE THIN FILAMENT.

**Maria E. Moutsoglou**, Gi-Ho Kim, Christopher Solis-Ocampo, John M. Robinson

**649-Pos BOARD B429**

SPFRET REVEALS THE MECHANISM OF MYOSIN-DEPENDENT ACTIVATION OF TROPONIN WITHIN REGULATED ACTION FILAMENTS. **Gi-Ho Kim**, Maria E. Moutsoglou, Christopher Solis Ocampo, John M. Robinson

**650-Pos BOARD B430**

BRIDGING INTEGRATOR 1 (BIN1) INITIATES T-TUBULE GROWTH DURING CARDIAC DEVELOPMENT AND DISEASE. **David B. Lipsett**, Michael Frisk, Neha Singh, Jan Magnus Aronsen, William Marszalec, Ole M. Sejersted, Ivar Sjaastad, J. Andrew Wasserstrom, Geir Christensen, William E. Louch

**651-Pos BOARD B431**

CHARACTERIZING PROTEIN BINDING OF PHOSPHOLAMBAN TO SERCA USING CHEMICAL CROSS-LINKING.

**Vidhya Sivakumaran**, Nikolai Smolin, Seth Robia

**652-Pos BOARD B432**

TOAC SPIN LABEL CONFORMATION RESOLVED BY MD SIMULATION OF MEMBRANE-BOUND PHOSPHOLAMBAN. **Andrew Reid**, Jesse McCaffrey, Christine Karim, Bengt Svensson

**653-Pos BOARD B433**

USING MOLECULAR DYNAMICS SIMULATIONS TO INTERPRET FLUORESCENCE AND EPR DATA ON LABELED SERCA AND PHOSPHOLAMBAN. **Bengt Svensson**, Xiaoqiong Dong, Karl J. Petersen, Zachary M. James, Jesse E. McCaffrey, Howard S. Young, David D. Thomas

**654-Pos BOARD B434**

PHOSPHOLAMBAN PHOSPHORYLATION ALTERS ITS CONFORMATIONAL EQUILIBRIUM TO REGULATE SERCA ACTIVITY. **Leanna McDonald**, Gianluigi Veglia

**655-Pos BOARD B435**

ATOMIC-LEVEL CHARACTERIZATION OF THE INHIBITION MECHANISM OF THE CALCIUM PUMP BY PHOSPHOLAMBAN. **L. Michel Espinoza-Fonseca**, Joseph M. Autry, G. Lizbeth Ramirez-Salinas, David D. Thomas

**656-Pos BOARD B436**

NOVEL ROLES OF GQ-DEPENDENT SIGNAL TRANSDUCTION FOR CARDIAC PACEMAKING AND CARDIAC IMPULSE PROPAGATION STUDIED BY GQ-KO AND A DREADD. Elisabeth Kaiser, Laura Schröder, Kathrina Wiesen, Jürgen Wess, Qinghai Tian, Lars Kaestner, **Peter Lipp**

**657-Pos BOARD B437**

THE LARGE SCALE TRANSCRIPTOME ANALYSIS OF MOUSE SINOATRIAL NODE (SAN). **Yosuke Okamoto**, Kirill V. Tarasov, Bruce D. Ziman, Joonho Lee, Edward G. Lakatta

**658-Pos BOARD B438**

A SIMPLE REGULATION OF CARDIOMYOCYTE EXCITABILITY. **Karni S. Moshal**

**659-Pos BOARD B439**

MITOCHONDRIAL ABNORMALITIES IN A MOUSE CPVT MODEL WITH RYR2 LOSS-OF-FUNCTION MUTATION. V. Ramesh Iyer, **Manuela Lavorato**, Yang-Ting Zhao, Hector H. Valdivia, Clara Franzini - Armstrong

**660-Pos BOARD B440**

WNT SIGNALING SELECTIVELY INHIBITS SODIUM CHANNELS IN CARDIAC MYOCYTES. **Wenbin Liang**, Eduardo Marbán

**661-Pos BOARD B441**

THE PHYSIOLOGICAL RELEVANCE OF INTERACTIONS BETWEEN CMYBP-C AND ACTIN STUDIED IN A TRANSGENIC MOUSE MODEL. **Sabine J. van Dijk**, Kristina L. Bezold, Samantha P. Harris

**662-Pos BOARD B442**

THE HCM MUTATION L348P IN CMYBP-C ENHANCES THIN FILAMENT ACTIVATION THROUGH TROPOMYOSIN SHIFT. Ji Young Mun, Robert W. Kensler, Samantha P. Harris, **Roger Craig**

**663-Pos BOARD B443**

CROSSBRIDGE ARRANGEMENT IN CARDIAC THICK FILAMENTS ISOLATED FROM CMYBP-C PHOSPHOMIMETIC MICE. **Robert W. Kensler**, Roger Craig, Richard L. Moss

## Kinesins, Dyneins, and Other Microtubule-based Motors (Boards B444-B471)

**664-Pos BOARD B444**

DECRYPTING THE STRUCTURAL, DYNAMIC AND ENERGETIC BASIS OF KINESIN INTERACTING WITH TUBULIN DIMER IN THREE ATPASE STATES BY ALL-ATOM MOLECULAR DYNAMICS SIMULATION. **Wenjun Zheng**, Srirupa Chakraborty

**665-Pos BOARD B445**

A NEW MECHANISM OF KINESIN MOTILITY: CONVERSION OF RANDOM MOTION TO DIRECTIONAL MOTION WITH RATCHET STRUCTURE. **Ya-chang Chou**

**666-Pos BOARD B446**

QUANTIFICATION OF IFT-DYNEIN DYNAMICS IN C.ELEGANS. **Jona Mijalkovic**, Bram Prevo, Felix Oswald, Pierre JJ Mangeol, Erwin JG Peterman

**667-Pos BOARD B447**

3D REAL-TIME ORBITAL TRACKING IN ZEBRAFISH EMBRYOS: HIGH SPATIOTEMPORAL ANALYSIS OF MITOCHONDRIAL DYNAMICS IN NEURONS. **Fabian Wehnekamp**, Gabriela Plucińska, Thomas Misgeld, Don C. Lamb

**668-Pos BOARD B448**

MOTOR COORDINATION IN LONG-DISTANCE TRANSPORT IN AXONS. Praveen Chowdary, Daphne Che, **Bianxiao Cui**

**669-Pos BOARD B449**

PHOSPHORYLATION REGULATES THE MOTILE PROPERTIES OF A MITOTIC KINESIN. **Ofer Shapira**, Larisa Gheber

**670-Pos BOARD B450** CPOW MID-CAREER TRAVEL AWARDEE  
MECHANO-CHEMICAL MODEL FOR THE STEPPING OF CYTOPLASMIC DYNEIN. **Andreja Šarlah**, Andrej Vilfan

**671-Pos BOARD B451**

DYNACTIN FUNCTIONS AS BOTH A DYNAMIC TETHER AND BRAKE DURING DYNEIN-DRIVEN MOTILITY. **Swathi Ayloo**, Jacob E. Lazarus, Aditya Dodda, Mariko Tokito, E Michael Ostap, Erika Holzbaur

**672-Pos BOARD B452**

TOWARDS SIMULATION OF VIRTUAL CELLS: THE KINESIN-MICROTUBULE MOLECULAR MOTOR. **Srayanta Mukherjee**, Jeffrey Skolnick

**673-Pos BOARD B453** EDUCATION TRAVEL AWARDEE

KINESIN-2'S ROLE IN INTRACELLULAR CARGO TRANSPORT: NAVIGATING THE COMPLEX MICROTUBULE LANDSCAPE. **Gregory Hoeprich**, William Hancock, Christopher Berger

**674-Pos BOARD B454**

COOPERATIVE TRANSPORT BY POPULATIONS OF FAST AND SLOW KINESINS UNCOVERS NOVEL FAMILY-DEPENDENT MOTOR CHARACTERISTICS IMPORTANT FOR IN VIVO FUNCTION. Göker Arpağ, Shankar Shastry, William O. Hancock, **Erkan Tüzel**

**675-Pos BOARD B455**

KINESIN REGULATION DYNAMICS THROUGH CARGO DELIVERY, A SINGLE MOLECULE INVESTIGATION. **Anthony P. I. Kovacs**, Jonathan M. Kessler, Huawen Lin, Susan K. Dutcher, Yan Mei Wang

**676-Pos BOARD B456**

SENSITIVITY OF MULTIPLE-KINESIN TRANSPORT TO MICROTUBULE LATTICE DEFECTS. K M Rifat Faysal, Stephen J. King, **Jing Xu**

**677-Pos BOARD B457**

CHARACTERIZING THE ALLOSTERIC EFFECT OF NUCLEOTIDE AND INHIBITOR BINDING TO THE KINESIN MOTOR DOMAIN. **Guido Scarabelli**, Barry J. Grant

**678-Pos BOARD B458**

EFFECT OF FORCE AND DISCRETE STEP-SIZE ON THE VELOCITY DISTRIBUTION OF PROGRESSIVE MOLECULAR MOTORS. **Huong T. Vu**, Shaon Chakrabarti, Michael Hinczewski, D. Thirumalai

**679-Pos BOARD B459**

DEVELOPMENT OF PHOTO-CONTROLLED MOLECULAR SHUTTLE UTILIZING ATP DRIVEN MOTOR KINESIN. **Naozumi Numata**, Kazunori Kondo, Shinsaku Maruta

**680-Pos BOARD B460**

STUDY OF PHOSPHO-REGULATION OF A MITOTIC KINESIN USING A DIRECTED EVOLUTION APPROACH. **Alina Goldstein**, Nurit Siegler, Liam Holt, Leah Gheber

**681-Pos BOARD B461**

TRANSPORT BY A KINESIN IN THE PRESENCE OF MAGNETIC NANOPARTICLES. **Ehsan Mirzakhilili**, Eleni Gourgou, Bogdan Epureanu

**682-Pos BOARD B462**

KINETIC CHARACTERIZATION OF RICE PLANT SPECIFIC KINESIN E11 USING FLUORESCENT ATP ANALOGUE. **Hironobu Taniguchi**, Nozomi Umezumi, Shinsaku Maruta



**683-Pos BOARD B463**  
PHOTO-CONTROL OF MITOTIC KINESIN EG5 USING THIOL GROUP REACTIVE FULGIMIDE DERIVATIVE. **Yuki Tamura**, Dong Gyu Cho, Tae Joon Jeon, Shinsaku Maruta

**684-Pos BOARD B464**  
PHOTO-REGULATION OF KINESIN INTRAMOLECULARLY CROSSLINKED BY BIFUNCTIONAL AZOBENZENE DERIVATIVE AT THE COILED-COIL STALK REGION. **Haruka Fujio**, Kazunori Kondo, Shinsaku Maruta

**685-Pos BOARD B465**  
INVESTIGATING CIN8 BI-DIRECTIONALITY AS A MOLECULAR FORCE SENSOR. **Todd Fallesen**, Thomas Surrey

**686-Pos BOARD B466**  
STRUCTURAL-KINETICS OF THE SWITCH-1 LOOP AND NECK-LINKER ELEMENTS EXPLAINS THE DISTINCT MOLECULAR PHYSIOLOGIES OF KINESIN-1 AND KINESIN-5.  
**Joseph M. Muretta**, Jennifer Major, David D. Thomas, Rosenfeld S. Steven

**687-Pos BOARD B467**  
PROCESSIVITY OF KINESIN-2 RESULTS FROM REAR-HEAD GATING AND NOT FRONT-HEAD GATING. **Geng-Yuan Chen**, David Arginteanu, William O. Hancock

**688-Pos BOARD B468**  
HIGH SPEED MICROSCOPY FOR OBSERVING THE STEPPING BEHAVIOR OF KINESIN-1 MOTORS AT SATURATING ATP.  
**Keith J. Mickolajczyk**, Joanna Andrecka, Jaime Ortega-Arroyo, Philipp Kukura, William O. Hancock

**689-Pos BOARD B469**  
IMPACT OF STRUCTURAL AND DYNAMICAL COMPLEXITY ON KINESIN KINETICS. **Bruna D. Jacobson**, Kasra Manavi, Susan R. Atlas, Lydia Tapia

**690-Pos BOARD B470**  
THE KINESIN-8 KIF18B USES A NON-CANONICAL FORM OF DIRECTED MOTILITY TO TARGET THE EXTREME MICROTUBULE PLUS-END. Yongdae Shin, **Yaqing Du**, Ryoma Ohi, Matthew Lang

**691-Pos BOARD B471**  
MOTILITY OF KINETOCHORE KINESIN CENP-E IS ENHANCED BY TUBULIN DETYROSINATION.  
**Suvranta K. Tripathy**, Ricardo Silva E. Sousa, Maria M. Magiera, Anatoly V. Zaytsev, Marin Barisic, Helder Maiato, Carsten Janke, Ekaterina L. Grishchuk

## Cell Mechanics, Mechanosensing, and Motility I (Boards B472-B494)

**692-Pos BOARD B472**  
CONCENTRATION PROFILES OF ACTIN-BINDING MOLECULES IN LAMELLIPODIA WITH RETROGRADE FLOW. **Martin Falcke**

**693-Pos BOARD B473**  
HELICAL BUCKLING IN FILOPODIA. Natascha Leijnse, Lene B. Oddershede, **Poul M. Bendix**

**694-Pos BOARD B474**  
CHARACTERISTICS OF CELL SHAPE IN TWO DIMENSIONS. **Elaheh Alizadeh**, Samantha M. Lyons, Joshua Mannheimer, Jordan Castle, Renee Plomondon, Ashok Prasad

**695-Pos BOARD B475**  
DOES CELL SHAPE DETERMINE CELL FATE? Samantha M. Lyons, Elaheh Alizadeh, Joshua Mannheimer, Jordan Castle, Bryce Schroeder, Diego Krapf, David R. Smith, Randy A. Bartels, **Ashok Prasad**

**696-Pos BOARD B476**  
REAL-TIME DEFORMABILITY CYTOMETRY: HIGH-THROUGHPUT MECHANICAL PHENOTYPING FOR CHANGES IN CELL FUNCTION. Oliver Otto, Philipp Rosendahl, Alexander Mietke, Stefan Golfer, Angela Jacobi, Nicole Töpfner, Christoph Herold, Daniel Klaue, Elisabeth Fischer-Friedrich, **Jochen Guck**

**697-Pos BOARD B477**  
CORTICAL ACTIN TENSION, ELASTIC MODULUS AND CYTOSOLIC PRESSURE IN FIBROBLASTS DETERMINED USING ATOMIC FORCE MICROSCOPY. **Alexander X. Cartagena-Rivera**, Jeremy S. Logue, Clare M. Waterman, Richard S. Chadwick

**698-Pos BOARD B478**  
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**699-Pos BOARD B479**  
CO-CULTURE CHANGES THE MECHANICAL PROPERTIES OF CELLS. **Xinyi Guo**, Keith Bonin, Martin Guthold

**700-Pos BOARD B480**  
QUANTIFICATION OF COMPOSITIONAL CHANGES IN THE NON-ERYTHROID MEMBRANE SKELETON DUE TO EXTERNAL FORCES. Eleni K. Degaca, **Martin B. Forstner**

**701-Pos BOARD B481**  
VIMENTIN INTERMEDIATE FILAMENT MECHANICS IN CELLS UNDER SHEAR STRESS. **Huayin Wu**, Mikkel H. Jensen, Ming Guo, David A. Weitz

**702-Pos BOARD B482**  
ELECTROMECHANICAL MODEL FOR NON-EXCITABLE CELLS. **Flori H. Yellin**, Varun KAC Sreenivasan, Brenda Farrell, Sean X. Sun

**703-Pos BOARD B483**  
THE ROLE OF CELLULAR MECHANICAL PROPERTIES IN MICROENVIRONMENT-DEPENDENT BEHAVIOR. **Iris Pak**, Manisha Kanthilal, Eric Darling

**704-Pos BOARD B484 CPOW TRAVEL AWARDEE**  
CHARACTERIZING MECHANICAL FORCES DURING B CELL RESPONSES. **Katelyn M. Spillane**, Pavel Tolar

**705-Pos BOARD B485**  
ATOMIC FORCE MICROSCOPY OF TRIPLE NEGATIVE BREAST CANCER CELLS: A PREDICTIVE VALUE OF MECHANICAL PHENOTYPE. **Pawel A. Osmulski**, Karolina Wlodyga, Tim Hui-Ming Huang, Maria E. Gaczynska

**706-Pos BOARD B486 EDUCATION TRAVEL AWARDEE**  
AFM INDENTATION REVEALS ACTOMYOSIN-BASED STIFFENING OF METASTATIC CANCER CELLS DURING INVASION INTO COLLAGEN I MATRICES. **Bryant L. Doss**, Jack R. Staunton, Stuart M. Lindsay, Robert Ros

**707-Pos BOARD B487**  
CYTOSKELETAL FORCES DURING T CELL ACTIVATION.  
**King Lam Hui**, Arpita Upadhyaya



**708-Pos BOARD B488**

PERSISTENT ACTIVATION OF SIGNAL TRANSDUCTION NETWORKS INDUCES A NOVEL MECHANISM OF CELL DEATH. **Marc Edwards**, Huaqing Cai, Peter Devreotes

**709-Pos BOARD B489**

ACUTE MECHANICAL STIMULATION ACTIVATES THE CHEMOTACTIC SIGNALING NETWORK. **Yulia Artemenko**, Jane S. Borleis, Peter N. Devreotes

**710-Pos BOARD B490**

PHARMACOLOGICAL ACTIVATION OF MYOSIN II TO CORRECT PANCREATIC CANCER CELL MECHANICS. **Alexandra Surcel**, Qingfeng Zhu, Eric Schifffhauer, Robert Anders, Douglas Robinson

**711-Pos BOARD B491**

SH3 DOMAIN OF C-SRC REGULATES ITS DYNAMIC BEHAVIOR IN THE CELL MEMBRANE. **Hiroaki Machiyama**, Tomoyuki Yamaguchi, Tomonobu M. Watanabe, Hideaki Fujita

**712-Pos BOARD B492**

INSIGHTS ON RGD-BASED PEPTIDE INTERACTIONS WITH INTEGRIN RECEPTORS FROM ATOMISTIC SIMULATIONS. **Aravind Rammohan**, Jacob Miner, Matthew Mckenzie

**713-Pos BOARD B493**

H2-CALPONIN GENE KNOCKOUT INCREASES TRACTION FORCE OF MOUSE FIBROBLASTS IN VITRO. **M Moazzem Hossain**, Guangyi Zhao, Moon-Sook Woo, James H-C. Wang, J.p. Jin

**714-Pos BOARD B494 EDUCATION TRAVEL AWARDEE**

DELETION OF H2-CALPONIN IN MACROPHAGES FACILITATES CELL MOTILITY AND LIPID CLEARANCE: A NOVEL MECHANISM TO ATTENUATE ARTERIAL ATHEROSCLEROSIS. **Rong Liu**, Jian-Ping Jin

## Membrane Pumps, Transporters, and Exchangers I (Boards B495-B515)

**715-Pos BOARD B495**

ARRAYED LIPID MEMBRANES ON FEMTOLITER CHAMBERS ALLOW HIGHLY SENSITIVE DETECTION OF ION TRANSLOCATION CATALYZED BY TRANSPORTER PROTEIN. **Rikiya Watanabe**, Naoki Soga, Hiroyuki Noji

**716-Pos BOARD B496**

VOLTAGE DEPENDENT CONFORMATIONAL CHANGES OF THE  $\text{Na}^+/\text{K}^+$ -ATPASE REVEALED BY SITE DIRECTED FLUOROMETRY. **Jorge E. Sánchez-Rodríguez**, Pablo Miranda-Fernández, Miguel Holmgren, Francisco Bezanilla

**717-Pos BOARD B497**

$\text{Na}^+/\text{K}^+$ -ATPASE PUMPING MECHANISM: INSIGHTS FROM SIMULATIONS. **Huan Rui**, Avisek Das, Benoit Roux

**718-Pos BOARD B498**

TOWARDS THERMODYNAMIC CHARACTERIZATION OF TRANSPORT CYCLE IN SECONDARY TRANSPORTERS USING ENHANCED SAMPLING TECHNIQUES. **Mahmoud Moradi**, Giray Enkavi, Emad Tajkhorshid

**719-Pos BOARD B499**

PROTONATION STATES OF KEY ACIDIC RESIDUES AT THE ION BINDING SITES IN  $\text{Na}^+/\text{K}^+$  PUMP BY QM CALCULATIONS. **Naoki Tsunekawa**, Chikashi Toyoshima

**720-Pos BOARD B500 EDUCATION TRAVEL AWARDEE**

$\text{Na}^+/\text{K}^+$  PUMP ION BINDING SITE INTERACTIONS REGULATE THE PROTON LEAK PATHWAY. **Kevin Stanley**, Craig Gatto, Pablo Artigas

**721-Pos BOARD B501**

POTASSIUM REGULATION OF THE  $\text{NaK}$ -ATPASE PUMP CURRENTS IN MAMMALIAN SKELETAL MUSCLE FIBERS. **Marino G. Di Franco**, Jerry Lingrel, Judith Heiny

**722-Pos BOARD B502**

A COMBINATION OF CURCUMIN WITH EITHER GRAMICIDIN OR OUABAIN SELECTIVELY KILLS CELLS THAT EXPRESS THE MULTIDRUG RESISTANCE-LINKED ABCG2 TRANSPORTER. **Haiyan Liu**, Divya K. Rao, Suresh V. Ambudkar, Michael Mayer

**723-Pos BOARD B503 EDUCATION TRAVEL AWARDEE**

CONFORMATIONAL CHANGES AND COMPLEX FORMATION OF THE NON-CANONICAL RIBOSE ABC TRANSPORTER. **Satchal K. Erramilli**, Cynthia V. Stauffacher

**724-Pos BOARD B504**

MOVEMENT OF THE NUCLEOTIDE BINDING DOMAINS IN THE ABC TRANSPORTER MSBA RECONSTITUTED IN NANODISCS. **Maria E. Zoghbi**, Guillermo A. Altenberg

**725-Pos BOARD B505**

MULTISCALE QM/MM SIMULATIONS OF ATP HYDROLYSIS MECHANISM IN ABC-TRANSPORTERS. **Jingzhi Pu**

**726-Pos BOARD B506 EDUCATION TRAVEL AWARDEE**

RECONSTITUTION OF MULTIDRUG RESISTANCE EFFLUX PUMPS IN GIANT LIPOSOMES. **SooHyun Park**, You Jung Kang, Sheereen Majd

**727-Pos BOARD B507**

EXPLORING P-GLYCOPROTEIN SUBSTRATE ACCESS. **Laura Domiccica**, Philip C. Biggin

**728-Pos BOARD B508**

METHIONINE IMPORTERS IN SOIL BACTERIA: POTENTIAL FOR TRANSPORTER-COMPONENT CROSSTALK. **Eliza Zielazinski**, Sarah Zerbs, Peter Larsen, Frank Collart, Philip D. Laible

**729-Pos BOARD B509**

EPR ACCESSIBILITY MEASUREMENTS OF THE SERCA-PLB COMPLEX USING SITE-DIRECTED SPIN LABELING. **Peter D. Martin**, Zachary M. James, Jesse E. McCaffrey, Dave D. Thomas

**730-Pos BOARD B510**

MAPPING OF SARCOLIPIN CONFORMATIONAL STATES ALONG THE ENZYMATIC PATHWAY OF SERCA. **Alysha A. Dicke**, Kaustubh R. Mote, Gianluigi Veglia

**731-Pos BOARD B511**

USING A LIVE-CELL HIGH-THROUGHPUT TIME-RESOLVED FRET ASSAY TO DISCOVER ENZYME MODULATORS. **Ji Li**, Tory M. Schaaf, Simon J. Gruber, Razvan L. Cornea, Joseph M. Autry, Samantha L. Yuen, Ryan Chen, Kurt C. Peterson, Gregory D. Gillispie, David D. Thomas

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MOLECULAR DYNAMICS SIMULATIONS OF CALCIUM PUMP STRUCTURAL DISORDER. **Nikolai Smolin**, Seth Robia

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EXPLORING CARDIAC CALCIUM ATPASE  
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SINGLE MOLECULE LEVEL. Salome Veshaguri, Sune M. Christensen,  
**Garima Ghale**, Mads Møller, Christina Lohr, Andreas Lauge  
Christensen, Marijonas Tutkus, Gerdi Kemmer, Bo Højen Justesen, Ida  
Louise Jørgensen, Thomas Pomorski, Dimitrios Stamou

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## Emerging Techniques and Approaches (Boards B516-B528)

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Bayer, Dafang Wang, Natalia A. Trayanova

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**Mohammad Sharifian Gh.**, Michael J. Wilhelm, Joel B. Sheffield, Hai-  
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**740-Pos BOARD B520**  
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**Andreas E. Vasdekis**, Gregory Stephanopoulos

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**742-Pos BOARD B522**  
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**Jeff G. Reifengerger**, Zeljko Dzakula, Vladimir Dergachev, Thomas  
Anantharaman, Alex Hastie, Saki Chan, Han Cao

**743-Pos BOARD B523**  
NANOSTRAWS: A NANOFABRICATED PLATFORM  
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**744-Pos BOARD B524**  
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NUCLEOBASES- MODELS FOR DNA BINDING.  
**Randy W. Larsen**, Chrsiti L. Whittington, Michael T. Kemp, Tarah  
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GCAMP3-DERIVED GENETICALLY ENCODED PROBES  
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Abigail Jackson, Jessica Ortega, Hyewon Kang, Kathleen Hoffman

**750-Pos BOARD B530**  
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**751-Pos BOARD B531**  
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**752-Pos BOARD B532**  
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**754-Pos BOARD B534**  
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**755-Pos BOARD B535**  
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MAMMALIAN CELLS. **Eric Senning**, William N. Zagotta, Sharona E.  
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**756-Pos BOARD B536**  
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VOLTAGE SENSOR PROTEINS. **Masoud Sepehri Rad**, Uhna Sung,  
Thomas Hughes, Lawrence B. Cohen, Bradley J. Baker

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**759-Pos BOARD B539**

BIDIRECTIONAL PROPAGATION OF ACTION POTENTIAL IN GIANT AXONS OF NERVE BUNDLES FROM HOMARUS AMERICANUS. **Tian Wang**, Alfredo Gonzalez-Perez, Jorin Diemer, Søren Nissen, Thomas Heimburg

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THE ENERGETICS OF HIGH FREQUENCY DISCHARGE IN ELECTROCYTES: A MATHEMATICAL MODEL WITH EXPLICIT PUMPS. Bela Joos, Michael R. Markham, John E. Lewis, **Catherine E. Morris**

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THE MECHANISM OF INHIBITION OF NECROSIS BY HUMANIN DERIVATIVES: A POTENTIAL TREATMENT FOR ISCHEMIA AND RELATED DISEASES. Aviv Cohen, Jenny Lerner-Yardeni, David Meridor, Moreno Zamai, Valeria R. Caiolfa, Roni Kasher, Ilana Nathan, **Abraham H. Parola**

**767-Pos BOARD B547**

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**771-Pos BOARD B551**

UNIFIED MODEL OF SYNAPTIC TRANSMISSION. **Cihan Kaya**, Bing Liu, James R. Faeder, Ivet Bahar

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TRANSITION METAL FRET OF CYCLIC NUCLEOTIDE-GATED CHANNELS LABELED WITH THE FLUORESCENT UNNATURAL AMINO ACID ANAP. **Teresa K. Aman**, Sharona E. Gordon, William N. Zagotta

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REVEALING THE CELLULAR METABOLIC STATE THROUGH NADH AUTOFLUORESCENCE LIFETIME IN PARKINSON'S DISEASE. **Sandeep Chakraborty**, Chiao-Ming Huang, Artahses Karmenyan, Jin-Wu Tsai, Arthur Chiou

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A CHARMM-COMPATIBLE FORCE FIELD FOR N- AND ALPHA-METHYLATED PEPTIDES WITH (PHI,PSI) ENERGY CORRECTION GRID. **Kenno Vanommeslaeghe**, Alexander D. MacKerell Jr.

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- 782-Pos BOARD B562**  
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- 784-Pos BOARD B564**  
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- 785-Pos BOARD B565**  
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- 786-Pos BOARD B566**  
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- 787-Pos BOARD B567**  
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- 788-Pos BOARD B568 INTERNATIONAL TRAVEL AWARDEE**  
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- 789-Pos BOARD B569**  
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- 791-Pos BOARD B571**  
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- 792-Pos BOARD B572**  
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- 793-Pos BOARD B573**  
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- 796-Pos BOARD B576**  
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- 797-Pos BOARD B577**  
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- 798-Pos BOARD B578**  
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- 800-Pos BOARD B580**  
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- 801-Pos BOARD B581**  
NON-MARKOVIAN ANALYSES FOR EXTRACTING LONG-TIME BEHAVIOR FROM MOLECULAR SIMULATION TRAJECTORIES. **Ernesto Suarez**, Daniel M. Zuckerman
- 802-Pos BOARD B582**  
NEW DEVELOPMENTS IN THE COLLECTIVE VARIABLES MODULE: MORE FLEXIBLE, MORE INTERACTIVE. **Giacomo Fiorin**, Jérôme Hénin
- 803-Pos BOARD B583**  
PARAMETRIZATION OF HALOGEN BONDS IN THE CHARMM GENERAL FORCE FIELD. **Ignacio Soteras Gutierrez**
- 804-Pos BOARD B584**  
LOOS: A TOOL FOR MAKING NEW TOOLS FOR ANALYZING MOLECULAR SIMULATIONS. **Tod D. Romo**, Alan Grossfield
- 805-Pos BOARD B585**  
A SMOLUCHOWSKI EQUATION FOR FORCE-MODULATED CHEMISTRY IN SINGLE MOLECULE PULLING EXPERIMENTS. **Gianmarc Grazioli**, Ioan Andricioaei
- 806-Pos BOARD B586**  
CHARMM-GUI MARTINI MAKER FOR COARSE-GRAINED SIMULATIONS. **Yifei Qi**, Xi Cheng, Wonpil Im
- 807-Pos BOARD B587**  
NECESSITY OF HIGH PHYSICAL RESOLUTION IN THE DEVELOPMENT OF FLEXIBLE COARSE-GRAINED PROTEIN MODELS. **ZhiGuang Jia**, Jianhan Chen



**808-Pos BOARD B588**

REFINING MULTI-SCALE ENHANCED SAMPLING FOR SIMULATING DISORDERED PROTEIN CONFORMATIONS. **Kuo Hao Lee**, Jianhan Chen

**809-Pos BOARD B589**

INVESTIGATION OF A METHOD TO EFFICIENTLY CREATE ELASTIC NETWORKS. **Patrick M. Diggins**, Changjiang Liu, Raffaello Potestio, Markus Deserno

## Single-Molecule Spectroscopy (Boards B590-B613)

**810-Pos BOARD B590**

MEMBRANE DEFORMATION BY HER2 OVEREXPRESSION DISRUPTS EPITHELIAL INTEGRITY. **Inhee Chung**, Mike Reichelt, Don Dowbenko, Ira Mellman, Mark Sliwkowski

**811-Pos BOARD B591**

BLINKING OF QUANTUM DOT PROBES IN SINGLE MEMBRANE MOLECULE ROTATION MEASUREMENTS. Dongmei Zhang, Peter W. Winter, Deborah A. Roess, **B. George Barisas**

**812-Pos BOARD B592**

SINGLE-MOLECULE FLUORESCENCE MICROSCOPY AND TRACKING OF LIPIDS IN MITOCHONDRIAL-LIKE SUPPORTED LIPID BILAYERS. **Markus Rose**, Nehad Hirmiz, Cecile Fradin, José Moran-Mirabal

**813-Pos BOARD B593**

THE ROLE OF AMINO ACID RESIDUES LOCATED AT THE CATALYTIC SITE IN THE ROTATION OF ENTEROCOCCUS HIRAE V1-ATPASE. **Yoshihiro Minagawa**, Ueno Hiroshi, Mayu Hara, Hiroyuki Noji, Takeshi Murata, Ryota Iino

**814-Pos BOARD B594**

INVESTIGATING THE KINETICS OF HSF BINDING USING HIGH THROUGHPUT SINGLE MOLECULE IMAGING. **Alexander L. Van Slyke**, Avtar Singh, Devin Wakefield, Dig Bijay Mahat, Martin S. Buckley, Barbard Baird, John T. Lis, Warren R. Zipfel

**815-Pos BOARD B595**

FAST AND USER-FRIENDLY SINGLE-MOLECULE FRET MICROSCOPY SOFTWARE. **Søren Preus**, Lasse Hildebrandt, Sofie L. Noer, Victoria Birkedal

**816-Pos BOARD B596**

DYNAMICS MEASUREMENT OF DIFFUSING SINGLE-MOLECULE WITH TENS OF MILLISECOND OBSERVATION TIME BY LIPOSOME TETHERING. **Jea-Yeol Kim**, Cheolhee Kim, Nam Ki Lee

**817-Pos BOARD B597**

TOTAL EMISSION DETECTION FOR EFFICIENT AND AFFORDABLE TWO-PHOTON FLUCTUATION CORRELATION SPECTROSCOPY (2P-FCS). **Aleksandr V. Smirnov**, Christian Combs, Justin Lee, Jay R. Knutson

**818-Pos BOARD B598**

POSITIONAL FLUOROPHORE PROPERTIES IN HIGH-PRECISION FRET ANALYSIS: ORIENTATION EFFECTS, DYNAMIC QUENCHING AND BEYOND. **Thomas-Otavio Peulen**, Claus A.M. Seidel

**819-Pos BOARD B599**

TOOLKIT FOR MULTI-CONFORMATION BIOMOLECULAR STRUCTURE DETERMINATION BY HIGH-PRECISION FRET AND MOLECULAR SIMULATIONS. **Mykola Dimura**, Stanislav Kalinin, Thomas Peulen, Holger Gohlke, Claus A. M. Seidel

**820-Pos BOARD B600**

SINGLE MOLECULE FLUORESCENCE STUDY OF G-QUADRUPLEX SENSOR. Yingya Li, Xiao Fan, Yanyan Li, **Haitao Li**

**821-Pos BOARD B601**

ESTIMATION OF DNA LOOP INTERACTIONS SUPPORTS THE LOOP DOMAIN MODEL OF INSULATOR ACTION. **Sandip Kumar**, David G. Priest, Yan Yan, Ian B. Dodd, Keith E. Shearwin, David D. Dunlap

**822-Pos BOARD B602**

COMPETITOR EFFECT ON MOLECULAR COMPLEX DISSOCIATION IN THE ABSENCE OF TERNARY COMPLEX FORMATION. **Thayaparan Paramanathan**, Daniel Reeves, Larry J. Friedman, Jane Kondev, Jeff Gelles

**823-Pos BOARD B603**

SINGLE MOLECULE EVIDENCE FOR LONG RANGE INTERACTIONS DURING COMMITMENT COMPLEX FORMATION. **Joshua D. Larson**, Aaron A. Hoskins

**824-Pos BOARD B604**

BAYESIAN CLASSIFICATION OF MRNA AND KINETOCHORE TRANSPORT DYNAMICS. **Zachary Barry**, Nilah Monnier, Hye Yoon Park, Kuan-Chung Su, Zachary Katz, Brian P. English, Arkajit Dey, Keyao Pan, Iain M. Cheeseman, Robert H. Singer, Mark Bathe

**825-Pos BOARD B605**

SINGLE MOLECULE STUDIES OF TAU PROTEIN IN THE ABEL TRAP. **Sharla L. Wood**, Lydia Manger, Michael Holden, Martin Margittai, Randall Goldsmith

**826-Pos BOARD B606**

EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) MEMBRANE ORGANIZATION AND DYNAMICS INVESTIGATED BY SW-FCCS AND IMAGING FCS. **Thorsten Wohland**, Sibel Yavas, Radek Machan, Shuangru Huang, Shi Ying Lim, Nirmalya Bag

**827-Pos BOARD B607**

RAPID MEASUREMENT OF MOLECULAR TRANSPORT AND INTERACTION INSIDE LIVING CELLS WITH SINGLE PLANE ILLUMINATION MICROSCOPY. **Per Niklas Hedde**, Milka Stakic, Enrico Gratton

**828-Pos BOARD B608**

CHARACTERIZATION OF FLUORESCENT 3DNA DENDRIMERS WITH FCS AND SINGLE MOLECULE IMAGING. **Qiaoqiao Ruan**, Joseph P. Skinner, Sergey S. Tetin

**829-Pos BOARD B609 INTERNATIONAL TRAVEL AWARDEE**

CONCENTRATION ESTIMATES FROM COUNTING INDIVIDUAL MOLECULES. **Emiliano Perez Ipiña**, Silvina Ponce Dawson

**830-Pos BOARD B610**

OBSERVATION OF DNA KNOTS USING SOLID-STATE NANOPORES. **Calin Plesa**, Daniel Verschuere, Justus W. Ruitenber, Menno J. Witteveen, Magnus P. Jonsson, Alexander Y. Grosberg, Yitzhak Rabin, Cees Dekker

**831-Pos BOARD B611**  
ENHANCED ELECTROSTATIC FORCE MICROSCOPY  
IMAGING REVEALS MECHANISM OF TRF2 MEDIATED DNA  
COMPACTION. **Parminder Kaur**

**832-Pos BOARD B612**  
GRAB & WATCH: CORRELATIVE OPTICAL TWEEZERS-  
FLUORESCENCE MICROSCOPY (CTFM) AS A VERSATILE TOOL  
FOR BIOLOGICAL STUDIES. **Gijs J.L. Wuite**, Erwin Peterman

**833-Pos BOARD B613**  
MANIPULATION WITH MAGNETIC TWEEZERS OF  
MECHANOSENSITIVE ION CHANNELS AND ADAPTATION  
MOTORS IN HAIR CELLS OF THE INNER EAR. **Aakash Basu**,  
Samuel Lagier, Maria Vologodskaja, Brian Fabella, A. J. Hudspeth

## Force Spectroscopy and Scanning Probe Microscopy (Boards B614-B639)

**834-Pos BOARD B614**  
BRINGING FORCE PROBE MOLECULAR DYNAMICS  
SIMULATIONS CLOSER TO EXPERIMENTS. **Andreas Russek**, Felix  
Rico, Simon Scheuring, Helmut Grubmuller

**835-Pos BOARD B615**  
A PRECISION SCANNING PROBE MICROSCOPE WITH  
DIRECT ACCESS TO THE THREE DIMENSIONAL TIP-SAMPLE  
INTERACTION FORCE VECTOR. Krishna P. Sigdel, **Gavin M. King**

**836-Pos BOARD B616**  
FAST AND ACCURATE PHOTODIODE-BASED DETECTION  
OF MULTIPLE TRAP OPTICAL TWEEZERS WITH CROSSTALK-  
ELIMINATION. **Dino Ott**, S. Nader S. Reihani, Lene B. Oddershede

**837-Pos BOARD B617**  
PRECISE PARTITION OF MICRO/NANOPARTICLES IN AN  
ELECTRO-OPTOFLUIDIC PLATFORM. Mohammad Soltani, **Fan Ye**,  
Jessica L. Killian, Jun Lin, Michal Lipson, Michelle D. Wang

**838-Pos BOARD B618**  
TRANSVERSE MAGNETIC TWEEZERS FOR DIRECT DNA  
EXTENSION MEASUREMENTS. **Guillermo Vargas**, Tomas P.  
Corrales, James T. Inman, Michelle D. Wang

**839-Pos BOARD B619**  
HUMAN RED BLOOD CELL ADHESION TO LAMININ  
MEASURED BY ATOMIC FORCE MICROSCOPY.  
**George Lykotraftis**

**840-Pos BOARD B620**  
ATOMIC FORCE MICROSCOPY (AFM) ANALYSIS OF THE  
BACTERIAL POLAR PROTEIN POPZ. **Carolina E. Caffaro**, Grant R.  
Bowman

**841-Pos BOARD B621**  
ATOMIC FORCE MICROSCOPY OF PROTEIN TRANSLOCATION  
MACHINERY IN SUPPORTED LIPID BILAYERS.  
**Raghavendar Reddy Sanganna Gari**, Nathan Frey, Brendan Marsh,  
Chunfeng Mao, Linda Randall, Gavin King

**842-Pos BOARD B622**  
A NOVEL AFM-BASED TECHNIQUE FOR MEASURING  
COUPLED PHENOMENA IN CARDIAC MYOCYTES.  
**Roberto Raiteri**, Guido Caluori, Mariateresa Tedesco, Henry Hermel  
Andrade Caicedo, Christopher W. Ward

**843-Pos BOARD B623**  
CADHERIN CONFORMATIONAL SHUTTTLING  
CAPTURED USING SINGLE MOLECULE ATOMIC FORCE  
MICROSCOPY. **Kristine Manibog**, Sunae Kim, Sanjeevi Sivasankar

**844-Pos BOARD B624**  
WHOLE CELL BIOCHEMICAL AND NANOMECHANICAL  
INVESTIGATIONS OF BACILLUS USING ATOMIC FORCE  
MICROSCOPY. **Congzhou Wang**, Christopher J. Ehrhardt, Vamsi K.  
Yadavalli

**845-Pos BOARD B625**  
EFFECT OF SURFACE DENSITY OF ACTIVE SITES ON  
RUPTURE FORCE DISTRIBUTIONS OF SINGLE MOLECULE  
INTERACTIONS. **Anwasha Sarkar**, Essa Mayyas, Peter M. Hoffmann

**846-Pos BOARD B626**  
NANOMECHANICAL MAPPING OF EYE TISSUE. Asia A. Alhasawi,  
Lucas D. Stewart, **Erika F. Merschrod S.**

**847-Pos BOARD B627**  
PROBING OF PNA-DNA HYBRID DUPLEX STABILITY WITH  
AFM FORCE SPECTROSCOPY. **Samrat Dutta**, Yuri L. Lyubchenko,  
Bruce A. Armitage

**848-Pos BOARD B628**  
INVESTIGATION OF FIBRIN FIBER INTERNAL  
STRUCTURE. **Wei Li**, Peter Brubaker, Martin Guthold

**849-Pos BOARD B629**  
USING FORCE MAPPING TO OBTAIN DATA ON LIVE  
BACTERIA IN FLUID. **Megan A. Ferguson**, Sophia Lane, Catherine  
Mahoney

**850-Pos BOARD B630**  
AFM MONITORING OF ELASTICITY CHANGES  
ACCOMPANYING DIFFERENTIATION TOWARDS NEURAL  
CELLS. **Marcin Dąbrowski**, Katarzyna Roszek, Janusz Strzelecki, Maria  
Stankiewicz, Wiesław Nowak

**851-Pos BOARD B631**  
TITIN IS A SPATIALLY HOMOGENOUS LINEAR  
EXPANDER. **Zsolt Martonfalvi**, Pasquale Bianco, Katalin Naftz, Dorina  
Koszegi, Miklos Kellermayer

**852-Pos BOARD B632**  
GLASS: A MULTI-PLATFORM SPECIMEN SUPPORTING  
SUBSTRATE FOR PRECISION SINGLE MOLECULE STUDIES  
OF MEMBRANE PROTEINS. **Nagaraju Chada**, Krishna P. Sigdel,  
Raghavendar Reddy Sanganna Gari, Tina R. Matin, Chunfeng Mao,  
Brendan Marsh, Linda L. Randall, Gavin M. King

**853-Pos BOARD B633**  
FORCE SPECTROSCOPY OF DNA-CTAB AGGREGATES.  
**James S. Tompkins**, Pamela M. St. John

**854-Pos BOARD B634**  
FIBRINOGENESIS AND FIBRINOLYSIS FOLLOWED WITH  
NANO-THROMBELASTOGRAPHY. **Tímea Feller**, Miklós S.Z.  
Kellermayer, Balázs Kiss

**855-Pos BOARD B635**  
DIRECT OBSERVATION OF TITIN IMMUNOGLOBULIN  
DOMAIN UNFOLDING-REFOLDING IN MUSCLE  
SARCOMERES. **Jaime A. Rivas Pardo**, Edward C. Eckels, Ionel Popa,  
Pallav Kosuri, Wolfgang A. Linke, Julio M. Fernández

**856-Pos BOARD B636**

DNA-INDUCED VIRAL ASSEMBLY STUDIED IN REAL-TIME BY OPTICAL TWEEZERS, ACOUSTIC FORCE SPECTROSCOPY AND ATOMIC FORCE MICROSCOPY. **Mariska GM van Rosmalen**, Andreas S. Biebricher, Douwe Kamsma, Adam Zlotnick, Gijls JL Wuite, Wouter H. Roos

**857-Pos BOARD B637**

INVESTIGATING FORCE-INDUCED STRUCTURAL CHANGES IN SINGLE COLLAGEN MOLECULES. **Michael W.H. Kirkness**, Nancy R. Forde

**858-Pos BOARD B638**

STATIC AND DYNAMIC EFFECTS OF CROWDERS ON MECHANICAL UNFOLDING OF PROTEINS. **Marisa B. Roman**, Gouliang Yang, Frank Ferrone

**859-Pos BOARD B639**

DEVELOPMENT OF A WIRELESS, MODULAR CENTRIFUGE FORCE MICROSCOPE FOR USE IN A COMMERCIAL BENCHTOP CENTRIFUGE. **Tony P. Hoang**, Wesley P. Wong, Ken Halvorsen

## Micro- and Nanotechnology I (Boards B640-B668)

**860-Pos BOARD B640**

COMPARISON OF THE PHOTOTHERMAL EFFICIENCY OF DIFFERENT TYPES OF PLASMONIC NANOPARTICLES IN VITRO AND IN VIVO. **Kamilla Norregaard**, Jesper T. Jørgensen, Poul Martin Bendix, Andreas Kjær, Lene B. Oddershede

**861-Pos BOARD B641 INTERNATIONAL TRAVEL AWARDEE**

MULTIMODAL IMAGING PROBING PLATFORM BASED ON UPCONVERTING RARE-EARTH DOPED GD<sub>2</sub>O<sub>3</sub> NANOCRYSTALS. **Kim Dung T. Doan**, Shoichiro Fukushima, Hirohiko Niioka, Masayoshi Ichimiya, Masaaki Ashida, Tsutomu Araki, Mamoru Hashimoto, Jun Miyake

**862-Pos BOARD B642**

RECTIFICATION PROPERTIES OF LOW ASPECT RATIO TEM DRILLED NANOPORES. **Justin Menestrina**, Meni Wanunu, Zuzanna Siwy

**863-Pos BOARD B643 INTERNATIONAL TRAVEL AWARDEE**

COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS OF THE SELF-ASSEMBLY OF AMPHIPHILIC DENDRIMERS AS GENE CARRIERS. **Valeria Marquez-Miranda**, Ingrid Araya, Maria Belen Camarada, Lars Ratjen, Maria Carolina Otero, Fernando Danilo Gonzalez-Nilo

**864-Pos BOARD B644**

RAPID ACTIVITY SCREENING OF ION CHANNELS EXPRESSED IN CELL-FREE SYSTEMS USING A LIPID BILAYER ARRAY PCB-DEVICE. **Ekaterina Zaitseva**, Gerhard Baaken, Sönke Petersen, Christopher Hein, Frank Bernhard, Matthias Beckler, Mohamed Kreir, Michael George, Niels Fertig, Michele Rossi, Federico Thei, Jan C. Behrends

**865-Pos BOARD B645**

HIGH-MAGNETIZATION SILICONE MICROBEADS WITH LOW AUTOFLUORESCENCE FOR BIOTECH APPLICATIONS. **David T. Han**, Benjamin A. Evans

**866-Pos BOARD B646**

A TWO NANOPORE SYSTEM FOR CONTROLLING DNA MOTION. **Tamas Szalay**

**867-Pos BOARD B647**

ION TRANSPORT THROUGH SYNTHETIC NANOPORES DEPOSITED IN POROUS MANGANESE OXIDE WIRES. **Timothy S. Plett**, Trevor Gamble, Eleanor Gillette, Zuzanna Siwy

**868-Pos BOARD B648**

IMPROVED PROTOCOL FOR THE HYDROPHOBIZATION OF GLASS PIPETTES FOR USE IN PATCH-CLAMP EXPERIMENTS; TERA-SEALS AND TENTHS OF FA NOISE. **Arturo Galván-Hernández**, Iván Ortega-Blake

**869-Pos BOARD B649**

MULTISCALE DIFFUSION MEASUREMENTS IN BIOLOGICAL GELS USING PHOTOACTIVATABLE FLUORESCENT NANOPARTICLES. **Joshua C. Kays**, Benjamin S. Schuster, Daniel B. Allan, Justin Hanes, Robert L. Leheny

**870-Pos BOARD B650**

BEHAVIOR RESPONSE OF CAENORHABDITIS ELEGANS TO PHYSICAL COMPLEX STIMULI IN A CONTROLLED MICROFLUIDIC SYSTEM. **Sunhee Yoon**, Hailing Piao, Zhongwei Wang, Insu Lee, Ga Lahm Park, Tae-Joon Jeon, Sun Min Kim

**871-Pos BOARD B651**

POWERED DNA LOGIC GATES. **Dominic Scalise**, Rebecca Schulman

**872-Pos BOARD B652**

A SYSTEMATIC INVESTIGATION TO DETERMINE THE OPTIMAL LIPID COATING FOR NANOPORE-BASED SENSING EXPERIMENTS. **Olivia M. Eggenberger**, Brandon R. Bruhn, Michael Mayer, Haiyan Liu, Geoffray Leriche, Jerry Yang

**873-Pos BOARD B653**

THE EFFECT OF INTER-PARTICLE INTERACTIONS ON HEATING EFFICIENCY IN MAGNETIC NANOPARTICLE HYPERTHERMIA: AN EXPERIMENTAL MODEL. **Matthew D. Bausch**, Benjamin Evans

**874-Pos BOARD B654**

THREADING IMMOBILIZED DNA MOLECULES THROUGH SOLID-STATE NANOPORES. **Harpreet Kaur**, Santoshi Nandivada, Changbae Hyun, Tao Huang, Min Xiao, David McNabb, Jiali Li

**875-Pos BOARD B655**

COMBINING MICROFLUIDICS AND FLUORESCENCE TO QUANTIFY THE TIMING OF VIRAL RELEASE. Rachel N. Hanson, Christina K. Chan, Emily A. Anderson, **Jolene L. Johnson**

**876-Pos BOARD B656**

SINGLE MOLECULE CHARACTERIZATION OF CHOLERA TOXIN AND ITS INTERACTION WITH GM1 GANGLIOSIDES USING LIPID-COATED NANOPORES. **Anirudh Vinnakota**, Brandon R. Bruhn, Erik C. Yusko, Michael Mayer

**877-Pos BOARD B657**

IMPROVED PROTOCOLS FOR DIELECTRIC BREAKDOWN NANOPORE BIOSENSORS. Christopher Tow, **Jacob K. Rosenstein**

**878-Pos BOARD B658**

FABRICATION OF SUB-20 NM NANOPORE ARRAYS IN MEMBRANES WITH EMBEDDED METAL ELECTRODES AT WAFER SCALES. **Yanxiao Feng**, Deqiang Wang, Jingwei Bai, Sungwook Nam, Hongbo Peng, Robert Bruce, Lynn Gignac, Markus Brink, Phil Waggoner, Chao Wang, Mike Guillorn, Stanislav Polonsky, Ajay Royyuru, Satyavolu Papa Rao, Gustavo Stolovitzky

**879-Pos BOARD B659**

SINGLE DNA MOLECULE SWOLLEN AND TRAPPED IN NANOSLIT. Jinyong Lee, Rakwoo Chang, Yeng-Long Chen, **Kyubong Jo**

**880-Pos BOARD B660**

ELECTRICAL PULSE FABRICATED GRAPHENE NANOPORES FOR SINGLE MOLECULE SENSING. **Aaron Kuan**, Bo Lu, Jene Golovchenko

**881-Pos BOARD B661 EDUCATION TRAVEL AWARDEE**

PS-GC NANODISCS ASSEMBLY FOR STRUCTURAL STUDIES OF COAGULATION PROTEINS AND THEIR COMPLEXES.

**Kirill S. Grushin**, Svetla Stoilova-McPhie

**882-Pos BOARD B662**

GIANT CONDUCTANCE AND ANOMALOUS CONCENTRATION DEPENDENCE IN SUB-5 NM CARBON NANOTUBE NANOCHANNELS. **Shirui Guo**, Steven F. Buchsbaum, Eric R. Meshot, Matthew W. Davenport, Zuzanna Siwy, Francesco Fornasiero

**883-Pos BOARD B663**

SINGLE MOLECULE FRET ANALYSIS OF THE CLOSED AND OPEN STATES OF A DNA ORIGAMI BOX. **Mette Jepsen**, Rasmus S. Sørensen, Ebbe S. Andersen, Jørgen Kjems, Victoria Birkedal

**884-Pos BOARD B664**

SINGLE-READ DE NOVO SEQUENCING USING NANOPORE MSPA. **Henry Brinkerhoff**, Brian C. Ross, Jens H. Gundlach

**885-Pos BOARD B665**

DECONSTRUCTING STRUCTURAL TRANSITIONS VIA THERMAL TRANSPORT. **Michael Zwolak**, Kirill Velizhanin, Chih-Chun Chien, Yonatan Dubi

**886-Pos BOARD B666**

QUANTITATIVE ANALYSIS AND OPTIMIZATION OF ON-CHIP INTERFERENCE FUNCTIONALITIES FOR NANOPHOTONICS STANDING WAVE ARRAY TRAPS. **Jun Lin**, Mohammad Soltani, James Inman, Michelle D. Wang

**887-Pos BOARD B667**

DNA-MODIFIED POLYMER PORES ENABLE PH- AND VOLTAGE-GATED CONTROL OF CHANNEL FLUX. **Steven F. Buchsbaum**, Gael Nguyen, Stefan Howorka, Zuzanna Siwy

**888-Pos BOARD B668**

BUILDING CONNECTIONS BETWEEN TERMINALS WITH LOCATION UNCERTAINTY USING DNA NANOTUBES. **Abdul Majeed Mohammed**, Rebecca Schulman



# Student Research Achievement Award (SRAA) Poster Competition

These posters will be displayed for judging on Sunday, February 8, 6:00 PM–9:00 PM, in the SRAA poster board area marked S1–S97, in the Exhibit Hall. S board numbers before each title indicate where the posters will be assigned during the Sunday evening competition.

The posters will also be presented during the regular daily sessions as programmed below. Note that only the competitor's name is listed. Please refer to the full abstract for all authors.

## Bioenergetics

### Board S1

ENERGETICS OF LATERAL MEMBRANE PROTON DIFFUSION.  
**Ewald Weichselbaum** (3045-Pos, B475)

### Board S2

ANALYSIS OF ATP PRODUCTION EFFICIENCY OF BEAT-TO-BEAT CALCIUM FLUCTUATIONS IN CARDIAC MITOCHONDRIA.  
**Sangeeta Shukla** (547-Pos, B327)

### Board S3

INVESTIGATING THE MECHANISM OF IRON DEPENDENT REPRESSOR (IDER) ACTIVATION AND DNA BINDING  
**Soma Ghosh** (1892-Pos, B29)

### Board S4

MONOVALENT CATION DEPENDENCE ON THE KINASE ACTIVITY OF SALMONELLA TYPHIMURIUM CHEA: EXPERIMENT AND MODELING.  
**Marie Balboa** (2698-Pos, B128)

### Board S5

PREDICTION OF FUNCTIONALLY LINKED INTERFACE (FLIP) REGIONS IN RESIDUE INTERACTION NETWORK (RIN) MODELS OF PROTEIN STRUCTURES.  
**Isha Mehta** (2388-Pos, B525)

### Board S6

INTERNAL SWITCHES MODULATING ELECTRON FLOW IN BC1 COMPLEX.  
**Muhammed Hagrass** (3044-Pos, B474)

### Board S7

ZINC INHIBITS HEDGEHOG AUTOPROCESSING: LINKING ZINC DEFICIENCY WITH HEDGEHOG ACTIVATION.  
**Jian Xie** (2687-Pos, B117)

### Board S8

NUMERICAL MODELING OF LIPID BIOSYNTHESIS IN MICROALGAE.  
**Nicole Carbonaro** (2374-Pos, B511)

## Biological Fluorescence

### Board S9

FACTORS THAT INFLUENCE PKR DIMERIZATION AND ACTIVATION.  
**Bushra Husain** (2003-Pos, B140)

### Board S10

HIGH-AFFINITY FLUORESCENCE SENSING OF G-QUADRUPLEXES.  
**D. Pérez-González** (1974-Pos, B111)

### Board S11

POSITIONAL FLUOROPHORE PROPERTIES IN HIGH-PRECISION FRET ANALYSIS: ORIENTATION EFFECTS, DYNAMIC QUENCHING AND BEYOND.  
**Thomas-Otavio Peulen** (818-Pos, B598)

### Board S12

BINDING OF QUATERNARY AMMONIUM IONS TO A POTASSIUM CHANNEL.  
**Dylan Burdette** (595-Pos, B375)

### Board S13

MOLECULAR MOBILITY IN AMORPHOUS SUCROSE FILMS MONITORED BY RIBOFLAVIN PHOSPHORESCENCE - POTENTIAL APPLICATIONS IN EDIBLE/BIODEGRADABLE FILMS.  
**Yan Wang** (3130-Pos, B560)

### Board S14

LOCAL AND GLOBAL FOLDING IN A 58MER RNA REVEALED BY 2-AMINOPURINE SUBSTITUTIONS AND SPECIFIC NMR LABELS.  
**Robb Welty** (1189-Pos, B140)

## Biopolymers in vivo

### Board S15

A COMPUTATIONAL MODEL FOR E.COLI CYTOPLASM: DIFFUSION AND HYDRODYNAMICS.  
**Sabeeha Hasnain** (582-Pos, B362)

### Board S16

THE KINETICS OF NASCENT PROTEIN FOLDING UPON RELEASE FROM THE RIBOSOME.  
**Rayna Addabbo** (578-Pos, B358)

### Board S17

THE HUMAN PROTON-COUPLED FOLATE TRANSPORTER: DETERMINATION OF CONFORMATION AND IDENTIFICATION OF THE FOLATE-BINDING POCKET.  
**Swapneeta Date** (1549-Pos, B500)

### Board S18

SINGLE-MOLECULE PROFILING OF RIBOSOME RECODING PHENOMENA.  
**Jin Chen** (1962-Pos, B99)

**Board S19**

ENABLING SINGLE-MOLECULE DETECTION IN LIVING CELLS: ULTRA-SENSITIVE MICROSCOPY AND SPECTROSCOPY IN 3D.

**Ankun Dong** (2396-Pos, B533)

**Board S20**

EFFECT OF FORCE AND DISCRETE STEP-SIZE ON THE VELOCITY DISTRIBUTION OF PROGRESSIVE MOLECULAR MOTORS.

**Huong Vu** (678-Pos, B458)

**Board S21**

STRUCTURAL AND FUNCTIONAL IMPACT OF AMINO ACID SUBSTITUTION ON CALMODULIN BINDING IN CARDIAC MYOCYTES.

**Matthew McCoy** (1341-Pos, B292)

## Exocytosis & Endocytosis

**Board S22**

A MATCHED FILTER ALGORITHM CAN ACCURATELY DETECT AMPEROMETRIC SPIKES RESULTING FROM QUANTAL EXOCYTOSIS AND SEED A CURVE-FITTING ALGORITHM FOR ESTIMATION OF SPIKE PARAMETERS.

**Supriya Balaji Ramachandran** (511-Pos, B291)

**Board S23**

DETERMINING THE ROLE OF MELANOPIN C-TAIL IN DEACTIVATION AND TRAFFICKING.

**Elelbin Ortiz** (751-Pos, B531)

**Board S24**

DRUNKEN MEMBRANES: HOW DOES ETHANOL IMPACT FUSION OF VESICLES TO PLANAR LIPID BILAYERS?

**Brady Hunt** (2042-Pos, B179)

**Board S25**

SYNAPTOTAGMIN-1 AND SYNAPTOTAGMIN-7 DIFFER IN THEIR STIMULUS AND  $Ca^{2+}$  DEPENDENCE OF ACTIVATION

**Tejeshwar Rao** (517-Pos, B297)

## Intrinsically Disordered Proteins

**Board S26**

THE INTRINSICALLY DISORDERED TERMINI OF ZDHHC S-PALMITOYLTRANSFERASES FACILITATE MULTIPLE REGULATORY FUNCTIONS.

**Krishna Reddy** (1945-Pos, B82)

**Board S27**

AN EVOLUTIONARY ALGORITHM FOR THE DESIGN OF DIFFERENT DEGREES OF SECONDARY STRUCTURE IN INTRINSICALLY DISORDERED PROTEINS (IDPS).

**Tyler Harmon** (1145-Pos, B96)

**Board S28**

CIDER: CLASSIFICATION OF INTRINSICALLY DISORDERED ENSEMBLE REGIONS.

**Alex Holehouse** (1146-Pos, B97)

**Board S29**

PHENYLETHANOIDS CAN MODULATE AMYLOID- $\beta$

AGGREGATION ASSOCIATED WITH ALZHEIMER'S DISEASE.

**S. Zeb Vance** (1096-Pos, B47)

**Board S30**

SINGLE-MOLECULE FORCE SPECTROSCOPY ON UNFOLDED AND INTRINSICALLY DISORDERED PROTEINS.

**Hesam Motlagh** (1149-Pos, B100)

**Board S31**

THE ASSOCIATION LANDSCAPE OF UBIQUITIN DIMERIZATION.

**Haiqing Zhao** (2628-Pos, B58)

**Board S32**

PHOSPHORYLATION MODULATES CONFORMATIONAL BIAS OF A DISORDERED PEPTIDE.

**Alexander Chin** (1148-Pos, B99)

**Board S33**

CHARACTERIZING KINETIC INTERMEDIATE IN AMYLOID SELF-ASSEMBLY.

**Chen Liang** (2652-Pos, B82)

## Mechanobiology

**Board S34**

ROBUST ELASTIC NETWORK MODEL: PRECISE PREDICTION OF ATOMIC FLUCTUATIONS IN PROTEIN CRYSTAL STRUCTURES.

**Min Hyeok Kim** (2375-Pos, B512)

**Board S35**

BROWNIAN DYNAMICS STUDY OF DNA SUPERCOIL RELAXATION.

**Ikenna Ivenso** (1175-Pos, B126)

**Board S36**

CHARACTERIZATION OF BIOMECHANICAL PROPERTIES OF PRIMARY ENDOTHELIAL CELLS EXPOSED TO SHEAR STRESS.

**Nickolas Boroda** (2855-Pos, B285)

**Board S37**

THERMODYNAMIC AND HYDRODYNAMIC EXAMINATION OF CLPB ASSEMBLY.

**JiaBei Lin** (1112-Pos, B63)

**Board S38**

NUCLEOSOME KINETICS AND ACCESSIBILITY OF DNA.

**Jyotsana Parmar** (2718-Pos, B148)

**Board S39**

THE ABILITY OF POLYPHENOLS TO REDUCE  $A\beta$ -INDUCED APOPTOSIS ASSOCIATED WITH ALZHEIMER'S DISEASE.

**Kayla Pate** (331-Pos, B111)

## Membrane Biophysics

**Board S40**

RESIDUES INVOLVED IN CX26 HEMICHANNELS VOLTAGE DEPENDENT GATING.

**Bernardo Pinto** (2224-Pos, B361)

**Board S41**

PHYSICAL COUPLING BETWEEN SERCA2 AND PDE3A REGULATES SERCA2 ACTIVITY IN CARDIOMYOCYTES.

**Jonas Skogestad** (533-Pos, B313)

**Board S42**

NMDA RECEPTOR SMFRET STUDIES REVEAL ROLE OF DYNAMICS OF THE AGONIST-BINDING DOMAIN IN MEDIATING AGONIST EFFICACY.

**Drew Dolino** (1432-Pos, B383)

**Board S43**

INVESTIGATIONS OF THE STRUCTURAL MECHANISM OF MODULATION OF THE NMDA RECEPTOR.

**Rita Sirrieh** (1430-Pos, B381)

**Board S44**

THE ENVIRONMENT MODULATES THE CONFORMATION OF TRANSMEMBRANE HELIX 1A IN THE LEUCINE TRANSPORTER (LeuT).

**Kumaresan Jayaraman** (2322-Pos, B459)

**Board S45**

ENGINEERING SELECTIVITY IN RGK PROTEIN INHIBITION OF CAV1/CAV2 CHANNELS.

**Akil Puckerin** (2922-Pos, B352)

**Board S46**

A MATHEMATICAL MODEL OF MELANOPsin PHOTOTRANSDUCTION.

**Abigail Jackson** (750-Pos, B530)

**Board S47**

MEMBRANE-LIPID MEDIATED RHODOPSIN SIGNALING INVOLVES AN ENSEMBLE OF CONFORMATIONAL SUBSTATES.

**Udeep Chawla** (2819-Pos, B249)

**Board S48**

COMPUTATIONAL MODELING OF THE NTERMINUS OF THE HUMAN DOPAMINE TRANSPORTER (hDAT)

**Milka Doktorova** (1274-Pos, B225)

**Board S49**

QUANTITATIVE MAPPING OF INTERACTIONS IN THE VOLTAGE-SENSOR PORE INTERFACE OF THE SHAKER POTASSIUM CHANNEL

**Kevin Oelstrom** (594-Pos, B374)

**Board S50**

SENSING THE ELECTROCHEMICAL K<sup>+</sup> GRADIENT: THE VOLTAGE GATING MECHANISM IN K2P POTASSIUM CHANNELS.

**Marcus Schewe** (2150-Pos, B287)

**Board S51**

DEVELOPMENT OF A MODEL FOR EXCITABILITY STUDIES USING XENOPUS OOCYTES

**Aaron Corbin** (1409-Pos, B360)

## Membrane Structure and Assembly

**Board S52**

UNRAVELING THE DUAL ROLE OF SURFACTANT PROTEIN A AT ATOMISTIC DETAIL.

**Boon Chong Goh** (1293-Pos, B244)

**Board S53**

COMPARING LO/LD MEMBRANE THICKNESS MISMATCH AND MISCIBILITY TRANSITION TEMPERATURES USING FLUORESCENCE AND ATOMIC FORCE MICROSCOPY.

**Joan Bleecker** (1216-Pos, B167)

**Board S54**

SOLID-STATE 2H NMR INVESTIGATION OF TRANSDUCIN ACTIVATION BY RHODOPSIN.

**Xiaolin Xu** (2072-Pos, B209)

**Board S55**

MEASUREMENT OF INTERLEAFLET COUPLING IN PHASE SEPARATED BILAYERS USING HIGH SHEAR.

**Matthew Blosser** (1211-Pos, B162)

**Board S56**

BIOPHYSICAL EVALUATION OF DRUG IMPACT ON PULMONARY SURFACTANT PERFORMANCE.

**Alberto Hidalgo** (1240-Pos, B191)

**Board S57**

THE AVERAGE AREA PER MOLECULE OF CHOLESTEROL/PC-LIPID BILAYERS: A REVIEW OF EXPERIMENTAL DATA AND A PHYSICALLY INSPIRED MODEL.

**Jonathan Litz** (2030-Pos, B167)

**Board S58**

DPPC MONOLAYERS EXHIBIT AN ADDITIONAL PHASE TRANSITION AT HIGH SURFACE PRESSURE.

**Chen Shen** (429-Pos, B209)

**Board S59**

ACTIVITY OF ANTIMICROBIAL PEPTIDE PROTEGRIN-1 IS TUNED BY MEMBRANE CHOLESTEROL CONTENT.

**J. Henderson** (2792-Pos, B222)

**Board S60**

THE STUDY OF COMPLEXATION PROCESS BETWEEN CATIONIC GEMINI SURFACTANTS AND DNA USING STRUCTURAL AND SPECTROSCOPIC METHODS.

**Weronika Andrzejewska** (1972-Pos, B109)

**Board S61**

THE MOLECULAR MECHANISM OF MONOLAYER SCISSION.

**Shachi Katira** (2040-Pos, B177)

**Board S62**

LOCAL BILAYER REORGANISATION BY THE JM REGIONS OF ALL HUMAN RTKS: A MULTISCALE MOLECULAR DYNAMICS STUDY.

**George Hedger** (1304-Pos, B255)

## Molecular Biophysics

**Board S63**

UNDERSTANDING STRUCTURAL AND DYNAMIC EFFECTS INDUCED BY KEY COMPONENTS OF THE HCV POLYMERASE REPLICATION COMPLEX.

**Ester Sesmero** (243-Pos, B23)

**Board S64**

PROTON AS A DUAL REGULATOR FOR TRPV1.

**Bo Hyun Lee** (620-Pos, B400)

**Board S65**

NANOSYSTEM BASED ON PHOSPHOLIPIDS AND SURFACTANTS AS INNOVATIVE DELIVERY SYSTEM FOR GENE THERAPY.

**Michalina Skupin** (1239-Pos, B190)

## Motility

### Board S66

STUDIES OF ZWITTERIONIC LIPOPLEXES - NANOSYSTEM BASED ON PHOSPHOLIPIDS AND SURFACTANTS AS INNOVATIVE DELIVERY SYSTEMS FOR GENE THERAPY.

**Joanna Wolak** (2762-Pos, B192)

### Board S67

THE PORE-DOMAIN OF TRPA1 MEDIATES THE INHIBITORY EFFECT OF THE ANTAGONIST 6-METHYL-5-(2-(TRIFLUOROMETHYL)PHENYL)-1H-INDAZOLE.

**Hans Moldenhauer** (2951-Pos, B381)

### Board S68

THE CARBOXY TERMINUS OF THE LIGAND PEPTIDE DETERMINES MHC CLASS I COMPLEX STABILITY: A COMBINED MOLECULAR DYNAMICS AND EXPERIMENTAL STUDY.

**Esam Abualrous** (1581-Pos, B532)

### Board S69

ELASTICITY-DRIVEN SINGLE STRANDED GAP CREATION MECHANISM BY AN EXONUCLEASE III/AP ENDONUCLEASE.

**Sangmi Jee** (349-Pos, B129)

### Board S70

THE ROLE OF THE THREADING MOIETY IN DNA THREADING INTERCALATION BY RUTHENIUM DIMER COMPLEXES.

**Andrew Clark** (1999-Pos, B136)

### Board S71

MOLECULAR SIMULATIONS OF MUSCLE ACHR AGONIST BINDING SITES.

**Srirupa Chakraborty** (2158-Pos, B295)

### Board S72

PROBING MULTIPLE TIMESCALE DYNAMICS OF PROTEIN KINASE A-INHIBITOR COMPLEXES.

**Geoffrey Li** (304-Pos, B84)

### Board S73

W493R GAIN OF FUNCTION MUTATION IN ATYPICAL CYSTIC FIBROSIS REWIRES THE EPITHELIAL SODIUM CHANNEL DYNAMICS.

**Mahmoud Shobair** (2948-Pos, B378)

### Board S74

SIMULTANEOUS IDENTIFICATION, VISUALIZATION, AND COMPARISON OF COMPLEX EVENTS IN MOLECULAR DYNAMICS SIMULATIONS

**Michael LeVine** (1906-Pos, B43)

### Board S75

NON-CANONICAL START CODONS REINITIATE TRANSLATION IN N-TERMINAL TRUNCATED KV CHANNELS.

**Tanja Kalstrup** (588-Pos, B368)

### Board S76

UNIVERSAL APPROACH TO FRAP ANALYSIS OF ARBITRARY BLEACHING PATTERNS.

**Daniel Blumenthal** (391-Pos, B171)

### Board S77

DELETION OF H2-CALPONIN IN MACROPHAGES FACILITATES CELL MOTILITY AND LIPID CLEARANCE: A NOVEL MECHANISM TO ATTENUATE ARTERIAL ATHEROSCLEROSIS.

**Rong Liu** (714-Pos, B494)

### Board S78

DYNACTIN FUNCTIONS AS BOTH A DYNAMIC TETHER AND BRAKE DURING DYNEIN-DRIVEN MOTILITY.

**Swathi Ayloo** (671-Pos, B451)

### Board S79

STATISTICAL MECHANICS PROVIDES NOVEL INSIGHTS INTO MICROTUBULE STABILITY AND MECHANISM OF SHRINKAGE.

**Ishutesh Jain** (2252-Pos, B389)

### Board S80

PROTEIN DISORDER IN DYNEIN REGULATION BY DYNACTIN AND NUDE.

**Jing Jie** (1946-Pos, B83)

## Nanoscale Biophysics

### Board S81

PROBING LEUCINE SIDE CHAIN DYNAMICS IN AN AMPHIPHILIC PEPTIDE COPRECIPIATED WITH SILICA USING 2H SOLID-STATE NMR.

**Helen Ferreira** (1104-Pos, B55)

### Board S82

NANOPORE-ENHANCED POSITIONING OF MOLECULES IN ZERO-MODE WAVEGUIDES.

**Joseph Larkin** (1657-Pos, B608)

### Board S83

DNA-BINDING PROPERTIES OF PEPTIDE-FUNCTIONALIZED GRAPHENE QUANTUM DOTS.

**Bedanga Sapkota** (1973-Pos, B110)

### Board S84

QUANTITATIVE DNA BINDING, LOOPING, AND COMPACTION PROPERTIES OF THE HIV-1 VIRAL PROTEIN R.

**Divakaran Murugesapillai** (2004-Pos, B141)

### Board S85

SINGLE-MOLECULE DIGITAL IMAGING WITH MOLECULAR RESOLUTION USING DNA-PAINT.

**Mingjie Dai** (2409-Pos, B546)

### Board S86

LOCALIZATION OF LIPIDS TO THE CAVITY AND TRANSMEMBRANE DOMAIN OF ATP-BINDING CASSETTE TRANSPORTER ABCB10, AS REVEALED BY MOLECULAR DYNAMICS SIMULATIONS

**Hao Yu Chen** (1275-Pos, B226)



**Board S87**

COILED COIL PROBES CAPTURE THE MECHANICAL UNFOLDING PATHWAY OF A LARGE PROTEIN.

**Qing Li** (252-Pos, B32)

**Board S88**

LATERAL INTERACTIONS AFFECT CADHERIN BINDING KINETICS AND FUNCTION.

**Nitesh Shashikanth** (1119-Pos, B70)

## Permeation & Transport

**Board S89**

SERUM FACTOR ALTERS T-TYPE CAV3.2 GATING KINETICS AND CURRENT DENSITY.

**Gray Evans** (2930-Pos, B360)

**Board S90**

POLYAMIDOAMINE DENDRIMERS AS UNIVERSAL PORE-BLOCKING BINARY TOXIN INHIBITORS.

**Nnanya Kalu** (411-Pos, B191)

**Board S91**

EXPLORING P-GLYCOPROTEIN SUBSTRATE ACCESS.

**Laura Domiccica** (727-Pos, B507)

**Board S92**

RECONSTITUTION OF POTASSIUM-COUPLED SUBSTRATE TRANSPORT IN AN ARCHAEAL HOMOLOGUE OF GLUTAMATE TRANSPORTERS.

**Secheol Oh** (2315-Pos, B452)

**Board S93**

A COMPUTATIONAL STUDY OF MONO- AND POLY-UBIQUITIN RECOGNITION BY THE PROTEASOME SUBUNIT RPN10.

**Yi Zhang** (2358-Pos, B495)

**Board S94**

A NOVEL STIM2 SPLICE VARIANT FUNCTIONS AS A BREAK FOR STIM MEDIATED ACTIVATION OF ORAI CALCIUM CHANNELS.

**Anna-Maria Miederer** (2867-Pos, B297)

**Board S95**

THE CONFORMATION OF KCSA'S SELECTIVITY FILTER INFLUENCES THE OPENING OF ITS ACTIVATION GATE

**Cholpon Tilegenova** (598-Pos, B378)

**Board S96**

CYCLODEXTRIN INTERACTION WITH SPECIFIC CHANNEL CYMA FROM K. OXYTOCA

**Satya Prathyusha Bhamidimarri** (2226-Pos, B363)

**Board S97**

MUTATIONS IN THE S4/S5 LINKER AND S6 OF SLO1 ABLATE THE RESPONSE TO THE NOVEL BK CHANNEL OPENER

GOSLO-SR-5-6.

**Arvind Kshatri** (612-Pos, B392)

# 2015 BPS Networking Events

**May**

University of Kentucky  
Lexington, KY

Perdue University  
West Lafayette, IN

**June**

Academy of Science  
Prague, Czech Republic

University of  
Massachusetts, Amherst  
Amherst, MA

**July**

Paris Descartes University  
Paris, France

For dates and additional information, visit [www.biophysics.org/networking](http://www.biophysics.org/networking)

Do you have an idea for a networking event and want to host one in your area?

**BPS will be accepting networking event proposals until April 15 for 2015 and 2016.**

For your information about networking events and proposal requirements, visit the website above.



# Monday, February 9, 2015

## Daily Program Summary

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

7:30 AM–8:30 AM	Graduate Student Breakfast	Room 327/328/329
7:30 AM–5:00 PM	Registration/Exhibitor Registration	Charles Street Lobby
8:00 AM–5:30 PM	Career Center	Room 301/302/303
8:00 AM–10:00 PM	Poster Viewing	Hall C
8:15 AM–10:15 AM	<p><b>Symposium: Future of Biophysics</b>  <b>Co-Chairs:</b> <i>Enrique De La Cruz, Yale University, and Karen Fleming, Johns Hopkins University</i></p> <p>STRUCTURAL AND FUNCTIONAL STUDIES OF IONOTROPIC GLUTAMATE RECEPTORS. <i>Alexander Sobolevsky</i>            STRUCTURAL AND MECHANISTIC DIVERSITY OF TRANSPORT PROTEINS. <i>Heather Pinkett</i>            ENABLING BIOPHYSICAL DISCOVERIES THROUGH THE LENS OF A COMPUTATIONAL MICROSCOPE.  <i>Rommie E. Amaro</i>            PROTEIN INTERACTIONS TO MAP INFORMATION FLOW IN CELL SIGNALING. <i>Sivaraj Sivaramakrishnan</i></p>	Ballroom I
8:15 AM–10:15 AM	<p><b>Symposium: Probing Ion Channel Structure/Function Using Novel Tools</b>  <b>Chair:</b> <i>Henry Colecraft, Columbia University</i></p> <p>CONFORMATIONAL CHANGES IN VOLTAGE-SENSING DOMAINS: CONCERTED SIMULATION AND SCATTERING STUDIES. <i>Douglas J. Tobias</i>            TRICKING OUT THE TOOLBOX: USE OF GENETIC CODE EXPANSION FOR THE STUDY OF ION CHANNELS. <i>Chris Abern</i>            SMALL MOLECULE MODULATION OF VOLTAGE-GATED ION CHANNELS. <i>Heike Wulff</i>            CALCIUM CHANNEL ENGINEERING. <i>Henry M. Colecraft</i></p>	Ballroom II
8:15 AM–10:15 AM	Platform: Calcium Signaling	Ballroom III
8:15 AM–10:15 AM	Platform: Cell Mechanics, Mechanosensing, and Motility I	Ballroom IV
8:15 AM–10:15 AM	Platform: Membrane Physical Chemistry II	Room 307/308
8:15 AM–10:15 AM	Platform: Computational and Simulation Methods	Room 309/310
8:15 AM–10:15 AM	Platform: Protein Dynamics and Allostery I	Room 314/315
8:15 AM–10:15 AM	Platform: Micro- and Nanotechnology	Room 316/317
8:30 AM–10:00 AM	Exhibitor Presentation: FEI Company Advances in Correlative Light and Electron Microscopy	Hall C, Room B
8:30 AM–10:30 AM	CPOW Committee Meeting	Room 333
9:30 AM–11:00 AM	Exhibitor Presentation: Pall ForteBio LLC Measuring Engineered Changes in Binding Affinity with the BLItz® Label-Free System	Hall C, Room A
10:00 AM–11:00 AM	Career Center Workshop Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)	Room 301/302/303
10:00 AM–5:00 PM	Biomolecular Discovery Dome	Hall C
10:00 AM–5:00 PM	Exhibits	Hall C
10:15 AM–11:00 AM	Coffee Break	Hall C
10:15 AM–11:15 AM	New Member Welcome Coffee	Room 327/328/329
10:30 AM–12:00 PM	Exhibitor Presentation: Molecular Devices LLC Performing Positive Allosteric Modulator (PAM) Assays and Investigating Use-Dependent Inhibition of Ion Channels on Automated Electrophysiology Systems Including the IonFlux™ Benchtop Reader and the IonWorks Barracuda® Instrument	Hall C, Room B

MONDAY

10:45 AM–12:45 PM	<p><b>Symposium: Epigenetics</b> <span style="float: right;"><b>Ballroom I</b></span>  <b>Chair:</b> <i>Lene Oddershede, University of Copenhagen, Denmark</i></p> <p>COST AND PRECISION IN SMALL GENE REGULATORY NETWORKS. <i>Aleksandra Walczak</i>  METAPHASE CHROMATIN PLATES EXPLAIN THE STRUCTURE AND PHYSICAL PROPERTIES OF CONDENSED CHROMOSOMES. <i>Joan-Ramon Daban</i>  COOPERATIVITY AND SUPERCOILING MODULATE FUNCTIONS OF HUMAN O6-ALKYLGUANINE DNA ALKYLTRANSFERASE. <i>Michael G. Fried</i>  DNA SUPERCOILING ENHANCES COOPERATIVITY AND EFFICIENCY OF AN EPIGENETIC SWITCH. <i>Lene B. Oddershede</i></p>
10:45 AM–12:45 PM	<p><b>Symposium: Mechanisms of Actin Filament Nucleation and Mechanotransduction</b> <span style="float: right;"><b>Ballroom II</b></span>  <b>Chair:</b> <i>Roberto Dominguez, University of Pennsylvania</i></p> <p>MECHANOSENSITIVITY OF FORMIN-ACTIN INTERACTIONS. <i>Guillaume Romet-Lemonne</i>  WISH/DIP/SPIN90 PROTEINS ACTIVATE ARP2/3 COMPLEX TO CREATE LINEAR ACTIN FILAMENTS THAT SEED ASSEMBLY OF BRANCHED ACTIN NETWORKS. <i>Brad Nolen</i>  TWO TYPES OF ACTIN NUCLEATORS, THREE WAYS TO MAKE ACTIN FILAMENTS? <i>Margot Quinlan</i>  MOLECULAR MECHANISM OF ACTIN FILAMENT NUCLEATION BY LEIOMODIN (LMOD). <i>Roberto Dominguez</i></p>
10:45 AM–12:45 PM	<p><b>Symposium: Molecular Basis for Mitochondrial Signaling</b> <span style="float: right;"><b>Ballroom III</b></span>  <b>Chair:</b> <i>Tatiana Rostovtseva, NIH</i></p> <p>SYSTEMS APPROACHES TO MITOCHONDRIAL CALCIUM SIGNALING. <i>Fabiana Perocchi</i>  THE MITOCHONDRIAL CALCIUM UNIPORTER: MOLECULAR COMPOSITION AND PHYSIOLOGICAL ROLE. <i>Rosario Rizzuto</i>  MOLECULAR MECHANISMS OF MITOCHONDRIAL CA<sup>2+</sup> UPTAKE: ROLE OF MICU1 AND ITS PARALOGS. <i>György Hajnóczky</i>  HIGH-AFFINITY INTERACTION WITH VDAC LINKS CYTOSOLIC PROTEINS TO MITOCHONDRIAL REGULATION IN HEALTH, CANCER, AND NEURODEGENERATION. <i>Tatiana K. Rostovtseva</i></p>
10:45 AM–12:45 PM	<p><b>Platform: Electron Microscopy and Solution Scattering</b> <span style="float: right;"><b>Ballroom IV</b></span></p>
10:45 AM–12:45 PM	<p><b>Platform: Ligand-gated Channels</b> <span style="float: right;"><b>Room 307/308</b></span></p>
10:45 AM–12:45 PM	<p><b>Platform: Intrinsically Disordered Proteins (IDP)</b> <span style="float: right;"><b>Room 309/310</b></span></p>
10:45 AM–12:45 PM	<p><b>Platform: Cardiac, Smooth, and Skeletal Muscle Electrophysiology</b> <span style="float: right;"><b>Room 314/315</b></span></p>
10:45 AM–12:45 PM	<p><b>Platform: Membrane Pumps, Transporters, and Exchangers II</b> <span style="float: right;"><b>Room 316/317</b></span></p>
11:30 AM–12:30 PM	<p><b>Career Center Workshop</b> <span style="float: right;"><b>Room 301/302/303</b></span>  <b>Career Planning and Job Searching for Science Professionals: Academic Opportunities</b></p>
11:30 AM–1:00 PM	<p><b>Exhibitor Presentation: Asylum Research, an Oxford Instruments Company</b> <span style="float: right;"><b>Hall C, Room A</b></span>  <b>There's No Other AFM Like Cypher™ – High Resolution Atomic Force Microscopy Made Easier and Faster</b></p>
11:45 AM–1:15 PM	<p><b>Undergraduate Student Pizza “Breakfast”</b> <span style="float: right;"><b>Room 327/328/329</b></span></p>
12:30 PM–2:00 PM	<p><b>Exhibitor Presentation: Nanion Technologies GmbH</b> <span style="float: right;"><b>Hall C, Room B</b></span>  <b>HTS-Compatible Giga-Seal Ion Channel Drug Discovery: Beyond the Bottleneck and Ready for CiPA</b></p>
1:00 PM–3:00 PM	<p><b>Graduate and Postdoc Institution Fair</b> <span style="float: right;"><b>Hall C</b></span></p>
1:00 PM–3:00 PM	<p><b>Grant Writing Workshop: How (Not) to Write Your NIH Grant Proposal</b> <span style="float: right;"><b>Room 324/325</b></span></p>
1:30 PM–3:00 PM	<p><b>Exhibitor Presentation: World Precision Instruments</b> <span style="float: right;"><b>Hall C, Room A</b></span>  <b>Side-Stepping the Animal Model: Cardiac Work Loops in Human iPSC-derived Myocytes</b></p>
1:30 PM–3:00 PM	<p><b>Biophysics 101: Super-Resolution Microscopy</b> <span style="float: right;"><b>Room 330</b></span></p>
1:45 PM–3:00 PM	<p><b>Snack Break</b> <span style="float: right;"><b>Hall C</b></span></p>
2:15 PM–3:45 PM	<p><b>How to Get Your Scientific Paper Published</b> <span style="float: right;"><b>Room 314/315</b></span></p>
2:30 PM–3:30 PM	<p><b>Career Center Workshop</b> <span style="float: right;"><b>Room 301/302/303</b></span>  <b>Selling Yourself to the Life Sciences Industry</b></p>



2:30 PM–4:00 PM	Overcoming Unconscious Bias & Barriers in Science	Room 331/332
2:30 PM–4:00 PM	US Science Education in a Global Context	Room 321/322/323
2:30 PM–4:00 PM	Exhibitor Presentation: Sutter Instruments Scientists Empowering Scientists	Hall C, Room B
3:00 PM–5:00 PM	Membership Committee Meeting	Room 333
3:30 PM–5:00 PM	Exhibitor Presentation: Bruker Nano Surfaces Recent Advances in Atomic Force Microscopy for Biological Research	Hall C, Room A
4:00 PM–5:00 PM	Career Center Workshop Successfully Navigating the International Job Search	Room 301/302/303
4:00 PM–6:00 PM	<b>Symposium:</b> <b>Bacterial Subcellular Dynamics at Super-Resolution: This Brings Super-Resolution to a Dynamic Sense</b> <b>Chair:</b> <i>Julie Biteen, University of Michigan</i>  BEYOND MODEL SYSTEMS: SUPER-RESOLVING THE SUBCELLULAR DYNAMICS OF STARCH DIGESTION IN THE HUMAN GUT MICROBIOME. <i>Julie S. Biteen</i> BACTERIAL CHROMOSOME SEGREGATION AT THE SINGLE-MOLECULE LEVEL. <i>David Sherratt</i> BACTERIAL CELL WALL PEPTIDOGLYCAN ARCHITECTURE AND DYNAMICS. <i>Simon J. Foster</i> 3D FOLDING MECHANISMS OF HIGHER-ORDER CHROMATIN TOPOLOGICAL DOMAINS. <i>Marcelo Nollmann</i>	Ballroom I
4:00 PM–6:00 PM	<b>Symposium: Neurotransmitter Transporters</b> <b>Chair:</b> <i>Olga Boudker, Weill Cornell Medical College</i>  THE STRUCTURAL AND DYNAMIC BASIS OF ION-COUPLED SUBSTRATE UPTAKE BY A GLUTAMATE TRANSPORTER HOMOLOGUE. <i>Olga Boudker</i> FUNCTIONAL DYNAMICS OF GLUTAMATE/AMINO ACID TRANSPORTERS OF THE SOLUTE CARRIER 1 FAMILY. <i>Christof Grewer</i> TRANSPORTERS IN MOTION: COMBINING COMPUTATIONAL APPROACHES AND LRET-MEASUREMENTS. <i>Harald H. Sitte</i> FUNCTIONAL ROLES OF GLUTAMATE TRANSPORT IN MODULATING PHASIC AND TONIC NEUROTRANSMITTER SIGNALING. <i>Michael P. Kavanaugh</i>	Ballroom II
4:00 PM–6:00 PM	<b>Platform: Cardiac Muscle Mechanics and Structure</b>	Ballroom III
4:00 PM–6:00 PM	<b>Platform: Protein Lipid Interactions II</b>	Ballroom IV
4:00 PM–6:00 PM	<b>Platform: Protein Structure and Conformation II</b>	Room 307/308
4:00 PM–6:00 PM	<b>Platform: Protein-Nucleic Acid Interactions II</b>	Room 309/310
4:00 PM–6:00 PM	<b>Platform: Molecular, Cellular, and Systems Neuroscience: Experimental Approaches, Modeling, and Tools</b>	Room 314/315
4:00 PM–6:00 PM	<b>Platform: Large-scale Molecular Simulations</b>	Room 316/317
4:30 PM–6:00 PM	Exhibitor Presentation: Molecular Devices LLC Eliminating 50-60 hz Line-Frequency Noise with the New HumSilencer and pCLAMP Software Tips & Tricks	Hall C, Room B
5:30 PM–7:00 PM	Exhibitor Presentation: HEKA Elektronik HEKA Electrophysiology Update	Hall C, Room A
8:00 PM–9:30 PM	Awards and National Lecture	Ballrooms I-IV
9:30 PM–12:00 AM	Reception	Hilton Baltimore, Key Ballroom
9:30 PM–12:00 AM	Reception Quiet Room	Hilton Baltimore, Peale A-C

# Monday, February 9

7:30 AM–8:30 AM, ROOM 327/328/329

## Graduate Student Breakfast

*Supported by the Burroughs Wellcome Fund*

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

7:30 AM–5:00 PM, CHARLES STREET LOBBY

## Registration/Exhibitor Registration

8:00 AM–5:30 PM, ROOM 301/302/303

## Career Center

8:00 AM–10:00 PM, HALL C

## Poster Viewing

8:15 AM–10:15 AM, BALLROOM I

## Symposium

### Future of Biophysics

#### Co-Chairs

*Enrique De La Cruz, Yale University*

*Karen Fleming, Johns Hopkins University*

**NO ABSTRACT 8:15 AM**

STRUCTURAL AND FUNCTIONAL STUDIES OF IONOTROPIC GLUTAMATE RECEPTORS. **Alexander Sobolevsky**

**NO ABSTRACT 8:45 AM**

STRUCTURAL AND MECHANISTIC DIVERSITY OF TRANSPORT PROTEINS. **Heather Pinkett**

**NO ABSTRACT 9:15 AM**

ENABLING BIOPHYSICAL DISCOVERIES THROUGH THE LENS OF A COMPUTATIONAL MICROSCOPE. **Rommie E. Amaro**

**NO ABSTRACT 9:45 AM**

PROTEIN INTERACTIONS TO MAP INFORMATION FLOW IN CELL SIGNALING. **Sivaraj Sivaramakrishnan**

8:15 AM–10:15 AM, BALLROOM II

## Symposium

### Probing Ion Channel Structure/Function Using Novel Tools

#### Chair

*Henry Colecraft, Columbia University*

**889-SYMP 8:15 AM**

CONFORMATIONAL CHANGES IN VOLTAGE-SENSING DOMAINS: CONCERTED SIMULATION AND SCATTERING STUDIES. **Douglas J. Tobias**

**890-SYMP 8:45 AM**

TRICKING OUT THE TOOLBOX: USE OF GENETIC CODE EXPANSION FOR THE STUDY OF ION CHANNELS. **Chris Ahern**

**891-SYMP 9:15 AM**

SMALL MOLECULE MODULATION OF VOLTAGE-GATED ION CHANNELS. **Heike Wulff**, Vladimir Yarov-Yarovoy

**892-SYMP 9:45 AM**

CALCIUM CHANNEL ENGINEERING. **Henry M. Colecraft**

8:15 AM–10:15 AM, BALLROOM III

## Platform

### Calcium Signaling

#### Co-Chairs

*Erika Kovacs-Bogdan, Harvard University*

*Madeline Shea, University of Iowa*

**893-PLAT 8:15 AM**

CPOW TRAVEL AWARDEE

DECREASED POLYCYSTIN 2 EXPRESSION ALTERS CALCIUM-CONTRACTION COUPLING AND CHANGES BETA-ADRENERGIC SIGNALING PATHWAYS. **Ivana Y. Kuo**, Andrea T. Kwaczala, Lily Nguyen, Stuart G. Campbell, Barbara E. Ehrlich

**894-PLAT 8:30 AM**

IN VIVO RECONSTITUTION OF THE MITOCHONDRIAL UNIPORTER. **Erika Kovacs-Bogdan**, Yasemin Sancak, Kimberli J. Kamer, Molly Plovovich, Ashwini Jambekar, Robert J. Huber, Michael A. Myre, Michael D. Blower, Vamsi K. Mootha

**895-PLAT 8:45 AM**

FLUCTUATIONS IN CALCIUM CONCENTRATION ALTER THE TEMPORAL DYNAMICS OF CALCIUM-DEPENDENT SIGNALING CASCADES. **Seth H. Weinberg**

**896-PLAT 9:00 AM**

VISUALIZING CALCIUM INFLUX THROUGH SINGLE ORAI1 CHANNELS. **Joseph Dynes**, Anna Amcheslavsky, Michael Cahalan

**897-PLAT 9:15 AM**

FUNCTIONAL RECONSTITUTION AND STRUCTURAL FLEXIBILITY OF THE CRAC CHANNEL ORAI. **Xiaowei Hou**, Stephen B. Long

**898-PLAT 9:30 AM**

THERMODYNAMIC AND STRUCTURAL ANALYSIS OF CALMODULIN INTERACTION WITH THE SKELETAL MUSCLE RYANODINE RECEPTOR. **Adina M. Kilpatrick**, Liam Hovey, Madeline A. Shea

**899-PLAT 9:45 AM**

STRETCH-INDUCED CHANGES IN ATRIAL CA SIGNALING. **Maura Greiser**, Chris Ward, W. Jonathan Lederer

**900-PLAT 10:00 AM**

EDUCATION TRAVEL AWARDEE

NOVEL GENETICALLY ENCODED RATIO-METRIC CALCIUM INDICATORS. **Jung Hwa Cho**, Carter Swanson, Jeannie Chen, Sivaraj Sivaramakrishnan, Robert Chow

8:15 AM–10:15 AM, BALLROOM IV

## Platform

### Cell Mechanics, Mechanosensing, and Motility I

#### Co-Chairs

*Brannon McCullough, University of Minnesota*

*Vivian Tang, University of Illinois at Urbana-Champaign*

**901-PLAT 8:15 AM**

COUPLING OF APICAL CONTRACTIONS AND ADHERENS JUNCTION MATURATION BY SYNAPTOPODIN-DEPENDENT RECRUITMENT OF A-ACTININ-4. **Vivian Tang**

**902-PLAT 8:30 AM**  
TWO DISTINCT ACTIN NETWORKS MEDIATE TRACTION OSCILLATIONS TO CONFER MECHANOSENSITIVITY OF FOCAL ADHESIONS. **Zhanghan Wu**, Sergey V. Plotnikov, Clare M. Waterman, Jian Liu

**903-PLAT 8:45 AM**  
MECHANICAL ACTIVATION OF  $\alpha$ -CATENIN AND VINCULIN. Mingxi Yao, Chwee Teck Lim, Benoit Ladoux, Rene-Marc Mege, **Jie Yan**

**904-PLAT 9:00 AM**  
MOLECULAR REGULATION OF ACTIN TURNOVER AT THE LEADING EDGE OF MIGRATING CELLS.  
**Brannon R. McCullough**, David J. Odde

**905-PLAT 9:15 AM**  
KINETICS OF MECHANORESPONSE IN THE MAMMALIAN ACTIN CYTOSKELETON. **Eric Schiffhauer**, Tianzhi Luo, Xuyu Qian, Krithika Mohan, Pablo Iglesias, Douglas Robinson

**906-PLAT 9:30 AM**  
CORTICAL DYNEIN POWERED BY POLARIZED ACTOMYOSIN CONTRACTIONS AND PRONUCLEAR DYNEIN SEPARATE CENTROSOMES. **Alessandro De Simone**, Pierre Gönczy

**907-PLAT 9:45 AM**  
ACTOMYOSIN DYNAMICS IN 3D TRACTION FORCE GENERATION. **Leanna M. Owen**, Arjun S. Adhikari, Min Cheol Kim, Natascha Leijnse, Alex R. Dunn

**908-PLAT 10:00 AM**  
PHYSICS VS BIOLOGY OF PHAGOCYTOSIS: CELL RIGIDITY AND SHAPE OVERRIDE CD47 'SELF' SIGNALING IN PHAGOCYTOSIS BY HYPERACTIVATING MYOSIN-II. Nisha Sosale, Andrew Bradshaw, Jaime Agudo, Rumiana Dimova, Reinhard Lipowsky, **Dennis E. Discher**

8:15 AM–10:15 AM, ROOM 307/308

**Platform**  
**Membrane Physical Chemistry II**

**Co-Chairs**

*Jeanne Stachowiak, The University of Texas at Austin*  
*Alexander Sodt, NIH/NHLBI*

**909-PLAT 8:15 AM**  
CAN LIPIDS BE USED AS MOBILITY STANDARDS IN ARTIFICIAL BILAYERS? **Wladimir Urbach**, Vladimir Adrien, Gamal Rayan, Nicolas Taulier, Patrick Fuchs

**910-PLAT 8:30 AM**  
CU<sup>2+</sup>-PHOSPHATIDYLSERINE BINDING AND ITS IMPLICATIONS FOR PROTEIN-MEMBRANE INTERACTIONS. **Xiao Cong**, David H. Russell, Paul S. Cremer

**911-PLAT 8:45 AM**  
PROTEIN-FREE MEMBRANE FUSION PROBED BY SINGLE GIANT UNILAMELLAR VESICLE IMAGING - THE ROLE OF MEMBRANE CHARGE. **Rafael B. Lira**, Rumiana Dimova, Karin A. Riske

**912-PLAT 9:00 AM**  
HELIX INSERTION DRIVES MEMBRANE BENDING BY ENABLING PROTEIN CROWDING. **Wilton T. Snead**, Varun Bora, Noor Momin, Jeanne C. Stachowiak

**913-PLAT 9:15 AM**  
LIPID-LIPID INTERACTIONS DETERMINE THE MEMBRANE SPONTANEOUS CURVATURE. **Alexander J. Sodt**, Richard M. Venable, Edward Lyman, Richard W. Pastor

**914-PLAT 9:30 AM**  
LIPOSOME ADHESION GENERATES CONTRACTILE TRACTION STRESSES. **Michael P. Murrell**, Raphael Voituriez, Jean-Francois Joanny, Pierre Nassoy, Cecile Sykes, Margaret Gardel

**915-PLAT 9:45 AM**  
DETERMINING MATERIAL ELASTIC PROPERTIES OF ARBITRARILY-SHAPED MEMBRANES USING MOLECULAR DYNAMICS SIMULATIONS WITH APPLICATION TO THE INVERTED HEXAGONAL PHASE. **Niklaus B. Johner**, Daniel Harries, George Khelashvili

**916-PLAT 10:00 AM**  
MOBILITY OF SINGLE-FILE WATER MOLECULES IN AQUAPORINS. Andreas Horner, Florian Zocher, Johannes Preiner, Nicole Ollinger, Christine Siligan, Sergey A. Akimov, **Peter Pohl**

8:15 AM–10:15 AM, ROOM 309/310

**Platform**  
**Computational and Simulation Methods**

**Co-Chairs**

*Jason Wagoner, Stony Brook University*  
*Sarah Harris, University of Leeds, United Kingdom*

**917-PLAT 8:15 AM**  
ADAPTIVE BOUNDARIES IN MULTI-RESOLUTION SIMULATIONS. **Jason A. Wagoner**, Ken Dill, Vijay Pande

**918-PLAT 8:30 AM**  
TO BAYES, OR NOT TO BAYES, INFORMATION IS THE ANSWER. **Paul A. Wiggins**

**919-PLAT 8:45 AM**  
BENCHMARKING AND OPTIMIZING ATOMISTIC FORCEFIELDS WITH DENSITY MEASUREMENTS. **Kyle A. Beauchamp**, Julie M. Behr, Patrick B. Grinaway, Arien S. Rustenburg, John D. Chodera

**920-PLAT 9:00 AM**  
IMPLEMENTING SOLUTION X-RAY SCATTERING DATA AS ACTIVE CONSTRAINTS IN MD SIMULATIONS. **Po-chia Chen**, Jochen Hub

**921-PLAT 9:15 AM**  
CONSTANT PH MOLECULAR DYNAMICS IN EXPLICIT SOLVENT WITH ENVELOPING DISTRIBUTION SAMPLING AND HAMILTONIAN EXCHANGE. **Juyong Lee**, Tim Miller, Ana Damjanovic, Bernard R. Brooks

**922-PLAT 9:30 AM**  
MESOSCALE MODELLING OF BIOMOLECULES USING CONTINUUM MECHANICS. **Sarah A. Harris**, Ben Hanson, Robin Richardson, Daniel J. Read, Oliver G. Harlen

**923-PLAT 9:45 AM**  
MULTILEVEL SUMMATION METHOD FOR ELECTROSTATIC FORCE EVALUATION. **Zhe Wu**, David J. Hardy, James C. Phillips, John E. Stone, Robert D. Skeel, Klaus Schulten

**924-PLAT 10:00 AM**  
USING LONG-TIMESCALE MOLECULAR DYNAMICS  
SIMULATIONS TO BENCHMARK ENHANCED SAMPLING  
METHODS. **Albert C. Pan**, Thomas M. Weinreich, Stefano Piana,  
David E. Shaw

**8:15 AM–10:15 AM, ROOM 314/315**

**Platform**  
**Protein Dynamics and Allostery I**

**Co-Chairs**

*Ian Thorpe, University of Maryland, Baltimore*  
*Lukas Stelzl, University of Oxford, United Kingdom*

**925-PLAT 8:15 AM**  
ALLOSTERIC COMMUNICATION WITHIN THE CYTOPLASMIC  
REGION OF THE HISTIDINE KINASE CPXA, REVEALED BY  
MOLECULAR DYNAMICS SIMULATIONS OF THE WILD-TYPE  
AND M228V PROTEINS. **Marlet Martinez**, Nathalie Duclert, Jean-  
Michel Betton, Pedro M. Alzari, Michael Nilges, Thérèse E. Malliavin

**926-PLAT 8:30 AM**  
STUDYING THE CONFORMATIONAL EQUILIBRIUM OF THE  
N-TERMINAL DOMAIN OF DSBD BY NMR AND COMPUTER  
SIMULATION. **Lukas S. Stelzl**, Despoina A.I. Mavridou, Stuart J.  
Ferguson, Andrew J. Baldwin, Mark S.P. Sansom, Christina Redfield

**927-PLAT 8:45 AM**  
FUNCTIONAL MECHANISM OF THE PHOTOACTIVE YELLOW  
PROTEIN: A TRANSIENT ABSORPTION SPECTROSCOPY  
PERSPECTIVE. **Chandra P. Joshi**, Harald Otto, Maarten P. Heyn

**928-PLAT 9:00 AM**  
DUAL ALLOSTERIC INHIBITORS EXHIBIT ANTAGONISTIC  
EFFECTS IN THE HEPATITIS C VIRUS POLYMERASE. Jodian A.  
Brown, **Ian F. Thorpe**

**929-PLAT 9:15 AM**  
MICROSECOND MOTION MODULATES UBIQUITIN BINDING  
THROUGH AN ALLOSTERIC BACKBONE/SIDE CHAIN  
NETWORK. **Colin A. Smith**, David Ban, Karin Giller, Stefan Becker,  
Christian Griesinger, Donghan Lee, Bert L. de Groot

**930-PLAT 9:30 AM**  
ALLOSTERY IN PDZ3: USING UNNATURAL AMINO ACIDS AS  
SITE-SPECIFIC REPORTERS IN IR SPECTROSCOPY TO PROBE  
ALLOSTERIC PATHWAYS. **Katharina B. Eberl**, Henrike M. Müller-  
Werkmeister, Martin Essig, Jens Bredenbeck

**931-PLAT 9:45 AM**  
ALLOSTERIC COMMUNICATION IN RND1 AND RAC1  
ASSOCIATION WITH THE PLEXIN-B1 RHOGTPASE BINDING  
DOMAIN REVEALED BY HYDROGEN EXCHANGE MASS  
SPECTROSCOPY AND BY SOLUTION NMR. **Shufen Cao**, Matthias  
Buck

**932-PLAT 10:00 AM**  
CONFORMATIONAL TRANSITIONS IN SWITCH REGIONS  
OF THE RAS-LIKE GTPASE RAB1B STUDIED BY FREE ENERGY  
SIMULATIONS. **Manuel Patrick Luitz**, Rainer Bombliès, Martin  
Zacharias, Evelyn Bender, Aymelt Itzen

**8:15 AM–10:15 AM, ROOM 316/317**

**Platform**  
**Micro- and Nanotechnology**

**Co-Chairs**

*Aleksandra Radenovic, Ecole Polytech Federal Lausanne, Switzerland*  
*Sergey Bezrukov, NIH/NICHD*

**933-PLAT 8:15 AM**  
PROBING THE MOTION OF THE INTRINSICALLY  
DISORDERED NEURONAL PROTEIN ALPHA-SYNUCLEIN  
THROUGH THE VDAC PORE USING A SINGLE-MOLECULE  
APPROACH. **David P. Hoogerheide**, Philip A. Gurnev, Tatiana K.  
Rostovtseva, Sergey M. Bezrukov

**934-PLAT 8:30 AM**  
USING NANOPARTICLES TO CONTROL CELLULAR  
MEMBRANE POTENTIAL. **Emilie A.K. Warren**, Christine K. Payne

**935-PLAT 8:45 AM**  
ELECTRO-WETTING OF A HYDROPHOBIC GATE IN A  
BIOMIMETIC NANOPORE. **Jemma L. Trick**, Chen Song, Jayne E.  
Wallace, Hagan Bayley, Mark S P Sansom

**936-PLAT 9:00 AM**  
DEFORMATION OF MCF-7 CELLS IN MICROPORES WITH  
UNDULATING DIAMETER. **Laura M. Innes**, Ashley Fong, Matthew  
Pevarnik, Matthew Schiel, Eugenia Toimil-Molares, Luke Theogarajan,  
Christopher Hughes, Zuzanna Siwy

**937-PLAT 9:15 AM**  
FINGERPRINTING SINGLE LIVING CELLS WITH MOLECULAR  
PRECISION. **Kim McKelvey**, Volker Kurz, Tetsuya Tanaka, Gregory  
Timp

**938-PLAT 9:30 AM**  
MECHANICAL MODULATION OF ENZYME ACTIVITY BY  
RATIONALLY DESIGNED DNA TWEEZERS: FROM THE  
ENSEMBLE TO THE SINGLE-MOLECULE LEVEL. **Soma Dhakal**,  
Minghui Liu, Matthew R. Adendorff, Mark Bathe, Hao Yan, Nils G.  
Walter

**939-PLAT 9:45 AM**  
REGULATION OF LIPID MEMBRANE TRAFFICKING AND  
TRANSMEMBRANE SIGNALING BY GRAPHENE. **Kristina E.**  
**Kitko**, Tu Hong, Roman Lazarenko, Da Ying, Yaqiong Xu, Qi Zhang

**940-PLAT 10:00 AM**  
DEVELOPMENT OF A FLUORESCENCE-BASED ASSAY FOR  
FUNCTIONAL STUDIES OF TRANSPORTER PROTEINS ON THE  
SINGLE MOLECULE LEVEL. Salome Veshaguri, Sune M. Christensen,  
**Mads P. Møller**, Garima Ghale, Christina Lohr, Andreas L. Christensen,  
Marijonas Tutkus, Gerdi Kemmer, Ida L. Jørgensen, Bo H. Justesen,  
Patricia Curran, Thomas G. Pomorski, Joseph Mindell, Dimitrios Stamou

**8:30 AM–10:00 AM, HALL C, ROOM B**

**Exhibitor Presentation**  
**FEI Company**

**Advances in Correlative Light and Electron Microscopy**

Correlative light and electron microscopy (CLEM) is a powerful approach that enables combining dynamic information and labelling specificity from fluorescence microscopy with ultra-structural information at nanometer resolution from electron microscopy on the same sample. In recent years technical improvements in fluorescence microscopy have enhanced z-resolution, enabled imaging with high sensitivity using TIRF



and, with super-resolution microscopy, improved the resolution of light microscopy to up to 20 nm. Despite all these advances, fluorescence microscopy can only show what was labelled and an EM is needed to provide the full morphological context on the ultra-structure of the cell. However, CLEM experiments still remain challenging and low throughput.

Over the last years, FEI has introduced different solutions to overcome some of the challenges in CLEM experiments and to make CLEM experiments easier and more efficient. But correlative experiments are rapidly evolving – here, we will present updates on latest developments that have pushed the boundaries of correlative experiments.

**Presenter**

Meike Pedersen, Product Application Specialist, FEI Company

**8:30 AM–10:30 AM, ROOM 333  
CPOW Committee Meeting**

**9:30 AM–11:00 AM, HALL C, ROOM A  
Exhibitor Presentation  
Pall ForteBio LLC**

**Measuring Engineered Changes in Binding Affinity with the BLItz® Label-Free System**

*Combining Organic Synthesis and Directed Evolution to Design Glycocluster HIV Vaccine Candidates*

We will describe a new method for design of carbohydrate HIV vaccines, which combines organic synthesis and directed evolution techniques. This work originates from the observation that some HIV positive individuals produce antibodies which are broadly neutralizing and protective against HIV infection. One such antibody, 2G12, recognizes and binds to a cluster of carbohydrates on the viral envelope protein gp120. Our goal is to develop synthetic carbohydrate clusters which closely mimic the viral carbohydrate cluster, and which might thus elicit a 2G12-like antibody response when used as a vaccine. In order to design carbohydrate clusters which closely mimic gp120, we have developed evolution-based strategies, in which immobilized 2G12 is used to recognize and fish out the best glycocluster mimics of gp120 from amongst large libraries of ~10 trillion different glycosylated peptide- or DNA structures. The glycocluster structures obtained by these methods are recognized by antibody 2G12 as strongly as is the viral protein itself, and are thus of great interest for vaccine studies.

*Tips and Tricks for Developing BLItz Assays*

The BLItz label-free assay system is a simple-to-use benchtop instrument for measuring binding interactions of antibodies and proteins using as little as 4µl of sample. Additional case studies of how the BLItz system is being used to qualify biophysical models will be presented, along with tips and tricks for developing kinetics assays on the BLItz system.

**Presenters**

Isaac Krauss, Assistant Professor of Chemistry, Brandeis University  
Craig Tin, Senior Product Manager, Pall Forte Bio LLC

**10:00 AM–11:00 AM, ROOM 301/302/303  
Career Center Workshop  
Ten Tough Industrial Interview Questions  
(and Ten Pretty Good Responses)**

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

**10:00 AM–5:00 PM, HALL C  
Biomolecular Discovery Dome**

Visit this 3-D portable Dome, sponsored by the Public Affairs Committee, to see how difficult biophysical topics can be made accessible to high school students and the public. Short videos that communicate the excitement of looking at macromolecular complexes and understanding the molecular basis for life are being shown throughout the week.

**10:00 AM–5:00 PM, HALL C  
Exhibits**

**10:15 AM–11:00 AM, HALL C  
Coffee Break**

**10:15 AM–11:15 AM, ROOM 327/328/329  
New Member Welcome Coffee**

All new Biophysical Society members are invited to participate in an informal gathering to meet members of the Society's council and committees, find out about the Society's activities, get acquainted with other new members, and enjoy refreshments. Current members are encouraged to come meet the new members.

**10:30 AM–12:00 PM, HALL C, ROOM B  
Exhibitor Presentation  
Molecular Devices LLC**

**Performing Positive Allosteric Modulator (PAM) Assays and Investigating Use-Dependent Inhibition of Ion Channels on Automated Electrophysiology Systems Including the IonFlux™ Benchtop Reader and the IonWorks Barracuda® Instrument**

PAM Assays  
Nicotinic acetylcholine receptors (nAChRs) have been extensively studied due to their importance in physiological processes as well as involvement in several muscle and neuronal human pathologies, and are major therapeutic targets for pharmaceutical drug discovery. Ensemble recordings on the IonFlux HT System were validated with human hnAChR recombinant cell lines developed by Eurofins Discovery Services. Response properties of the nAChRs to the endogenous ligand acetylcholine (ACh), reference agonists, antagonists and positive allosteric modulators (PAMs) were characterized and will be presented.

**Ion Channel Use-Dependence**

Use-dependent inhibition of ion channels by potential drug candidates is an important aspect to investigate for many drug classes. Data will be presented to demonstrate the ability of automated electrophysiology systems to study the use-dependence block of Na<sup>+</sup> channel targets by peptide toxins and known compounds. We will demonstrate the ability of the IonWorks Barracuda system to deliver complex voltage protocols and generate long assay windows which are required for these studies. Pulse trains delivered at 10Hz are used to measure the blockade of current. These experiments demonstrate stable assay windows with uniform currents for 30 minutes and longer during the delivery of periodic pulse trains.

**Presenter**

James Costantin, Product Marketing Manager, Automated Electrophysiology, Molecular Devices LLC

10:45 AM–12:45 PM, BALLROOM I

## Symposium Epigenetics

### Chair

*Lene Oddershede, University of Copenhagen, Denmark*

**941-SYMP** 10:45 AM

COST AND PRECISION IN SMALL GENE REGULATORY NETWORKS. **Aleksandra Walczak**

**942-SYMP** 11:15 AM

METAPHASE CHROMATIN PLATES EXPLAIN THE STRUCTURE AND PHYSICAL PROPERTIES OF CONDENSED CHROMOSOMES. **Joan-Ramon Daban**

**943-SYMP** 11:45 AM

COOPERATIVITY AND SUPERCOILING MODULATE FUNCTIONS OF HUMAN O6-ALKYLGUANINE DNA ALKYLTRANSFERASE. **Michael G. Fried**, Manana Melikishvili, Ingrid Tessmer

**944-SYMP** 12:15 PM

DNA SUPERCOILING ENHANCES COOPERATIVITY AND EFFICIENCY OF AN EPIGENETIC SWITCH. Kamilla Nørregaard, Magnus Andersson, Peter E. Nielsen, Stanley Brown, **Lene B. Oddershede**

10:45 AM–12:45 PM, BALLROOM II

## Symposium Mechanisms of Actin Filament Nucleation and Mechanotransduction

### Chair

*Roberto Dominguez, University of Pennsylvania*

**945-SYMP** 10:45 AM

MECHANOSENSITIVITY OF FORMIN-ACTIN INTERACTIONS. **Guillaume Romet-Lemonne**

**946-SYMP** 11:15 AM

WISH/DIP/SPIN90 PROTEINS ACTIVATE ARP2/3 COMPLEX TO CREATE LINEAR ACTIN FILAMENTS THAT SEED ASSEMBLY OF BRANCHED ACTIN NETWORKS. **Brad Nolen**

**947-SYMP** 11:45 AM

TWO TYPES OF ACTIN NUCLEATORS, THREE WAYS TO MAKE ACTIN FILAMENTS? **Margot Quinlan**

**948-SYMP** 12:15 PM

MOLECULAR MECHANISM OF ACTIN FILAMENT NUCLEATION BY LEIOMODIN (LMO2). Malgorzata Boczowska, Grzegorz Rebowski, **Roberto Dominguez**

10:45 AM–12:45 PM, BALLROOM III

## Symposium Molecular Basis for Mitochondrial Signaling

### Chair

*Tatiana Rostovtseva, NIH*

**949-SYMP** 10:45 AM

SYSTEMS APPROACHES TO MITOCHONDRIAL CALCIUM SIGNALING. Jennifer Wettmarshausen, Yiming Cheng, **Fabiana Perocchi**

**950-SYMP** 11:15 AM

THE MITOCHONDRIAL CALCIUM UNIporter: MOLECULAR COMPOSITION AND PHYSIOLOGICAL ROLE. **Rosario Rizzuto**

**951-SYMP** 11:45 AM

MOLECULAR MECHANISMS OF MITOCHONDRIAL CA<sup>2+</sup> UPTAKE: ROLE OF MICU1 AND ITS PARALOGS.

**György Hajnóczky**

**952-SYMP** 12:15 PM

HIGH-AFFINITY INTERACTION WITH VDAC LINKS CYTOSOLIC PROTEINS TO MITOCHONDRIAL REGULATION IN HEALTH, CANCER, AND NEURODEGENERATION.

**Tatiana K. Rostovtseva**, Philip A. Guney, David P. Hoogerheide, Eduardo N. Maldonado, John J. Lemasters, Olga Protchenko, Jennifer C. Lee, Sergey M. Bezrukov

10:45 AM–12:45 PM, BALLROOM IV

## Platform Electron Microscopy and Solution Scattering

### Co-Chairs

*Doreen Matthies, NIH*

*Daisube Kihare, Purdue University*

**953-PLAT** 10:45 AM

GFP FOR EM: SITE-SPECIFIC LABELING OF PROTEINS FOR ELECTRON MICROSCOPY. **Corey M. Dambacher**, Gabriel C. Lander

**954-PLAT** 11:00 AM

FAST SHAPE-BASED GLOBAL AND LOCAL ELECTRON DENSITY MAP SEARCH. Juan Esquivel-Rodriguez, Xusi Han, Charles Christoffer, Xuejiao Kang, Lyman Monroe, **Daisuke Kihara**

**955-PLAT** 11:15 AM

CYCLOPHILIN A STABILIZES THE MATURE HIV-1 CAPSID THROUGH A NOVEL NON-CANONICAL BINDING SITE.

**Peijun Zhang**, Chuang Liu, Juan R. Perilla, In-Ja Byeon, Jiyang Ning, Jinwoo Ahn, Chris Aiken, Angela M. Gronenborn, Tatyana Polenova, Klaus Schulten

**956-PLAT** 11:30 AM

RESIDUE SPECIFIC RADIATION DAMAGE OF PROTEIN STRUCTURES USING HIGH-RESOLUTION CRYO-ELECTRON MICROSCOPY. **Doreen Matthies**, Alberto Bartesaghi, Alan Merk, Soojay Banerjee, Sriram Subramaniam

**957-PLAT** 11:45 AM

3D ULTRASTRUCTURAL INVESTIGATION OF ENTIRE PANCREATIC ISLETS OF LANGERHANS BY SERIAL BLOCK FACE SCANNING ELECTRON MICROSCOPY. Gina N. Calco, Jake D. Hoyne, **Bryan C. Kuo**, Maria A. Aronova, Guofeng Zhang, Andre Shomorony, Charlotte R. Pfeifer, Tao Cai, Huanyu Xu, Abner L. Notkins, Richard D. Leapman

**958-PLAT** 12:00 PM

SUPERRESOLUTION FLUORESCENCE MICROSCOPY WITHIN A SCANNING ELECTRON MICROSCOPE. **Craig L. Hetherington**, Connor G. Bischak, Claire E. Stachelrodt, Jake T. Precht, Zhe Wang, Darrell G. Schlom, Naomi S. Ginsberg

**959-PLAT** 12:15 PM

CCP-SAS - NOVEL APPROACHES FOR THE ATOMISTIC MODELLING OF SMALL ANGLE SCATTERING DATA IN BIOLOGY. **David W. Wright**, Ruodan Nan, Gar-Kay Hui, Joseph E. Curtis, Emre H. Brookes, Stephen J. Perkins

**960-PLAT 12:30 PM**  
 INTERPRETATION OF SOLUTION X-RAY SCATTERING DATA BY MOLECULAR DYNAMICS. Po-chia Chen, Levin Brinkmann, Jochen S. Hub

10:45 AM–12:45 PM, ROOM 307/308

**Platform  
 Ligand-gated Channels**

**Co-Chairs**

*John Baenziger, University of Ottawa, Canada*  
*Cynthia Czajkowski, University of Wisconsin-Madison*

**961-PLAT 10:45 AM**  
 DIVERGENT ROLES FOR M4 IN THE GATING OF TWO PROKARYOTIC PENTAMERIC LIGAND-GATED ION CHANNELS. Camille M. Henault, Peter F. Juranka, Julian S. Surujballi, John E. Baenziger

**962-PLAT 11:00 AM**  
 SINGLE MOLECULE MOTION MAP OF GLIC BY DIFFRACTED X-RAY TRACKING. Hiroshi Sekiguchi, Yufuku Matsushita, Yuri Nishino, Keigo Ikezaki, Atsuo Miyazawa, Naoto Yagi, Christele Huron, Jean-Pierre Changeux, Pierre-Jean Corringer, Yuji C. Sasaki

**963-PLAT 11:15 AM EDUCATION TRAVEL AWARDEE**  
 AN ELIC-GLIC CHIMERA REVEALS DISTINCT PATHWAYS OF ACTIVATION IN THE CYS-LOOP FAMILY OF RECEPTORS. Nicolaus Schmandt, David T. Lodowski, Vivien Yee, Sudha Chakrapani

**964-PLAT 11:30 AM EDUCATION TRAVEL AWARDEE**  
 DISULFIDE TRAPPING THE GABA-A RECEPTOR EXTRACELLULAR BETA-5/BETA-5' LOOP. Cassandra M. Theusch, Cynthia Czajkowski

**965-PLAT 11:45 AM**  
 CONFORMATIONAL DYNAMICS IN THE GABAA RECEPTOR. Rilei Yu, Philip C. Biggin

**966-PLAT 12:00 PM**  
 MONITORING THE WORK OF A SINGLE SUBUNIT IN HOMOTETRAMERIC CNGA2 CHANNELS. Klaus Benndorf, Nisa Wongsamitkul, Vasilica Nache, Thomas Eick, Sabine Hummert, Eckhard Schulz, Ralf Schmauder, Jana Schirmeyer, Thomas Zimmer

**967-PLAT 12:15 PM**  
 ALLOSTERIC REGULATION OF THE CYCLIC NUCLEOTIDE-BINDING DOMAIN IN HCN CHANNELS. Hannah A. DeBerg, Shahidul M. Islam, Michael C. Puljung, Benoit Roux, William N. Zagotta, Stefan Stoll

**968-PLAT 12:30 PM**  
 RAPID ACTIVATION OF DISTINCT CONDUCTING STATES IN P2X RECEPTOR CHANNELS. Mufeng Li, Gilman Toombes, Shai D. Silberberg, Kenton J. Swartz

10:45 AM–12:45 PM, ROOM 309/310

**Platform  
 Intrinsically Disordered Proteins (IDP)**

**Co-Chairs**

*Tharin Blumenschein, University of East Anglia, United Kingdom*  
*Travis Hoppe, Drexel University*

**969-PLAT 10:45 AM**  
 A NEW AND UN-CONVENTIONAL ULTRAFAST BINDING MECHANISM OF INTRINSICALLY DISORDERED PROTEINS TO STRUCTURED PARTNERS. Davide Mercadante, Sigrid Milles, Edward A. Lemke, Frauke Gräter

**970-PLAT 11:00 AM**  
 COMBINATIONAL EVIDENCE THAT INTRINSIC DISORDER PROVIDES BROAD ASSOCIATION PROFILES. Travis A. Hoppe, Robert Best

**971-PLAT 11:15 AM**  
 THE INTRINSICALLY DISORDERED C. TRACHOMATIS TARP BINDS ACTIN WITH A PARTIALLY PREFORMED HELIX. James L. Tolchard, Ted Hackstadt, Tharin M. A. Blumenschein

**972-PLAT 11:30 AM**  
 POST-TRANSLATIONAL MODIFICATION OF P27 REGULATES SIGNAL TRANSMISSION VIA A DYNAMIC INTERACTION WITH CDK2/CYCLIN. Hugo Sanabria, Maksym Tsytlonok, Yuefeng Wang, Cheon-Gil Park, Suren Felekyan, Katherina Hemmen, Peter Tompa, Claus A. M. Seidel

**973-PLAT 11:45 AM**  
 EFFECTS OF CHARGE INTERACTIONS AND TRANSIENT SECONDARY STRUCTURE ELEMENTS ON THE FUNCTION OF THE DISORDERED RAM REGION OF THE NOTCH RECEPTOR. Kathryn Sherry, Rahul Das, Rohit Pappu, Doug Barrick

**974-PLAT 12:00 PM**  
 MOLECULAR SIMULATIONS OF UNFOLDED AND INTRINSICALLY DISORDERED PROTEINS. Gül H. Zerze, Robert B. Best, Jeetain Mittal

**975-PLAT 12:15 PM**  
 CONFORMATIONAL ENTROPIES OF UNFOLDED PEPTIDES: THE SOURCE OF A REALISTIC ESTIMATION OF THE ENTROPY OF UNFOLDED PEPTIDES AND PROTEINS. Reinhard Schweitzer-Stenner, Siobhan E. Toal

**976-PLAT 12:30 PM**  
 EVIDENCE FOR INTERNAL FRICTION IN IDPS OF THE CALCITONIN PEPTIDE FAMILY. Sara M. Sizemore, Stephanie M. Cope, Sara M. Vaiana

10:45 AM–12:45 PM, ROOM 314/315

**Platform  
 Cardiac, Smooth, and Skeletal Muscle  
 Electrophysiology**

**Co-Chairs**

*Cathy Proenza, University of Colorado, Denver*  
*Eleonora Grandi, University of California, Davis*

**977-PLAT 10:45 AM**  
 IONIC MECHANISMS THAT UNDERLIE VENTRICULAR ACTION POTENTIAL PROLONGATION FOLLOWING LOSS OF CAVEOLIN-3 IN ADULT TRANSGENIC MICE. Vignesh Ramchandran, Thomas O'Hara, Yogananda S. Markandeya, Ravi C. Balijepalli, Timothy J. Kamp, Natalia A. Trayanova

**978-PLAT 11:00 AM**  
 DIABETES SLOWS HEART RATE VIA ELECTRICAL REMODELING OF K<sup>+</sup> CURRENTS IN SINORIATRIAL NODE MYOCYTES. Joshua R. St. Clair, Emily J. Sharpe, Andrew Hagar, Clayton Garthe, Julie Juchno, Cathy Proenza

**979-PLAT 11:15 AM**  
 CARDIAC SPECIFIC LEUCINE-RICH REPEAT CONTAINING 10 (LRR10) PROTEIN INTERACTS WITH AND REGULATES THE CAV1.2 L-TYPE CA<sup>2+</sup> CHANNELS. Marites T. Woon, Adrian C. Grimes, Courtney R. Reynolds, Matthew J. Brody, Youngsook Lee, Ravi C. Balijepalli



**980-PLAT 11:30 AM**  
THE CA<sup>2+</sup> CLOCK IS NOT GOVERNED BY A SINGLE CAMKII OR PKA PHOSPHORYLATION SITE FOR FIGHT OR FLIGHT RESPONSES. **Yuejin Wu**, William J. Kutschke, Hector H. Valdivia, Xander H.T. Wehrens, Mark E. Anderson

**981-PLAT 11:45 AM**  
RANOLAZINE PREVENTS PHASE-3 EARLY AFTERDEPOLARIZATIONS IN HUMAN ATRIAL MYOCYTES BY INHIBITING NA CURRENT NON-EQUILIBRIUM REACTIVATION. Stefano Morotti, Andrew D. McCulloch, Donald M. Bers, Andrew G. Edwards, **Eleonora Grandi**

**982-PLAT 12:00 PM**  
PROBING THE TRAFFICKING ROUTES OF KCNQ1 AND KCNE1 AFTER THEIR ER EXIT. Min Jiang, Mei Zhang, Scott C. Henderson, **Tseng Gea-Ny**

**983-PLAT 12:15 PM**  
TRAFFICKING AND GATING MECHANISMS OF HERG1A C-TERMINUS (LQTS-2) TRUNCATION MUTATIONS ON HERG1A-HERG1B HETERO-MULTIMERIC CHANNEL. Akil Puckerin, Donald D. Chang, Prakash Subramanyam, Henry M. Colecraft, **Ademuyiwa S. Aromolaran**

**984-PLAT 12:30 PM**  
DOMINANT NEGATIVE CONSEQUENCES OF A HERG 1B MUTATION ASSOCIATED WITH INTRAUTERINE FETAL DEATH. **David K. Jones**, Sunita Joshi, Fang Liu, Gail A. Robertson

10:45 AM–12:45 PM, ROOM 316/317

## Platform Membrane Pumps, Transporters, and Exchangers II

### Co-Chairs

*Vanessa Leone, NIH*  
*Eduardo Chufan, NIH*

**985-PLAT 10:45 AM**  
ON THE NA<sup>+</sup>/H<sup>+</sup> SELECTIVITY OF MEMBRANE TRANSPORTERS AND ENZYMES: EXPERIMENTAL AND THEORETICAL STUDIES OF AN ATP-SYNTHASE ROTOR RING. **Vanessa Leone**, Ernst Grell, Denys Pogoryelov, Thomas Meier, José D. Faraldo-Gómez

**986-PLAT 11:00 AM** EDUCATION TRAVEL AWARDEE  
RECENT STRUCTURES AND MOLECULAR DYNAMICS SIMULATIONS OFFER NEW PERSPECTIVE ON NA<sup>+</sup>/H<sup>+</sup> ANTIPORTERS. **David L. Dotson**, Chiara Lee, Shoko Yashiro, Povilas Uzdeviny, Christoph von Ballmoos, David Drew, Alexander D. Cameron, Oliver Beckstein

**987-PLAT 11:15 AM** EDUCATION TRAVEL AWARDEE  
UNDERSTANDING SELECTIVITY OF THE NA<sup>+</sup>/K<sup>+</sup> -ATPASE USING A COMPUTATIONAL APPROACH. **Asghar M. Razavi**, Vincenzo Carnevale, Lucie Delemotte, Vincent A. Voelz

**988-PLAT 11:30 AM**  
X-RAY CRYSTALLOGRAPHIC STUDY OF NA,K-ATPASE IN COMPLEX WITH CARDIOTONIC STEROIDS. **Haruo Ogawa**, Kanna Motoyama, Flemming Cornelius, Bente Vilsen, Chikashi Toyoshima

**989-PLAT 11:45 AM**  
IDENTIFICATION OF STRUCTURAL MOTIFS IN

P-GLYCOPROTEIN RESPONSIBLE FOR THE DRUG-MEDIATED INHIBITION OF ATP HYDROLYSIS. **Eduardo E. Chufan**, Khyati Kapoor, Suresh V. Ambudkar

**990-PLAT 12:00 PM** EDUCATION TRAVEL AWARDEE  
THE HYDROLYSIS CYCLE OF ATP-BINDING CASSETTE NUCLEOTIDE-BINDING DOMAINS. **Srinivasan Krishnan**, Maria E. Zoghbi, Guillermo A. Altenberg

**991-PLAT 12:15 PM**  
RECONSTITUTION OF HUMAN ABC TRANSPORTER MRP3 INTO GIANT UNILAMELLAR VESICLES FOR SINGLE MOLECULE TRANSPORT RECORDINGS ON MICRO-STRUCTURED BIOCHIPS. **Patrick Seelheim**, Adriane Wüllner, Hans-Joachim Galla

**992-PLAT 12:30 PM**  
MOLECULAR DYNAMICS SIMULATION STUDY OF A MUTANT CONSTRUCT OF THE ARCHAEAL GLUTAMATE TRANSPORTER GLTPH WITH TRANSPORT RATES AS FAST AS ITS HUMAN COUNTERPART. **Michel A. Cuendet**, Sebastian Stolzenberg, George Khelashvili, Harel Weinstein

11:30 AM–12:30 PM, ROOM 301/302/303

## Career Center Workshop Career Planning and Job Searching for Science Professionals: Academic Opportunities

Learn how to create a flexible career plan for yourself, and identify and leverage your skills, expertise and experience to find a career (not just a job) that is right for you. Special emphasis will be placed on tips for finding and launching a career in academia, but we will also incorporate the development of a contingency plan for the unexpected twists and turns in life.

11:30 AM–1:00 PM, HALL C, ROOM A

## Exhibitor Presentation Asylum Research, an Oxford Instruments Company

**There's No Other AFM Like Cypher™ – High Resolution Atomic Force Microscopy Made Easier and Faster**

Asylum Research has focused on improving AFM instrumentation to make imaging in liquid easier, faster and more quantitative for life science applications. Please join us for this 'Lunch and Learn' presentation that will focus on the latest technical advances in AFM that enable high resolution imaging of the structure and dynamics of samples including proteins, lipids and nucleic acids. We'll show examples of how the Cypher ES Environmental AFM allows users to control the environment around their sample and perform perfusion experiments easily. You'll learn about Cypher's numerous ease-of-use features such as GetStarted™, GetReal™, and blueDrive™ for easy and stable imaging in liquid. We will introduce you to Fast Force Mapping, our unique technology that measures mechanical properties of your samples faster and more reliably. This is also a great opportunity to ask our scientists any questions you may have about AFM.

### Presenter

Irène Revenko, Applications Scientist, Asylum Research, an Oxford Instruments Company



11:45 AM–1:15 PM, ROOM 327/328/329

### Undergraduate Student Pizza “Breakfast”

The Education Committee is hosting this “breakfast” for undergraduate students. This session provides a valuable networking and social opportunity for undergraduate student attendees to meet other students and Committee members, to discuss academic goals and questions, and to develop a biophysics career path. The Emily M. Gray Awardee will also give a talk at this event. Limited to the first 100 attendees.

**Emily Gray Awardee Speaker**

Meyer Jackson, University of Wisconsin-Madison

12:30 PM–2:00 PM, HALL C, ROOM B

### Exhibitor Presentation Nanon Technologies GmbH

**HTS-Compatible Giga-Seal Ion Channel Drug Discovery: Beyond the Bottleneck and Ready for CiPA**

Nanon Technologies is one of the leading providers of automated patch clamp systems, offering a diverse product portfolio covering a broad experimental range from single channel recordings to HTS-compatible ion channel screening from up to 768 cells in parallel. Allowing 20,000 data points per day, the SyncroPatch 384/768PE is unrivalled for high throughput and high quality recordings. Diverse ion channel targets and cell types have successfully been tested on the SyncroPatch 384/768PE including challenging targets such as fast desensitizing ligand ion channels (P2X3 und GluA2), ion channels requiring intracellular activation (K<sub>atp</sub>, TMEM16a) and heavily regulated channels such as TRPA1.

Early cardiac arrhythmic risk assessment is a hot topic these days calling for new safety screening strategies. Patchliner, a medium-throughput APC platform, supports automated current clamp recordings, experiments at physiological temperatures, and a minimal cell usage, making it the ideal partner for safety testing on stem cell derived cardiomyocytes. Additionally, the CardioExcyte 96, a unique hybrid system for parallel impedance-based and MEA-like recordings from intact cardiomyocyte networks, has proven a versatile tool for safety and toxicity screening applications serving as an excellent complement to APC. These three platforms enable you to keep up with the requirements of the CiPA-initiative for early prediction of potential cardiac arrhythmias.

During this workshop, we will show how to push the boundaries of ion channel screening projects to achieve HTS-screening standards, and how to get ready for comprehensive safety screening beyond hERG. Spaces are limited so reserve yours by sending an email to [info@nanion.de](mailto:info@nanion.de).

**Presenters**

Niels Fertig, CEO, Nanion Technologies  
Andrea Brüggemann, CSO, Nanion Technologies

1:00 PM–3:00 PM, HALL C

### Graduate and Postdoc Institution Fair

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

1:00 PM–3:00 PM, ROOM 324/325

### Grant Writing Workshop How (Not) to Write Your NIH Grant Proposal

Through mock study sections and discussions, veteran NIH officials will demonstrate what review panels look for when they read and assess proposals. They will also answer questions about peer review, avoiding application pitfalls and responding to review concerns. This session is sponsored by the Public Affairs Committee and is appropriate for both experienced principal investigators and those applying for their first grant.

**Speakers**

Jean Chin, NIGMS, NIH  
Catherine Lewis, NIGMS, NIH  
James Mack, CSR, NIH  
Don Schneider, CSR, NIH  
Mary Ann Wu, NIGMS, NIH

1:30 PM–3:00 PM, HALL C, ROOM A

### Exhibitor Presentation World Precision Instruments

**Side-Stepping the Animal Model: Cardiac Work Loops in Human iPSC-derived Myocytes**

Cardiac pressure-volume loops on a complete organ provide the framework for understanding cardiac mechanics in experimental animal models, most notably in the context of Frank-Starling mechanisms. With the development of more sensitive transducers, this work has been applied to single cardiac cells, using freshly isolated cells from an animal model. With the advent of iPSC-derived myocytes, a whole new range of cell types is now available to the investigator. We introduce a novel mounting application for overcoming the technical difficulties in instrumenting these cells for force measurements. With this technology, it is now possible to conduct experiments on human stem cell-derived myocytes.

We will show preliminary results, the tools required for these types of experiments, mounting methods, and a novel method for direct force measurements on human iPSC-derived myocytes. In addition, two different methods for real-time determination of length changes in isolated iPSC-derived myocytes will be presented. The results are preliminary, however indicate the possibility for not only a reduction in the use of the animal models in cardiac research, but also the direct investigation of human cardiovascular disease.

1:30 PM–3:00 PM, ROOM 330

### Biophysics 101: Super-Resolution Microscopy

Eric Betzig, Stefan W. Hell and William E. Moerner were awarded the Nobel Prize in Chemistry 2014 for their great achievements in developing super-resolution/single-molecule microscopy. This revolutionary progress in optical microscopy enables us to have an unprecedented power peering into the nanoworld in live organisms. This year’s “Biophysics 101” session will include two lectures on this topic, outlining the practice of super-resolution/single-molecule microscopy for not-yet-experts, and describing some of its uses and rewards. The session is part of a continuing series of symposia initiated by the Education Committee to educate the Society membership about fundamentals of various biophysical techniques with which they may not be familiar but might want to use.

**Speakers**

Keith Lidke, University of New Mexico  
Weidong Yang, Temple University

1:45 PM–3:00 PM, HALL C  
**Snack Break**

2:15 PM - 3:45 PM, ROOM 314/315

## How to Get Your Scientific Paper Published

This panel discussion, sponsored by the Publications Committee, will focus on the practical issues involved in publishing a scientific paper. The panelists have extensive experience in writing, reviewing, and editing papers, and will provide information on the dos and don'ts of submitting research manuscripts. Discussions will likely focus on strategies to avoid common pitfalls, how to prevent and fix problems before submission, and how to respond to critiques and even rejection of a paper. Attendees are encouraged to ask questions during the session.

**Moderator** William O. Hancock

### Speakers

E. Michael Ostap, Associate Editor, *Biophysical Journal*  
David J. Odde, Editorial Board Member, *Biophysical Journal*  
Leslie M. Loew, Editor-in-Chief, *Biophysical Journal*  
Beth D. Staehle, Journal Manager, *Biophysical Journal*

2:30 PM–3:30 PM, ROOM 301/302/303

## Career Center Workshop

### Selling Yourself to the Life Sciences Industry

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

2:30 PM–4:00 PM, ROOM 331/332

## Overcoming Unconscious Bias & Barriers in Science

Most scientists want to detect (and to mitigate) the influence of bias in the context of their research. However, in the context of interpersonal relationships, scientists often act with unconscious biases against another person's gender, age, ethnicity, or socioeconomic status. These unchecked biases limit the career advancement of susceptible individuals and propagate harmful stereotypes. This panel will explore strategies for detecting our unconscious biases and overcoming them.

### Speakers

Chad Forbes, University of Delaware  
Sharona Gordon, University of Washington  
Rajini Rao, Johns Hopkins University

2:30 PM–4:00 PM, ROOM 321/322/323

## US Science Education in a Global Context

Why do students in other countries outperform US students in science? As other countries are increasing their investment in scientific research and creating new opportunities for higher education and work, who will fill the seats in tomorrow's US university science classrooms? Panelists in this session will discuss what other countries are doing differently than the US in science education and the role of the next generation science standards in US education.

### Speakers

Bruce Alberts, University of California, San Francisco  
Stephen Pruitt, Achieve  
Susan Singer, National Science Foundation

2:30 PM–4:00 PM, HALL C, ROOM B  
**Exhibitor Presentation**  
**Sutter Instruments**

### Scientists Empowering Scientists

For over 40 years, Sutter Instrument has designed and produced electro-mechanical and optical instrumentation that helps scientists push the limits. While Sutter has long been the market leader in products for micropipette fabrication and micromanipulation, we have continued to expand our Lambda imaging product line and XenoWorks microinjection systems. A strong emphasis has always been placed on providing expert tech support to help our customers achieve the best results in their research.

To further this goal, Sutter Instrument is starting a series of user meetings with tutorial presentations. We will be providing step-by-step guidance to the new experimenter as well as advanced tips and tricks for the experienced user. To round it off, newly introduced products will be discussed on a case-by-case basis. Registration is available online through the Sutter Event Registration Page (<http://sutter.eventbrite.com>), or by email to [info@sutter.com](mailto:info@sutter.com). The number of available spaces is limited, and registrations are accepted on a first-come-first-served basis.

Who should attend?

- Electrophysiologists who use micropipettes and micromanipulators for patch clamp, sharp electrode or extracellular recordings.
- Researchers who perform microinjections, including nuclear transfer, sperm injection and application of substances into cell cultures or intact organisms.
- Scientists who want to learn more about optimizing their results with pipette pullers and micromanipulators

### Presenters

Jan Dolzer, Tech Support and Product Development, Sutter Instrument:  
Introductory Remarks

Adair Oesterle, Tech Support Micropipette Fabrication and  
Microinjection, Sutter Instrument: Optimizing Settings on Your Sutter  
Micropipette Puller

Ali Mahloudji, Tech Support Micromanipulators and Lambda DG Series,  
Sutter Instrument: Maximizing the Versatility of Your Dual-manipulator  
Setup

3:00 PM–5:00 PM, ROOM 333

## Membership Committee Meeting

3:30 PM–5:00 PM, HALL C, ROOM A

## Exhibitor Presentation

### Bruker Nano Surfaces

### Recent Advances in Atomic Force Microscopy for Biological Research

Bruker's latest BioScope AFM is the perfect integration of AFM and inverted light microscopy. It incorporates Bruker's latest Peak Force Tapping innovations including the new nanomechanics package, which significantly expands mechanobiology applications into a lower modulus range covering live cells and tissues. With its open access design, and bio friendly features and accessories, the latest BioScope AFM is the most integrated and easiest to use life science AFM available. The workshop will include examples of the functional integration of light microscopy techniques with AFM in order to conduct optically guided, high-resolution mapping of both the structural and mechanical properties of mammalian cells.

### Presenter

John Thornton, Senior Applications Engineer, Bruker Nano Surfaces

4:00 PM–5:00 PM, ROOM 301/302/303

**Career Center Workshop**  
**Successfully Navigating the International**  
**Job Search**

Applying for a job in one country while finishing up your education and training in another can be challenging, but it can be done with success. In this workshop we will discuss specific strategies to finding jobs in another country while one is abroad and how to leverage your networks in-country to access opportunities, especially those that are hidden. Special emphasis will be placed on establishing your reputation as a leader in your field with professionals in the country or region in which you wish to work. Case studies will be shared.

4:00 PM–6:00 PM, BALLROOM I

**Symposium**  
**Bacterial Subcellular Dynamics at**  
**Super-Resolution:**  
**This Brings Super-Resolution to a Dynamic**  
**Sense**

**Chair**

*Julie Biteen, University of Michigan*

**993-SYMP 4:00 PM**  
 BEYOND MODEL SYSTEMS: SUPER-RESOLVING THE SUBCELLULAR DYNAMICS OF STARCH DIGESTION IN THE HUMAN GUT MICROBIOME. Krishanthi S. Karunatilaka, Elizabeth A. Cameron, Eric C. Martens, Nicole M. Koropatkin, **Julie S. Biteen**

**994-SYMP 4:30 PM**  
 BACTERIAL CHROMOSOME SEGREGATION AT THE SINGLE-MOLECULE LEVEL. **David Sherratt**

**995-SYMP 5:00 PM**  
 BACTERIAL CELL WALL PEPTIDOGLYCAN ARCHITECTURE AND DYNAMICS. **Simon J. Foster**

**996-SYMP 5:30 PM**  
 3D FOLDING MECHANISMS OF HIGHER-ORDER CHROMATIN TOPOLOGICAL DOMAINS. **Marcelo Nollmann**

4:00 PM–6:00 PM, BALLROOM II

**Symposium**  
**Neurotransmitter Transporters**

**Chair**

*Olga Boudker, Weill Cornell Medical College*

**997-SYMP 4:00 PM**  
 THE STRUCTURAL AND DYNAMIC BASIS OF ION-COUPLED SUBSTRATE UPTAKE BY A GLUTAMATE TRANSPORTER HOMOLOGUE. **Olga Boudker**

**998-SYMP 4:30 PM**  
 FUNCTIONAL DYNAMICS OF GLUTAMATE/AMINO ACID TRANSPORTERS OF THE SOLUTE CARRIER 1 FAMILY. **Christof Grewer**

**999-SYMP 5:00 PM**  
 TRANSPORTERS IN MOTION: COMBINING COMPUTATIONAL APPROACHES AND LRET-MEASUREMENTS. **Harald H. Sitte**, SanthoshKannan Venkatesan, Azmat Sohail, Kusumika Saha, Kumaresan Jayaraman, Gerhard F. Ecker, Michael Freissmuth, Walter Sandtner, Thomas Stockner

1000-SYMP 5:30 PM

FUNCTIONAL ROLES OF GLUTAMATE TRANSPORT IN MODULATING PHASIC AND TONIC NEUROTRANSMITTER SIGNALING. **Michael P. Kavanaugh**

4:00 PM–6:00 PM, BALLROOM III

**Platform**  
**Cardiac Muscle Mechanics and Structure**

**Co-Chairs**

*Sabine van Dijk, University of Arizona*  
*Bertrand Tanner, Washington State University*

**1001-PLAT 4:00 PM**  
 IMPLICATIONS OF ADP-STIMULATED CROSS-BRIDGE CYCLING FOR DIASTOLIC AND SYSTOLIC HEART FAILURE. **Vasco Sequeira**, Cris dos Remedios, Ger J.M. Stienen, Jolanda van der Velden

**1002-PLAT 4:15 PM**  
 MYOCARDIAL STRAIN RATE MODULATES THE SPEED OF RELAXATION IN DYNAMICALLY LOADED TWITCH CONTRACTIONS. **Kenneth S. Campbell**, Charles S. Chung

**1003-PLAT 4:30 PM**  
 MYOSIN MGADP RELEASE RATE DECREASES AT LONGER SARCOMERE LENGTH TO PROLONG MYOSIN ATTACHMENT IN SKINNED RAT MYOCARDIAL STRIPS. **Bertrand CW Tanner**, Peter O. Awinda, Jason J. Breithaupt

**1004-PLAT 4:45 PM**  
 INHERENT FORCE-DEPENDENT PROPERTIES OF  $\beta$  CARDIAC MYOSIN CONTRIBUTE TO THE FORCE-VELOCITY RELATIONSHIP OF CARDIAC MUSCLE. Michael J. Greenberg, Henry Shuman, **E Michael Ostap**

**1005-PLAT 5:00 PM**  
 EFFECT OF MUTATIONS IN CMYBP-C ON SARCOMERE MECHANICAL FUNCTION. **Djordje Nedic**, Marina Svcevic, Boban Stojanovic, Michael A. Geeves, Thomas Irving, Richard J. Gilbert, Srbojub M. Mijailovich

**1006-PLAT 5:15 PM**  
 THE A31P HCM MUTATION IN CMYBP-C DISRUPTS THE STRUCTURE OF THE C0 DOMAIN BUT DOES NOT CAUSE HAPLOINSUFFICIENCY IN A POPULATION OF OLDER CATS HETEROZYGOUS FOR THE A31P ALLELE. **Sabine J. van Dijk**, Kristina L. Bezold, Stacy Mazzalupo, Mark D. Kittleson, Alla S. Kostyukova, Samantha P. Harris

**1007-PLAT 5:30 PM**  
 CELL AND MYOFIBRIL CONTRACTILE PROPERTIES OF HIPSC-DERIVED CARDIOMYOCYTES FROM A PATIENT WITH A MYH7 MUTATION ASSOCIATED WITH FAMILIAL CARDIOMYOPATHY. **Josè Manuel Pioner**, Kai-Chun Yang, Lil Pabon, Alice Ward Racca, Mark Y. Jeong, Christian I. Childers, Jesse Macadangang, Chiara Tesi, Corrado Poggesi, Deok-Ho Kim, Charles E. Murry, Michael Regnier

**1008-PLAT 5:45 PM**  
 MODULATION OF CARDIAC TWITCH DYNAMICS BY THE TROPONIN I INHIBITORY REGION. Yasser Aboelkassem, Jordan Bonilla, **Stuart G. Campbell**

4:00 PM–6:00 PM, BALLROOM IV

## Platform Protein Lipid Interactions II

### Co-Chairs

*Sandro Keller, University of Kaiserslautern, Germany*  
*Sarah McDonald, Johns Hopkins University*

**1009-PLAT 4:00 PM**

AN UNUSUAL MEMBRANE-PROTEIN TOPOLOGY FOR SENSING BILAYER THICKNESS AND TRIGGERING BACTERIAL BIOFILM FORMATION. **Sandro Keller**, Jana Broecker, Sebastian Fiedler, Katharina Gimpl, Martin Textor

**1010-PLAT 4:15 PM**

INSIGHTS INTO THE SPECIFICITY OF NEISSERIAL OPA PROTEIN INTERACTIONS WITH HUMAN RECEPTORS. **Jennifer N. Martin**, Ryan H. Lo, Alison K. Criss, Linda Columbus

**1011-PLAT 4:30 PM**

AROMATIC RESIDUES DISPLAY AN ENERGETIC DEPTH-DEPENDENCE IN LIPID BILAYERS THAT CAN BE MODULATED BY NEAREST-NEIGHBOR INTERACTIONS. **Sarah K. McDonald**

**1012-PLAT 4:45 PM**

PROTEIN AND ENVIRONMENTAL DETERMINANTS OF OMP FATE IN LIPOSOMES. **Mark Culver**, Stephanos Gozali, Alison H. Dewald

**1013-PLAT 5:00 PM**

STRUCTURE AND FUNCTION OF THE  $\beta$ -BARREL ASSEMBLY MACHINE AND ITS ASSOCIATED CHAPERONES. **Marcelo C. Sousa**

**1014-PLAT 5:15 PM**

UNFOLDING THE LUMINAL DOMAIN OF BTUB IN A NATIVE BILAYER. **Curtis Balusek**, James C. Gumbart

**1015-PLAT 5:30 PM**

A SUBSET OF ANNULAR LIPIDS IS LINKED TO THE FLIPPASE ACTIVITY OF AN ABC TRANSPORTER. **Cherine Bechara**, Anne Noll, Nina Morgner, Matteo T. Degiacomi, Robert Tampe, Carol V. Robinson

**1016-PLAT 5:45 PM**

“SNORKELING” OF THE CHARGED SIDECHAIN OF A TRANSMEMBRANE PEPTIDE AS DIRECTLY OBSERVED BY DOUBLE ELECTRON-ELECTRON RESONANCE EXPERIMENT. Matthew Donohue, Maxim Voynov, Sergey Milikisoyants, Alex I. Smirnov, **Tatyana I. Smirnova**

4:00 PM–6:00 PM, ROOM 307/308

## Platform Protein Structure and Conformation II

### Co-Chairs

*Lauren Porter, University of Maryland*  
*Krishna Neupane, University of Alberta, Canada*

**1017-PLAT 4:00 PM**

SOLUTION CONFORMATION OF THE UNBOUND HIV-1 PROTEASE DERIVED FROM RESIDUAL DIPOLAR COUPLINGS MEASURED AT AMBIENT AND HIGH-PRESSURE CONDITIONS. **Julien Roche**, John M. Louis, Ad Bax

**1018-PLAT 4:15 PM**

UNDERSTANDING SIDE CHAIN CONFORMATIONAL VARIABILITY IN PROTEINS. **Asmit Bhowmick**, Teresa Head-Gordon

**1019-PLAT 4:30 PM**

NAVIGATING IN THE PROTEIN UNIVERSE. Sergey Nepomnyachiy, Rachel Kolodny, **Nir Ben-Tal**

**1020-PLAT 4:45 PM**

PROTEIN EVOLUTION ACROSS FOLD CLASSES: A 3- $\alpha$ -HELIX BUNDLE CAN SWITCH TO  $\beta$ ,  $\alpha/\beta$ , AND  $\alpha+\beta$  FOLDS BY STEPWISE MUTATION. **Lauren L. Porter**, Yanan He, Yihong Chen, John Orban, Philip N. Bryan

**1021-PLAT 5:00 PM**

RESOLVING CONFORMATIONAL SWITCHING OF AAA<sup>+</sup> PROTEASE FTSH USING SINGLE-MOLECULE FRET. **Martine Ruer**, Philip Gröger, Nadine Bölke, Andreas Hartmann, Michael Schlierf

**1022-PLAT 5:15 PM**

ANTI-PRION LIGAND BINDING PROMOTES NATIVE PRP FOLDING OVER MISFOLDING AT THE SINGLE MOLECULE LEVEL. **Krishna P. Neupane**, Amar Nath Gupta, Negar Rezajooei, Michael T. Woodside

**1023-PLAT 5:30 PM**

WHAT COMPUTATIONAL METHODS CAN TEACH US ABOUT THE ALZHEIMER-PROTECTIVE NATURE OF A2V- AND A2T-MUTANT AMYLOID-BETA OLIGOMERS. **Jessica Nasica-Labouze**, Bogdan Tarus, Phuong Nguyen, Philippe Derreumaux

**1024-PLAT 5:45 PM**

NMR STRUCTURE REVEALS NOVEL INTERACTIONS BETWEEN INTRINSICALLY DISORDERED PEP-19 AND CALMODULIN. **Xu Wang**, John A. Putkey

4:00 PM–6:00 PM, ROOM 309/310

## Platform Protein-Nucleic Acid Interactions II

### Co-Chairs

*Mark Williams, Northeastern University*  
*Rifka Vlijm, Delft University of Technology, The Netherlands*

**1025-PLAT 4:00 PM**

OLIGOMERIZATION KINETICS OF ORF1P IS CORRELATED WITH LINE1 RETROTRANSPOSITION. **M. Nabuan Naufer**, Anthony V. Furano, Mark C. Williams

**1026-PLAT 4:15 PM**

NUCLEOSOME ASSEMBLY DYNAMICS INVOLVE SPONTANEOUS FLUCTUATIONS IN THE HANDEDNESS OF TETRASOMES. **Rifka Vlijm**, Mina Lee, Orkide Ordu, Jan Lipfert, Alexandra Lusser, Nynke Dekker, Cees Dekker

**1027-PLAT 4:30 PM**

FACILITATED DISSOCIATION OF PROTEIN FROM A SINGLE DNA BINDING SITE. **Ramsey I. Kamar**, John F. Marko

**1028-PLAT 4:45 PM** INTERNATIONAL TRAVEL AWARDEE

PROTEIN-DNA BINDING IN THE ABSENCE OF CONSENSUS BINDING MOTIF. **Ariel Afek**, Joshua L. Schipper, Raluca Gordán, David B. Lukatsky



**1029-PLAT 5:00 PM**  
 MAPPING LAC REPRESSOR INTERACTIONS ALONG DNA WITH ULTRA-FAST OPTICAL TWEEZERS. **Alessia Tempestini**, Carina Monico, Francesco Vanzi, Francesco Saverio Pavone, Marco Capitanio

**1030-PLAT 5:15 PM**  
 DIRECT OBSERVATION OF TALE PROTEIN SEARCH DYNAMICS ALONG DNA. **Luke W. Cuculis**, Zhanar Abil, Huimin Zhao, Charles M. Schroeder

**1031-PLAT 5:30 PM**  
 DYNAMIC DNA TARGET PROOFREADING IN A CRISPR-CAS SYSTEM. **Marius Rutkauskas**, Tomas Sinkunas, Maria S. Tikhomirova, Virginijus Siksnys, Ralf Seidel

**1032-PLAT 5:45 PM**  
 SINGLE-MOLECULE IMAGING REVEALS DYNAMICS OF SA1-TRF1 INTERACTIONS ON TELOMERIC DNA. **Jiangguo Lin**, Haijiang Chen, Parminder Kaur, Wang Miao, Preston Countryman, Changjiang You, Jacob Piehler, Yizhi J. Tao, Susan Smith, Hong Wang

4:00 PM–6:00 PM, ROOM 314/315

**Platform**

**Molecular, Cellular, and Systems  
 Neuroscience: Experimental Approaches,  
 Modeling, and Tools**

**Co-Chairs**

*Jacob Robinson, Baylor College of Medicine  
 Benjamin Machta, Princeton University*

**1033-PLAT 4:00 PM**  
 ELECTROPHYSIOLOGY-BASED SORTING AND SCREENING WITH NANOWIRE ELECTRODES IN MICROFLUIDIC DEVICES. Daniel L. Gonzales, Daniel G. Vercosa, Andrew M. Bell, Benjamin W. Avants, **Jacob T. Robinson**

**1034-PLAT 4:15 PM**  
 MECHANICAL SURFACE WAVES ACCOMPANY ACTION POTENTIAL PROPAGATION. **Benjamin B. Machta**, Ahmed El Hady

**1035-PLAT 4:30 PM**  
 PENETRATION OF ACTION POTENTIALS DURING COLLISION IN THE MEDIAL GIANT AXON OF INVERTEBRATES. **Rima Budvytyte**, Alfredo Gonzalez-Perez, Lars D. Mosgaard, Soren Nissen, Thomas Heimburg

**1036-PLAT 4:45 PM**  
 DYNAMICS OF GLYCINE RECEPTORS AND THEIR INTERACTIONS WITH GEPHYRIN SCAFFOLDS REVEALED WITH HIGH-DENSITY SINGLE PARTICLE TRACKING AND BAYESIAN INFERENCE. **Mohamed El Beheiry**, Jean-Baptiste Masson, Charlotte Salvatico, Christian Specht, Antoine Triller, Maxime Dahan

**1037-PLAT 5:00 PM**  
 ROBUST OPTICAL STIMULATION OF NEURONAL ACTIVITY USING FUNCTIONALIZED GOLD NANOPARTICLES. **João L. Carvalho-de-Souza**, Jeremy S. Treger, Bobo Dang, Stephen Kent, David R. Pepperberg, Francisco Bezanilla

**1038-PLAT 5:15 PM**  
 LIGAND FINGERPRINTING IN THE MEMBRANE DYNAMICS OF SINGLE TRKA AND P75NTR NEUROTROPHIN RECEPTORS. **Stefano Luin**, Laura Marchetti, Fulvio Bonsignore, Fabio Beltram, Antonino Cattaneo

**1039-PLAT 5:30 PM**  
 LOCAL TEMPERATURE EVOLUTION DURING NANOPARTICLE HYPERTHERMIA PROBED BY FLUORESCENCE THERMOMETRY. Rahul Munshi, Idoia Castellanos-Rubio, **Arnd Pralle**

**1040-PLAT 5:45 PM**  
 NANOMECHANICAL CHARACTERIZATION OF ACTIVE SYNAPSES IN LIVE HIPPOCAMPAL NEURONS. **Ju Yang**, Roger Lefort, Ozgur Sahin

4:00 PM–6:00 PM, ROOM 316/317

**Platform**

**Large-scale Molecular Simulations**

**Co-Chairs**

*Juan Perilla, University of Illinois at Urbana-Champaign  
 Steven Poelzing, Virginia Tech*

**1041-PLAT 4:00 PM**  
 COMPUTATIONAL STUDIES ON THE CAMP MODULATION OF THE HCN2 CHANNEL. **Florentina Tofoleanu**, Bernard Brooks

**1042-PLAT 4:15 PM**  
 FROM SMALL TO LARGE TO VERY LARGE: MODELING OF BIOMOLECULAR STRUCTURES IN IMPLICIT SOLVENT. **Alexey V. Onufriev**

**1043-PLAT 4:30 PM**  
 ACUTE MODULATION OF SODIUM CHANNEL BIOPHYSICAL PROPERTIES USING HIGH-FREQUENCY STIMULATION. **Steven Poelzing**, Michael Entz, Seth H. Weinberg

**1044-PLAT 4:45 PM**  
 ANALYSIS OF DOMAIN MOVEMENT AND DYNAMICS OF NORWALK VIRUS CAPSID BY MOLECULAR DYNAMICS (ALL-ATOM AND COARSE GRAINED) SIMULATIONS AND NORMAL MODE ANALYSIS. **Mahendra B. Thapa**, Mark Rance, Jarek Meller

**1045-PLAT 5:00 PM**  
 STUDYING THE GATING MECHANISM OF MAMMALIAN KIR CHANNELS USING IN SILICO MUTATIONS. **Eva-Maria Zangerl**, Anna Stary-Weinzinger

**1046-PLAT 5:15 PM**  
 MULTISCALE ANALYSIS OF FUNCTIONAL MOTIONS IN F1-ATPASE: FROM PI RELEASE TO ELASTICITY AND FRICTION OF F-SUBUNIT ROTATION. **Kei-ichi Okazaki**, Gerhard Hummer

**1047-PLAT 5:30 PM**  
 ION CHANNEL REGULATION BY LIPID BILAYERS: THEORY & SIMULATION OF DEFORMED MEMBRANES AROUND GRAMICIDIN A. **Andrew H. Beaven**, Alexander J. Sodt, Olaf S. Andersen, Richard W. Pastor, Wonpil Im

**1048-PLAT 5:45 PM**  
 ATOMISTIC CHARACTERIZATION OF THE HIV CAPSID FROM MOLECULAR DYNAMICS SIMULATIONS. **Juan R. Perilla**, Klaus Schulten

4:30 PM–6:00 PM, HALL C, ROOM B

### Exhibitor Presentation Molecular Devices LLC

#### Eliminating 50-60 Hz Line-frequency Noise with the New HumSilencer and pCLAMP Software Tips & Tricks

We will introduce a new feature of the Axon Digidata™ 1550A digitizer, HumSilencer, which provides a smart and simple method for eliminating 50 or 60 Hz line-frequency noise. In addition, we will present solutions to frequently asked questions on our pCLAMP software, a powerful data acquisition and analysis software that is used widely for a variety of electrophysiological recordings in many academic laboratories.

#### Presenter

Jeffrey Tang, Axon Product Marketing Manager, Molecular Devices LLC

5:30 PM–7:00 PM, HALL C, ROOM A

### Exhibitor Presentation HEKA Elektronik

#### HEKA Electrophysiology Update

For over 40 years, HEKA has provided innovative products, expert tech support and unmatched service to their customers. HEKA's commitment to technological innovation is reflected by consistent updating of both hardware and software. While yesterday's gold standards try to keep pace with the latest research techniques, HEKA takes the lead.

By popular demand, HEKA is hosting a series of user meetings with tutorial presentations. On one hand, some of the new products will be showcased to the experienced user and, on the other hand, step-by-step guidance is provided to the researcher who is new to the field. Registration is available online through the HEKA Events Page on EventBrite, or by email to [events@heka.com](mailto:events@heka.com). The number of available spaces, food and drink are limited, and registrations are accepted on a first-come-first-served basis.

Who should attend?

- Scientists with experience in patch clamp electrophysiology and related scientific techniques
- Researchers who want to become more efficient in the use of electrophysiology acquisition and analysis software
- PostDocs and graduate students who want to learn more about electrophysiology techniques

#### Presenters

Hubert Affolter, Senior Software Architect, HEKA Elektronik

Christian Heinemann, General Manager, HEKA Elektronik

Telly Galiatsatos, General Manager, HEKA Instruments

8:00 PM–9:30 PM, BALLROOMS I-IV

### Awards and National Lecture

8:00 PM PRESENTATION OF AWARDS

8:15 PM NATIONAL LECTURE

1049-NATL 8:15 PM  
DISCOVERIES IN BIOPHYSICS THROUGH THE  
COMPUTATIONAL MICROSCOPE. **Klaus Schulten**

9:30 PM–12:00 AM, HILTON BALTIMORE, KEY BALLROOM  
**Reception**

Supported by *Science Advances*, a new AAAS/*Science* journal.

Registrants are invited to attend the reception with music, desserts and dancing following the National Lecture. Badges will be required for admittance. Guest badges for this event are available for purchase during registration.

9:30 PM–12:00 AM, HILTON BALTIMORE, PEALE A-C  
**Reception Quiet Room**

Registrants are invited to attend the reception in a more quiet atmosphere following the National Lecture. Badges will be required for admittance. Guest badges for this event are available for purchase during registration.

# MONDAY POSTER SESSIONS

*Below is the list of poster presentations of abstracts submitted by October 1. The list of late abstracts scheduled for Monday is available in the Program addendum. All abstracts are available through the desktop planner and mobile app.*

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

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM**

**EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

<u>Board Numbers</u>	<u>Category</u>
B1–B28	Protein Structure and Conformation II
B29–B48	Protein-Small Molecule Interactions II
B49–B70	Protein Assemblies I
B71–B87	Enzymes and Protein Dynamics I
B88–B110	Intrinsically Disordered Proteins (IDP) and Aggregates II
B111–B133	DNA Structure and Dynamics I
B134–B153	RNA Structure and Dynamics
B154–B171	Membrane Physical Chemistry I
B172–B194	Membrane Dynamics II
B195–B223	Biophysical Techniques for the Study of Protein-Lipid Interactions
B224–B248	Protein-Lipid Interactions II
B249–B269	Membrane Receptors and Signal Transduction II
B270–B288	Intracellular Calcium Channels and Calcium Sparks and Waves I
B289–B316	Excitation-Contraction Coupling I
B317–B332	Cardiac Smooth and Skeletal Muscle Electrophysiology II
B333–B363	Voltage-gated K Channels II
B364–B379	TRP Channels II
B380–B409	Ligand-gated Channels I
B410–B430	Cardiac Muscle Mechanics and Structure I
B431–B436	Smooth Muscle Mechanics, Structure, and Regulation
B437–B454	Actin Structure, Dynamics, and Associated Proteins
B455–B472	Myosins
B473–B490	Cell Mechanics, Mechanosensing, and Motility II
B491–B513	Membrane Pumps, Transporters, and Exchangers II
B514–B530	Systems Biology and Disease
B531–B557	Molecular Dynamics II
B558–B586	Optical Microscopy and Super-Resolution Imaging I
B587–B603	Biosensors I
B604–B623	Micro- and Nanotechnology II
B624–B634	Biophysics Education

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

## Protein Structure and Conformation II (Boards B1-B28)

- 1050-Pos BOARD B1**  
STRUCTURAL RIGIDITY REGULATES FUNCTIONAL INTERACTIONS IN THE HSP40-HSP70 MOLECULAR MACHINE. **Neil Andrew D. Bascos**, Samuel J. Landry
- 1051-Pos BOARD B2**  
STRUCTURAL STUDIES OF SOLUBLE GUANYLATE CYCLASE. **Kenneth Childers**, Franziska Seeger, Elsa Garcin
- 1052-Pos BOARD B3**  
GESTATION OF A GLU PLASMINOGEN SUPRA FOLD VIA MOLECULAR DYNAMICS SIMULATION. **Hyunjin Kim**, Hyung J. Kim, Miguel Llinas
- 1053-Pos BOARD B4**  
CONSTRAINED MAXIMUM LIKELIHOOD ESTIMATION OF THE ABUNDANCES OF PROTEIN CONFORMATION IN A HETEROGENEOUS STRUCTURAL ENSEMBLE FROM SMALL ANGLE X-RAY SCATTERING INTENSITY MEASUREMENTS. **Ahmet Emre Onuk**, Murat Akcakaya, Jaydeep Bardhan, Deniz Erdogmus, Dana H. Brooks, Lee Makowski
- 1054-Pos BOARD B5**  
USING PHYSICS AND HEURISTICS IN PROTEIN STRUCTURE PREDICTION. **Alberto Perez**, Justin MacCallum, Ken A. Dill
- 1055-Pos BOARD B6**  
ELUCIDATING THE FUNCTIONAL SIGNIFICANCE OF THE C-TERMINAL HYPERVARIABLE REGION (HVR) IN K-RAS4A. **Mayukh Chakrabarti**, Shaoyong Lu, Hyunbum Jang, Lyuba Khavrutskii, Nadya I. Tarasova, Vadim Gaponenko, Ruth Nussinov
- 1056-Pos BOARD B7**  
THEORETICAL STUDY OF THE PROTEIN FOLDING DYNAMICS FROM A TIME CORRELATION FUNCTION APPROACH. **Toshifumi Mori**, Shinji Saito
- 1057-Pos BOARD B8**  
EXTENSIVE CONFORMATIONAL HETEROGENEITY WITHIN PROTEIN CORES. **Gregory R. Bowman**
- 1058-Pos BOARD B9**  
CONFORMATIONAL DYNAMICS OF THE PILI CONSTRUCTING SORTASE C ENZYMES. **Emmanuel B. Naziga**, Jeff Wereszczynski
- 1059-Pos BOARD B10**  
TARGETED CONFORMATIONAL TRANSITIONS OF MULTIMERIC PROTEINS BY MONTE CARLO SIMULATIONS COMBINED WITH COLLECTIVE ANISOTROPIC NETWORK MODEL MODES. Yasemin Yesiltepe, Arzu Uyar, Deniz Turgut, Turkan Haliloglu, Pemra Doruker, **Rahmi Ozisik**
- 1060-Pos BOARD B11**  
CONFORMATIONAL FLUCTUATIONS AS AN INTRINSIC MECHANISM OF ACTION OF LIPASE FOLDASE STUDIED BY THE HIGH-PRECISION FRET TOOLKIT AND MD SIMULATIONS. **Jakub Kubiak**, Filip Kovacic, Peter Dollinger, Florian Bleffert, Karl-Erich Jaeger, Holger Gohlke, Claus A. M. Seidel
- 1061-Pos BOARD B12**  
NICKEL REDUCES CALCIUM-DEPENDANT DIMERIZATION BY NEURAL CADHERIN. **Matthew P. Dukes**, Rhianon Kay Rowe, Susan Pedigo
- 1062-Pos BOARD B13**  
EFFECTS OF R102Q MUTATION ON THE STRUCTURAL AND DYNAMIC PROPERTIES OF HUMAN NEURONAL CALCIUM SENSOR-1 PROTEIN. **Qingwen Zhang**, Yuzhen Zhu, Ying Wu, Buyong Ma
- 1063-Pos BOARD B14 EDUCATION TRAVEL AWARDEE**  
RNA TRANSLOCATION COUPLED TO LARGE-SCALE CONFORMATIONAL TRANSITIONS OF A HEXAMERIC HELICASE. **Wen Ma**, Klaus Schulten
- 1064-Pos BOARD B15**  
IDENTIFYING UNIQUE CONFORMATIONS IN THERMUS THERMOPHILUS PHOSPHOFRUCTOKINASE USING FLUORESCENCE PHASORS. **Xinxin Tian**, Mauricio Lasagna, Gregory D. Reinhart
- 1065-Pos BOARD B16**  
PROBING PROTEIN INTERACTIONS OF CYANYLATED ACYL CARRIER PROTEINS USING VIBRATIONAL SPECTROSCOPY. **Connie Friedman**, Michael Jordan, Casey Londergan, Louise Charkoudian
- 1066-Pos BOARD B17**  
IDENTIFICATION AND CHARACTERIZATION OF A YEAST ISO-1-CYTOCHROME C C-TERMINAL DOMAIN SWAPPED DIMER. **Levi J. McClelland**, Tung-Chung Mou, Stephen R. Sprang, Bruce E. Bowler
- 1067-Pos BOARD B18**  
HEME COORDINATION VERSATILITY IN A TRUNCATED HEMOGLOBIN. **Dillon Nye**, Matthew Preimesberger, Christos Kougentakakis, Selena Rice, Juliette Lecomte
- 1068-Pos BOARD B19**  
MODELING THE CALCIUM AND INTEGRIN BINDING PROTEIN 2. **Olivia Dickens**, Raul Mendez-Giraldez, Nikolay Dokholyan
- 1069-Pos BOARD B20**  
STRUCTURAL BEHAVIOR OF CARDIAC TROPONIN C VARIANTS PRESENT IN CARDIOMYOPATHIC PATIENTS. **Mayra Marques**, José Pinto, Adolfo Moraes, Martha Sorenson, Jerson Silva, Guilherme Oliveira
- 1070-Pos BOARD B21**  
METHIONINE-AROMATIC INTERACTIONS IN CALMODULIN: A REPLICA EXCHANGE MD AND EPR SPECTROSCOPY STUDY. **Tiffany L. Senkow**, Andrew K. Lewis, Megan R. McCarthy, Cheng Her, David D. Thomas, Jonathan N. Sachs
- 1071-Pos BOARD B22**  
TARGETING MELANOMA WITH SMALL MOLECULES: INHIBITORS OF THE CALCIUM-BINDING PROTEIN S100B. **Michael C. Cavalier**, David J. Weber
- 1072-Pos BOARD B23**  
CRYSTALLIZATION STUDIES OF CALMODULIN BINDING TARGETS. **Abigail L. Healy**, Jennifer Willemsen, Katrina Nayak, Janina Sprenger, Roger Rowlett, Birgitta Frohm, Sara Linse, Karin Åkerfeldt
- 1073-Pos BOARD B24**  
TUNING OF STRUCTURE-FUNCTION RELATIONSHIPS BY MACROMOLECULAR CROWDING. **Laurel Hoffman**, Xu Wang, Hugo Sanabria, Margaret S. Cheung, John Putkey, Neal Waxham



**1074-Pos BOARD B25**  
 UNDERSTANDING THE STRUCTURAL CHANGES OF THE CALCIUM BINDING S100A1 PROTEIN WITH MOLECULAR DYNAMICS SIMULATIONS. **Caitlin E. Scott**, Peter M. Kekenus-Huskey

**1075-Pos BOARD B26**  
 SINGLE-MOLECULE FRET STUDIES OF THE ER CALCIUM SENSOR STIM1. **Stijn van Dorp**, Ucheor B. Choi, Axel T. Brunger, Richard S. Lewis

**1076-Pos BOARD B27 EDUCATION TRAVEL AWARDEE**  
 CHARACTERIZATION OF PC2 CTERM CALCIUM-BINDING INTERACTION AND ITS STRUCTURAL IMPLICATIONS. **Yifei Yang**, Camille Keeler, Ivana Y. Kuo, Elias J. Lolis, Michael E. Hodsdon, Barbara E. Ehrlich

**1077-Pos BOARD B28**  
 EPR WITH RIGIDLY BOUND SPIN LABELS USED TO PROBE THE INTERACTION OF CALMODULIN WITH THE RYANODINE RECEPTOR. **Cheng Her**, Christine B. Karim, David D. Thomas

### Protein-Small Molecule Interactions II (Boards B29-B48)

**1078-Pos BOARD B29**  
 PREDICTING PEPTIDE BINDING SITES ON PROTEIN SURFACES BY CLUSTERING CHEMICAL INTERACTIONS. **Chengfei Yan**, Xiaoqin Zou

**1079-Pos BOARD B30**  
 HOMOLOGY MODELING AND DOCKING STUDIES IDENTIFY SUBTYPE-SPECIFIC CHARACTERISTICS OF MELANOCORTIN RECEPTOR ACTIVATION. **Sadegh Faramarzi Ganj Abad**, Blake Mertz

**1080-Pos BOARD B31**  
 QUANTIFYING THE THERMODYNAMIC MOLECULAR DRIVING FORCES IN PROTEIN-LIGAND BINDING. **E. Prabhu Raman**, Alexander D. MacKerell, Jr.

**1081-Pos BOARD B32**  
 MARKOVIAN MILESTONING FOR COMPUTING ENTRY, EXIT, AND INTERNAL DIFFUSION RATES OF LIGANDS IN PROTEINS. Tang-Qing Yu, Anthony Bucci, Eric Vanden-Eijnden, **Cameron Abrams**

**1082-Pos BOARD B33 EDUCATION TRAVEL AWARDEE**  
 IMPROVING SMALL MOLECULE DOCKING FOR BCL-XL VIA ACCELERATED MOLECULAR DYNAMICS WITH COSOLVENT. **Andrew J. Kalenkiewicz**, Chao-Yie Yang, Barry J. Grant

**1083-Pos BOARD B34**  
 FREE ENERGY LANDSCAPE OF THE MICHAELIS COMPLEX OF LACTATE DEHYDROGENASE: A NETWORK ANALYSIS OF ATOMISTIC SIMULATIONS. **Xiaoliang Pan**, Steven D. Schwartz

**1084-Pos BOARD B35**  
 DISSECTING LIGAND BINDING SITES : A LAYER AT A TIME. **Anasuya Dighe**, Nagasuma Chandra, Saraswathi Vishveshwara, G.K. Ananthasuresh

**1085-Pos BOARD B36**  
 ENCOUNTER AND BINDING OF CAMP AT THE BINDING DOMAIN OF MLOK1. **Béla Voß**, Ulrich Benjamin Kaupp, Helmut Grubmüller

**1086-Pos BOARD B37**  
 HOFMEISTER ION AND COSOLVENT EFFECTS ON THE STRUCTURE, AGGREGATION, AND BACKBONE SOLVATION OF RECA. **Taylor P. Light**, Karen M. Corbett, Michael A. Metrick, Gina MacDonald

**1087-Pos BOARD B38**  
 FOLDAMER-BASED ENANTIOSELECTIVE TARGETING OF ISLET AMYLOID POLYPEPTIDE. **Sunil Kumar**, Diana Schlamadinger, Andrew Miranker

**1088-Pos BOARD B39**  
 STRUCTURAL DYNAMICS OF PROTEINS USING NOVEL VISIBLE FLUORESCENCE PROBES. **Haifeng Pan**

**1089-Pos BOARD B40**  
 INTRINSIC THERMODYNAMICS - STRUCTURE CORRELATION OF CARBONIC ANHYDRASE INHIBITORS. **Daumantas Matulis**, Asta Zubrienė, Lina Baranauskienė, Alexey Smirnov, Vaida Morkūnaitė, Joana Smirnovienė, Miglė Kišonaitė, Povilas Norvaišas, David D. Timm

**1090-Pos BOARD B41 EDUCATION TRAVEL AWARDEE**  
 ZEBRAFISH LARVAE AS MODEL SYSTEM TO STUDY POSSIBLE TOXICITY OF SILVER NANOPARTICLES AT CYTOSKELETAL LEVEL BY MEANS OF ADVANCED MICROSCOPY. **Marta d'Amora**, Abdelrasoul N. Gaser, Zeno Lavagnino, Giuseppe Sancataldo, Francesca Cella Zanacchi, Alberto Diaspro

**1091-Pos BOARD B42**  
 MULTIMERIZATION OF SOLUTION-STATE PROTEINS BY ANIONIC PORPHYRINS. **Oleksandr Kokhan**, Nina Ponomarenko, P. Raj Pokkuluri, Marianne Schiffer, David M. Tiede

**1092-Pos BOARD B43 MINORITY AFFAIRS TRAVEL AWARDEE**  
 CHARACTERIZATION OF THE PHOTOPHYSICAL, THERMODYNAMIC AND STRUCTURAL PROPERTIES OF THE TERBIUM(III)-KCHIP3 COMPLEX. **Walter Gonzalez**, Jaroslava Miksovská

**1093-Pos BOARD B44**  
 SIMULATIONS OF COSOLUTE EFFECTS ON PROTEIN'S STABILITY. **Jorge A. Alarcon Ochoa**, Angel E. Garcia

**1094-Pos BOARD B45**  
 INTERACTIONS OF AMIDE SOLUTES WITH BIOPOLYMER FUNCTIONAL GROUPS AND HOFMEISTER SALTS. **Xian Cheng**, Irina Shkel, Kevin O'Connor, Hunter Cochran, Evan Buechel, Cristen Molzahn, Tom Record

**1095-Pos BOARD B46**  
 IDENTIFICATION OF INHIBITORS AGAINST P.FALCIPARUM GAP50 AND HUMAN COMPLEMENT FACTOR H INTERACTION IN THE MOSQUITO. **Daisy D. Colón-López**, Serge M. Stamm, Jürgen Bosch

**1096-Pos BOARD B47**  
 PHENYLETHANOIDS CAN MODULATE AMYLOID- $\beta$  AGGREGATION ASSOCIATED WITH ALZHEIMER'S DISEASE. **S. Zeb Vance**, Kayla Pate, Colman Moore, Melissa Moss

**1097-Pos BOARD B48**  
 PROBING THE ROLE OF CYTOGLOBIN'S EXTENDED TERMINI. **Antonija Tangar**

## Protein Assemblies I (Boards B49-B70)

### 1098-Pos BOARD B49

STATISTICAL THERMODYNAMICS OF ONE-TO-MANY MOLECULAR RECOGNITION ACCOMPANIED BY PARTNER-DEPENDENT FOLDING: IN THE CASE OF A TUMOR SUPPRESSOR PROTEIN P53. **Tomohiko Hayashi**, Hiraku Oshima, Satoshi Yasuda, Masahiro Kinoshita

### 1099-Pos BOARD B50

COMPUTER SIMULATIONS OF VIRAL CAPSID ASSEMBLY WITH PATCHY PARTICLE MODEL. Heinrich C. R. Klein, Johanna E. Baschek, Marvin A. Boettcher, **Ulrich S. Schwarz**

### 1100-Pos BOARD B51

CHARACTERIZING THE MCT-1:DENR COMPLEX, A TRANSLATIONAL ENHANCER FOR LYMPHOMA SURVIVAL. **Sean D. Stowe**, Michael C. Cavalier, Raquel Godoy-Ruiz, Kristen M. Varney, Paul T. Wilder, Ronald B. Gartenhaus, David J. Weber

### 1101-Pos BOARD B52

PRELIMINARY CHARACTERIZATION OF THE PROTEIN INTERACTION OF THE RAS-RELATED PROTEIN RHEB AND TUBEROUS SCLEROSIS 2 (TSC2). Kyla M. Morris, **Paul D. Adams**

### 1102-Pos BOARD B53

MICROSECOND X-RAY DYNAMICS OBSERVATION OF NANO SUPERSATURATED PROTEIN'S NETWORK. **Yufuku Matsushita**, Hiroshi Sekiguchi, Noboru Ohta, Keigo Ikezaki, Yuji Goto, Yuji C Sasaki

### 1103-Pos BOARD B54

ANALYSIS OF THE COOPERATIVE INTERACTION BETWEEN THE ALLOSTERICALLY REGULATED PROTEINS GK AND GKRP USING TRYPTOPHAN FLUORESCENCE. **Bogumil Zelent**

### 1104-Pos BOARD B55

PROBING LEUCINE SIDE CHAIN DYNAMICS IN AN AMPHIPHILIC PEPTIDE COPRECIPIATED WITH SILICA USING 2H SOLID-STATE NMR. **Helen E. Ferreira**, Gary Drobny

### 1105-Pos BOARD B56

AGGRECAN: UNUSUAL POLYELECTROLYTE BIOPHYSICS AND INTERACTIONS CONFERRED BY THE BOTTLEBRUSH STRUCTURE. **Tiffany Omokanwaye**, Preethi L. Chandran

### 1106-Pos BOARD B57

OPTIMIZING THE ASSEMBLY OF STACKED RINGS. **Koan Briggs**, Eric J. Deeds

### 1107-Pos BOARD B58

HEAT SHOCK TRIGGERS ASSEMBLY OF TRNA SYNTHETASES INTO AN ACTIVE SUPERCOMPLEX. **Joshua Riback**, Pawel Laskowski, Jamie L. Scott, Edward W J Wallace, Alexandra E. Rojek, Michael H. Schwartz, Tobin R. Sosnick, D. Allan Drummond

### 1108-Pos BOARD B59

CHROMATOGRAPHIC ASSAY FOR DETERMINING THE EFFECTS OF MICROENVIRONMENT ON DIMERIZATION OF EPITHELIAL CADHERIN K14E MUTANT. **Christopher S. Fox**

### 1109-Pos BOARD B60

EXTRAORDINARY STABILITY OF DOMAIN 1 OF NEURAL-CADHERIN. **Samantha Davila**, Molly Edmondson, Susan Pedigo

### 1110-Pos BOARD B61

RESIN-EMBEDDED MULTICYCLE IMAGING OF CELLS AND ISOLATED PLASMA MEMBRANES. **Brad Busse**, Paul Blank, Ludmila Bezrukov, Joshua Zimmerberg

### 1111-Pos BOARD B62

SPECTROSCOPIC STUDY OF FULL-LENGTH RECOMBINANT PROTEOGLYCAN 4 (RHPRG4): SELF-ASSEMBLY AND INTERACTIONS WITH HYALURONAN. **Suresh C. Regmi**, Tannin A. Schmidt

### 1112-Pos BOARD B63

THERMODYNAMIC AND HYDRODYNAMIC EXAMINATION OF CLPB ASSEMBLY. **JiaBei Lin**, Aaron L. Lucius

### 1113-Pos BOARD B64

STRUCTURAL STUDY OF AIPL1: MOLECULAR BASIS OF ITS FUNCTION AND ITS ROLE IN BLINDING DISEASES. **Chittrak Gupta**, Abigail Hayes, Mark D. Distefano, Visvanathan Ramamurthy, Blake Mertz

### 1114-Pos BOARD B65

NOVEL APPROACHES TO THE STUDY OF PROTEIN-PROTEIN INTERFACE PROPERTIES. **Mihaly Mezei**

### 1115-Pos BOARD B66

SEDIMENTATION IN A TIME-VARYING CENTRIFUGAL FIELD FOR RAPID ATTAINMENT OF SEDIMENTATION EQUILIBRIUM. **Peter Schuck**, Michael Metrick, Huaying Zhao

### 1116-Pos BOARD B67

ATP BINDING IS PREREQUISITE TO THE HELICAL STRUCTURE OF HUMAN RAD51 PRESYNAPTIC FILAMENT. **Judit Fidy**, Bálint Borka, Eva Bulyaki, Jozsef Kardos, Gusztáv Schay

### 1117-Pos BOARD B68

AN EQUILIBRIUM MODEL FOR THE COMBINED EFFECT OF MACROMOLECULAR CROWDING AND SURFACE ADSORPTION ON THE FORMATION OF LINEAR PROTEIN FIBRILS. Travis Hoppe, **Allen P. Minton**

### 1118-Pos BOARD B69

AGGREGATION OF CLAUDINS AND FORMATION OF TIGHT JUNCTIONS: A COARSE-GRAINED MOLECULAR DYNAMICS STUDY. **Masoumeh Ozmaian**

### 1119-Pos BOARD B70

LATERAL INTERACTIONS AFFECT CADHERIN BINDING KINETICS AND FUNCTION. **Nitesh Shashikanth**, Meridith Kisting, Deborah Leckband

## Enzymes and Protein Dynamics I (Boards B71-B87)

### 1120-Pos BOARD B71

ACTIVE ROLE OF THE SUBSTRATE DURING CATALYSIS BY THE THERAPEUTIC ENZYME L-ASPARAGINASE II. **Juan M. Vanegas**, Andriy Anishkin, David M. Rogers, Sergei Sukharev, Susan B. Rempe

### 1121-Pos BOARD B72

CO AND NO BINDING IN INDUCIBLE NITRIC OXIDE SYNTHASE. Michael Horn, **Karin Nienhaus**, G. Ulrich Nienhaus

### 1122-Pos BOARD B73

INTACT PROTEIN ANALYSIS BY MASS SPECTROMETRY TO CHARACTERIZE THE TRUNCATED HEMOGLOBIN THB1 FROM CHLAMYDOMONAS REINHARDTII. **Eric A. Johnson**, Selena L. Rice, Juliette T. Lecomte

**1123-Pos BOARD B74**

IN VITRO RECONSTITUTION OF THE ASSIMILATORY SULFITE REDUCTASE FROM *ESCHERICHIA COLI*. **Isabel Askenasy**, M. Elizabeth Stroupe

**1124-Pos BOARD B75**

THE FUNCTIONS OF THE PROTEINS ENCODED BY THE CID AND LRG OPERONS IN *S. AUREUS*. **Xinyan Zhang**, Yanli Zhang, Maria Podariu, Kenneth Bayles, Sorin Luca

**1125-Pos BOARD B76**

EFFECTS OF SIROHEME OCCUPANCY IN *ESCHERICHIA COLI* ASSIMILATORY SULFITE REDUCTASE HEMOPROTEIN.

**Joseph M. Pennington**, M. Elizabeth Stroupe

**1126-Pos BOARD B77**

LIGAND-BINDING AND SUBSTRATE TURNOVER OF A HEME PEROXIDASE FROM THE DIATOM *THALASSIOSIRA PSEUDONANA*. Max Echterling, **Max Warburg**, Katherine Frato

**1127-Pos BOARD B78**

SINGLE MOLECULE ACTIVITY MEASUREMENTS OF CYTOCHROME P450 OXIDOREDUCTASE REVEAL THE EXISTENCE OF TWO DISCRETE FUNCTIONAL STATES. Tomas Laursen, Aparajita Singha, Nicolai Rantzau, Marijonas Tutkus, Jonas Borch, Per Hedegård, Dimitrios Stamou, Birger L. Møller, **Nikos S. Hatzakis**

**1128-Pos BOARD B79**

INTERACTION OF RIBONUCLEASE III WITH THE REGULATORY MACRODOMAIN PROTEIN YMDB ANALYZED BY DOCKING CALCULATIONS AND SPR EXPERIMENTS. **Mercedes Alfonso-Prieto**, Samridhdi Paudyal, Shiv K. Redhu, Vincenzo Carnevale, Michael L. Klein, Allen W. Nicholson

**1129-Pos BOARD B80 MINORITY AFFAIRS TRAVEL AWARDEE**

TARGETING THE HUMAN DEAD-BOX RNA HELICASE, DDX3, AS A NOVEL STRATEGY TO INHIBIT AGGRESSIVE BREAST CANCER METASTASIS. **Aliana López de Victoria**, Eda Koculi

**1130-Pos BOARD B81**

KINETICS AND THERMODYNAMICS OF THE ATPASE CYCLE OF THE DEAD-BOX PROTEIN DBP5. **Emily V. Wong**, Wenxiang Cao, Ben Montpetit, Enrique M. De La Cruz

**1131-Pos BOARD B82**

SUBSTRATE BINDING EFFECTS OF CARBOHYDRATE BINDING MODULES ON THE CATALYTIC ACTIVITY OF A MULTIFUNCTIONAL CELLULOSE. **Johnnie A. Walker**, Taichi E. Takasuka, Kai Deng, Christopher M. Bianchetti, Hannah Udell, Ben M. Prom, Hyunkee Kim, Trent R. Northern, Brian G. Fox

**1132-Pos BOARD B83**

CRYSTAL STRUCTURE OF GLYCOSIDE HYDROLASE FAMILY 9 ENDOGLUCANASE WITH AN N-TERMINAL IG-LIKE DOMAIN ISOLATED FROM LEAF-BRANCH COMPOST. **Hiroyuki Okano**, Eiko Kanaya, Masashi Ozaki, Clement Angkawidjaja, Yuichi Koga, Shigenori Kanaya

**1133-Pos BOARD B84**

MOLECULAR CHARACTERIZATION OF THE ABA-INDEPENDENT INTERACTIONS BETWEEN PYL10 AND PP2CS IN *ORYZA SATIVA*. **Seungsu Han**, Namhyo Kim, Beom-Gi Kim, Sangho Lee

**1134-Pos BOARD B85**

ACTIVATION VOLUMES OF ENZYMES ADSORBED ON SILICA PARTICLES. **Claus Czeslik**, Vitor Schuabb

**1135-Pos BOARD B86**

THE ION CHANNEL FUNCTION OF MOUSE CHROMOGRANIN B. **Gaya P. Yadav**, Hui Zheng, Qing Yang, Qiu-Xing Jiang

**1136-Pos BOARD B87**

CYTOPLASMIC FREEZING IN *S. POMBE* UPON GLUCOSE STARVATION. **Minghua Liu**, Maria Heimlicher, Ernst-Ludwig Florin, Damian Brunner, Andreas Hoenger

## Intrinsically Disordered Proteins (IDP) and Aggregates II (Boards B88-B110)

**1137-Pos BOARD B88**

OPTIMIZED FORCE FIELDS FOR SIMULATIONS OF INTRINSICALLY DISORDERED PROTEINS. **Robert Best**, Wenwei Zheng, Jeetain Mittal

**1138-Pos BOARD B89**

ADAPTIVE PARTICLE SIMULATIONS OF ALPHA-SYNUCLEIN FIBRIL FORMATION. **Ioana M. Ilie**, Wouter K. den Otter, Wim J. Briels

**1139-Pos BOARD B90**

WHAT DOES EVOLUTION TELL US ABOUT THE STRUCTURE OF A FUNCTIONAL AMYLOID PROTEIN? **Pengfei Tian**, Wouter Boomsma, Yong Wang, Daniel Erik Otzen, Mogens Høgh Jensen, Kresten Lindorff-Larsen

**1140-Pos BOARD B91**

ENABLING BIOPHYSICAL CHARACTERIZATION OF INTRINSICALLY DISORDERED PROTEIN ENSEMBLES. **Chakra S. Chennubhotla**, Arvind Ramanathan, Chris Stanley

**1141-Pos BOARD B92**

DEVELOPING A PROTOCOL FOR ENSEMBLE AND VIBRATIONAL PROBE-CONTAINING MOLECULAR DYNAMICS SIMULATIONS OF THE NIPAH N-TAIL-XD COMPLEX. **Shana R. Burstein**, Rebecca B. Wai, Sara K. Hess, Casey H. Londergan, Jenny Eroles, Sonia Longhi

**1142-Pos BOARD B93**

USING CHEMICAL SHIFTS TO GENERATE STRUCTURAL ENSEMBLES FOR INTRINSICALLY DISORDERED PROTEINS WITH CONVERGED DISTRIBUTIONS OF SECONDARY STRUCTURE. **F. Marty Ytreberg**, Wade Borchers, Hongwei Wu, Gary W. Daughdrill

**1143-Pos BOARD B94**

IDPS THAT FOLD UPON BINDING: WHAT IS THE ROLE OF THE PARTNER PROTEIN? **Sarah L. Shammass**, Joseph Rogers, Michael Crabtree, Jane Clarke

**1144-Pos BOARD B95**

FROM MACROSCOPIC TO MOLECULAR INTERFACES: HOW DO THEY ALTER PROTEIN CONFORMATION? **Mehmet Sayar**, Cahit Dalgicdir

**1145-Pos BOARD B96**

AN EVOLUTIONARY ALGORITHM FOR THE DESIGN OF DIFFERENT DEGREES OF SECONDARY STRUCTURE IN INTRINSICALLY DISORDERED PROTEINS (IDPS). **Tyler S. Harmon**, Rohit V. Pappu

**1146-Pos BOARD B97**

CIDER: CLASSIFICATION OF INTRINSICALLY DISORDERED ENSEMBLE REGIONS. **Alex S. Holehouse**, James Ahad, Rahul K. Das, Rohit V. Pappu



**1147-Pos BOARD B98**

INTRINSICALLY DISORDERED PROTEIN: A THERMODYNAMIC PERSPECTIVE. Jing Li, **James O. Wrabl**, Vincent J. Hilser

**1148-Pos BOARD B99**

PHOSPHORYLATION MODULATES CONFORMATIONAL BIAS OF A DISORDERED PEPTIDE. **Alexander F. Chin**, Dmitri Toptygin, Vincent J. Hilser

**1149-Pos BOARD B100**

SINGLE-MOLECULE FORCE SPECTROSCOPY ON UNFOLDED AND INTRINSICALLY DISORDERED PROTEINS. **Hesam N. Motlagh**, Vincent J. Hilser

**1150-Pos BOARD B101**

LABEL-FREE DETECTION OF PROTEIN SECONDARY STRUCTURE CONTENT IN BIOLOGICAL SPECIMEN BY FOURIER-TRANSFORM INFRARED SPECTROSCOPY. Jeong-Hoh Park, Dong Min Kim, **Sang-Mo Shin**

**1151-Pos BOARD B102**

TRANSITIONAL DISORDER: CALCINEURIN AS AN EXAMPLE. **Trevor P. Creamer**, Erik C. Cook, Tori B. Dunlap

**1152-Pos BOARD B103**

A SUBSTANTIAL IMPROVEMENT IN PREDICTIONS OF INTRINSICALLY DISORDERED PROTEIN. **Robert W. Williams**

**1153-Pos BOARD B104**

IDENTIFICATION OF NOVEL INTRINSICALLY DISORDERED PROTEINS IN EUKARYOTES. **Ingrid Tomljanović**, Tomislav Rončević, Dubravko Pavoković

**1154-Pos BOARD B105 MINORITY AFFAIRS TRAVEL AWARDEE**

CHARGE PATTERNING, SALT SCREENING AND DENATURANT EXPANSION IN THE CGRP NEUROPEPTIDE. **Sara Sizemore**, Stephanie Cope, Andrea Soranno, Sara Vaiana

**1155-Pos BOARD B106**

GELATION OF HIGHLY CATIONIC ALANINE BASED PEPTIDE IN WATER IN ABSENCE OF CHARGE SCREENING ANIONS. **Jodi Kraus**, Reinhard Schweitzer-Stenner

**1156-Pos BOARD B107**

RANDOMIZING INTRINSIC CONFORMATIONAL BIASES BY NEAREST NEIGHBOR INTERACTIONS BETWEEN UNLIKE RESIDUES. **Siobhan Toal**, Christian Richter, Nina Kubatova, Harald Schwalbe, Reinhard Schweitzer-Stenner

**1157-Pos BOARD B108**

CONFORMATIONAL EFFECTS ON ALANINE INDUCED INDUCED BY VARIOUS ALCOHOL COSOLVENTS. **Bridget Milorey**, Stefanie Farrell, Siobhan E. Toal, Reinhard Schweitzer-Stenner

**1158-Pos BOARD B109**

DOES THE GOLGI REASSEMBLY AND STACKING PROTEIN (GRASP) BEHAVE AS A WELL-STRUCTURED PROTEIN IN SOLUTION? Luis F. Santos Mendes, Assuero F. Garcia, Marcio L. Rodrigues, **Antonio J. Costa-Filho**

**1159-Pos BOARD B110**

ASSEMBLY AND DYNAMICS OF LIQUID PHASE PROTEIN DROPLETS COMPRISED OF THE DEAD-BOX RNA HELICASE, LAF-1. **Shana Elbaum**, Younghoon Kim, Sua Myong, Clifford Brangwynne

**DNA Structure and Dynamics I (Boards B111-B133)****1160-Pos BOARD B111**

UNFOLDING OF NANOCONFINED CIRCULAR DNA. Mohammadreza Alizadehheidari, Erik Werner, Charleston Noble, Lena Nyberg, Joachim Fritzsche, Fredrik Persson, Bernhard Mehlig, Jonas Tegenfeldt, Tobias Ambjörnsson, **Fredrik Westerlund**

**1161-Pos BOARD B112**

SUPERCOIL DIFFUSION ALONG STRETCHED DNA BY BROWNIAN DYNAMICS. **Todd D. Lillian**, Ikenna Ivenso, David Bell, Justin Polk

**1162-Pos BOARD B113**

ANALYSING SMALL DNA CONSTRUCTS VIA A CHROMOPHORE MODEL WITHIN THE POINT DIPOLE APPROXIMATION. **Pablo Romano**

**1163-Pos BOARD B114**

CHARMM DRUDE POLARIZABLE MD SIMULATIONS REPRODUCE SOLUTION X-RAY DIFFRACTION PATTERNS FOR B-DNA SEQUENCES AND PREDICT DIFFERENTIAL IMPACT OF THE  $Li^+$ ,  $Na^+$ ,  $K^+$  AND  $Rb^+$  IONS ON DNA CONFORMATIONAL PROPERTIES. **Alexey Savelyev**, Alexander Mackerell

**1164-Pos BOARD B115**

MOLECULAR MODELING AND SIMULATIONS OF DNA AT GRAPHENE-WATER INTERFACES TOWARDS DEVELOPING BIOSENSORS AND DRUG DELIVERY VEHICLES. **Srivathsan Vembanur**, Ken Halvorsen, Chris Myers, Alan Chen, Mehmet Yigit

**1165-Pos BOARD B116**

COMPUTATIONAL AND EXPERIMENTAL CHARACTERIZATION OF RIBOSOMAL DNA AND RNA G-QUADRUPLEXES. **Samuel S. Cho**

**1166-Pos BOARD B117**

NANOVISCOSITY EFFECT OF G-QUADRUPLEX AND SINGLE STRAND DNA. **Dongkeun Lee**, Sooyong Kim, Minjung Kim, Seokhyun Jung

**1167-Pos BOARD B118**

INTERACTION MODE OF DNA AND POLYCARBAZOLE-TITANIUM DIOXIDE NANOCOMPOSITE: MOLECULAR DOCKING SIMULATION AND IN-VITRO ANTIMICROBIAL STUDY. **Mohd Shoeb Khan**, Noor E Eram, Farha Firdus

**1168-Pos BOARD B119**

LATTICE-FREE 3D STRUCTURE-PREDICTION OF PROGRAMMED DNA ASSEMBLIES. **Keyao Pan**, Do-Nyun Kim, Fei Zhang, Matthew Adendorff, Hao Yan, Mark Bathe

**1169-Pos BOARD B120**

BROWNIAN DYNAMICS OF FOLDED DNA AND PROTEIN ASSEMBLIES. Reza Sedeh, **Keyao Pan**, Matthew Adendorff, Oskar Hallatschek, Klaus-Jürgen Bathe, Mark Bathe

**1170-Pos BOARD B121**

COMBINED MAGNETO-OPTICAL TWEEZERS AND SUPPERESOLUTION FLUORESCENCE IMAGING FOR PROBING DYNAMIC SINGLE-MOLECULE TOPOLOGY OF DNA, AND PROTEIN MACHINES THAT MANIPULATE DNA TOPOLOGY. **Mark C. Leake**



**1171-Pos BOARD B122**  
TENSION-DEPENDENT STABILITY OF TORSIONALLY CONSTRAINED DNA: MELTING PRECEDES OVERWINDING. **Graeme A. King**, Erwin J. G. Peterman, Gijs J. L. Wuite

**1172-Pos BOARD B123**  
ESTIMATING PERSISTENCE LENGTH OF DNA FROM MOLECULAR DYNAMICS SIMULATIONS. **Aleksander V. Drozdetski**, Ramu Anandakrishnan, Alexey Onufriev

**1173-Pos BOARD B124**  
DUAL-BEAM FLUORESCENCE CORRELATION SPECTROSCOPY OF DNA HAIRPIN FOLDING-UNFOLDING REACTION AT VARIOUS TEMPERATURES AND SALT CONCENTRATIONS. **Farshad Abdollah-Nia**, Martin Gelfand, Alan Van Orden

**1174-Pos BOARD B125**  
ION BINDING AND ELECTROSTATICS IN CONDENSED DNA ARRAYS PROBED BY ION COUNTING TECHNIQUES. **Kurt Andresen**, Wei Meng, Abby Bull, Xiangyun Qiu

**1175-Pos BOARD B126 EDUCATION TRAVEL AWARDEE**  
BROWNIAN DYNAMICS STUDY OF DNA SUPERCOIL RELAXATION. **Ikenna D. Ivenso**, Todd D. Lillian

**1176-Pos BOARD B127**  
CHARGE REDISTRIBUTION IN EXCITED STATE LUMICHROME AND LUMAZINE. **Steven E. Meckel**, David T. Barnard, Raymond F. Pauszek III, Robert J. Stanley

**1177-Pos BOARD B128**  
COMPLEXES OF G-QUADRUPLEX DNA WITH DRUG LIKE MOLECULES. **Harikrushan Ranpura**, Philip H. Bolton

**1178-Pos BOARD B129**  
DETERMINANTS OF SELF AGGREGATION OF H-TEL. **Robert Macgregor**, Yang Li, Bitu Zamiri, Rashid Abu-Ghazalah

**1179-Pos BOARD B130**  
THE DNA DYNAMICS NEAR NANOPORES AT SUB-MILLISECOND AND SUB-MICROMETER LEVELS BY THE ULTRAVIOLET LIGHT SPOT. **Hirohito Yamazaki**, Mutsumi Tsukahara, Shintaro Ito, Keiko Esashika, Toshiharu Saiki

**1180-Pos BOARD B131**  
HYDROXYMETHYLATION OF DNA ALTERS NUCLEOSOMAL PROPERTIES IN VITRO. **Agnes Mendonca**, Chongli Yuan

**1181-Pos BOARD B132**  
DNA DIFFUSION IS DEPENDENT ON IONIC STRENGTH. **Earle Stellwagen**, Nancy C. Stellwagen

**1182-Pos BOARD B133**  
THE PRESENCE OF ARGININE REGULATES THE SELECTIVITY AND BINDING AFFINITY OF LYSINE RECEPTORS. **Jessica Abron**, Nicholas Pinkin, Marcey Waters

## RNA Structure and Dynamics (Boards B134-B153)

**1183-Pos BOARD B134**  
FORCE AND TEMPERATURE DEPENDENT FOLDING OF A 2-BASE-PAIR RNA KISSING COMPLEX. **William T. Stephenson**, Ashley Colvin, Alan Chen, Pan T.X. Li

**1184-Pos BOARD B135**  
A NUCLEOBASE-CENTRIC COARSE-GRAINED MODEL FOR STRUCTURE PREDICTION OF RNA FRAGMENTS. **Simón Poblete**, Sandro Bottaro, Giovanni Bussi

**1185-Pos BOARD B136**  
MAGNESIUM DEPENDENCE OF THE RNA FREE ENERGY LANDSCAPE. **Ryan L. Hayes**, Jeffrey K. Noel, Ana Mandic, Paul C. Whitford, Karissa Y. Sanbonmatsu, Udayan Mohanty, José N. Onuchic

**1186-Pos BOARD B137**  
AN ADDITIVE CHARMM FORCE FIELD FOR MODIFIED NUCLEIC ACIDS. **You Xu**, Lennart Nilsson, Alexander D. MacKerrel, Jr.

**1187-Pos BOARD B138**  
OBSERVATION OF A CHANGE IN TWIST OF AN RNA KISSING COMPLEX USING THE ANGULAR DEPENDENCE OF FLUORESCENCE RESONANCE ENERGY TRANSFER. **Sheema Rahmanseresht**, Peker Milas, Louis Parrot, Ben D. Gamari, Lori S. Goldner

**1188-Pos BOARD B139**  
KINETIC DESTABILIZATION THROUGH SINGLE POINT MUTATIONS EMPHASIZES THE CRITICAL ROLE PLAYED BY COUPLED TERTIARY INTERACTIONS IN THE FOLDING OF THE AZOARCUS RIBOZYME. **Krishnarjun Sarkar**, Boyang Hua, Taekjip Ha, Sarah A. Woodson

**1189-Pos BOARD B140**  
LOCAL AND GLOBAL FOLDING IN A 58MER RNA REVEALED BY 2-AMINOPURINE SUBSTITUTIONS AND SPECIFIC NMR LABELS. **Robb Welty**, Michael J. Rau, Kathleen B. Hall

**1190-Pos BOARD B141**  
RNA JUNCTIONS STRUCTURE AND DISTANCE DETERMINATION VIA ACCURATE SINGLE-MOLECULE HIGH-PRECISION FRET MEASUREMENTS. **Olga Doroshenko**, Hayk Vardanyan, Sasha Froebel, Stanislav Kalinin, Simon Sindbert, Oleg Opanasyuk, Christian Hanke, Sabine Mueller, Holger Gohlke, Claus A.M. Seidel

**1191-Pos BOARD B142**  
RNA PSEUDOKNOT FOLDING ENERGY LANDSCAPE ELUCIDATED WITH T-JUMP MEASUREMENTS AND KINETIC MODELING. **Jorjeth Roca**, Yogambigai Velmurugu, Ranjani Narayanan, Prasanth Narayanan, Serguei Kouznetsov, Anjum Ansari

**1192-Pos BOARD B143**  
A BIOPHYSICAL ANALYSIS OF THE CDK5R2 MRNA G-QUADRUPLEX SECONDARY STRUCTURE AND ITS ROLE IN THE PATHOGENESIS OF FRAGILE X SYNDROME. **Christian M. Gaetano**, Mihaela R. Mihailescu

**1193-Pos BOARD B144**  
A CONSERVED MECHANISM WITHIN THE 5'-LEADER RNA GENOME AMONG HIV-1 AND SIVCPZ STRAINS DURING VIRAL GENOME RECOGNITION. **Thao Tran**, Michael F. Summers

**1194-Pos BOARD B145**  
SITE-DIRECTED SPIN LABELING EVIDENCE OF THE LEADER-LINKER INTERACTION IN THE GLYCINE RIBOSWITCH USING ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY. **Jacqueline M. Esquiaqui**, Eileen M. Sherman, Jing-Dong Ye, Gail E. Fanucci

**1195-Pos BOARD B146**  
STRUCTURE OF ADENOVIRUS VIRUS ASSOCIATED  
RNA-I. Katherine Launer-Felty, C. Jason Wong, **James Cole**

**1196-Pos BOARD B147**  
SMALL FDU STRAND EXHIBITS SALT-DEPENDENT  
STABILITY. **Ryan L. Melvin**, William Gmeiner, Freddie R. Salsbury, Jr.

**1197-Pos BOARD B148** MINORITY AFFAIRS TRAVEL AWARDEE  
MOLECULAR SIMULATIONS STUDIES OF RNA TETRALOOP  
HYPERSTABILITY: THE EFFECT OF STEM LENGTH ON  
FOLDING DYNAMICS. **Jacob C. Miner**, Alan A. Chen, Angel E.  
García

**1198-Pos BOARD B149**  
SEQUENCE SPECIFICITY IN RNA-MEDIATED  
TRANSCRIPTIONAL ATTENUATION EXAMINED BY COARSE-  
GRAINED MD SIMULATIONS. **Paul M. Gasper**, Alan A. Chen

**1199-Pos BOARD B150**  
U4 SNRNA REGULATES FORMATION OF THE U6 TELESTEM  
WITHIN THE U4/U6 DI-SNRNA. **Margaret L. Rodgers**, Allison L.  
Didychuk, Samuel E. Butcher, David A. Brow, Aaron A. Hoskins

**1200-Pos BOARD B151**  
A RIBOSOMAL FRAMESHIFTING STRUCTURE IN THE  
CCR5 MRNA LEADS TO MIRNA-STIMULATED NONSENSE-  
MEDIATED MRNA DECAY. **Wojciech K. Kasprzak**, Jonathan D.  
Dinman, Bruce A. Shapiro

**1201-Pos BOARD B152**  
EXPLORING RNA CONDENSATION. **Suzette A. Pabit**, Andrea M.  
Katz, Lois Pollack

**1202-Pos BOARD B153**  
ALTERNATIVE BASE-PAIRING AND CONFORMATIONAL  
SAMPLING IN LOOP A OF THE HAIRPIN RIBOZYME.  
**Patrick O. Ochieng**, Beibei Wang, Michael Feig, Charles G. Hoogstraten

## Membrane Physical Chemistry I (Boards B154-B171)

**1203-Pos BOARD B154**  
INFLUENCE OF ETHER BONDS AND BRANCHED LIPID TAILS  
ON STABILITY OF MEMBRANES TO PORE FORMATION. Petr V.  
Panov, Sergei A. Akimov, Pavel E. Volynsky, **Oleg V. Batishchev**

**1204-Pos BOARD B155**  
EFFECT OF ELECTROSTATIC REPULSION ON DMPG  
BILAYERS. **Daniela A. Nomura**, Thais A. Enoki, M. Teresa Lamy

**1205-Pos BOARD B156**  
THE EFFECT OF EXCITED FLUOROPHORE ON VESICLE  
FUSION AT THE SURFACE OF THE ELECTRODE.  
**Neda Najafinobar**, Johan Dunevall, Jelena Lovric, Hoda M.Fathali,  
Andrew Ewing, Ann Sofie Cans

**1206-Pos BOARD B157**  
EFFECT OF DENGUE FUSION PEPTIDE IN ANIONIC LIPID  
BILAYERS. **Thais F. Schmidt**, Karin A. Riske

**1207-Pos BOARD B158**  
MEASURING THE INTRINSIC CURVATURE OF GANGLIOSIDE  
GM1. **Raktim Dasgupta**, Reinhard Lipowsky, Rumiana Dimova

**1208-Pos BOARD B159**  
SPONTANEOUS CURVATURE MEASUREMENTS FOR  
ZWITTERIONIC AND ANIONIC PHOSPHOLIPIDS UNDER  
BIOMIMETIC PERTURBATIONS AND THEIR IMPLICATIONS  
TO THE MECHANISMS OF LAMELLAR-NONLAMELLAR PHASE  
TRANSITIONS. **Kuan-Yu Tsang**, Wen-Fang Chang, Zih-An Fan, Yi-Fan  
Chen

**1209-Pos BOARD B160**  
INVESTIGATING THE ROLE OF BILAYER SIZE AND  
COMPOSITION ON MEMBRANE FLUCTUATIONS USING  
LARGE COARSE-GRAINED SIMULATIONS. **Philip W. Fowler**,  
Heidi Koldsø, Anna Duncan, Mark SP Sansom

**1210-Pos BOARD B161**  
LIGHT-INDUCED TRANSFORMATIONS IN LIPID  
MEMBRANES. **Vasil Georgiev**, David Bléger, Andrea Grafmüller, Stefan  
Hecht, Rumiana Dimova

**1211-Pos BOARD B162**  
MEASUREMENT OF INTERLEAFLET COUPLING IN PHASE  
SEPARATED BILAYERS USING HIGH SHEAR. **Matthew C. Blosser**,  
Aurelia R. Honerkamp-Smith, Tao Han, Mikko Haataja, Sarah L. Keller

**1212-Pos BOARD B163**  
COARSE GRAINED MOLECULAR DYNAMICS SIMULATIONS  
TO STUDY ASYMMETRIC MEMBRANES. **Michael D. Weiner**,  
Gerald W. Feigenson

**1213-Pos BOARD B164**  
ELECTRICAL ASYMMETRIES IN POLARIZED  
MEMBRANES. **Karis Amata Zecchi**, Lars Dalskov Mosgaard, Thomas  
Heimburg

**1214-Pos BOARD B165**  
CHARGE ASYMMETRY IN OUTER MEMBRANE  
PROTEINS. **Joanna Slusky**, Roland Dunbrack

**1215-Pos BOARD B166**  
A FUNDAMENTAL FORCE GOVERNING PROTEIN SELF-  
ASSEMBLY IN MEMBRANES. **Shachi Katira**, Kranthi K. Mandadapu,  
Suriyanarayanan Vaikuntanathan, Berend Smit, David Chandler

**1216-Pos BOARD B167**  
COMPARING LO/LD MEMBRANE THICKNESS MISMATCH  
AND MISCIBILITY TRANSITION TEMPERATURES USING  
FLUORESCENCE AND ATOMIC FORCE MICROSCOPY.  
**Joan V. Bleecker**, Phillip A. Cox, Sarah L. Keller

**1217-Pos BOARD B168** EDUCATION TRAVEL AWARDEE  
THE EFFECTS OF WALP PEPTIDES ON PHASE BEHAVIOR IN  
QUATERNARY LIPID MIXTURES: A MOLECULAR DYNAMICS  
STUDY. **David G. Ackerman**, Gerald W. Feigenson

**1218-Pos BOARD B169**  
APPEARANCE OF MODULATED BILAYER MORPHOLOGY FOR  
COEXISTING LD AND LO PHASES IS CORRELATED WITH LINE  
TENSION. **Sanjula P. Wickramasinghe**, David G. Ackerman, Gerald W.  
Feigenson

**1219-Pos BOARD B170**  
MEMBRANE BENDING MODULUS FOR TERNARY MIXTURE  
MODELS OF THE CELL PLASMA MEMBRANE. **Rebecca Simpson**,  
David Ackerman, Gerald Feigenson

**1220-Pos BOARD B171**  
MINOR CHANGES IN STEROL STRUCTURE IMPACT THE  
MISCIBILITY TEMPERATURES OF MODEL CELL MEMBRANES  
SIGNIFICANTLY. **Ranee C. James**, Jonathan P. Litz, Sarah L. Keller

## Membrane Dynamics II (Boards B172-B194)

### 1221-Pos BOARD B172

PIE-FCCS STUDY OF THE EFFECTS OF POLYCATIONIC MACROMOLECULES ON PHOSPHATIDYLSERINE AND PHOSPHATIDYLINOSITOL PHOSPHATE LIPID MOBILITY. **Xiaojun Shi**, Xiaosi Li, Adam W. Smith

### 1222-Pos BOARD B173

THE EFFECTS OF CA<sup>2+</sup> ON THE DYNAMICS OF PIP2 CONTAINING LIPID BILAYERS. **Ian P. Mc Cabe**, Martin B. Forstner

### 1223-Pos BOARD B174 EDUCATION TRAVEL AWARDEE

LIPID DYNAMICS OF CARDIOLIPIN/DMPC AND CARDIOLIPIN/DOPC IN NANODISCS. **Kristian T. Stipe**

### 1224-Pos BOARD B175 INTERNATIONAL TRAVEL AWARDEE

THE CYTOTOXIC BILE ACID DCA MODULATES APOPTOTIC SIGNALING THROUGH ALTERATION OF MITOCHONDRIAL MEMBRANE PROPERTIES. **Tânia Patrícia Marques de Sousa**, Rui E. Castro, Sandra N. Pinto, Ana Coutinho, Susana D. Lucas, Rui Moreira, Cecília M.P. Rodrigues, Manuel Prieto, Fábio Fernandes

### 1225-Pos BOARD B176

MECHANICS OF EXTRACELLULAR VESICLES FROM RED BLOOD CELLS. **Daan Vorselen**, Susan M. van Dommelen, Jack JWA van Loon, Raymond M. Schiffelers, Wouter H. Roos, Gijs JL Wuite

### 1226-Pos BOARD B177

MODELING OF VESICULATION IN HEALTHY AND DEFECTIVE HUMAN ERYTHROCYTE MEMBRANE. He Li, **George Lykotrafitis**

### 1227-Pos BOARD B178

MODELING AND SIMULATIONS OF GLYCOSPHINGOLIPIDS DETERMINING A, B, AND O BLOOD GROUPS. **Thaius S. Boyd**, Wonpil Im

### 1228-Pos BOARD B179

ADVANCED MODELING OF THE HUMAN SKIN BARRIER. **Christopher M. MacDermid**, Russell H. DeVane, Michael L. Klein, Giacomo Fiorin

### 1229-Pos BOARD B180

DEHYDRATION OF MULTILAMELLAR FATTY ACID MEMBRANES: TOWARDS A COMPUTATIONAL MODEL OF THE STRATUM CORNEUM. Christopher M. MacDermid, Russell H. Devane, Michael L. Klein, **Giacomo Fiorin**

### 1230-Pos BOARD B181

QUANTIFYING MOLECULAR TRANSPORT THROUGH LIPID ELECTROPORES INDUCED BY NANOSECOND PULSED ELECTRIC FIELDS. **Esin B. Sozer**, P. Thomas Vernier

### 1231-Pos BOARD B182

CONCENTRATION EFFECT ON THE HYDROGEN-BOND STRENGTH BETWEEN SMALL MOLECULES AT THE OIL/WATER INTERFACE: APPLICATION TO COARSE-GRAINED MODEL DEVELOPMENT. **Vivek K. Yadav**, Chris MacDermid, Giacomo Fiorin, Michael L. Klein

### 1232-Pos BOARD B183

HOW DOES ETHANOL AFFECT THE STABILITY OF SIMPLE MODEL YEAST MEMBRANES? **Ryan M. Konas**, John L. Daristotle, Ndubuisi B. Harbor, Jeffery B. Klauda

### 1233-Pos BOARD B184

NOVEL EXPERIMENTAL METHODS TO RESOLVE NANOSCALE MEMBRANE ORGANIZATION AND CURVATURE. **Rebecca L. Meerschaert**, Abir Maarouf, Christopher V. Kelly

### 1234-Pos BOARD B185

MEMBRANE CURVATURE - THE ASSEMBLER OF PROTEINS. **Mijo Simunovic**, Patricia Bassereau, Gregory A. Voth

### 1235-Pos BOARD B186

BIN/AMPHIPHYSIN/RVS (BAR) FAMILY MEMBERS BEND MEMBRANES IN CELLS. **Allison Suarez**, Tasuku Ueno, Robert Huebner, J. Michael McCaffery, Takanari Inoue

### 1236-Pos BOARD B187

CURVATURE-GENERATING PROTEINS AND SUBCELLULAR PATTERN FORMATION. Maohan Su, Cheesan Tong, **Min Wu**

### 1237-Pos BOARD B188

FINELY-FABRICATED NANOMATERIALS TO REVEAL CURVATURE ROLES IN NEURONAL NETWORK FORMATION. **Milos Galic**

### 1238-Pos BOARD B189

ROLE OF SURFACE TENSION IN THE FORMATION OF MEMBRANE TUBES. **Julian Hassinger**, George Oster, Padmini Rangamani

### 1239-Pos BOARD B190

NANOSYSTEM BASED ON PHOSPHOLIPIDS AND SURFACTANTS AS INNOVATIVE DELIVERY SYSTEM FOR GENE THERAPY. **Michalina Skupin**, Joanna Wolak, Maciej Kozak

### 1240-Pos BOARD B191 INTERNATIONAL TRAVEL AWARDEE

BIOPHYSICAL EVALUATION OF DRUG IMPACT ON PULMONARY SURFACTANT PERFORMANCE. **Alberto Hidalgo**, Antonio Cruz, Jesus Perez-Gil

### 1241-Pos BOARD B192 EDUCATION TRAVEL AWARDEE

MULTISCALE SIMULATION OF CONCENTRATION-DEPENDANT INTERACTION OF HYDROPHOBIC DRUG WITH CELL MEMBRANE. **Myunghim Kang**, Sharon M. Loverde

### 1242-Pos BOARD B193

STABILITY REGIMES AND ENGULFMENT PATTERNS OF NANOPARTICLES AT MEMBRANES. **Jaime Agudo Canalejo**, Reinhard Lipowsky

### 1243-Pos BOARD B194

MEMBRANE FLUIDITY IN CANCER CELL MEMBRANES AS A THERAPEUTIC TARGET: VALIDATION USING BPM 31510. **Sumit Garg**, Sirisha Dhavala, Katerina Krumova, Michael Kiebish, Vivek Vishnudas, Stephane Gesta, Rangaprasad Sarangarajan, Niven Narain

## Biophysical Techniques for the Study of Protein-Lipid Interactions (Boards B195-B223)

### 1244-Pos BOARD B195

USING CW-EPR TO EXPLORE SUBSTRATE BINDING AND THE MECHANISM OF TONB-DEPENDENT TRANSPORT IN BTUB. **Arthur K. Sikora**, Benesh Joseph, Thomas F. Prisner, David S. Cafiso



- 1245-Pos BOARD B196**  
CYTOPLASMIC DOMAIN OF DENGUE VIRUS PROTEIN NS4A PREFERENTIALLY BINDS HIGHLY CURVED MEMBRANES. **Yu-Fu Hung**, Melanie Schwarten, Silke Hoffmann, Dieter Willbold, Ella H. Sklan, Bernd W. Koenig
- 1246-Pos BOARD B197**  
PH TITRATION AND ACID ACTIVATION OF THE FULL-LENGTH INFLUENZA A M2 PROTON CHANNEL IN LIPID BILAYERS. **Yimin Miao**, Riqiang Fu, Huan-Xiang Zhou, Huajun Qin, Timothy A. Cross
- 1247-Pos BOARD B198**  
PROBING STRUCTURE AND DYNAMICS OF EXTERNALIZED TRANSMEMBRANE ALPHA HELICES OF S21 PINHOLIN PROTEIN USING ELECTRON PARAMAGNETIC RESONANCE SPECTROSCOPY. **Daniel Drew**
- 1248-Pos BOARD B199**  
PROBING THE SECONDARY STRUCTURE OF MEMBRANE PROTEIN USING BACTERIAL EXPRESSION SYSTEM AND ELECTRON SPIN ECHO ENVELOPE MODULATION (ESEEM) SPECTROSCOPY. **Rongfu Zhang**, Indra Sahu, Kaylee Gibson, Nefertiti Muhammad, Avnika Bali, Raven Comer, Andrew Craig, Megan Dunagan, Kunkun Wang, Carole Dabney-Smith, Gary Lorigan
- 1249-Pos BOARD B200**  
STRUCTURE AND ACTIVITY OF THE OUTER MEMBRANE PROTEIN AIL FROM YERSINIA PESTIS. **Yi Ding**, Lynn M. Fujimoto, Yong Yao, Gregory V. Plano, Francesca M. Marassi
- 1250-Pos BOARD B201**  
MECHANISMS OF MEMBRANE PROTEIN CRYSTALLIZATION. **Anvar Samadzoda**, Amit Vaish, Anne Skaja Robinson, Abraham Lenhoff
- 1251-Pos BOARD B202**  
TRANSMEMBRANE-PEPTIDE STRUCTURE FORMATION FROM COARSE-GRAINED SIMULATIONS. **Tristan Bereau**, Markus Deserno
- 1252-Pos BOARD B203**  
OPENING THE LATERAL GATE OF THE RHOMBOID PROTEASE COUPLES TO LIPID BINDING. **Ana Nicoleta Bondar**, M. Joanne Lemieux
- 1253-Pos BOARD B204**  
HIGH RESOLUTION MODEL OF HDL WRAPPED WITH TETRAFOIL APOA-I: A COARSE-GRAINED SIMULATION STUDY. **Venkata Reddy Chirasani**, Sanjib Senapati
- 1254-Pos BOARD B205**  
MEMBRANE ASSOCIATION OF SYNAPTOTAGMIN 7 C2A DOMAIN BY MOLECULAR DYNAMICS SIMULATIONS. **Nara Lee Chon**, Jack Henderson, John Ryan Osterberg, Hanif Khan, Nathalie Reuter, Jefferson Knight, Hai Lin
- 1255-Pos BOARD B206**  
INTERPLAY BETWEEN ELECTROSTATICS AND CATION-PI INTERACTIONS GOVERNS THE SPECIFIC MEMBRANE BINDING OF PHOSPHATIDYLINOSITOL-SPECIFIC PHOSPHOLIPASE-C. **Hanif M. Khan**, Cedric Grauffel, Mary F. Roberts, Anne Gershenson, Nathalie Reuter
- 1256-Pos BOARD B207**  
MOLECULAR DETAILS OF THE MECHANISM OF PS RECOGNITION BY TIM PROTEINS. **Javier L. Baylon**, Gregory T. Tietjen, Ka Yee C. Lee, Erin J. Adams, Emad Tajkhorshid
- 1257-Pos BOARD B208**  
ANOMALOUS DYNAMICS OF PLECKSTRIN HOMOLOGY DOMAINS ON LIPID MEMBRANE SURFACES. **Eiji Yamamoto**, Antreas C. Kalli, Takuma Akimoto, Kenji Yasuoka, Mark S. P. Sansom
- 1258-Pos BOARD B209**  
MOLECULAR DYNAMICS SIMULATION STUDIES OF INTERACTIONS OF E. COLI-K12 WITH OMPF IN OUTER MEMBRANES: EFFECTS OF LPS STRUCTURES ON MONOCLONAL ANTIBODIES BINDING. **Dhilon S. Patel**, Emilia L. Wu, Phillip E. Klebba, Wonpil Im
- 1259-Pos BOARD B210**  
MODELLING PROTEIN-MICELLE SYSTEMS IN IMPLICIT WATER. **Rodney E. Versace**, Themis Lazaridis
- 1260-Pos BOARD B211**  
SIMULATIONS PREDICT 18:0-22:6 PHOSPHATIDYLSERINE DRIVES  $\alpha$ -SYNUCLEIN INTO THE LIQUID-DISORDERED PHASE IN SYNAPTIC VESICLE LIPID COMPOSITION. **Benjamin E. Brummel**
- 1261-Pos BOARD B212**  
THE STRUCTURE OF A MELITTIN STABILIZED TOROIDAL PORE. **John M. Leveritt III**
- 1262-Pos BOARD B213**  
MEMBRANOME: A DATABASE OF SINGLE-SPANNING TRANSMEMBRANE PROTEINS. **Andrei L. Lomize**, Irina Pogozheva
- 1263-Pos BOARD B214**  
ROSETTA-MPDOCK: A NOVEL COMPUTATIONAL TOOL FOR PROTEIN-PROTEIN DOCKING WITHIN THE MEMBRANE BILAYER. **Julia Koehler Leman**, Rebecca F. Alford, Jeffrey J. Gray
- 1264-Pos BOARD B215**  
SUPER-RESOLUTION IMAGING AND REACTION MAPPING OF P450 3A4 AND P450 REDUCTASE IN HETEROGENEOUS BIOMIMETICS: STARRY NIGHT. **James A. Brozik**, Sara C. Humphreys, Carlo Barnaba, Adam O. Barden, Jeffrey P. Jones
- 1265-Pos BOARD B216**  
APPLICATION OF LUMINESCENCE RESONANCE ENERGY TRANSFER (LRET) FOR STUDY OF SUBSTRATE PEPTIDE BINDING TO PGLB FROM N-LINKED GLYCOSYLATION PATHWAY IN C. JEJUNI AND C. LARI. **Monika Musial-Siwiek**, Barbara Imperiali
- 1266-Pos BOARD B217**  
PROBING ENZYME-SUBSTRATE COMPLEX STRUCTURAL DYNAMICS DURING INTRAMEMBRANE PROTEOLYSIS. **Jason W. Cooley**, Mia Brown, Renee D. Jiji
- 1267-Pos BOARD B218**  
TRACING LIPIDS AND THEIR ASSOCIATION WITH KERATIN IN THE ADHESIVE GECKO SETAE BY NMR SPECTROSCOPY. **Dharamdeep Jain**, Alyssa Stark, Peter Niewiarowski, Toshikazu Miyoshi, Ali Dhinojwala
- 1268-Pos BOARD B219**  
INVESTIGATING THE STRUCTURAL DYNAMICS TRANSITIONS OF HUMAN ADIPOCYTE FATTY ACID BINDING PROTEIN BY NMR SPECTROSCOPY. **Kim N. Ha**, Youlin Xia, Yenchi Tran, Adedolapo Ojoawo, Gianluigi Veglia, David A. Bernlohr
- 1269-Pos BOARD B220**  
SOLID STATE NMR STRUCTURAL STUDIES OF ANTIMICROBIAL PEPTIDES LPCIN ANALOGS WITH ENHANCED ACTIVITIES. Ji-Sun Kim, Ji-Ho Jeong, **Yongae Kim**



**1270-Pos BOARD B221**  
NMR-RESTRAINED STRUCTURE CALCULATIONS OF MEMBRANE PROTEINS IN IMPLICIT LIPID BILAYER MEMBRANES. **Ye Tian**, Charles Schwieters, Stanley Opella, Francesca Marassi

**1271-Pos BOARD B222**  
GLOBAL FOLD OF HUMAN CANNABINOID TYPE 2 RECEPTOR PROBED BY SOLID-STATE NMR AND MOLECULAR DYNAMICS SIMULATIONS. Tomohiro Kimura, Krishna Vukoti, Diane L. Lynch, Dow P. Hurst, Alan Grossfield, Michael C. Pitman, Patricia H. Reggio, Alexei A. Yeliseev, **Klaus Gawrisch**

**1272-Pos BOARD B223**  
BCL-2 FAMILY PROTEINS EFFECT ON MITOCHONDRIAL-MIMICKING MEMBRANE STRUCTURE BY SOLID STATE NMR. **Artur PG Dingeldein**, Martin Lidman, Sarka Pokorna, Martin Hof, Anders Pedersen, Göran Karlsson, Gerhard Gröbner

## Protein-Lipid Interactions II (Boards B224-B248)

**1273-Pos BOARD B224**  
DYNAMIC STUDIES OF THE TUMOUR SUPPRESSOR PROTIEN PTEN BINDING TO MEMBRANES COMPOSED PI(4,5)P2 AND VARIOUS ANIONIC LIPIDS. **Brittany M. Neumann**, Alonzo Ross, Arne Gericke

**1274-Pos BOARD B225 EDUCATION TRAVEL AWARDEE**  
COMPUTATIONAL MODELING OF THE N-TERMINUS OF THE HUMAN DOPAMINE TRANSPORTER (HDAT). George Khelashvili, **Milka Doktorova**, Michelle A. Sahai, Niklaus Johner, Lei Shi, Harel Weinstein

**1275-Pos BOARD B226**  
LOCALIZATION OF LIPIDS TO THE CAVITY AND TRANSMEMBRANE DOMAIN OF ATP-BINDING CASSETTE TRANSPORTER ABCB10, AS REVEALED BY MOLECULAR DYNAMICS SIMULATIONS. **Hao Yu Chen**, Iwona Siuda, D. Peter Tieleman

**1276-Pos BOARD B227**  
INVESTIGATING SEC14 DOMAIN LIPID BINDING USING STRUCTURAL MODELING. **Mwangala Akamandisa**, Amanda J. Kedaigle, Mala L. Radhakrishnan, T. Kaye Peterman, Donald E. Elmore

**1277-Pos BOARD B228**  
A MICROFLUIDIC DEVICE TO STUDY TRANSLOCATION ACROSS LIPID MEMBRANES. **Victor Marin**, Roland Kieffer, Jacqueline Enzlin, Marie-Eve Aubin-Tam

**1278-Pos BOARD B229**  
BACKSCATTERING INTERFEROMETRY: SEEING MEMBRANE PROTEINS IN A NEW LIGHT. **Janessa Gerhart**, Gabrielle Haddad-Weiser, Amanda Kussrow, Darryl Bornhop, Robert Flowers, Damien Thévenin

**1279-Pos BOARD B230**  
MEMBRANE INSERTION DEPTH AND CURVATURE SENSING. **Erin R. Tyndall**, Richard L. Gill Jr., Kumaran S. Ramamurthi, Fang Tian

**1280-Pos BOARD B231**  
CRYSTAL STRUCTURE OF THE BACTERIAL AMINOARABINOSE TRANSFERASE ARNT. **Vasileios I. Petrou**, Oliver B. Clarke, Kathryn M. Schultz, David Tomasek, Brian Kloss, Surajit Banerjee, Kanagalaghata R. Rajashankar, Candice S. Klug, Lawrence Shapiro, Filippo Mancía

**1281-Pos BOARD B232**  
DISTINCT MEMBRANE ASSOCIATION MODES FACILITATE CO-TRANSLATIONAL PROTEIN TARGETING. **Yu-Hsien Hwang Fu**, Shu-ou Shan

**1282-Pos BOARD B233**  
USING FLUORESCENT-LABELED NANODISCS TO STUDY LIPID INTERACTIONS WITH YEAST CYTOCHROME C. **Harmen B. Steele**, Levi J. McClelland, Kristian T. Stipe, Michelle C. Terwilliger, Bruce E. Bowler, J. B. Alexander Ross

**1283-Pos BOARD B234**  
BIOPHYSICS OF  $\alpha$ -SYNUCLEIN INDUCED MEMBRANE REMODELLING. **Zheng Shi**, Elizabeth Rhoades, Tobias Baumgart

**1284-Pos BOARD B235**  
ACETYLATION REGULATES THE INTERACTION OF HUNTINGTIN WITH LIPID MEMBRANES: IMPLICATIONS FOR HUNTINGTON DISEASE. **Maxmore Chaibva**, James R. Arndt, Stephen J. Valentine, Justin Legleiter

**1285-Pos BOARD B236**  
CHOLESTEROL MODULATES THE BINDING AND SUBSEQUENT AGGREGATION OF HUNTINGTIN ON LIPID BILAYERS. **Xiang Gao**, Maxmore Chaibva, Pranav Jain, Justin Legleiter

**1286-Pos BOARD B237**  
SEQUENCE-INDEPENDENT SSDNA RELIEVES PHOSPHOLAMBAN INHIBITION OF SERCA IN A LENGTH DEPENDENT MANNER. **Kailey J. Soller**, Raffaello Verardi, Vitaly V. Vostrikov, Neha Abrol, Seth L. Robia, Michael T. Bowser, Gianluigi Veglia

**1287-Pos BOARD B238**  
SYSTEMATIC PERTURBATIONS OF MICELLE PROPERTIES TO INVESTIGATE THE STABILIZATION OF MEMBRANE PROTEIN STRUCTURE AND FUNCTION. **Ashton Brock**, Shelby Lipes, Linda Columbus

**1288-Pos BOARD B239**  
MODIFIED AMINOPHOSPHOLIPIDS STRONGLY ALTER THE FUNCTION OF MITOCHONDRIAL MEMBRANE PROTEIN UCP1. **Olga Jovanovic**, Nadine Burchardt, Lars Gille, Elena E. Pohl

**1289-Pos BOARD B240**  
THE ROLE OF MEMBRANE CONTEXT IN THE INTERACTION OF POLYGLUTAMINE PEPTIDES WITH LIPID MEMBRANES. **Warren A. Campbell**, Karlina J. Kauffman, Justin Legleiter, Shelli L. Frey

**1290-Pos BOARD B241**  
PI(4,5)P2 LIPID BINDING INDUCES A REORIENTATION OF FGF2 MOLECULES NEAR MEMBRANE SURFACE TO FACILITATE THE UNCONVENTIONAL OLIGOMERIZATION-DEPENDENT SECRETION PROCESS AS REVEALED BY A COMBINED FTIR/NMR/X-RAY STUDY. Yh Tsao, Js Liu, Jh Kuo, Wn Huang, **Wg Wu**

**1291-Pos BOARD B242**  
MEMBRANE SHAPE TRANSITION MEDIATED BY CURVATURE-INDUCING PROTEINS, MEMBRANE TENSION, AND MACROCROWDERS. **Zhiming Chen**, Zheng Shi, Tobias Baumgart

**1292-Pos BOARD B243**  
ESTABLISHING THE SYNERGY OF FORCES GOVERNING TIM3 BINDING TO LIPID MEMBRANES. **Zhiliang Gong**, Greg T. Tietjen, Daniel H. S. Kerr, J. Michael Henderson, Kathleen D. Cao, Nathaniel A. Posner, Theodore L. Steck, Erin J. Adams, Ka Yee C. Lee

**1293-Pos BOARD B244 EDUCATION TRAVEL AWARDEE**  
UNRAVELING THE DUAL ROLE OF SURFACTANT PROTEIN A AT ATOMISTIC DETAIL. **Boon Chong Goh**, Michael J. Rynkiewicz, Francis X. McCormack, Barbara A. Seaton, Klaus Schulten

**1294-Pos BOARD B245**  
IDENTIFYING THE CHOLINE-CATION TYROSINE-PI INTERACTIONS OF AN AMPHITROPIC PROTEIN. **Tao He**, Hanif M. Khan, Cedric Grauffel, Nathalie Reuter, Anne Gershenson, Mary F. Roberts

**1295-Pos BOARD B246**  
MEMBRANE INTERACTION OF AMYLOID-BETA PEPTIDE INDUCES SPONTANEOUS MEMBRANE INVAGINATION. Sha Jin, Jörg Nikolaus, Andreas Herrmann, **Jan Bieschke**

**1296-Pos BOARD B247**  
THE NOVEL INHIBITOR "ANLE145C" EFFICIENTLY INHIBITS FIBRIL FORMATION OF ISLET AMYLOID POLYPEPTIDE (IAPP) AND USES DISTINCTLY DIFFERENT MODES OF ACTION IN THE ABSENCE AND PRESENCE OF MEMBRANES. **Manikam Sadasivam Saravanan**, Sergey Ryazanov, Andrei Leonov, Janine Seeliger, Roland Winter, Armin Giese, Christian Griesinger, J Antoinette Killian

**1297-Pos BOARD B248**  
INFLUENCE OF SEQUENCE AND LIPID TYPE ON MEMBRANE PERTURBATION BY HUMAN AND RAT AMYLOID  $\beta$ -PEPTIDE (1-42). **Anne M. Brown**, David R. Bevan

## Membrane Receptors and Signal Transduction II (Boards B249-B269)

**1298-Pos BOARD B249**  
EFFECT OF THANATOPHORIC DYSPLASIA TYPE I MUTATIONS ON FIBROBLAST GROWTH FACTOR RECEPTOR 3 DIMERIZATION. **Nuala Del Piccolo**, Kalina Hristova

**1299-Pos BOARD B250**  
DECODING THE ROLE OF RECEPTOR DIMERIZATION IN PLEXIN-SEMAPHORIN SIGNALING. **Adam W. Smith**, Morgan Marita, Xiaojun Shi, William D. Comar

**1300-Pos BOARD B251**  
SYNTHETIC MANIPULATION OF PIP<sub>2</sub> LEVELS AND PIP<sub>2</sub>-ASSOCIATED CHEMOTACTIC SIGNALING DISSECTION IN DICTYOSTELIUM. **Yuchuan Miao**, Takanari Inoue, Peter Devreotes

**1301-Pos BOARD B252**  
CHARGE SHIELDING OF PIP<sub>2</sub> BY CATIONS REGULATES ENZYME ACTIVITY OF PHOSPHOLIPASE C. **Jong Bae Seo**, Seung-Ryoung Jung, Weigang Huang, Qisheng Zhang, Duk-Su Koh

**1302-Pos BOARD B253**  
SOLUBLE AND IMMOBILIZED VEGF INDUCE DISTINCT PATTERNS OF VEGFR2 PHOSPHORYLATION MEDIATED BY INTRACELLULAR TRAFFICKING. **Lindsay E W Clegg**, Feilim Mac Gabhann

**1303-Pos BOARD B254**  
MEASURING THE ENERGETICS OF EPHA3 DIMERIZATION IN LIVE MAMMALIAN CELLS. **Qingqing Cao**, Deo Singh, Chris King, Matt Salotto, Kalina Hristova

**1304-Pos BOARD B255**  
LOCAL BILAYER REORGANISATION BY THE JM REGIONS OF ALL HUMAN RTKS: A MULTISCALE MOLECULAR DYNAMICS STUDY. **George Hedger**, Mark S.P. Sansom, Heidi Koldso

**1305-Pos BOARD B256**  
THE DIPOLE POTENTIAL INFLUENCES THE CLUSTERING OF ERBB PROTEINS. **Tamas Kovacs**, Agnes Szabo, Janos Szollosi, Peter Nagy

**1306-Pos BOARD B257**  
HOMO AND HETERO DIMERIZATION OF RECEPTOR PROTEIN TYROSINE PHOSPHATASES. **Elizabeth Dembicer**, Maxwell Watkins, Damien Thevenin

**1307-Pos BOARD B258**  
IN VIVO THERMODYNAMICS OF RTKS IN THE CELL MEMBRANE: QUANTITATIVE SPECTRAL FRET. **Christopher R. King**, Kalina Hristova

**1308-Pos BOARD B259**  
COMPARISON OF EGFR DIMER STABILITIES IN THE PRESENCE AND ABSENCE OF THE LIGAND EGF. **Matt Salotto**, Deo R. Singh, Chris King, Pat Byrne, Daniel Leahy, Kalina Hristova

**1309-Pos BOARD B260**  
LABEL-FREE CHARACTERIZATION OF A NOVEL EARLY-STAGE DRUG DISCOVERY PLATFORM. **Edward Esposito**, Verna Frasca, Kevin Mattison

**1310-Pos BOARD B261**  
PATTERNED LIGAND SURFACES REVEAL F-ACTIN AND INTEGRIN ORGANIZATION AT EGF AND IGE RECEPTOR SIGNALING COMPLEXES. **Devin Wakefield**

**1311-Pos BOARD B262**  
THE ENERGETICS OF THE CHROMOPHORE REGENERATION PATHWAY IN RHODOPSIN. **He Tian**, Thomas Sakmar, Thomas Huber

**1312-Pos BOARD B263 INTERNATIONAL TRAVEL AWARDEE**  
LIGHT-INDUCED SWITCHING OF HAMP DOMAIN CONFORMATION AND DYNAMICS REVEALED BY TIME-RESOLVED EPR SPECTROSCOPY. **Daniel Klose**, Natalia Voskoboinikova, Philipp S. Orekhov, Ioan Orban-Glass, Christian Rickert, Martin Engelhard, Johann P. Klare, Heinz-Juergen Steinhoff

**1313-Pos BOARD B264**  
DYNAMIC LIGAND-PROTEIN INTERACTIONS ALTER RHODOPSIN'S CONFORMATIONAL ENSEMBLE: SIMULATIONS OF RHODOPSIN AND OPSIN. **Letty Salas**, Nick Leioatts, Shairy Danial, Tod Romo, Alan Grossfield

**1314-Pos BOARD B265**  
ATRAP (AT1R ASSOCIATED PROTEIN) ROLE ON ANGIOTENSIN II-MEDIATED NHE3 ACTIVITY MODULATION. **Juliano Z. Polidoro**, Nancy A. Rebouças

**1315-Pos BOARD B266**  
ENVIRONMENTAL FACTORS ALLOWING STEM CELLS FROM SKELETAL MUSCLE TURNING INTO CARDIAC MUSCLE LIKE SPONTANEOUS BEATING CELLS. Hikari Hayashida, Wataru Yamasaki, **Takayuki Miyanishi**

**1316-Pos BOARD B267**  
ROLES OF PHOSPHODIESTERASES IN CYCLIC NUCLEOTIDE CROSS-TALK IN CARDIAC MYOCYTES. **Claire Y. Zhao**, Joseph L. Greenstein, Raimond L. Winslow

**1317-Pos BOARD B268**  
REGULATION OF THE CARDIAC  $\beta$ -ADRENERGIC PATHWAY VIA CAMP-CGMP COMPETITION. **Claire Y. Zhao**, Joseph L. Greenstein, Raimond L. Winslow

**1318-Pos BOARD B269**

INTRACELLULAR SIGNALING PATHWAY OF CARDIAC APOPTOSIS IN THE PREDIABETIC HEART. Leandro Sommesse, Marilen Federico, Carolina Zanuzzi, Enrique L. Portiansky, John Dedman, Marcia Kaetzel, Wehrens H. Xander, Alicia Mattiazzi, **Julietta Palomeque**

**Intracellular Calcium Channels and Calcium Sparks and Waves I (Boards B270-B288)**

**1319-Pos BOARD B270**

DYSSYNCHRONOUS HEART FAILURE IS ASSOCIATED WITH SPATIALLY HETEROGENEOUS SPARK DENSITY IN LEFT VENTRICULAR CARDIOMYOCYTES. **Justin G. Lichter**, Hui Li, Robin Moss, Thomas S. Seidel, John H. Bridge, Frank B. Sachse

**1320-Pos BOARD B271**

INFLUENCE OF RYR2 INHIBITION KINETICS ON CALCIUM SPARKS AND WAVES IN A 3D MODEL OF A CARDIAC CELL. **Derek R. Laver**, Mohammad S. Imtiaz

**1321-Pos BOARD B272**

EFFECTS OF TRIAD GEOMETRY AND RYR GATING SCHEME ON SIMULATED SKELETAL MUSCLE SPARKS. **János Vincze**, Beatrix Dienes, Péter Szentesi, László Csernoch, Derek R. Laver

**1322-Pos BOARD B273**

SUBCELLULAR CA CHANNEL DISTRIBUTION AND CA ALTERNANS IN ATRIAL MYOCYTES. **Zhen Song**, Korogyi Adam, Peter H. Backx, Zhilin Qu

**1323-Pos BOARD B274**

COMPLEX EARLY AND DELAYED AFTERDEPOLARIZATION DYNAMICS CAUSED BY VOLTAGE-CALCIUM COUPLING IN CARDIAC MYOCYTES. **Zhen Song**, Christopher Y. Ko, Michael Nivala, James N. Weiss, Zhilin Qu

**1324-Pos BOARD B275**

STRUCTURAL AND FUNCTIONAL DEFECTS OF T-TUBULAR SYSTEM AND THEIR IMPLICATIONS IN CALCIUM RELEASE AND CONTRACTION IN A MOUSE MODEL OF HYPERTROPHIC CARDIOMYOPATHY. **Claudia Crocini**, Cecilia Ferrantini, Raffaele Coppini, Marina Scardigli, Erica Lazzeri, Claudio Chicchi, Ping Yan, Leslie M. Loew, Jill Tardif, Chiara Tesi, Francesco Vanzi, Elisabetta Cerbai, Francesco S. Pavone, Leonardo Sacconi

**1325-Pos BOARD B276**

SIMULTANEOUS DETECTION AND COLOCALIZATION OF CALCIUM SPARKS AND RYANODINE RECEPTOR CLUSTERS IN CARDIAC MYOCYTES. Alex Vallmitjana, Florian Hiess, S.R. Wayne Chen, Leif Hove-Madsen, **Raul Benitez**

**1326-Pos BOARD B277**

REDUCED CA FLUX VIA RYANODINE RECEPTOR CLUSTER SIZE OR UNITARY CURRENT CAN BOTH PROMOTE LONG-LASTING CA SPARKS. **Daisuke Sato**, Thomas R. Shannon, Donald M. Bers

**1327-Pos BOARD B278**

EXPRESSION AND FUNCTION OF INOSITOL 1,4,5-TRISPHOSPHATE RECEPTORS IN THE HEART. **Martha Iveth Garcia**, Darren Boehning

**1328-Pos BOARD B279**

OPPOSITE CHANGES OF CA<sup>2+</sup> WAVE THRESHOLD AND FRACTIONAL SR CA<sup>2+</sup> RELEASE DURING SERCA STIMULATION IN CARDIOMYOCYTES. **Miguel Fernandez-Tenorio**, Ernst Niggli

**1329-Pos BOARD B280**

ELEVATED HOMOCYSTEINE LEVELS RESULT IN CARBOXYL FORMATION ON RYR2 AND ENHANCED SENSITIVITY OF SARCOPLASMIC RETICULUM TO ACTIVATION BY CALCIUM. **Laura J. Owen**, Robert M. Strongin, Jeffrey D. Singer, Jonathan J. Abramson

**1330-Pos BOARD B281**

PHOSPHODIESTERASE INHIBITION LEADS TO ACTIVATION OF EPAC AND STIMULATION OF CA<sup>2+</sup> RELEASE FROM BOTH THE GOLGI APPARATUS AND THE SR. Hannah M. Kirton, Zhaokang Yang, **Derek S. Steele**

**1331-Pos BOARD B282**

CARDIAC ALTERNANS OCCURS THROUGH THE SYNERGY OF VOLTAGE- AND CALCIUM-DEPENDENT MECHANISMS. Minh Tuan Hoang-Trong, W Jonathan Lederer, **M Saleet Jafri**

**1332-Pos BOARD B283**

DEVELOPMENT OF CA ALTERNANS IN ATRIAL MYOCYTES IS MODULATED BY ACTION POTENTIAL MORPHOLOGY. **Giedrius Kanaporis**, Lothar A. Blatter

**1333-Pos BOARD B284**

UROCORIN 2 REGULATES SARCOPLASMIC RETICULUM CALCIUM VIA PHOSPHORYLATION OF PHOSPHOLAMBAN AND SERCA ACTIVATION AND PROTECTS AGAINST PRO-ARRHYTHMIC ALTERNANS IN CARDIAC MYOCYTES FROM NORMAL AND FAILING HEARTS. **Stefanie Walther**, Joshua N. Edwards, Joshua T. Maxwell, Florentina Pluteanu, Susanne Renz, Burkert Pieske, Lothar A. Blatter

**1334-Pos BOARD B285**

CALCIUM MEDIATED MECHANISM OF EARLY AFTERDEPOLARIZATIONS IN LQT2 VENTRICULAR MYOCYTES. **Colin M. Rees**, Dmitry Terentyev, Bum-Rak Choi, Gideon Koren, Alain Karma

**1335-Pos BOARD B286**

MULTISCALE CONSEQUENCES OF SPONTANEOUS CALCIUM RELEASE ON CARDIAC DELAYED AFTERDEPOLARIZATIONS. **Christopher Y. Ko**, Zhen Song, Zhilin Qu, James N. Weiss

**1336-Pos BOARD B287**

FRET-BASED RYR-SELECTIVE DETECTION REVEALS NO SIGNIFICANT COMPETITION BETWEEN CAM AND S100A1 BINDING TO RYRS. **Robyn T. Rebbeck**, Florentin R. Nitu, David Rohde, Patrick Most, Donald M. Bers, David D. Thomas, Razvan L. Cornea

**1337-Pos BOARD B288**

CALMODULIN POTENTIATES RYR2 BLOCK AND CA WAVE SUPPRESSION BY FLECAINIDE. Nieves Gomez-Hurtado, Ye W. Oo, Derek Laver, **Bjorn C. Knollmann**

**Excitation-Contraction Coupling I (Boards B289-B316)**

**1338-Pos BOARD B289 INTERNATIONAL TRAVEL AWARDEE**

DOXORUBICIN ALTERS CARDIOMYOCYTE CALCIUM REGULATION AND STIMULATES MITOCHONDRIAL SUPEROXIDE FLASH PRODUCTION. **Nicole Beard**, Amy Hanna, Lan Wei-LaPierre, Kevin Tylock, Hermia Willemse, Angela Dulhunty, Robert Dirksen



- 1339-Pos BOARD B290**  
DYNAMICS OF  $Ca^{2+}$ -DEPENDENT REGULATION OF THE CARDIAC  $Na^+/Ca^{2+}$  EXCHANGER. **Lulu Chu**, Joseph L. Greenstein, George S.B. Williams, Liron Boyman, Eric A. Legenzov, Brian M. Hagen, W J. Lederer, Raimond L. Winslow
- 1340-Pos BOARD B291**  
NA-CA EXCHANGER CURRENT DURING THE CARDIAC CYCLE IN INTACT PERFUSED MOUSE HEART. Josefina Ramos-Franco, **Yuriana Aguilar-Sanchez**, Ariel L. Escobar
- 1341-Pos BOARD B292**  
STRUCTURAL AND FUNCTIONAL IMPACT OF AMINO ACID SUBSTITUTION ON CALMODULIN BINDING IN CARDIAC MYOCYTES. **Matthew D. McCoy**, Saleet Jafri, Iosif Vaisman
- 1342-Pos BOARD B293**  
THE FUNCTIONAL COMPLEX COMPOSED OF THE SODIUM/ BICARBONATE COTRANSPORTER AND THE SOLUBLE ADENYLATE CYCLASE (SAC) MODULATES BASAL CARDIAC CONTRACTILITY. María S. Espejo, María C. Ciancio, Alejandro Orłowski, Verónica C. De Giusti, **Ernesto A. Aiello**
- 1343-Pos BOARD B294**  
DMSO PROTECTS AGAINST STRESS-INDUCED SEALING OF CARDIAC T-TUBULES. **Keita Uchida**, Ian Moench, Anatoli N. Lopatin
- 1344-Pos BOARD B295**  
DUAL ROLE OF FUNCTIONALLY INTACT DYADIC JUNCTIONS IN CARDIAC EXCITATION-CONTRACTION COUPLING. **Prakash Subramanyam**, Donald D. Chang, Henry M. Colecraft
- 1345-Pos BOARD B296**  
SUPER-RESOLUTION ANALYSIS OF THE DISTRIBUTION OF RYR, CAV1.2 AND NCX WITHIN THE MAMMALIAN COUPLON. **David R.L. Scriven**, Reza Tafteh, Keng C. Chou, Edwin D.W. Moore
- 1346-Pos BOARD B297**  
SUPERRESOLUTION MICROSCOPE IMAGE RECONSTRUCTION BY SPATIOTEMPORAL OBJECT DECOMPOSITION AND ASSOCIATION: APPLICATION IN RESOLVING T-TUBULE STRUCTURE IN SKELETAL MUSCLE. **Mingzhai Sun**, Jiaqing Huang, Filiz Bunyak, Kristyn Gumpfer, Gejing De, Matthew Sermersheim, George Liu, Pei-Hui Lin, Kannappan Palaniappan, Jianjie Ma
- 1347-Pos BOARD B298**  
VOLTAGE-GATED CALCIUM INFLUX CONTRIBUTES TO SARCOPLASMIC RETICULUM CALCIUM LOADING IN SKELETAL MUSCLE. Gaelle Robin, **Bruno Allard**
- 1348-Pos BOARD B299**  
CONTRIBUTION OF L496-L500-W503 MOTIF OF DHPR- $\beta$ 1A SUBUNIT TO SKELETAL-TYPE EC-COUPLING. Jose M. Eltit, Clara Franzini-Armstrong, **Claudio F. Perez**
- 1349-Pos BOARD B300**  
FRET-BASED STRUCTURAL ANALYSIS OF THE SKELETAL MUSCLE DHPR USING BIARSENICAL LABELING. **Mohana Mahalingam**, Claudio F. Perez, James D. Fessenden
- 1350-Pos BOARD B301**  
DEPENDENCY OF  $Ca^{2+}$  ALTERNANS ON ION CHANNEL LOCALIZATION IN HUMAN ATRIAL CELLS. **Kelly C. Chang**, Natalia A. Trayanova
- 1351-Pos BOARD B302**  
AGEING CAUSES SEVERE ULTRA-STRUCTURAL MODIFICATION OF CALCIUM RELEASE UNITS AND MITOCHONDRIA IN CARDIOMYOCYTES. Laura d'Onofrio, Alessia Di Fonso, Feliciano Protasi, **Simona Boncompagni**
- 1352-Pos BOARD B303**  
THE EFFECT OF AGING ON CALCIUM TRANSIENTS IN RAT CARDIOMYOCYTES: IMPACT OF NOX INHIBITION. **Daniel R. Gonzalez**, Guillermo B. Barrios
- 1353-Pos BOARD B304**  
OPTOGENETIC MANIPULATION OF  $Ca^{2+}$  TRANSIENTS AND CONTRACTION IN A MATHEMATICAL MODEL OF CARDIOMYOCYTE FUNCTION. **Yasser Aboelkassem**, Stuart G. Campbell
- 1354-Pos BOARD B305**  
MG29/SYPL2 CONTRIBUTES TO DYSREGULATION OF LIPID COMPOSITION AND STORE OPERATED  $Ca^{2+}$  ENTRY IN AGING SKELETAL MUSCLE. **Julian A. Vallejo**, Liubov V. Gushchina, Sainath Kotha, Leticia Brotto, Narasimham Parinandi, Noah Weisleder, Marco Brotto
- 1355-Pos BOARD B306**  
DIFFERENTIAL ROLE OF CALSEQUESTRIN ISOFORMS ON CALCIUM ENTRY IN SKELETAL MUSCLE FDB FIBRES. **Francesco Zorzato**, Barbara Mosca, Leda Beergamelli, Giorgia Valle, Alessandra Nori, Susan Treves, Feliciano Protasi, Pomeo Volpe
- 1356-Pos BOARD B307**  
ELEVATION OF NO INCREASES  $Ca^{2+}$  ENTRY AND RESTING  $Ca^{2+}$  AND  $Na^+$  CONCENTRATIONS IN SKELETAL MUSCLE CELLS. **Gaelle Robin**, Francisco Altamirano, Rui Zhang, Enrique Jaimovich, Paul D. Allen, Jose R. Lopez
- 1357-Pos BOARD B308**  
A COMPARTMENT MODEL TO INVESTIGATE THE ROLES OF SR MEMBRANE CHANNELS DURING E-C COUPLING. **Claudio Berti**, Michael Fill, Dirk Gillespie
- 1358-Pos BOARD B309**  
MODEL OF A PROPAGATING ACTION POTENTIAL (AP) IN A TWITCH SKELETAL MUSCLE FIBER MOUNTED IN A DOUBLE-VAELINE-GAP CHAMBER - CURRENTS INVOLVED IN SHAPING THE AP. Fatou Touré, Gabor Gyurkovics, Cedric R.H. Lamboley, **Paul C. Pape**
- 1359-Pos BOARD B310**  
CAMKII-DEPENDENT PHOSPHORYLATION OF RYR2 CAUSES DOMAIN UNZIPPING AND REDUCED CALMODULIN BINDING, BUT DANTROLENE REVERSES THESE EFFECTS. **Hitoshi Uchinoumi**, Yi Yang, Jose L. Puglisi, Ye Chen-Izu, Razvan L. Cornea, Xander H. T. Wehrens, Donald M. Bers
- 1360-Pos BOARD B311**  
DETERMINATION OF THE JUNCTIONAL SPACE [ $Ca^{2+}$ ] SET BY RYANODINE RECEPTOR LEAK IN SLOW- AND FAST-TWITCH MUSCLE FIBRES. Tanya R. Cully, **Bradley S. Launikonis**
- 1361-Pos BOARD B312**  
EFFECT OF CALCIUM IN THE CARDIAC RYANODINE RECEPTOR INTER-MOLECULAR CONTACTS. **Vanessa Cabra**, Montserrat Samso



**1362-Pos BOARD B313**  
 MALIGNANT HYPERTHERMIA SUSCEPTIBILITY MUTATION CAV1.1 R174W DRAMATICALLY ALTERS RYR1 SINGLE CHANNEL FUNCTION. **Wei Feng**, Yao Dong, Roger Bannister, Philip Hopkins, Clara Franzini-Armstrong, Kurt Beam, Paul D. Allen, Isaac Pessah

**1363-Pos BOARD B314**  
 EFFECTS OF MH AND CCD MUTATIONS IN THE CENTRAL REGION ON RYR1 CHANNELS. **Takashi Murayama**, Nagomi Kurebayashi, Toshiko Yamazawa, Hideto Oyamada, Junji Suzuki, Kazunori Kanemaru, Katsuji Oguchi, Masamitsu Iino, Takashi Sakurai

**1364-Pos BOARD B315**  
 CHARACTERIZATION OF DUAL MUTANT RYR1D-S100A1KO MICE WITH DISRUPTED CAM AND S100A1 BINDING TO CAMBD2 AND LACKING S100A1 EXPRESSION. **Erick O. Hernández-Ochoa**, Camilo Vanegas, Stephen J.P. Pratt, Richard M. Lovering, Martin F. Schneider

**1365-Pos BOARD B316**  
 CORRELATION BETWEEN FKBP12/12.6 BOUND TO RYRS, CHANNEL OPENING TO MAXIMAL OR SUBMAXIMAL CONDUCTANCE LEVELS AND MYOPATHY. Gregory Steele, Philip G. Board, Nicole A. Beard, **Angela F. Dulhunty**

## Cardiac, Smooth, and Skeletal Muscle Electrophysiology II (Boards B317-B332)

**1366-Pos BOARD B317**  
 A COMPARISON OF ACUTELY ISOLATED HUMAN VENTRICULAR MYOCYTES WITH STEM CELL DERIVED CARDIOCYTES. Aaron D. Kaplan, Agnieszka Lis, Carlos Li, Lei Yang, Michael J. Morales, Glenna C.L. Bett, **Randall L. Rasmusson**

**1367-Pos BOARD B318**  
 AGING ALTERS CAMP SIGNALING AND MEMBRANE-DELIMITED REGULATION OF  $I_{Kr}$  IN SINOATRIAL MYOCYTES. **Emily J. Sharpe**, Eric D. Larson, Catherine Proenza

**1368-Pos BOARD B319**  
 REGULATION OF ICA DURING SIMULATED ACUTE ISCHEMIA IN DEVELOPING CARDIOMYOCYTES EXPOSED TO HYPOXIA AND LOW PH. **Jose C. Fernandez-Morales**, Xiao-Hua Zhang, Hua Wei, Lars Cleemann, Martin Morad

**1369-Pos BOARD B320**  
 NON-LINEAR REDUCTION OF ION CURRENTS IN CULTURED CARDIAC MYOCYTES: CORRELATION WITH A LOSS OF T-TUBULES? Tanya Zeina, Reuben T. Mathew, Erica Freund, Brian K. Panama, Matthew Betzenhauser, Jacqueline A. Treat, **Jonathan M. Cordeiro**

**1370-Pos BOARD B321**  
 T-TUBULES IN MYOCYTES OF INTACT DOG LEFT AND RIGHT ATRIA. Gary L. Aistrup, Stephen Supple, Caleb Frank, Jasleen Singh, Shannon Tai, Laura Chicos, Anne Zhao, William Marszalec, Rishi Arora, **Andrew Wasserstrom**

**1371-Pos BOARD B322**  
 CDO DEFICIENT MICE DISPLAY CARDIOMYOPATHY WITH ALTERATIONS IN CONNEXINS. **Hyun-ji Kim**, Myong-Ho Jeong, Young-Eun Leem, Jong-Sun Kang, Hana Cho

**1372-Pos BOARD B323**  
 LOSS OF PI3K-GAMMA SCAFFOLD FUNCTION CAUSES SEVERE ELECTRICAL REMODELING IN MICE VENTRICULAR MYOCYTES. **Riccardo Rizzetto**, Alexandra Jr Zahradnikova, Yueyi Wang, Alessandra Ghigo, Rodolphe Fischmeister, Emilio Hirsch, Jean-Pierre Benitah, Ana M. Gomez

**1373-Pos BOARD B324**  
 MASS SPECTROMETRY-BASED ANALYSIS OF THE PHOSPHO-PROTEOME FOR CARDIAC DYSSYNCHRONY AND RESYNCHRONIZATION THERAPY. **Jonathan A. Kirk**, Ronald J. Holewinski, Vidya Venkatraman, Eric Grote, David A. Kass, Jennifer E. Van Eyk

**1374-Pos BOARD B325**  
 MODULATION OF ACTION POTENTIAL ALTERNANS BY IKS IN MYOCARDIAL INFARCTION. Bum-Rak Choi, **Tae Yun Kim**, Mayara Grizotte-Lake, Jean Daley, Lorraine Schofield, Kamana Bist, Joseph Yammine, Yukiko Kunitomo, Yichun Lu, Xuwen Peng, Zhilin Qu, Gideon Koren

**1375-Pos BOARD B326**  
 A GUINEA PIG MODEL FOR HEART FAILURE-ASSOCIATED SUDDEN CARDIAC DEATH. **Ting Liu**, Deeptankar Demazumder, Brian O'Rourke

**1376-Pos BOARD B327**  
 IRON OVERLOAD PROMOTES ARRHYTHMIAS VIA ROS PRODUCTION AND MITOCHONDRIAL MEMBRANE POTENTIAL DEPOLARIZATION. **Richard Gordan**, Nadezhda Fefelova, Judith Gwathmey, Lai-Hua Xie

**1377-Pos BOARD B328**  
 FRET MEASUREMENTS OF CAMP DYNAMICS IN HL1 CELLS SUPPORT THE KEY ROLE OF CONSTITUTIVE AC ACTIVITY IN CARDIAC PACEMAKING. **Evgeny Kobrinsky**, Kirill V. Tarasov, Yelena S. Tarasova, Victor Maltsev, Steven J. Sollott, Edward G. Lakatta

**1378-Pos BOARD B329**  
 ABNORMALITIES IN TRANSMURAL VENTRICULAR ELECTROPHYSIOLOGY IN A HETEROZYGOUS SCN5A KNOCKOUT MOUSE MODEL REVEALED BY TWO-PHOTON MICROSCOPY. **Allen Kelly**, Tomas O. Stølen, Karin Solvang-Garten, Flavien Charpentier, Ulrik Wisløff, Godfrey L. Smith

**1379-Pos BOARD B330**  
 FEATURES OF OPTICAL MAPPING IN BLUE-GREEN AND NIR LIGHTS IN RABBIT HEART. **Rūta Vosyliūtė**, Regina Mačianskienė, Irma Martišienė, Antanas Navalinskas, Rimantas Treinys, Birutė Vaidelytė, Jonas Jurevičius

**1380-Pos BOARD B331**  
 COMPREHENSIVE ANALYSIS OF BEHAVIORAL VARIABILITY IN REAL AND SIMULATED POPULATIONS OF RABBIT LEFT VENTRICULAR CARDIOMYOCYTES. **Ryan A. Devenyi**, Victor Z. Rodriguez, Maria P. Hortigon-Vinagre, Godfrey L. Smith, Eric A. Sobie

**1381-Pos BOARD B332**  
 APPLICATION OF THE RIMARC ALGORITHM TO A LARGE DATA SET OF ACTION POTENTIALS AND CLINICAL PARAMETERS FOR RISK PREDICTION OF ATRIAL FIBRILLATION. **Ursula Ravens**, Deniz Katircioglu-Öztürk, Erich Wettwer, Claire Poulet, Simone Loose, Michael Knaut, Emre Oto, Ali Oto, H. Altay Güvenir

## Voltage-gated K Channels II (Boards B333-B363)

### 1382-Pos BOARD B333

EFFECT OF AMITRIPTYLINE IN KV7.1/MINK CHANNEL.  
**Kathya Villatoro**, Sanchez-Chapula Jose Antonio, Tania Ferrer

### 1383-Pos BOARD B334

POLYUNSATURATED FATTY ACID ANALOGUES ACT ANTI-ARRHYTHMIC ON THE CARDIAC IKS CHANNEL. **Sara I. Liin**, Malin Silverå Ejneby, Rene Barro-Soria, Johan E. Larsson, Frida Starck Härlin, Bo Hjorth Bentzen, Teija Parkkari, Nicole Schmitt, H. Peter Larsson, Fredrik Elinder

### 1384-Pos BOARD B335

INTRACELLULAR CALCIUM ALTERS IKS AMPLITUDE AND KINETICS IN RABBIT MYOCYTES. **Daniel C. Bartos**, Stefano Morotti, Kenneth S. Ginsburg, Eleonora Grandi, Donald M. Bers

### 1385-Pos BOARD B336

BUILDING 3-D MODELS OF THE FULL-LENGTH IKS CHANNEL USING COMPUTATIONAL TECHNIQUES. **Yu Xu**, Mei Zhang, Min Jiang, Gea-Ny Tseng

### 1386-Pos BOARD B337

KCNE3 STABILIZES THE VOLTAGE SENSOR S4 OF KCNQ1 CHANNEL, KCNE1 UNCOUPLES S4 AND THE GATE.  
**Rene Barro-Soria**, Gary Peng, Kevin J. Sampson, Robert S. Kass, H. Peter Larsson

### 1387-Pos BOARD B338 EDUCATION TRAVEL AWARDEE

PHOSPHORYLATION OF KV7 CHANNELS REGULATES THEIR PIP2 SENSITIVITY. **Fatma Asli Erdem**, Isabella Salzer, Wei-Qiang Chen, Gert Lubec, Mark S. Shapiro, Stefan Boehm, Jae-Won Yang

### 1388-Pos BOARD B339

THE SUBFAMILY-SPECIFIC ASSEMBLY OF EAG AND ERG K<sup>+</sup> CHANNELS IS DETERMINED BY BOTH THE AMINO AND THE CARBOXYL RECOGNITION DOMAINS. Ting-Feng Lin, Hao-Han Wu, Chih-Yung Tang, **Chung-Jiuan Jeng**

### 1389-Pos BOARD B340

DIRECT PREFERENTIAL INTERACTIONS BETWEEN HERG1A AND HERG1B SUBUNITS: EVIDENCE FOR HERG1A-HERG1B DIMERS. **Beth A. McNally**, Matthew C. Trudeau

### 1390-Pos BOARD B341

HOMOLOGOUS DOMAINS MEDIATE DISTINCT GATING FUNCTIONS IN EAG VS. CYCLIC-NUCLEOTIDE GATED CHANNELS. **Yaxian Zhao**, Colin H. Peters, Peter C. Ruben, Gail A. Robertson

### 1391-Pos BOARD B342

AN EAG DOMAIN POLYPEPTIDE REGULATES THE DEACTIVATION KINETICS OF THE HERG 1A-3.1 SPLICE VARIANT LINKED TO SCHIZOPHRENIA. **Curtis D. Gallagher**, Matthew C. Trudeau

### 1392-Pos BOARD B343

EAG K<sup>+</sup> CHANNEL BINDING TO CAMKII: STRUCTURAL AND BIOCHEMICAL CHARACTERIZATION. **Artur F. Castro-Rodrigues**, Fátima Fonseca, Carol A. Harley, João H. Morais-Cabral

### 1393-Pos BOARD B344

EXAMINING THE ROLE OF DIRECT CAMP-BINDING VERSUS PKA-MEDIATED EFFECTS ON INTERACTIONS BETWEEN THE CARDIAC POTASSIUM CHANNEL  $\alpha$ -SUBUNIT PROTEINS HERG AND KVLQT1. Yeon Joo Lee, Estelle Kim, **Louise E. Organ-Darling**

### 1394-Pos BOARD B345

THE SUBPROTEOME OF MITOCHKCA FROM CARDIOMYOCYTES REVEALS NOVEL INSIGHTS INTO BK CHANNEL FUNCTION AND PATHOLOGY. **Jin Zhang**, Zhu Zhang, Ronghui Zhu, Stefani Enrico, Ligia Toro

### 1395-Pos BOARD B346

EFFECTS OF IK<sub>ACH</sub> CHANNEL INHIBITOR TERTIAPIN-Q ON RIGHT ATRIAL PREPARATIONS FROM PATIENTS IN SINUS RHYTHM AND ATRIAL FIBRILLATION. Claire Poulet, **Sridharan Rajamani**, Ursula Ravens, Luiz Belardinelli

### 1396-Pos BOARD B347

MODULATION OF PANCREATIC ISLET ELECTROPHYSIOLOGY AND INSULIN RELEASE BY POTASSIUM CHANNEL SUBUNIT KV $\beta$ 2. **Peter Kilfoil**, Oleg A. Barski, Aruni Bhatnagar

### 1397-Pos BOARD B348

PHARMACOLOGICAL CONSEQUENCES OF PKC INHIBITION ON KV1.5+KV $\beta$ 1.3 CHANNELS. **Alicia de la Cruz**, Alvaro Macias, Angela Prieto, Diego A. Peraza, Michael M. Tamkun, Teresa Gonzalez, Carmen Valenzuela

### 1398-Pos BOARD B349

INTERSUBUNIT INTERACTIONS CONTROL KIR CHANNEL INACTIVATION. **William F. Borschel**, Shizhen Wang, Colin G. Nichols

### 1399-Pos BOARD B350

INHIBITION OF HSP70 ENHANCES A-TYPE KV4 CURRENT BY REDUCING DEGRADATION OF AUXILIARY KCHIP4A. **Jingheng Zhou**, Yiquan Tang, Yanxin Lu, KeWei Wang

### 1400-Pos BOARD B351

DYNAMIC SUBUNIT STOICHIOMETRY OF KV4.3-KCHIP4A CHANNEL COMPLEXES VISUALIZED BY SINGLE-MOLECULE SUBUNIT COUNTING. Jingheng Zhou, Yiquan Tang, Liangyi Chen, Zhuo Huang, **KeWei Wang**

### 1401-Pos BOARD B352

THE N-TERMINAL EXTENSION OF KCHIP3 IS RESPONSIBLE FOR KCHIP3-CALMODULIN COMPLEX FORMATION. Walter G. Gonzalez, **Andres S. Arango**, Jaroslava Miksovska

### 1402-Pos BOARD B353

EXPLORING MOLECULAR MECHANISMS OF THE FUNCTIONAL INTERACTION BETWEEN KV1.3 AND NAV BETA1. **Tomoya Kubota**, Ana M. Correa, Francisco Bezanilla

### 1403-Pos BOARD B354

THE EFFECTS OF AUXILIARY SUBUNITS ON KV2.1 PHARMACOLOGY. Alissa J. Becerril, Autoosa Salari, Benjamin S. Vega, **Mirela Milescu**

### 1404-Pos BOARD B355

CHARACTERIZATION OF BK CHANNELS CLONED FROM MOUSE SINOATRIAL NODE CELLS. **Michael H. Lai**, Joshua P. Whitt, Andrea L. Meredith

### 1405-Pos BOARD B356

REGULATION OF BK CURRENTS BY THE  $\beta$ 2 SUBUNIT IN MOUSE SUPRACHIASMATIC NUCLEUS. **Joshua P. Whitt**, Andrea L. Meredith

### 1406-Pos BOARD B357

DIRECT MODULATION OF CALCIUM- AND VOLTAGE-GATED POTASSIUM CHANNELS OF LARGE CONDUCTANCE BY LEUKOTRIENES. **Anna N. Bukiya**, Jacob McMillan, Jianxi Liu, Bangalore Shivakumar, Abby L. Parrill, Alex M. Dopico

**1407-Pos BOARD B358**

ABLATION OF BK CHANNELS IMPAIRS MITOCHONDRIA AND AFFECTS AGING. **Shubha Gururaja Rao**, Kajol Shah, Gurjaap Singh, Harpreet Singh

**1408-Pos BOARD B359**

MOLECULAR BASIS OF SLO CHANNEL(S) FUNCTION IN SPERM REVEALED BY HUMAN GENETICS. **Steven A. Mansell**, Sarah Martins da Silva, Melissa Miller, Christopher LR Barratt, Polina V. Lishko

**1409-Pos BOARD B360**

DEVELOPMENT OF A MODEL FOR EXCITABILITY STUDIES USING XENOPUS OOCYTES. **Aaron Corbin**, Sayeed M. Mossadeq, Carlos A. Villalba-Galea

**1410-Pos BOARD B361**

LOCALIZATION OF THE *P. FALCIPARUM* K<sup>+</sup> CHANNELS (PFKCH1 AND 2) AND FUNCTIONAL EXPRESSION IN YEAST. Karen Molbaek, Matias Maritn, Peter Ellekvist, Peter Ellekvist, Peter S. Poulsen, Per A. Pedersen, **Dan A. Klaerke**

**1411-Pos BOARD B362**

SEVOFLURANE POTENTIATES KV CHANNELS BY INHIBITING A LATE NON-CONDUCTING STATE: A PLAUSIBLE MECHANISM OF GENERAL ANESTHETIC ACTION IMPLICATING THE SELECTIVITY FILTER. **Shelly T. Jones**, Juliana Hosoume, Leticia Stock, Caio Souza, Werner Treptow, Manuel Covarrubias

**1412-Pos BOARD B363**

β<sub>1</sub> SUBUNITS MODULATION OF KV7.4 CHANNELS EXPRESSED IN HEK293 CELLS AT THE SINGLE CHANNEL LEVEL. **Oleksandr Povstyan**, Jennifer B. Stott, Iain A. Greenwood

**TRP Channels II (Boards B364-B379)**

**1413-Pos BOARD B364**

FUNCTIONAL EXPRESSION OF TRPC6 AND TRPV4 CHANNELS IN MOUSE SKELETAL MUSCLE FIBERS. **Yaxin Zhang**, Bo Soelter, Heinrich Brinkmeier

**1414-Pos BOARD B365**

HETEROMERIC TRPC3 WITH TRPC1 FORMED VIA ITS ANKYRIN REPEATS REGULATES THE RESTING CYTOSOLIC CA<sup>2+</sup> LEVELS IN SKELETAL MUSCLE. Jin Seok Woo, **Keon Jin Lee**, Mei Huang, Chung-Hyun Cho, Eun Hui Lee

**1415-Pos BOARD B366**

IDENTIFICATION OF AN ESSENTIAL STRUCTURAL ELEMENT OF LIPID GATING MECHANISM IN THE TRANSIENT RECEPTOR POTENTIAL CANONICAL CHANNEL TYPE 3 (TRPC3). **Barbora Svobodova**, Michaela Lichtenegger, Toma Glasnov, Thomas Stockner, Dieter Platzer, Michael Poteser, Klaus Groschner

**1416-Pos BOARD B367**

CA<sup>2+</sup> AND CALMODULIN REGULATION IN RECEPTOR-OPERATED CATION CURRENTS OF TRPC6 CHANNELS. **Masayuki X. Mori**, Kyohei Itsuki, Mitsuru Hirano, Hideharu Hase, Ryuji Inoue, Yasuo Mori

**1417-Pos BOARD B368**

AN ALTERNATIVE ION PERMEATION PATHWAY IN THE TRPM3α1 ISOFORM? **Katharina Held**, Annelies Janssens, Stephan Philipp, Thomas Voets, Joris Vriens

**1418-Pos BOARD B369**

REGULATION OF THE TRPM3 CHANNEL IN PLANAR LIPID BILAYERS. **Lusine Demirkhanyan**, Kunitoshi Uchida, Eleonora Zakharian

**1419-Pos BOARD B370**

BIOPHYSICAL PROPERTIES OF THE ALTERNATIVE ION PERMEATION PORE IN TRPM3. Katharina Held, Thomas Voets, **Joris Vriens**

**1420-Pos BOARD B371**

FUNCTIONAL ANALYSIS OF THE THERMOSENSOR TRPM3 IN INTACT SENSORY FIBERS USING THE SKIN-NERVE ASSAY. **Ine Vandewauw**, Joris Vriens, Andrei Segal, Katharina Zimmermann, Thomas Voets

**1421-Pos BOARD B372**

PHOSPHOINOSITIDES AS CO-FACTORS FOR THE ION CHANNEL TRPM3. **Doreen Badheka**, Istvan Borbiro, Tibor Rohacs

**1422-Pos BOARD B373**

CHEMICAL ACTIVATION OF ENDOGENOUS AND RECOMBINANT TRPM4 CHANNELS. **Michael G. Leitner**, Niklas Michel, Marc Behrendt, Marlen Dierich, Sandeep Dembla, Maik Konrad, Johannes Oberwinkler, Dominik Oliver

**1423-Pos BOARD B374**

THE PLASMA MEMBRANE TRPM8 PLAYS A PROTECTIVE ROLE AGAINST PROSTATE CANCER PROGRESSION; *TRPM8* GENE AS A DOWNSTREAM TARGET OF P53 TUMOR-SUPPRESSOR. **Swapna Asuthkar**, Kiran Kumar Velpula, Pia Elustondo, Eleonora Zakharian

**1424-Pos BOARD B375**

THE ROLE OF PLCδ4 IN THE ACTIVITY OF TRPM8 EXPRESSING SENSORY NEURONS. **Yevgen Yudin**, Tibor Rohacs

**1425-Pos BOARD B376**

A NOVEL CLASS OF TRANSIENT RECEPTOR POTENTIAL MELASTATIN 8 AGONISTS. **Balazs I. Toth**, Annelies Janssens, Silvia Pinto, Thomas Voets

**1426-Pos BOARD B377**

THE N-TERMINAL CLEAVAGE OF PKD1L3 AND ITS EFFECT ON THE FUNCTION OF PKD1L3/TRPP3 RECEPTOR/ION CHANNEL COMPLEX. Parul Kashyap, Mahmud Arif Pavel, **Yong Yu**

**1427-Pos BOARD B378**

EFFECTS OF LIPOPOLYSACCHARIDE ON SENSORY TRP CHANNELS OF DORSAL ROOT GANGLION SENSORY NEURONS. **Brett Boonen**, Yeranddy Aguiar Alpizar, Thomas Voets, Karel Talavera Pérez

**1428-Pos BOARD B379**

THE BRITE SIDE OF TRPV1: NOVEL ROLE IN BROWNING OF WHITE ADIPOCYTES. **Padmamalini Baskaran**, Vivek Krishnan, Kevin Fettel, Baskaran Thyagarajan

**Ligand-gated Channels I (Boards B380-B409)**

**1429-Pos BOARD B380**

PROTONS POTENTIATE GLUN1/GLUN3A GLYCINERGIC NMDA RECEPTOR CURRENTS. **Kirstie A. Cummings**, Gabriela K. Popescu



- 1430-Pos BOARD B381**  
INVESTIGATIONS OF THE STRUCTURAL MECHANISM OF MODULATION OF THE NMDA RECEPTOR. **Rita E. Sirrieh**, David M. MacLean, Vasanthi Jayaraman
- 1431-Pos BOARD B382**  
EFFECTS OF EXTERNAL AND INTERNAL  $Ca^{2+}$  ON UNITARY NMDA RECEPTOR PROPERTIES. **Gary J. Iacobucci**, Bruce A. Maki, Gabriela K. Popescu
- 1432-Pos BOARD B383**  
NMDA RECEPTOR SMFRET STUDIES REVEAL ROLE OF DYNAMICS OF THE AGONIST-BINDING DOMAIN IN MEDIATING AGONIST EFFICACY. **Drew M. Dolino**, David R. Cooper, Swarna S. Ramaswamy, Henriette Jaurich, Christy F. Landes, Vasanthi Jayaraman
- 1433-Pos BOARD B384**  
REDUCED CURVATURE OF LIGAND-BINDING DOMAIN FREE ENERGY SURFACE UNDERLIES PARTIAL AGONISM AT NMDA RECEPTORS. **Jian Dai**, Huan-Xiang Zhou
- 1434-Pos BOARD B385**  
MEASUREMENT OF NR1/NR2B NMDA RECEPTOR CURRENTS ON A MICROFLUIDIC BENCHTOP AUTOMATED ELECTROPHYSIOLOGY PLATFORM. Jeffrey Webber, Craig McKay, **James Costantin**, Peter Miu
- 1435-Pos BOARD B386**  
THE STRUCTURAL BASIS OF NEGATIVE COOPERATIVITY BETWEEN SUBUNITS OF THE NMDA RECEPTOR. **David M. MacLean**, Vasanthi Jayaraman
- 1436-Pos BOARD B387**  
SIMULATED CLOSING OF THE NMDA LIGAND-BINDING DOMAIN. **Timothy S. Carpenter**, Felice C. Lightstone
- 1437-Pos BOARD B388**  
EFFECT OF PHOSPHORYLATION ON STRUCTURE OF C-TERMINAL SEGMENT OF AMPA RECEPTOR. **Caitlin E. Nurik**, David R. Cooper, Swarna S. Ramaswamy, Vasanthi Jayaraman
- 1438-Pos BOARD B389**  
CHARACTERIZATION OF A "HOTSPOT" IN THE AMPA RECEPTOR ACTIVATION PATHWAY. **George B. Dawe**, Maria Musgaard, Mark R. Arousseau, Philip C. Biggin, Derek Bowie
- 1439-Pos BOARD B390**  
DYNAMICS OF THE CYTOPLASMIC REGION OF AN AMPA-SUBTYPE GLUTAMATE RECEPTOR REVEALED BY STATE DEPENDENT FRET. **Ljudmila Katchan**, Linda G. Zachariassen, Anders S. Kristensen, Andrew J R Plested
- 1440-Pos BOARD B391**  
PARTIAL AGONIST BINDING REVEALS A UNIQUE ARRANGEMENT OF AMPA LBDS. **Hector P. Salazar Garcia**, Clarissa Ebli, Miriam Chebli, Andrew Plested
- 1441-Pos BOARD B392**  
STRUCTURAL MECHANISM OF GLUTAMATE RECEPTOR ACTIVATION AND DESENSITIZATION. **Joel R. Meyerson**, Janesh Kumar, Sagar Chittori, Prashant Rao, Jason Pierson, Alberto Bartesaghi, Mark L. Mayer, Sriram Subramaniam
- 1442-Pos BOARD B393**  
LONG TIMESCALE SIMULATIONS OF LIGAND BINDING IN GLUTAMATE RECEPTORS. **Alvin Yu**, Albert Lau
- 1443-Pos BOARD B394**  
CAN ACTIVATION AND DESENSITIZATION PROPERTIES OF IGLURS BE PREDICTED AND UNDERSTOOD BY STUDYING THE LBD DIMER DYNAMICS? **Maria Musgaard**, Bryan Daniels, George B. Dawe, Mark Arousseau, Derek Bowie, Philip C. Biggin
- 1444-Pos BOARD B395**  
FREE ENERGY LANDSCAPES FOR A KAINATE RECEPTOR LIGAND-BINDING DOMAIN. **Tyler J. Wied**, Albert Y. Lau
- 1445-Pos BOARD B396**  
FUNCTIONAL COUPLING BETWEEN THE FINGER AND THUMB DOMAINS OF ASIC1A. **Aram J. Krauson**, Marcelo D. Carattino
- 1446-Pos BOARD B397**  
GATING MECHANISM AND MOVEMENTS IN ACID SENSING ION CHANNEL 1A. **Swarna S. Ramaswamy**, David MacLean, Hugo Sanabria, Vasanthi Jayaraman
- 1447-Pos BOARD B398**  
CONTROLLED ACTIVATION OF HETEROMERIC P2X RECEPTORS BY ATP AND MAGNESIUM. **Emily Harnish**
- 1448-Pos BOARD B399**  
QUANTITATIVE MEASURE OF  $Ca^{2+}$  CURRENT AND PERMEABILITY IN ATP-GATED P2X7 RECEPTORS. **Xin Liang**, Damien S.K. Samways, Terrance M. Egan
- 1449-Pos BOARD B400**  
ION ACCUMULATION AND DEPLETION IN PATCH CLAMP EXPERIMENTS. **Gilman E. S. Toombes**, Mufeng Li, Shai D. Silberberg, Kenton J. Swartz
- 1450-Pos BOARD B401 EDUCATION TRAVEL AWARDEE**  
HEXADECANOL REVERSES ETHANOL INDUCED TADPOLE ANESTHESIA AND RAISES CRITICAL TEMPERATURES IN ISOLATED PLASMA MEMBRANE VESICLES. **Ellyn J. Gray**, Ann L. Miller, Benjamin B. Machta, Sarah L. Veatch
- 1451-Pos BOARD B402**  
IL-4 TYPE 1 RECEPTOR SIGNALING UP-REGULATES *KCNV4* EXPRESSION, AND INCREASES THE  $K_{Ca,3.1}$  CURRENT AND ITS CONTRIBUTION TO MIGRATION OF ALTERNATIVE-ACTIVATED MICROGLIA. Lyanne Schlichter, **Roger Ferreira**, Starlee Lively
- 1452-Pos BOARD B403**  
EQUILIBRIUM ION SELECTIVITY OF HUMAN TPC2 STUDIED USING A PLASMA MEMBRANE-TARGETED HUMAN TPC2 AND SPERMINE BLOCK. **Andy K. M. Lam**, Antony Galione
- 1453-Pos BOARD B404**  
MECHANISMS OF ACTIVATION OF SLO2.1 CHANNELS BY INTRACELLULAR  $Na^+$ . **Steven J. Thomson**, Michael C. Sanguinetti
- 1454-Pos BOARD B405**  
ELECTROPHYSIOLOGICAL CHARACTERIZATION OF TMEM16A. **Andrea Bruggemann**, Markus Rapedius, Tom Götze, Claudia Haarmann, Ilka Rinke, Marius Vogel, Timo Stengel, Johannes Stiehler, Michael George, Niels Fertig, Torsten Ertongur-Fauth
- 1455-Pos BOARD B406**  
PHOTODYNAMIC MODIFICATION OF SEA URCHIN SPHCN CHANNEL. **Vinay Kumar Idikuda**, Weihua Gao, Zhuocheng (Justin) Su, Lei Zhou



**1456-Pos BOARD B407**

STUDYING THE INFLUENCE OF THE SUBUNIT ARRANGEMENT ON THE FUNCTION OF HETEROTETRAMERIC OLFACTORY CNG CHANNELS.

**Jana Schirmeyer**, Vasilica Nache, Gunter Ehrlich, Thomas Zimmer, Klaus Benndorf

**1457-Pos BOARD B408**

EFFECT OF LIGAND BINDING TO THE B1B SUBUNIT OF OLFACTORY CNG CHANNELS.

**Vasilica Nache**, Nisa Wongsamitkul, Thomas Zimmer, Klaus Benndorf

**1458-Pos BOARD B409 EDUCATION TRAVEL AWARDEE**

EXPLORATIONS OF LIPID EFFECTS IN CYCLIC NUCLEOTIDE-GATED ION CHANNELS USING A NANODISC PLATFORM.

**Alexis Jaramillo Cartagena**, Crina Nimigean, Julia Kowal, Henning Stahlberg

**Cardiac Muscle Mechanics and Structure I (Boards B410-B430)**

**1459-Pos BOARD B410**

SELECTIVE ALPHA7 NICOTINIC RECEPTOR AGONIST INCREASES CARDIAC FUNCTION IN ISOLATED MOUSE HEARTS BY A NON-NICOTINIC MECHANISM.

**Cyrus G. Takahashi**, Pooja Jagadish, Ashwin Jagadish, John P. Toscano, Nazareno Paolocci, Donald B. Hoover

**1460-Pos BOARD B411**

LIFE-LONG TREATMENT WITH LATE SODIUM CURRENT BLOCKER REDUCES MYOCARDIAL DYSFUNCTION AND REMODELING IN A MOUSE MODEL OF HYPERTROPHIC CARDIOMYOPATHY.

**Francesca Gentile**, Raffaele Coppini, Cecilia Ferrantini, Luca Mazzoni, Manuel J Pioner, Benedetta Tosi, Beatrice Scellini, Alessandro Mugelli, Elisabetta Cerbai, Jill Tardif, Chiara Tesi, Corrado Poggesi

**1461-Pos BOARD B412**

STAGE-DEPENDENT BENEFITS AND RISKS OF PIMOBENDAN IN GENETIC DILATED CARDIOMYOPATHY MICE WITH PROGRESSIVE HEART FAILURE.

**Miki Nonaka**, Takashi Murayama, Nagomi Kurebyashi, Lei Li, Yuan-Yuan Wang, Sachio Morimoto

**1462-Pos BOARD B413**

SAXAGLIPTIN PRESERVES CARDIOMYOCYTE FUNCTION AND MORPHOLOGY IN AORTIC-BANDED MINI-SWINE.

**Jessica A. Hiemstra**, Dong I. Lee, Ann K. Gibson, Melissa S. Cobb, Craig A. Emter, Timothy L. Domeier

**1463-Pos BOARD B414**

DIRECT CARDIOTONIC ACTION OF QUERCETIN, A PLANT FLAVONOID, THROUGH MECHANISM INDEPENDENT OF ITS ANTI-OXIDATIVE ACTION.

**Kengo Hayamizu**, Miki Nonaka, Toshihiro Noma, Toshiyuki Sasaguri, Sachio Morimoto

**1464-Pos BOARD B415**

DCM MUTATION *ACTC361G* CAUSES UNCOUPLING OF MYOFIBRIL SENSITIVITY FROM TNI PHOSPHORYLATION THAT CAN BE REVERSED BY EPIGALLOCATHECHIN-3-GALLATE.

**Petr G. Vikhorev**, Weihua Song, Ross Wilkinson, O'Neal Copeland, Michael A. Ferenczi, Steven B. Marston

**1465-Pos BOARD B416**

OBSCURIN MUTATIONS CAUSE HAPLOINSUFFICIENCY AND ARE COMMON IN PATIENTS WITH FAMILIAL DILATED CARDIOMYOPATHY (FDCM).

**Steven Marston**, Ralph Knoll, Cristobal dos Remedios, Alex Munster, O'Neal Copeland, Cecile Montgiraud

**1466-Pos BOARD B417**

DIFFERENTIAL INVOLVEMENT OF VARIOUS SOURCES OF REACTIVE OXYGEN SPECIES IN THYROXIN-INDUCED HEMODYNAMIC CHANGES AND CONTRACTILE DYSFUNCTION OF THE HEART AND DIAPHRAGM MUSCLES.

**Mohammad T. Elnakish**, Eric J. Schultz, Rachel L. Gearing, Nancy S. Saad, Neha Rastogi, Amany A. E. Ahmed, Peter J. Mohler, Paul M.L. Janssen

**1467-Pos BOARD B418**

MECHANICAL EFFECTS OF LATE NA-CURRENT BLOCKERS IN HUMAN HYPERTROPHIC CARDIOMYOPATHY MYOCARDIUM.

**Cecilia Ferrantini**, Raffaele Coppini, Manuel J. Pioner, Gentile Francesca, Tosi Benedetta, Luca Mazzoni, Luiz Belardinelli, Chiara Tesi, Elisabetta Cerbai, Alessandro Mugelli, Corrado Poggesi

**1468-Pos BOARD B419**

MYOCARDIAL DYSFUNCTION IN HYPERTROPHIC CARDIOMYOPATHY: PRIMARY EFFECTS OF SARCOMERIC MUTATIONS VERSUS SECONDARY EC-COUPLING

MODELLING. **Raffaele Coppini**, Cecilia Ferrantini, Francesca Gentile, Luca Mazzoni, Benedetta Tosi, Manuel J. Pioner, Beatrice Scellini, Nicoletta Piroddi, Jill C. Tardiff, Chiara Tesi, Elisabetta Cerbai, Corrado Poggesi

**1469-Pos BOARD B420**

R21C MUTATION IN CARDIAC TROPONIN I IMPOSES DIFFERENCES IN THE DEGREE OF ORDER AND KINETICS OF MYOSIN CROSS-BRIDGES OF LEFT AND RIGHT VENTRICLES.

**Divya Duggal**, Janhavi Nagwekar, Ryan Rich, Sangram Raut, Rafal Fudala, Hriday Das, Zygmunt Gryczynski, Ignacy Gryczynski, Julian Borejdo

**1470-Pos BOARD B421**

SPATIAL DISTRIBUTION OF ACTIN AND MECHANICAL CYCLE OF MYOSIN ARE DIFFERENT IN RIGHT AND LEFT VENTRICLES OF HEALTHY MOUSE HEARTS.

**Janhavi Nagwekar**, Divya Duggal, Ryan Rich, Sangram Raut, Rafal Fudala, Ignacy Gryczynski, Zygmunt Gryczynski, Julian Borejdo

**1471-Pos BOARD B422**

UPREGULATION OF  $\alpha 1A$ -SUBTYPE ADRENERGIC SIGNALING IS BENEFICIAL IN FAILING RIGHT VENTRICLE (RV).

**Patrick M. Cowley**, Guanying Wang, Audrey N. Chang, David H. Lovett, James T. Stull, Paul C. Simpson, Anthony J. Baker

**1472-Pos BOARD B423**

WORKLOOP CONTRACTIONS IN ISOLATED CARDIAC MYOCYTES REFLECT IN VIVO PRESSURE-VOLUME DYSFUNCTION IN RAT RIGHT HEART FAILURE.

**Ewan D. Fowler**, Mark J. Drinkhill, Rob C. Wust, Michiel Helmes, Ger J.M. Stienen, Derek S. Steele, Ed White

**1473-Pos BOARD B424**

USING OPTICAL COHERENCE TOMOGRAPHY TO MEASURE DYNAMIC CHANGES IN THE GEOMETRY OF ISOLATED CARDIAC TRABECULAE DURING A TWITCH.

**Ming L. Cheuk**, Alexander J. Anderson, June-Chiew Han, Bryan P. Ruddy, Marie-Louise Ward, Denis S. Loiselle, Poul M. F. Nielsen, Andrew J. Taberner

**1474-Pos BOARD B425**

SYNCHRONIZATION MODEL OF SARCOMERES IN CONTRACTING CARDIOMYOCYTES.

**Virginijus Barzda**, Nicole Prent, Masood Samim, Sara Wegener, Richard Cisek

**1475-Pos BOARD B426**

THE POWER OUTPUT OF INTACT, ISOLATED RAT CARDIOMYOCYTES. **Michiel Helmes**, Aref Najafi, Jolanda van der Velden

**1476-Pos BOARD B427**

STORAGE USING BDM OR BLEBBISTATIN PRESERVES FUNCTIONAL MEASURES OF UNLOADED CARDIOMYOCYTES. **Charles S. Chung**, Charles Mechas, Kenneth S. Campbell

**1477-Pos BOARD B428**

RAPID, HIGH EFFICIENCY PURIFICATION OF MYOFILAMENT PROTEINS USING TOBACCO ETCH VIRUS PROTEASE. **Mengjie Zhang**, Jody L. Martin, Pieter P. De Tombe, Ramzi J. Khairallah

**1478-Pos BOARD B429**

STRUCTURAL EFFECTS OF CARDIAC TROPONIN T R92L AND TROPOMYOSIN D230N MUTANTS IN THE CARDIAC THIN FILAMENT. **Mark T. McConnell**, Lauren Grinspan, Jil Tardiff

**1479-Pos BOARD B430**

CONTRACTILE PROPERTIES OF MYOFIBRILS FROM HIPSC-DERIVED CARDIOMYOCYTES OF PATIENTS WITH DUCHENNE MUSCULAR DYSTROPHY. **José Manuel Pioner**, Alice Ward Racca, Xuan Guan, Lil Pabon, Mark Y. Jeong, Christian I. Childers, Jesse Macadangdang, Veronica Muskheli, Corrado Poggesi, Deok-Ho Kim, David L. Mack, Martin K. Childers, Charles E. Murry, Michael Regnier

## Smooth Muscle Mechanics, Structure, and Regulation (Boards B431-B436)

**1480-Pos BOARD B431**

AFM REVEALS AGE-DEPENDENT MICROMECHANICAL DEGRADATION OF CARDIOPULMONARY TISSUES IN A MOUSE MODEL OF MARFAN SYNDROME. **Jia-Jye Lee**, Satish Rao, Josephine Galatioto, Francesco Ramirez, Kevin D. Costa

**1481-Pos BOARD B432**

BRONCHIAL BUT NOT TRACHEAL SMOOTH MUSCLE IS HYPERCONTRACTILE IN AN EQUINE MODEL OF SEVERE ASTHMA. **Oleg S. Matusovsky**, Linda Kachmar, Gijs Ijgma, Nedjma Zitouni, Genevieve Bates, Jean-Pierre Lavoie, Anne-Marie Lauzon

**1482-Pos BOARD B433**

REDEFINING THE LATCH-STATE IN HUMAN AIRWAY SMOOTH MUSCLE. **Gijs Ijgma**, Linda Kachmar, Anne-Marie Lauzon

**1483-Pos BOARD B434**

KINETIC CHARACTERIZATION OF STABILIZED SMOOTH MUSCLE MYOSIN FILAMENTS. **Brian D. Haldeman**, Christine Cremona, Josh Baker

**1484-Pos BOARD B435**

VARYING THE NUMBER OF HEADS IN PHOSPHORYLATED SMOOTH MUSCLE MYOSIN FILAMENTS PROVIDES EVIDENCE FOR ATTACHMENT LIMITED KINETICS OF IN VITRO ACTIN-SLIDING VELOCITIES. **Richard Brizendine**, Diego Alcalá, Brian Haldeman, Kevin Facemyer, Josh Baker, Christine Cremona

**1485-Pos BOARD B436**

THE STRUCTURE OF THE ACTIN-SMOOTH MUSCLE MYOSIN II COMPLEX IN THE RIGOR STATE. **Zhong Huang**

## Actin Structure, Dynamics, and Associated Proteins (Boards B437-B454)

**1486-Pos BOARD B437**

ROLE OF H2 CALPONIN IN MYOBLAST DIFFERENTIATION, FUSION AND MYOGENESIS. **Bin Wei**, J.-P. Jin

**1487-Pos BOARD B438 CPOW MID-CAREER TRAVEL AWARDEE**

PALLADIN NUCLEATES ACTIN ASSEMBLY AND REGULATES CYTOSKELETON ARCHITECTURE. Ritu Gurung, Ravi Vattepu, Rahul Yadav, **Moriah R. Beck**

**1488-Pos BOARD B439**

UNRAVELING THE MYSTERY OF ATP HYDROLYSIS IN ACTIN FILAMENTS. **Martin McCullagh**, Marissa G. Saunders, Gregory A. Voth

**1489-Pos BOARD B440**

ACTIN TROPOMYOSIN ASSEMBLY INTERMEDIATES. **Peyman Obeidy**, Thomas L. Sobey, Elvis Pandzic, Philip R. Nicovich, Adelle Coster, Peter Gunning, Till Böcking

**1490-Pos BOARD B441**

TENSION AND CONSTRICTION OF THE CYTOKINETIC CONTRACTILE RING DEPEND ON ANCHORING OF RING COMPONENTS TO THE PLASMA MEMBRANE. **Shuyuan Wang**, Ben O'Shaughnessy

**1491-Pos BOARD B442**

MICRORHEOLOGY OF IN-VITRO ACTO-MYOSIN NETWORKS IN STEADY STATE. **Adar Sonn-Segev**

**1492-Pos BOARD B443**

COUPLING ARP2/3 COMPLEX-MEDIATED ACTIN BRANCHING AND MEMBRANE DEFORMATION BY THE EXOCYST COMPONENT EXO70. **Wei Guo**

**1493-Pos BOARD B444**

COARSE-GRAINED SIMULATIONS REVEAL MECHANISMS OF FISSION YEAST CYTOKINESIS. **Lam T. Nguyen**, Matthew T. Swulius, Mithilesh Mishra, Grant J. Jensen

**1494-Pos BOARD B445**

ACTIN MACROMOLECULES AND BUNDLES IN CELL-SIZED CONFINEMENT: FROM COLLECTIVE BEHAVIOR TO EMERGING NETWORKS. Siddharth Deshpande, Zoe Swank, **Thomas Pfohl**

**1495-Pos BOARD B446**

F-ACTIN HAS SLOW DYNAMICS AND CONCERTED MOVEMENT AS INDICATED BY H/D EXCHANGE RATE MAPPING. Devanand Kowlessur, **Larry S. Tobacman**

**1496-Pos BOARD B447**

CHARACTERIZATION AND STABILIZATION OF FASCIN-BUNDLED ACTIN FILAMENTS TRANSPORTED BY HEAVY MEROMYOSIN. **Hideyo Takatsuki**, Alf Månsson

**1497-Pos BOARD B448**

CRYO-EM OF ONE STATE OF F-ACTIN YIELDS A NEW ATOMIC FILAMENT MODEL. Vitold E. Galkin, **Albina Orlova**, Gunnar Schroder, Edward H. Egelman

**1498-Pos BOARD B449**

MECHANISMS OF FRNK INHIBITION OF FAK IN VASCULAR SMOOTH MUSCLE CELLS. **Taylor J. Zak**, Allan Samarel, Seth Robia

**1499-Pos BOARD B450**  
 ALTERED STRUCTURAL STATE OF ACTIN FILAMENTS UPON MYOSIN II BINDING. **Elina Bengtsson**, Malin Persson, Saroj Kumar, Alf Månsson

**1500-Pos BOARD B451**  
 PHOSPHOMIMIC S3D COFILIN BINDS ACTIN FILAMENTS BUT DOES NOT SEVER THEM. **W. Austin Elam**, Hyeran Kang, Ewa Prochniewicz, Karina Nieves-Torres, David D. Thomas, Enrique M. De La Cruz

**1501-Pos BOARD B452**  
 PALLADIN'S IG4 MUTATION: EXPLORING THE LINK WITH PANCREATIC CANCER. **Stan Saiz**, Joseph Dille, Rahul Yadav, Moriah Beck

**1502-Pos BOARD B453**  
 DYNAMIC ACTOMYOSIN NETWORK MORPHOLOGY IN 3D MODEL OF CYTOKINETIC RING ASSEMBLY. **Tamara C. Bidone**, Haosu Tang, Dimitrios Vavylonis

**1503-Pos BOARD B454**  
 HUMAN TUMOR-ASSOCIATED FIBROBLASTS CAN SENSE THE TOPOGRAPHY OF THEIR ENVIRONMENT. **Mikheil Azatov**, Xiaoyu Sun, John Fourkas, Carol Otey, Arpita Upadhyaya

### Myosins (Boards B455-B472)

**1504-Pos BOARD B455**  
 MACROMOLECULAR CROWDING INCREASES CROSS-BRIDGE PERFORMANCE VIA REDUCTION OF ADP AFFINITY TO ACTO-MYOSIN. **Jinghua Ge**, Sherry Bouriyaphon, **Yuri E. Nesmelov**

**1505-Pos BOARD B456 EDUCATION TRAVEL AWARDEE**  
 MACROMOLECULAR CROWDING MODULATES CROSS-BRIDGE PERFORMANCE. **Jinghua Ge**, Sherry D. Bouriyaphone, Yuri E. Nesmelov

**1506-Pos BOARD B457**  
 MUTATING THE SH1 HELIX REGION OF DICTYOSTELIUM MYOSIN II IMPAIRS MOTILE ACTIVITIES AND THERMAL STABILITY. **Kotomi Shibata**

**1507-Pos BOARD B458**  
 A MYOSIN II FRET-BASED BIOSENSOR EXPRESSED IN DICTYOSTELIUM. **Jared G. Matzke**, David D. Thomas, Karl J. Petersen, Joseph M. Muretta, Margaret A. Titus

**1508-Pos BOARD B459**  
 THE INHIBITED, INTERACTING-HEADS MOTIF CHARACTERIZES MYOSIN II FROM THE EARLIEST ANIMALS WITH MUSCLES. **Guidenn Sulbarán**, Ji Young Mun, Kyoung Hwan Lee, Lorenzo Alamo, Antonio Pinto, Osamu Sato, Mitsuo Ikebe, Xiong Liu, Edward D. Korn, Raúl Padrón, **Roger Craig**

**1509-Pos BOARD B460**  
 DETECTION OF ULTRAFAST MECHANICAL TRANSITIONS IN B-CARDIAC MYOSIN USING HIGH-SPEED OPTICAL TRAPPING. **Michael S. Woody**, Marco Capitanio, E. Michael Ostap, Yale E. Goldman

**1510-Pos BOARD B461**  
 CONVERTER MUTATION DISRUPTS LEVER ARM ROTATION IN MYOSIN V. **Anja M. Swenson**, Darshan V. Trivedi, **Christopher M. Yengo**

**1511-Pos BOARD B462**  
 MYOSIN STEPS SYMMETRICALLY ALONG ACTIN. **Jaime Ortega Arroyo**, Joanna Andrecka, Gabrielle de Wit, Yasuharu Takagi, James R. Sellers, Philipp Kukura

**1512-Pos BOARD B463**  
 MYOSIN-5 AND MYOSIN-6 DIFFERENTIALLY DETECT ACTIN FILAMENT AGE. **Dennis Zimmermann**, Alicja Janik, David Kovar, **Ronald Rock**

**1513-Pos BOARD B464**  
 ADAPTER PROTEINS ACTIVATE MYOSIN-VA DURING CARGO TRANSPORT. **M. Yusuf Ali**, Elena Kremtsova, Maria Scholnick, David M. Warsaw, Kathleen M. Trybus

**1514-Pos BOARD B465**  
 ACTIVATION OF DROSOPHILA MELANOGASTER MYOSIN-5 MOTOR FUNCTION BY CALCIUM AND CARGO-BINDING PROTEIN. **Huan-Hong Ji**, Hai-Man Zhang, Mei Shen, Xiang-dong Li

**1515-Pos BOARD B466**  
 14-3-3 PROTEINS TUNE NON-MUSCLE MYOSIN-II ASSEMBLY, PROVIDING A POSSIBLE BRIDGE BETWEEN CELL MECHANICS AND CANCER METASTASIS. **Hoku West-Foyle**, Jonathan Osborne, Douglas Robinson

**1516-Pos BOARD B467**  
 FILOPOD EXTENSION REQUIRES MYTH4-FERM MYOSIN MOTOR ACTIVITY. **Karl J. Petersen**, G.W. Gant Luxton, Margaret A. Titus

**1517-Pos BOARD B468**  
 MYOSIN 19 IS ANCHORED TO THE MITOCHONDRIA, AFFECTING ITS LOCALIZATION AND MORPHOLOGY. **Boris Shneyer**, Marko Usaj, Arnon Henn

**1518-Pos BOARD B469**  
 IN VIVO AND IN VITRO STUDIES OF MYOSIN-XXI DYNAMICS. **Constanze Helbig**, Christopher Batters, Beate Averbeck, Claudia Veigel

**1519-Pos BOARD B470**  
 THE R249Q AND R146N HYPERTROPHIC CARDIOMYOPATHY MYOSIN MUTATIONS DECREASE MUSCLE FORCE AND POWER GENERATION. **Kaylyn Bell**, William A. Kronert, Sanford I. Bernstein, Douglas M. Swank

**1520-Pos BOARD B471**  
 A DROSOPHILA MODEL OF MYOSIN-BASED INCLUSION BODY MYOPATHY TYPE 3: EFFECTS ON MUSCLE STRUCTURE, MUSCLE FUNCTION AND AGGREGATED PROTEIN PROFILES. **Jennifer A. Suggs**, Girish C. Melkani, Anju Melkani, Eric P. Ratliff, D Brian Foster, **Sanford I. Bernstein**

**1521-Pos BOARD B472**  
 FUNCTIONAL ANALYSIS OF FREEMAN-SHELDON SYNDROME CAUSING MUTATIONS ON EMBRYONIC MYOSIN. **Carlos Vera Velazquez**, Jonathan Walklate, Jonathan Deacon, Michael A. Geeves, Leslie A. Leinwand

### Cell Mechanics, Mechanosensing, and Motility II (Boards B473-B490)

**1522-Pos BOARD B473**  
 COMPARISON OF STOCHASTIC SIMULATION METHODS IN MECHANOBIOLOGY. **Sarita Koride**, Sean X. Sun



**1523-Pos BOARD B474**  
CELL MECHANO-SENSING VIA ACTOMYOSIN CONTRACTILITY. **Taeyoon Kim**

**1524-Pos BOARD B475**  
MOLECULAR COUNTING IN TRACTION FORCE MICROSCOPY. **Rolf Harkes**, Hayri E. Balcioglu, Erik HJ Danen, Thomas Schmidt

**1525-Pos BOARD B476**  
THE LEVEL OF SUBSTRATE DEFORMATION AND NOT TRACTION FORCE REGULATES ADHESION-MEDIATED NEURONAL GROWTH CONE ADVANCE. **Ahmad I. M. Athamneh**, Alexander X. Cartagena-Rivera, Arvind Raman, Daniel M. Suter

**1526-Pos BOARD B477**  
MALIGNANT MELANOMA CELLS ASSEMBLE A TUMOR BIOFILM THAT PROMOTES SURVIVAL AND RESISTANCE IN RESPONSE TO EXTERNAL STRESSES. **Anna Afasizheva**, Yorihiisa Kotobuki, Heather Tillman, Wilfred Vieira, King Leung Fung, Emily Chen, Kandice Tanner

**1527-Pos BOARD B478**  
PROBING CELLULAR MECHANO-SENSITIVITY USING BIOMEMBRANE-MIMICKING CELL SUBSTRATES OF ADJUSTABLE STIFFNESS. **Yu-Hung Lin**, Yifan Ge, Lena Lautscham, Wolfgang H. Goldmann, Ben Fabry, Christoph A. Naumann

**1528-Pos BOARD B479**  
NEXT GENERATION MECHANOPHORES FOR UNRAVELING THE ROLE OF INTEGRIN TENSION IN FOCAL ADHESION ASSEMBLY. **Khalid Salaita**

**1529-Pos BOARD B480**  
VISUALIZING THE INTERIOR ARCHITECTURE OF FOCAL ADHESIONS WITH HIGH-RESOLUTION TRACTION MAPS. **Masatoshi Morimatsu**, Armen H. Mekhdjian, Alice C. Chang, Steven J. Tan, Alexander R. Dunn

**1530-Pos BOARD B481**  
FINITE ELEMENT MODELING OF CELL TRACTION. **Ghaidan Shamsan**, David J. Odde

**1531-Pos BOARD B482**  
EFFECT OF SUBSTRATE STIFFNESS ON INTEGRIN-LIGAND BINDING STRENGTH. **Gawain Thomas**, Qi Wen

**1532-Pos BOARD B483**  
ACTIVE ELASTIC DIMERS: CELLS MOVING ON RIGID TRACKS. **J. M. Schwarz**, J. H. Lopez, Moumita Das

**1533-Pos BOARD B484**  
UNDERSTANDING THE ROLE OF SUBSTRATE ELASTICITY ON INTRACELLULAR STRESSES DURING CELL SPREADING. **Magdalena Stolarska**, Ahmad Zoubi, Aravind Rammohan

**1534-Pos BOARD B485**  
MEASURING THREE-DIMENSIONAL TRACTION FORCE OF MESENCHYMAL STEM CELLS ON A TWO-DIMENSIONAL COMPLIANT SUBSTRATE BY THE FINITE ELEMENT METHOD. Hung-huei Lee, Hsuan Yang, Yu-chi Ai, **Keng-hui Lin**, Jia-yang Juang

**1535-Pos BOARD B486**  
SUBSTRATE STIFFNESS REGULATES THE BEHAVIOR OF HUMAN MONOCYTE-DERIVED MACROPHAGES. Heather N. Hayenga, **Katrina Adlerz**, Helim Aranda-Espinoza

**1536-Pos BOARD B487**  
THE EFFECT OF P-SELECTIN DIMERS ON NEUTROPHIL ROLLING ON ENDOTHELIUM. **Alex C. Szatmary**

**1537-Pos BOARD B488**  
THREE-DIMENSIONAL TRACTION FORCES EXERTED BY FILOPODIA AND MEMBRANE PROTRUSIONS DRIVE NEUTROPHIL INVASION. **Yi-Ting Yeh**, Ricardo Serrano, Juan C. del Alamo, Juan C. Lasheras

**1538-Pos BOARD B489**  
MULTICELLULAR REGULATION OF TENSIONAL HOMEOSTASIS. Elizabeth P. Canovic, Sze Nok Tam, Alicia Zollinger, Michael L. Smith, **Dimitrije Stamenovic**

**1539-Pos BOARD B490**  
THREE-DIMENSIONAL FOURIER MONOLAYER STRESS MICROSCOPY. **Ricardo Serrano**, Aereas Aung, Shyni Varghese, Juan Carlos Del Alamo

## Membrane Pumps, Transporters, and Exchangers II (Boards B491-B513)

**1540-Pos BOARD B491**  
SINGLE MOLECULE IMAGING REVEALS THE FUNCTIONAL ROLE OF THE  $\text{Na}^+/\text{H}^+$  EXCHANGER-3 OLIGOMERIZATION. **Victor Babich**, Komal Vadnagara, Gregory I. Mashanov, Francesca Di Sole

**1541-Pos BOARD B492**  
THE  $\text{Na}^+/\text{H}^+$  EXCHANGER NHE6 LINKS ENDOSOMAL PH TO AMYLOID PATHOLOGIES IN ALZHEIMER'S DISEASE. **Hari Prasad**, Nir Ben-Tal, Rajini Rao

**1542-Pos BOARD B493**  
A NOVEL APPROACH TO ANALYZING BINDING DATA FROM  $\text{Na}^+$  DRIVEN TRANSPORTERS: BEYOND NON-INTEGGER HILL COEFFICIENTS. **Silvia Ravera**, Matthias Quick, Juan P. Nicola, Nancy Carrasco, Mario L. Amzel

**1543-Pos BOARD B494 CPOW TRAVEL AWARDEE**  
CRYSTAL STRUCTURES OF TRANSLOCATOR PROTEIN 18 KDA (TSPO) AND IDENTIFICATION OF A CHOLESTEROL BINDING ENHANCEMENT MOTIF. **Fei Li**, Jian Liu, Carrie Hiser, Lance Valls, Michael Garavito, Shelagh Ferguson-Miller

**1544-Pos BOARD B495**  
CHARACTERIZATION OF THE SODIUM IODIDE SYMPORTER BINDING SITES. **Igor Zdravkovic**, Patrycja J. Lech, Stephen J. Russell, Sergei Y. Noskov

**1545-Pos BOARD B496**  
EFFECT OF MUTATIONS ON TRANSPORT BY THE SODIUM/IODIDE SYMPORTER (NIS). **Yuly E. Sanchez**, L. Mario Amzel, Nancy Carrasco, Juan Pablo Nicola, Giuseppe Ferrandino

**1546-Pos BOARD B497**  
TOWARDS THE MECHANISM OF SODIUM/PROTON ANTIPTORTER IN E. COLI. **Yandong Huang**, Jana Shen

**1547-Pos BOARD B498**  
THE MOLECULAR BASIS FOR SUBSTRATE SPECIFICITY IN LACTOSE PERMEASE. **Magnus Andersson**, Erik Lindahl, Stephen H. White, Ronald H. Kaback

**1548-Pos BOARD B499**  
DEFINING THE CONFORMATIONAL STATES IN AN MFS TRANSPORTER, FUCP. **Jo Lee**, Philip C. Biggin



**1549-Pos BOARD B500 EDUCATION TRAVEL AWARDEE**  
 THE HUMAN PROTON-COUPLED FOLATE TRANSPORTER: DETERMINATION OF CONFORMATION AND IDENTIFICATION OF THE FOLATE-BINDING POCKET. **Swapneeta Date**, Cheng-Yen Charles Chen, Yidong Chen, Michaela Jansen

**1550-Pos BOARD B501**  
 WHICH FREE ENERGY METHODS CAN PREDICT TRANSPORT BY PROTON-DEPENDENT OLIGOPEPTIDE SYMPORTERS? **M. Firdaus Samsudin**, Nicolae Solcan, Simon Newstead, Mark S. P. Sansom, Philip W. Fowler

**1551-Pos BOARD B502**  
 MECHANISTIC DETAILS OF DRUG TRANSLOCATION IN MEXAB-OPRM EFFLUX PUMP. **Cesar A. Lopez Bautista**, Joshua Phillips, S. Gnanakaran

**1552-Pos BOARD B503**  
 PROTON-DRIVEN MOLECULAR RATCHET ITERATIVELY ACTIVATED BY MICROFLUIDICS. **En-Hsin Lee**, Matthew A. Holden

**1553-Pos BOARD B504**  
 PHYSICAL PICTURE FOR FUNCTIONALLY ROTATING MECHANISM OF THE MULTIDRUG EFFLUX TRANSPORTER ACRB. Hirokazu Mishima, **Hiraku Oshima**, Satoshi Yasuda, Masahiro Kinoshita

**1554-Pos BOARD B505**  
 MOLECULAR PHYSIOLOGY OF UNCOUPLING PROTEINS IN THE CENTRAL NERVOUS SYSTEM: SELF-ASSOCIATION AND PROTON TRANSPORT. **Tuan Hoang**, Matthew D. Smith, Masoud Jelokhani-Niaraki

**1555-Pos BOARD B506**  
 QUERCETIN AFFECTS RESPIRATORY PARAMETERS IN WHOLE H9C2 CELLS BY ANT-DEPENDENT UNCOUPLING. **Aleksey Vladimirovich Zholobenko**, Martin Jaburek, Ange Mouithys-Mickalad, Didier Serteyn, Martin Modriansky

**1556-Pos BOARD B507**  
 IMPAIRED CELL SURFACE EXPRESSION OF ATP1A3 MUTATIONS ASSOCIATED WITH ALTERNATING HEMIPLEGIA OF CHILDHOOD. Christine Simmons, Kathryn Swoboda, Kevin Ess, **Alfred George**

**1557-Pos BOARD B508**  
 SIMULATING FREE RADICAL PRODUCTION FROM COMPLEX I. **Jason Bazil**, Venkat Pannala, Ranjan Dash, Daniel Beard

**1558-Pos BOARD B509**  
 PRELIMINARY CHARACTERIZATION OF VDAC3, AN ELUSIVE MEMBER OF THE OUTER MITOCHONDRIAL MEMBRANE PORE FAMILY. Simona Reina, Vanessa Checchetto, Francesca Guarino, Carlo Guardiani, Ramona Belfiore, Matteo Ceccarelli, Ildiko Szabo, **Vito De Pinto**

**1559-Pos BOARD B510**  
 MOLECULAR ORIGIN OF ION SELECTIVITY IN PHASEOLUS COCCINEUS MITOCHONDRIAL VDAC. Eva-Maria Krammer, Hayet Sadani, Martine Prévost, **Fabrice Homblé**

**1560-Pos BOARD B511**  
 INTRACELLULAR C1 AS A SIGNALING MOLECULE THAT POTENTLY REGULATES NA AND HCO<sub>3</sub> TRANSPORTERS. **Nikolay Shcheynikov**, Aran Son, Osamu Yamazaki, Shmuel Muallem, Ehud Ohana, Jeong Hee Hong, Ira Kurtz, Dong Min Shin

**1561-Pos BOARD B512**  
 SIRNA KNOCKDOWN OF CLC-7 PRODUCES A LYSOSOMAL PH INCREASE. Sara B. Lioi, **Mary R. Weston**, Joseph A. Mindell

**1562-Pos BOARD B513**  
 AN UN-BLEACHABLE YFP-BASED CHLORIDE SENSOR. **Sheng Zhong**, Dhasakumar Navaratnam, Joseph Santos-Sacchi

## Systems Biology and Disease (Boards B514-B530)

**1563-Pos BOARD B514**  
 HOW BAD IS IT DOC? THE VARYING PREDICTIONS OF ODE CANCER GROWTH MODELS. **Hope E. Murphy**, Hana Jaafari, Hana Dobrovolny

**1564-Pos BOARD B515**  
 SPATIAL ORGANIZATION OF RIBOSOME BIOGENESIS OF ESCHERICHIA COLI. **Cac T. Nguyen**, Thuy Ngo, Seongjin Park, Khan Cox, Taekjip Ha, Zaida A. Luthey-Schulten, Thomas E. Kuhlman

**1565-Pos BOARD B516**  
 SPATIAL SYMMETRY BREAKING DETERMINES SPIRAL WAVE ROTATION DIRECTION IN SIMPLIFIED CARDIAC SYSTEMS. **Thomas Quail**

**1566-Pos BOARD B517**  
 SIGNALING DELAYS PRECLUDE DEFECTS IN LATERAL INHIBITION PATTERNING. **David S. Glass**, Xiaofan Jin, Ingmar Riedel-Kruse

**1567-Pos BOARD B518**  
 MODELING EPITHELIAL-MESENCHYMAL TRANSITIONS IN METASTATIC CANCER. **Mingyang Lu**, Mohit Kumar Jolly, Samir M. Hannash, Herbert Levine, Jose N. Onuchic, Eshel Ben-Jacob

**1568-Pos BOARD B519**  
 THE DENSITY OF COMPETITORS IN A STRATIFIED ENVIRONMENT DETERMINES THE RELATIVE FITNESS OF BIOFILM STRUCTURES. **Vernita D. Gordon**, Kasper N. Kragh, Jaime B. Hutchison, Gavin Melaugh, Christopher A. Rodesney, Yasuhiko Irie, Steve Diggle, Rosalind J. Allen, Thomas Bjarnsholt

**1569-Pos BOARD B520**  
 HOW DO BACTERIAL GROWTH RATES RELATE TO EVOLUTIONARY FITNESS LANDSCAPES FOR ENERGY-EFFICIENCY? **Arijit Maitra**, Ken A. Dill

**1570-Pos BOARD B521**  
 MORUSIN FROM CORTEX MORI INHIBITS INVASIVE GROWTH IN HUMAN HEPATOMA SK-HEP1 CELLS. Tsui-Hwa Tseng, Fung-Jou Lu, Nai-Fang Chen, **Yean-Jang Lee**

**1571-Pos BOARD B522**  
 NOISE TREATMENT IN MODELS OF GENETIC SWITCHES. **Mahua Roy**, Elizabeth L. Read

**1572-Pos BOARD B523**  
 OPTIMIZING PROTEIN EXPRESSION LEVELS AS A FUNCTION OF NETWORK TOPOLOGY MINIMIZES NONFUNCTIONAL COMPLEX FORMATION. **David O. Holland**, Margaret E. Johnson

**1573-Pos BOARD B524**  
 DESIGNING STEM-CELL BASED ANTI-HIV THERAPIES USING MOLECULAR-DETAILED MULTISCALE MODELS. **Iraj Hosseini**, Feilim Mac Gabhann

**1574-Pos BOARD B525**  
DNA FLUORESCENCE PARAMETERS AND METHYLATION LEVELS OF GUT COMMENSAL ESCHERICHIA COLI FROM CROHN'S DISEASE PATIENTS. **Astghik Pepoyan**, Marine Balayan, Anahit Manvelyan, Seda Marutyan, Lia Minasbekyan, Karlen Hovnanyan, Vardan Tsaturyan

**1575-Pos BOARD B526**  
ISOLATION, FRAGMENTATION AND THE DETECTION OF LISTERIA DNA FROM GROUND BEEF. **Tonya M. Santaus**

**1576-Pos BOARD B527**  
RAPID MICROBIAL LYSING AND DNA FRAGMENTATION BY MICROWAVE FOCUSING. **Johan Melendez**, Daniel Kiang, Tonya Santaus, Chris Geddes

**1577-Pos BOARD B528**  
PALMITATE RE-DIRECTS GLUCOSE UTILIZATION IN TYPE 2 DIABETIC HEARTS, IMPROVING FUNCTION: A METABOLOMIC-FLUXOMIC STUDY. **Sonia Cortassa**, Viviane Caceres, Carlo G. Tocchetti, Brian O'Rourke, Nazareno Paolocci, **Miguel A. Aon**

**1578-Pos BOARD B529**  
MODELING HOST - BACTERIAL BIOFILM INTERACTIONS IN LOWER LEG CHRONIC WOUNDS. **M vandeVen**

**1579-Pos BOARD B530**  
MODEL FOR AGING AND COGNITIVE DECLINE. **Maxwell P. Henderson**

## Molecular Dynamics II (Boards B531-B557)

**1580-Pos BOARD B531**  
COMPARISON OF ACTIVATION ENERGY AND PORE DYNAMICS IN LIQUID AND GEL PHASES OF ELECTROPORATED LIPID BILAYERS USING TEMPERATURE DEPENDENT MD SIMULATIONS. **Amit K. Majhi**, Subbarao Kanchi, Venki Venkataraman, Ganapathy Ayappa, Prabal Maiti

**1581-Pos BOARD B532**  
THE CARBOXY TERMINUS OF THE LIGAND PEPTIDE DETERMINES MHC CLASS I COMPLEX STABILITY: A COMBINED MOLECULAR DYNAMICS AND EXPERIMENTAL STUDY. **Esam T. Abualrous**

**1582-Pos BOARD B533**  
MOLECULAR MODELLING IN MRI CONTRAST AGENTS INTERACTING WITH WATER MOLECULES: HIERARCHICAL CLUSTERING METHOD FOR MOLECULAR DYNAMICS DATA ANALYSIS. **Luca Guzzardi**, Dennis Cazar, Vanessa del Hierro, Fernando J. Torres, **Miguel A. Mendez**

**1583-Pos BOARD B534**  
HIS 95 ACTS AS A PH GATE IN AQUAPORIN-4. **Shreyas S. Kaptan**, Bert L. de Groot

**1584-Pos BOARD B535**  
STRUCTURAL AND DYNAMICAL STUDY OF BOVINE CARBONIC ANHYDRASE II IN THE PRESENCE OF SUBSTRATE: AN ESSENTIAL DYNAMICS AND MOLECULAR DYNAMICS SIMULATION STUDY. **Elham Morad**, **Bahram Goliaei**, Faramarz Mehrnejad

**1585-Pos BOARD B536**  
RESOLVING THE MECHANISMS OF BACTERIAL RESISTANCE TO MACROLIDE ANTIBIOTICS. **Anna Pavlova**, James C. Gumbart

**1586-Pos BOARD B537**  
MOLECULAR MODELING OF SELF-ASSEMBLY OF ANTICANCER DRUG AMPHIPHILES. **Myungshim Kang**, Honggang Cui, Sharon M. Loverde

**1587-Pos BOARD B538**  
SIMULATING THE SERPIN LATENCY TRANSITION AT ATOMIC RESOLUTION. **Patrick Wintrade**, Pietro Faccioli, Silvio a Beccara, Anne Gershenson, Giorgia Cazzolli, Fang Wang

**1588-Pos BOARD B539**  
ESTIMATING THE DIFFUSION CONSTANT FROM NOISY TRAJECTORIES. **Peter K. Relich**, Keith A. Lidke, Mark J. Olah

**1589-Pos BOARD B540**  
MOLECULAR INSIGHTS INTO THE SIGNALING MECHANISM OF THE HISTIDINE KINASE CHEA WITHIN AN INTACT BACTERIAL CHEMOSENSORY ARRAY. **C. Keith Cassidy**, Benjamin Himes, Frances Joan D. Alvarez, Juan R. Perilla, Jun Ma, Gongpu Zhao, Peijun Zhang, Klaus Schulten

**1590-Pos BOARD B541**  
CALCULATION OF CHOLESTEROL BINDING AFFINITY FOR PENTAMERIC LIGAND-GATED ION CHANNELS. **Reza Salari**, Jerome Henin, Grace Brannigan

**1591-Pos BOARD B542**  
CHARACTERIZATION OF TRANSIENTLY STABLE STRUCTURAL MOTIFS IN INTRINSICALLY DISORDERED PROTEINS USING FREE ENERGY SIMULATIONS. **Rainer Bomblies**, Manuel Luitz, Martin Zacharias

**1592-Pos BOARD B543**  
COMPUTATIONAL STUDY OF UBIQUITIN RECRUITMENT AND TRANSPORT OF THE 26S PROTEASOME. **Till Rudack**, Yi Zhang, Lela Vucovic, Wei Han, Klaus Schulten

**1593-Pos BOARD B544**  
ATOMISTIC MECHANISM OF PEPTIDE UNFOLDING AND TRANSLOCATION BY AAA+ UNFOLDING CHAPERONES CLPY. **Huan Wang**, George Stan

**1594-Pos BOARD B545**  
MECHANISM OF INHIBITION OF GLYCOSIDE HYDROLASES INVESTIGATED BY MOLECULAR DYNAMICS SIMULATIONS. **Rafael C. Bernardi**, Isaac Cann, Erin Imsand, Douglas Clark, Klaus Schulten

**1595-Pos BOARD B546**  
STRUCTURAL DETERMINANTS OF HYBRID STATE INTERMEDIATES OF THE BACTERIAL RIBOSOME. **Andrea C. Vaiana**, Carsten Kutzner, Lars V. Bock, Christian Blau, Helmut Grubmüller

**1596-Pos BOARD B547 EDUCATION TRAVEL AWARDEE**  
MOLECULAR DYNAMICS STUDIO OF POLY(VINYL ALCOHOL) MECHANICAL PROPERTIES FOR ITS INCORPORATION IN BONES STRUCTURES AS A PVA-PLA SUBSTRATE FOR TISSUE REGENERATION. **Ana C. Cadena**, Dennis Cazar, Samara M. Oña, Miguel A. Mendez

**1597-Pos BOARD B548**  
 MAPPING FUNCTIONAL GROUP REQUIREMENTS OF LIGANDS AT THE OCCLUDED BINDING POCKET OF  $\beta$ 2-ADRENERGIC G-PROTEIN COUPLED RECEPTOR USING SITE IDENTIFICATION BY LIGAND COMPETITIVE SATURATION SIMULATIONS. **Sirish K. Lakkaraju**, Wenbo Yu, Prabhu E. Raman, Alexander D. MacKerell Jr.

**1598-Pos BOARD B549**  
 INSIGHTS FROM ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS OF 40 NUCLEOSOME CHROMATIN FIBER. **Ramu Anandakrishnan**, Saeed Izadi, Alexey V. Onufriev

**1599-Pos BOARD B550**  
 COMPUTATIONALLY PROJECTING THE INFLUENCE OF NUCLEIC ACID ON PATHWAYS OF NUCLEATION-LIMITED VIRUS CAPSID ASSEMBLY. **Gregory R. Smith**, Lu Xie, Russell Schwartz

**1600-Pos BOARD B551**  
 DOCKING TO THE HIGHLY FLEXIBLE ESTROGEN RECEPTOR LIGAND BINDING DOMAIN VIA MIXED-RESOLUTION MONTE CARLO. **Sundar Raman Subramanian**, Daniel M. Zuckerman

**1601-Pos BOARD B552**  
 TOWARDS THE SIMULATION OF A COMPLETE ATP SYNTHASE: UNRAVELLING THE STRUCTURAL BASIS OF THE ENZYME'S REVERSIBLE ACTION. **Abhishek Singharoy**, Klaus Schulten

**1602-Pos BOARD B553**  
 SIN MUTATIONS ALTER STRUCTURE AND DYNAMICS OF HUMAN MONONUCLEOSOMES. **Suma Mohan S**, Thomas C. Bishop, Vijayalakshmi Mahadevan

**1603-Pos BOARD B554**  
 QUINONE BINDING IN BACTERIAL PHOTOSYNTHETIC REACTION CENTER. **Arpita Banerjee**, Marilyn Gunner

**1604-Pos BOARD B555**  
 MOLECULAR DYNAMIC SIMULATION STUDIES ON LOLA AND LOLB PROTEINS IN E.COLI. **Priyadarshini Murahari**, Gautam Pennathur, Sharmila Anishetty

**1605-Pos BOARD B556**  
 THE ROLE OF THE ION DEHYDRATION PROCESS IN LOW AND HIGH CONDUCTANCE K CHANNELS. **Romina V. Sepúlveda**, Felipe Bravo-Moraga, Ignacio Diaz-Franulic, Daniel Aguayo, David Naranjo, Ramon Latorre, Fernando D. Gonzalez-Nilo

**1606-Pos BOARD B557**  
 COMPUTATIONAL DESIGN OF ALLOSTERIC INHIBITORS OF AKT AND SGK KINASES. **D. S. Dalafave**, R. E. Dalafave

## Optical Microscopy and Super-Resolution Imaging I (Boards B558-B586)

**1607-Pos BOARD B558**  
 AN AUTOMATED PROTOCOL FOR PERFORMANCE BENCHMARKING A WIDEFIELD FLUORESCENCE MICROSCOPE. **Michael Halter**, Elianna Bier, Paul C. DeRose, Gregory A. Cooksey, Steven J. Choquette, Anne L. Plant, John T. Elliott

**1608-Pos BOARD B559**  
 RESPIRATION RATE MEASUREMENTS OF SINGLE BACTERIAL CELLS. **Michael C. Konopka**

**1609-Pos BOARD B560**  
 DEVELOPMENT OF PHYSIOLOGICALLY BASED PHARMACOKINETIC MODEL (PBPK) OF CANCER TREATMENT IN MICE. **Jeremy C. Bonor**

**1610-Pos BOARD B561**  
 RAISING THE SPEED LIMIT ON 3D-3WAY FRET MICROSCOPY. **Brandon L. Scott**, Adam D. Hoppe

**1611-Pos BOARD B562**  
 STRETCHED, ORIENTED DNA ARRAYS (SODA) FOR FLUORESCENCE BASED SINGLE-MOLECULE EXPERIMENTS IN COMPLEX ENVIRONMENT. **Eugeniu Ostrofet**, Seungkyu Ha, Richard Janissen, Theo van Laar, Nynke Dekker

**1612-Pos BOARD B563**  
 DUAL-SWITCHING FRET (DSFRET) IMAGING BASED ON PHOTOSWITCHABLE DONOR-ACCEPTOR PAIR. **Yingqi Wang**, Ji Tang, Xiaodong Liu

**1613-Pos BOARD B564**  
 DYNAMIC TURNOVER OF FTSZ-RING IN LIVE CELL. **Xinxing Yang**, Christopher Herrick Bohrer, Jie Xiao

**1614-Pos BOARD B565**  
 COUNTING MOLECULES IN NON-MUSCLE MYOSIN II FILAMENTS. **Xiaohu Wan**

**1615-Pos BOARD B566**  
 Z-PROFILING OF CFTR OLIGOMERIZATION STATE DISTRIBUTIONS VIA SINGLE MOLECULE STEP PHOTOBLEACHING ANALYSIS IN EPITHELIAL CELLS. **Jean-Francois Desjardins**, Asmahan Abu-Arish, Amani Hariri, Hanadi F. Sleiman, Gonzalo Cosa, John W. Hanrahan, Paul W. Wiseman

**1616-Pos BOARD B567**  
 DIMERIZATION OF EPHA2 IN CELL MEMBRANES. **Deo R. Singh**, Chris King, Nisha R. Gupta, Matt Salotto, Kalina Hristova

**1617-Pos BOARD B568**  
 SINGLE MOLECULE ANALYSIS REVEALS COEXISTENCE OF STABLE SEROTONIN TRANSPORTER MONOMERS AND OLIGOMERS IN THE LIVE CELL PLASMA MEMBRANE. **Andreas Anderlueh**, Enrico Klotzsch, Vivek Kumar, Amy H. Newman, Harald H. Sitte, **Gerhard J. Schuetz**

**1618-Pos BOARD B569**  
 RFP TAGS FOR LABELING SECRETORY PATHWAY PROTEINS. **Mingshu Zhang**, Xi Zhang, Lin Yuan, Pingyong Xu

**1619-Pos BOARD B570**  
 "DECORATING" CELLS WITH GENETICALLY ENCODED FLUORESCENT PROTEINS - WHAT COLOR SUITS YOUR EXPERIMENT BEST? **Li-Chun Tu**, Juahdi Monbo, Aviva Joseph, David Grunwald

**1620-Pos BOARD B571**  
 CONFOCAL ABSORPTION MICROSCOPY OF BIOMOLECULES IN THE ATTO-MOLE RANGE. **Alfons Schulte**, Fatholah Salehi, Michael Sigman

**1621-Pos BOARD B572**  
 TESTING A DIFFUSION TRAP MODEL FOR STORE-OPERATED CALCIUM ENTRY BY SINGLE PARTICLE TRACKING. **Minnie M. Wu**, Elizabeth D. Covington, Richard S. Lewis



**1622-Pos BOARD B573**  
MEMBRANE-PROTEIN DIFFUSION IN E. COLI: A RANDOM WALK IN A HETEROGENEOUS LANDSCAPE.  
**Aravindan Varadarajan**, Felix Oswald, Yves J. M. Bollen, Erwin J.G. Peterman

**1623-Pos BOARD B574**  
SINGLE-MOLECULE STUDY OF RELA DIFFUSION IN LIVE E. COLI CELLS DURING THE STRINGENT RESPONSE. **Wenting Li**

**1624-Pos BOARD B575**  
STUDY OF RECEPTOR-LIGAND INTERACTIONS IN LIVING SPECIMENS BY USING DUAL-COLOR DUAL-FOCUS LINE-SCANNING FCS. René M. Doerlich, Qing Chen, Per Niklas Hedde, Vittoria Schuster, Mark Hippler, Gary Davidson, **G. Ulrich Nienhaus**

**1625-Pos BOARD B576**  
A UNIVERSAL PARTICLE IMAGE CORRELATION SPECTROSCOPY (UPICS) FOR THE ANALYSIS OF FAST AND DENSELY DIFFUSING PARTICLES. Alexander Wolf, Pierre Volz, Thomas Schlieter, Jens Balke, **Ulrike Alexiev**

**1626-Pos BOARD B577**  
SINGLE CELL IMAGE CORRELATION ANALYSIS AND PHENOTYPIC SCREENING FOR DIABETIC CARDIOMYOPATHY. **Michael Prummer**

**1627-Pos BOARD B578**  
PROBING SHORT-RANGE PROTEIN BROWNIAN MOTION IN THE CYTOPLASM OF LIVING CELLS. **Carmine Di Rienzo**, Enrico Gratton, Fabio Beltram, Francesco Cardarelli

**1628-Pos BOARD B579**  
MAPPING DIFFUSION IN A LIVING CELL USING THE PHASOR APPROACH. **Suman Ranjit**, Enrico Gratton, Luca Lanzano

**1629-Pos BOARD B580**  
FLUORESCENCE FLUCTUATION MICROSCOPY TECHNIQUES TO STUDY MRNA SYNTHESIS AND DYNAMICS. **Paolo Annibale**, Enrico Gratton

**1630-Pos BOARD B581**  
NANOSCALE PROTEIN DIFFUSION BY STED-BASED PAIR CORRELATION ANALYSIS. **Ranieri Bizzarri**, Paolo Bianchini, Francesco Cardarelli, Mariagrazia Di Luca, Alberto Diaspro

**1631-Pos BOARD B582**  
ANALYSIS OF TRABECULAR BONE ARCHITECTURE USING TWO PHOTON FLUORESCENCE MICROSCOPY. **Hemanth Akkiraju**, Christopher price, Liyun Wang, Jeffrey Caplan, Anja Nohe

**1632-Pos BOARD B583**  
NON-LINEAR MICROSCOPY OF MITOCHONDRIAL DAMAGE AND ABNORMAL LIPID METABOLISM IN BETA-AMYLOID EXPRESSING YEAST. **Nisha Rani Agarwal**, Xin Chen, Kumaravel Ponnandai Shunmugavel, Dina Petranovic, Annika Enejder

**1633-Pos BOARD B584**  
USING SURFACE PLASMON RESONANCE TO STUDY SPECIES TRANSPORT ACROSS LIPID MEMBRANES. **Cheng-Jung Kuo**, Chao Ling

**1634-Pos BOARD B585**  
APPLICATIONS OF HIGH RESOLUTION SURFACE PLASMON RESONANCE IMAGING TO ADHERENT CELLS: SINGLE MAMMALIAN CELLS TO BACTERIAL BIOFILMS.  
**Alexander W. Peterson**, Michael Halter, Alessandro Tona, Nancy J. Lin, John T. Elliott

**1635-Pos BOARD B586 INTERNATIONAL TRAVEL AWARDEE**  
LIGHT SHEET FLUORESCENCE MICROSCOPY (LSFM) FOR TWO-PHOTON EXCITATION IMAGING OF THICK SAMPLES. **Giuseppe Sancataldo**, Zeno Lavagnino, Marta d'Amora, Francesca Cella Zanacchi, Alberto Diaspro

## Biosensors I (Boards B587-B603)

**1636-Pos BOARD B587**  
SENSING ELEMENTS ENCAPSULATED WITHIN HYDROGEL MATRIX TO ENHANCE THE SIGNAL-TO-NOISE RATIO.  
**Huisoo Jang**, Sungho Jung, Sun Min Kim, Tae-Joon Jeon

**1637-Pos BOARD B588**  
SIMULATION RESULTS FOR AN OPTICALLY ACTIVE SEMICONDUCTOR NANOPORE. **Paul V. Gwozdz**, Andre Drews, Abhishek Bhat, August Dorn, Robert H. Blick

**1638-Pos BOARD B589**  
LIPID BILAYER COATED NANOPIPETTES AS GENERIC NANOPORE SENSORS WITH ENHANCED FUNCTIONALITY. **Raquel L. Fraccari**

**1639-Pos BOARD B590**  
POLARIZATION-BASED DNA SANDWICH ASSAY WITH AU NANOPARTICLES USING THE INFLUENCE OF INTER-PARTICLE DISTANCE. **Akira Sandambata**, Naoto Mizuno, Keiko Esashika, Toshiharu Saiki

**1640-Pos BOARD B591**  
OPTICALLY TRACING ELECTRICAL SYNAPSES WITH PROTON CHANNEL-BASED VOLTAGE SENSING PROTEIN.  
**Bok Eum Kang**, Arong Jung, Dhanarajan Rajakumar, Piao Hong Hua, Bradley Baker

**1641-Pos BOARD B592**  
USING EXPLORATORY DATA ANALYTICS TO IDENTIFY DEFICIENCIES IN MCHERRY RED FLUORESCENT PROTEIN AND SUGGEST IMPROVEMENTS. Michele L. Markwardt, **Mark A. Rizzo**

**1642-Pos BOARD B593**  
DESIGN OF A THEORETICAL MODEL TO IDENTIFY SPECIFIC SSDNA APTAMERS FOR BIOSENSING APPLICATIONS.  
**Merina Jahan**, Mark J. Uline

**1643-Pos BOARD B594**  
EXPERIMENTAL DETERMINATION OF TRANSITION DIPOLE MOMENT DIRECTIONS IN REPRESENTATIVE FLUORESCENT PROTEINS. **Alina Kevorkova**, David von Stetten, Antoine Royant, Josef Lazar

**1644-Pos BOARD B595**  
GLYCINE PROTECTS HEPATOCYTES THROUGH A CHLORIDE INDEPENDENT MECHANISM. **Li Li**, John J. Lemasters

**1645-Pos BOARD B596**  
SMALL ANGLE NEUTRON SCATTERING STUDIES OF GLUCOSE OXIDASE IMMOBILIZED ON SINGLE LAYER GRAPHENE: RELEVANT TO PROTEIN MICROFLUIDIC CHIP. **Manickam Gurusaran**, Durgesh Rai, Shuo Qian, Kevin Weiss, Volker Urban, Pingzuo Li, Lulu Ma, Tharangattu N. Narayanan, Pulickel M. Ajayan, Kanagaraj Sekar, Sowmya Viswanathan, Venkatesan Renugopalakrishnan



**1646-Pos BOARD B597**

APPLICATION OF STRAIN AND CALIBRATION OF FRET EMISSION FOR *IN VITRO* LIVE CELL RESPONSE TO CYTOSKELETAL DEFORMATION. **Jacob M. Knorr**, Daria A. Narmoneva, Donna C. Jones

**1647-Pos BOARD B598**

APTAMER SEQUENCE DECONVOLUTION THROUGH MICROARRAY TECHNOLOGY. **Yeh-Hsing Lao**, Chun-Wei Chi, Hui-Yu Chiang, Konan Peck, Lin-Chi Chen, Kam W. Leong

**1648-Pos BOARD B599**

DEVELOPING LEAVE ONE OUT GFP BASED BIOSENSORS. **Keith Fraser**, Christian Schenkelberg, Shounak Banerjee, Casey Thornton, Colleen Lamberson, Victoria Jones, Angela Choi, Rachel Altshuler, Jonathan S. Dordick, Christopher Bystruff

**1649-Pos BOARD B600**

HIGH-DENSITY, HIGH ASPECT RATIO SILICONE POST ARRAYS FOR MAGNETO OPTICAL BIOSENSING AND TARGETED CELL CAPTURE. **Aaron Neaves**, Benjamin Evans

**1650-Pos BOARD B601**

DIMERIZATION INDUCTION AND MEASUREMENT USING FLUOROGEN ACTIVATING PROTEINS GUIDED BY SATURATION MUTAGENESIS. **Yi Wang**

**1651-Pos BOARD B602**

ENGINEERING OF ARTIFICIAL PH SWITCH PROTEINS USING INTERNAL IONIZABLE RESIDUES WITH ANOMALOUS PKA VALUES. **Peregrine Bell-Upp**, Jaime Sorenson, Jamie L. Schlessman, Bertrand Garcia-Moreno E.

**1652-Pos BOARD B603**

THE DESIGN OF AN NADP<sup>+</sup>-BIOSENSOR BASED ON CHANGES IN INTERMOLECULAR HOMOFRET OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE. **William D. Cameron**, Cindy V. Bui, Pamuditha N. Silva, Jonathan V. Rocheleau

**Micro- and Nanotechnology II  
(Boards B604-B623)**

**1653-Pos BOARD B604**

PORES WITH UNDULATING OPENING DIAMETER CAN DETERMINE PARTICLES BY SIZE AND SHAPE. **Crystal Yang**, Preston Hinkle, Dmitriy Melnikov, Henriette E. Bakker, Arnout Imhof, Eugenia Toimil-Molares, Maria Gracheva, Zuzanna Siwy

**1654-Pos BOARD B605**

SOLVENT FREE BILAYER RECORDINGS USING A NOVEL ALL-IN-ONE MINIATURIZED AMPLIFIER. **Federico Thei**, Michele Rossi, Marco Bennati, Alessandro Marabelli, Matthias Beckler, Niels Fertig

**1655-Pos BOARD B606**

MEASUREMENT OF SALT DEPENDENCE OF SINGLE DNA TRANSLOCATION THROUGH SI NANOPORES WITH ULTRAVIOLET EXCITATION. **Ito Shintaro**, Hirohito Yamazaki, Mutsumi Tsukahara, Keiko Esashika, Toshiharu Saiki

**1656-Pos BOARD B607**

DNA NANOSWITCHES: A QUANTITATIVE PLATFORM FOR GEL-BASED BIOMOLECULAR INTERACTION ANALYSIS. **Ken Halvorsen**, Mounir Koussa, Andy Ward, Wesley P. Wong

**1657-Pos BOARD B608**

NANOPORE-ENHANCED POSITIONING OF MOLECULES IN ZERO-MODE WAVEGUIDES. **Joseph W. Larkin**, Mathieu Foquet, Stephen W. Turner, Jonas Korlach, Meni Wanunu

**1658-Pos BOARD B609**

A MULTIPHASE, COMPUTATIONAL MODELING APPROACH TO UNDERSTAND MICROALGAL FLOW DYNAMICS IN MICROFLUIDIC CHANNELS. **Kristin M. Warren**, Jeremiah N. Mpagazehe, Philip LeDuc, C. Fred Higgs, III

**1659-Pos BOARD B610**

PROGRAMMED SYNTHESIS OF FREESTANDING GRAPHENE NANOMEMBRANE ARRAYS. **Pradeep Waduge**, Joseph Larkin, Moneesh Upmanyu, Swastik Kar, Meni Wanunu

**1660-Pos BOARD B611**

MOLECULAR RECOGNITION OF TRNA SPECIES USING SOLID-STATE NANOPORES. **Robert Y. Henley**, Brian Ashcroft, Barry Cooperman, Stuart Lindsay, Meni Wanunu

**1661-Pos BOARD B612**

SMOOTH DNA TRANSPORT THROUGH A NARROWED PORE GEOMETRY. **Spencer Carson**, James Wilson, Aleksei Aksimentiev, Meni Wanunu

**1662-Pos BOARD B613**

ULTRA-PRECISION NANOPORE TOOL TO STUDY ENZYMES AT WORK. **Ian M. Derrington**, Jonathan M. Craig, Henry D. Brinkerhoff, Andrew H. Laszlo, Jens H. Gundlach

**1663-Pos BOARD B614**

SOLID-STATE NANOPORE CHARACTERIZATION OF SINGLE-STRAND DNA-SSB INTERACTIONS. Michael M. Marshall, Jan Ruzicka, Osama K. Zahid, Ethan W. Taylor, Vincent C. Henrich, **Adam R. Hall**

**1664-Pos BOARD B615**

LABEL-FREE OPTICAL DETECTION OF BIOMOLECULAR TRANSLOCATION THROUGH NANOPORE ARRAYS. Andrey Ivankin, Robert Y. Henley, Joseph Larkin, Spencer Carson, Michael L. Toscano, **Meni Wanunu**

**1665-Pos BOARD B616**

ENGINEERED MATERIAL GRADIENTS FOR BIOLOGICALLY INTEGRATED STRETCHABLE ELECTRONICS. **Naser Naserifar**, Philip R. LeDuc, Gary K. Fedder

**1666-Pos BOARD B617**

AN INEXPENSIVE AND EFFECTIVE DEVICE FOR DIAGNOSIS OF SICKLE CELL DISEASE. Christopher Brown, Alexey Aprelev, **Frank A. Ferrone**

**1667-Pos BOARD B618**

CONTROLLED DELIVERY OF DOPAMINE HYDROCHLORIDE USING SURFACE MODIFIED CARBON DOTS FOR NEURO DISEASES. **M Shahnawaz Khan**, Sunil Pandey, Abou Talib, Mukesh Bhaisare, Hui-Fen Wu

**1668-Pos BOARD B619**

CATIONIC LIPOSOMES ENCAPSULATING QUANTUM DOTS FOR ENHANCING THE INTRACELLULAR DELIVERY INTO ASTROCYTES "IN VITRO". **Maria B. Seabra**, Anna Livia Linard Matos, Renata V. Cavalcanti-Santos, Belmira L. S. Andrade-da Costa, Adriana Fontes, Beate S. Santos

**1669-Pos BOARD B620**

PROBING DYNAMIC REASSEMBLY OF CHEMICALLY-ETCHED 3D EMBRYONIC TISSUE. **Melis Hazar**, YongTae Kim, Jiho Song, William C. Messner, Lance A. Davidson, Philip R. LeDuc

**1670-Pos**      **BOARD B621**      INTERNATIONAL TRAVEL AWARDEE  
SICM-BASED NANODELIVERY SYSTEM FOR LOCAL TRPV1 STIMULATION. **Ainara López-Córdoba**, Peter Jönsson, Babak Babakinejad, Paolo Actis, Pavel Novak, Takahashi Yasufumi, Andrew Shevchuck, Uma Anand, Praveen Anand, Anna Drews, Antonio Ferrer-Montiel, David Klenerman, Yuri Korchev

**1671-Pos**      **BOARD B622**  
DEVELOPING A FRAMEWORK FOR THE NEURAL STEM CELL DIFFERENTIATION IN THE PRESENCE OF CARBON NANOTUBES. **Massooma Pirbhai**, Sabrina Jedlicka, Slava V. Rotkin

**1672-Pos**      **BOARD B623**  
PHASE CHANGE NANOEMULSIONS FOR CANCER THERAPY AND IMAGING. **Donald A. Fernandes**, Dennis D. Fernandes, Yan J. Wang, Yuchong Li, Claudiu C. Gradinaru, Dérick Rousseau, Michael C. Kolios

## **Biophysics Education (Boards B624-B634)**

**1673-Pos**      **BOARD B624**  
A NEW COURSE AND TEXTBOOK ON PHYSICAL MODELS OF LIVING SYSTEMS, FOR SCIENCE AND ENGINEERING UNDERGRADUATES. **Philip Nelson**

**1674-Pos**      **BOARD B625**  
MAKING MOLECULAR GRAPHICS ACCESSIBLE IN THE HIGH SCHOOL CLASSROOM WITH VMD LITE. **Conner Herndon**, James Gumbart

**1675-Pos**      **BOARD B626**  
THE PEDAGOGICAL VALUE OF LINDERSTRØM-LANG'S PROTEIN ONTOLOGY. **Ryan MB Hoffman**, Andrew B. Ward

**1676-Pos**      **BOARD B627**  
EXPERIENCES GAINED CREATING A BIOPHYSICS MAJOR AT A PREDOMINATELY UNDERGRADUATE INSTITUTION. **Justin J. Link**

**1677-Pos**      **BOARD B628**  
A DIY LANGMUIR TROUGH MADE WITH ADRUINO, LABVIEW, AND 3D PRINTED PARTS FOR EDUCATION AND RESEARCH. **Eric J. Alfuth**, Tomas Chester, Nate Roisen, Cain Valtierrez, Vision Bagonza, Benjamin L. Stottrup

**1678-Pos**      **BOARD B629**  
DELICIOUS BIOPHYSICS: COOKING AS A PROLIFIC SUPPORT TO TEACH BIOPHYSICAL CONCEPTS. **Christophe Lavelle**

**1679-Pos**      **BOARD B630**  
THE MOLECULAR AND CELLULAR BIOPHYSICS OF PROBIOTIC BACTERIA. **Astghik Z. Pepoyan**

**1680-Pos**      **BOARD B631**  
ENJOY CO-LEARNING IN ACACEMIC MEETINGS AND CONFERENCES: HOW TO ENHANCE COMMUNICATION AMONG PEERS IN BIOPHYSICS AND NEIGHBORING FIELDS. **Senkei Umehara**

**1681-Pos**      **BOARD B632**      EDUCATION TRAVEL AWARDEE  
CLOUD EXPERIMENTATION FOR BIOLOGY: SYSTEMS ARCHITECTURE AND UTILITY FOR ONLINE EDUCATION AND RESEARCH. **Zahid Hossain**, Xiaofan Jin, Engin Baumbacher, Alice Mira Chung, Stephen Koo, Jordan David Shapiro, Cynthia YTram Truong, Sean Choi, Paulo Blikstein, Ingmar Hans Riedel-Kruse

**1682-Pos**      **BOARD B633**  
AN INTERDISCIPLINARY HANDS-ON MODULE FOR SCIENCE OUTREACH IN RESOURCE-LIMITED SETTINGS. **Vernita D. Gordon**, Karishma S. Kaushik, Ashley Kessel, Nalin Ratnayake

**1683-Pos**      **BOARD B634**  
PROTEIN STRUCTURE SOLUTION SKILLS MADE ACCESSIBLE: STEPS TOWARD AN ONLINE CLASSROOM. **Gundula Bosch**, Lauren E. Boucher, Alexia S. Miller, Jurgen Bosch

# Tuesday, February 10, 2015

## Daily Program Summary

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

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7:30 AM–5:00 PM	<b>Registration/Information</b>	Charles Street Lobby
8:00 AM–9:00 AM	<b>Biophysical Society Business Meeting</b>	Room 327/328/329
8:00 AM–4:30 PM	<b>Poster Viewing</b>	Hall C
8:00 AM–5:30 PM	<b>Career Center</b>	Room 301/302/303
8:15 AM–10:15 AM	<b>Symposium: Biophysics of RNA Processing: Degradation, Splicing, DEAD Box Proteins</b> <b>Chair: Sun Hur, Harvard University</b>  INSIGHTS INTO HELICASE EVOLUTION FROM THE SPECIFICITY AND MECHANISM OF A DEAD-BOX PROTEIN. <i>Anna L. Mallam</i> SINGLE-MOLECULE IMAGING OF PRE-MRNA SPLICING. <i>Sanjay Tyagi</i> AUXILIARY FACTORS AND RNA SUBSTRATES REGULATE DEAD-BOX PROTEIN ACTIVITY BY MODULATION OF THE DEAD-BOX PROTEIN CONFORMATIONAL CYCLE. <i>Dagmar Klostermeier</i> MOLECULAR MECHANISMS OF VIRAL RNA DETECTION: RIG-I AND MDA5. <i>Sun Hur</i>	Ballroom I
8:15 AM–10:15 AM	<b>Symposium: Molecules of Memory: Glutamate Receptor Channels</b> <b>Chair: Mark Mayer, NIH</b>  CONFORMATIONAL CHANGES UNDERLYING GLUTAMATE RECEPTOR GATING. <i>Mark Mayer</i> AMPA RECEPTOR STRUCTURE, FUNCTION, AND DYNAMICS. <i>Robert E. Oswald</i> INTRACELLULAR DOMAINS OF NMDA RECEPTORS CONTROL CHANNEL PERMEATION AND GATING PROPERTIES. <i>Gabriela K. Popescu</i> NMDA RECEPTORS AS DYNAMIC ALLOSTERIC MACHINES. <i>Pierre Paoletti</i>	Ballroom II
8:15 AM–10:15 AM	<b>Platform: Single-Molecule Spectroscopy</b>	Ballroom III
8:15 AM–10:15 AM	<b>Platform: Skeletal Muscle Mechanics, Structure, and Regulation</b>	Ballroom IV
8:15 AM–10:15 AM	<b>Platform: Intracellular Channels and Calcium Sparks and Waves</b>	Room 307/308
8:15 AM–10:15 AM	<b>Platform: Membrane Structure</b>	Room 309/310
8:15 AM–10:15 AM	<b>Platform: Protein Structure and Conformation III</b>	Room 314/315
8:15 AM–10:15 AM	<b>Platform: Bioengineering and Biomaterials</b>	Room 316/317
9:00 AM–10:00 AM	<b>Subgroup Chairs Meeting</b>	Room 318
9:30 AM–10:30 AM	<b>Career Center Workshop</b> <b>Successfully Navigating the International Job Search</b>	Room 301/302/303
10:00 AM–5:00 PM	<b>Biomolecular Discovery Dome</b>	Hall C
10:00 AM–4:30 PM	<b>Exhibits</b>	Hall C
10:15 AM–11:00 AM	<b>Coffee Break</b>	Hall C
10:30 AM–12:00 PM	<b>Exhibitor Presentation: SensiQ Technologies Inc</b> <b>Learn How SensiQ's Dynamic Injection (diSPR®) Techniques Enhance the Biophysical Characterization of Binding Events Using Surface Plasmon Resonance Technology</b>	Hall C, Room B
10:45 AM–12:45 PM	<b>Symposium: Awards Symposium</b> <b>Chair: Dorothy Beckett, University of Maryland, Society President</b>  RECENT PROGRAMS ON OLD PROBLEMS. <i>Harold Scheraga</i> MEMBRANE PROTEINS NEED LIPIDS. <i>Anthony Watts</i> EVOLUTION AND ASSEMBLY OF PROTEIN COMPLEXES. <i>Sarah Teichmann</i> SURPRISES I FOUND IN STUDYING MEMBRANES. <i>Gerald W. Feigenson</i> TALES OF TUBULIN TAILS. <i>Antonina Roll-Mecak</i> FROM CYTOKINESIS TO THE EARLY MOUSE EMBRYO DEVELOPMENT: A SIMPLE PHYSICAL VIEW OF CELL MORPHOGENESIS. <i>Hervé Turlier</i>	Ballroom I

10:45 AM–12:45 PM	Platform: Protein Fold Stability	Ballroom II
10:45 AM–12:45 PM	Platform: Voltage-gated K Channels II	Ballroom III
10:45 AM–12:45 PM	Platform: Membrane Receptors and Signal Transduction	Ballroom IV
10:45 AM–12:45 PM	Platform: DNA Structure	Room 307/308
10:45 AM–12:45 PM	Platform: Exocytosis, Endocytosis, and Membrane Fusion	Room 309/310
10:45 AM–12:45 PM	Platform: Force Spectroscopy and Scanning Probe Microscopy	Room 314/315
10:45 AM–12:45 PM	Platform: Protein-Small Molecule Interactions	Room 316/317
12:00 PM–1:30 PM	Funding Opportunities for Faculty at Primarily Undergraduate Institutions	Room 331/332
12:00 PM–2:00 PM	Postdoc to Faculty Q&A: Transitions Forum and Luncheon	Room 318/319
12:30 PM–2:00 PM	Exhibitor Presentation: Nanion Technologies GmbH Measure More Membrane: Cells, Bilayers and Transporter Activity	Hall C, Room B
1:00 PM–3:00 PM	Industry and Agency Opportunities Fair	Hall C
1:30 PM–3:00 PM	Exhibitor Presentation: KinTek Corporation KinTek Explorer Software: New Advances in Fitting Kinetic and Equilibrium Data	Hall C, Room A
1:30 PM–2:30 PM	Conversation with NIGMS Director Jon Lorsch	Room 309/310
1:45 PM–3:00 PM	Snack Break	Hall C
2:30 PM–3:30 PM	Career Center Workshop Ten Tough Industrial Interview Questions (and Ten Pretty Good Responses)	Room 301/302/303
2:30 PM–4:30 PM	Grant Opportunities for Early Career Faculty	Room 330
3:00 PM–4:00 PM	Networking with Minority Biophysicists: Resources and Opportunities	Room 327/328/329
3:00 PM–5:00 PM	Education Committee Meeting	Room 333
4:00 PM–6:00 PM	<b>Symposium: Nanoclustering of Membranes and Membrane Proteins</b> <b>Chair:</b> <i>Ka Yee Lee, University of Chicago</i>  STRUCTURE AND FUNCTION OF MEMBRANE-REMODELING ESCRT-III ASSEMBLIES. <i>Adam Frost</i> IN VIVO-STUDIES OF GPCR CONFORMATIONAL CHANGES USING FLUORESCENCE-BASED ASSAYS. <i>Martin Lohse</i> LIPID ORGANIZATION OF THE PLASMA MEMBRANE. <i>Siewert Marrink</i> DIFFERENTIAL PHOSPHATIDYLSERINE RECOGNITION BY THE TIM FAMILY OF IMMUNE REGULATORY RECEPTORS. <i>Ka Yee C. Lee</i>	Ballroom I
4:00 PM–6:00 PM	<b>Symposium: Extremophiles: Testing the Physical Limits of Living Systems</b> <b>Chair:</b> <i>Catherine Royer, Rensselaer Polytechnic Institute</i>  PROTEIN FOLDING AT EXTREME TEMPERATURES: CURRENT ISSUES. <i>Georges Feller</i> USING SINGLE MOLECULE FORCE SPECTROSCOPY TO PROBE PROTEINS FROM EXTREMOPHILES. <i>Lorna Dougan</i> MECHANISMS OF PRESSURE EFFECTS IN BIOLOGY: FROM PROTEINS TO LIVE BACTERIA. <i>Catherine Ann Royer</i> WHAT LIMITS MICROBIAL GROWTH AT HIGH PRESSURE? <i>Doug Bartlett</i>	Ballroom II
4:00 PM–6:00 PM	Platform: Optical Microscopy and Super-Resolution Imaging II	Ballroom III
4:00 PM–6:00 PM	Platform: Cardiac Muscle Regulation	Ballroom IV
4:00 PM–6:00 PM	Platform: Protein Dynamics and Allostery II	Room 307/308
4:00 PM–6:00 PM	Platform: Systems Biophysics	Room 309/310
4:00 PM–6:00 PM	Platform: Ion Channel Regulatory Mechanisms	Room 314/315
4:00 PM–6:00 PM	Platform: Bioenergetics and Mitochondrial Signaling	Room 316/317



<p>7:30 PM–9:30 PM</p>	<p><b>Workshop: Managing Data and Statistics in the Informatics Era</b> <span style="float: right;"><b>Ballroom I</b></span>  <b>Chair:</b> <i>Nathan Baker, Pacific Northwest National Laboratory</i></p> <p>A PHYSICIST’S APPROACH TO STATISTICAL ANALYSES OF BIOLOGICAL DATA. <i>Patrice Koehl</i>          GLYCAN BIOSYNTHESIS: STRUCTURE, INFORMATION, AND HETEROGENEITY. <i>Mukund Thattai</i>          LARGE-SCALE MACHINE LEARNING APPROACHES FOR MOLECULAR BIOPHYSICS. <i>Arvind Ramanathan</i>          INFORMATICS APPROACHES TO DATA PRESERVATION AND ANALYSIS IN PROTEIN ELECTROSTATICS.  <i>Nathan A. Baker</i></p>
<p>7:30 PM–9:30 PM</p>	<p><b>Workshop: Advances in Computing Large Systems</b> <span style="float: right;"><b>Ballroom II</b></span>  <b>Chair:</b> <i>Emad Tajkhorshid, University of Illinois at Urbana-Champaign</i></p> <p>REVERSIBLE FOLDING OF HYPERSTABLE RNA TETRALOOPS USING MOLECULAR DYNAMICS          SIMULATIONS. <i>Angel E. Garcia</i>          BACTERIAL OUTER MEMBRANES AND INTERACTIONS WITH MEMBRANE PROTEINS. <i>Wonpil Im</i>          PROTEIN FOLDING AND RECOGNITION IN THE CELL -- AN IN SILICO APPROACH. <i>Margaret S. Cheung</i>          ADVANCES IN ATOMIC-LEVEL SIMULATIONS OF LARGE-SCALE FUNCTIONAL MOTIONS OF MEMBRANE          TRANSPORTERS. <i>Emad Tajkhorshid</i></p>
<p>7:30 PM–9:30 PM</p>	<p><b>Workshop: Microfluidics Tools for Studying Molecules and Cells</b> <span style="float: right;"><b>Ballroom III</b></span>  <b>Chair:</b> <i>Petra Dittrich, ETH Zurich, Switzerland</i></p> <p>INTEGRATED MICROFLUIDIC DEVICES FOR STUDYING AGING AND ADHESION OF INDIVIDUAL          BACTERIA. <i>Stephen C. Jacobson</i>          DEMOCRATIZATION OF NEXT-GENERATION IMAGING, DIAGNOSTICS AND MEASUREMENT TOOLS          THROUGH COMPUTATIONAL PHOTONICS. <i>Aydogan Ozcan</i>          A MICROFLUIDIC RAPID FREEZE QUENCH APPARATUS FOR HIGH FIELD EPR MEASUREMENTS.  <i>Daniella Goldfarb</i>          CELL AND VESICLE ANALYSIS IN MICROCHAMBERS. <i>Petra S. Dittrich</i></p>
<p>8:00 PM–10:00 PM</p>	<p><b>SOBLA (The Society for Latinoamerican Biophysicists) Meeting</b> <span style="float: right;"><b>Room 330</b></span></p>

# Tuesday, February 10

7:30 AM–5:00 PM, CHARLES STREET LOBBY

## Registration/Information

8:00 AM–9:00 AM, ROOM 327/328/329

## Biophysical Society Business Meeting

8:00 AM–4:30 PM, HALL C

## Poster Viewing

8:00 AM–5:30 PM, ROOM 301/302/303

## Career Center

8:15 AM–10:15 AM, BALLROOM I

## Symposium

### Biophysics of RNA Processing: Degradation, Splicing, DEAD Box Proteins

#### Chair

*Sun Hur, Harvard University*

**1684-SYMP 8:15 AM**

INSIGHTS INTO HELICASE EVOLUTION FROM THE SPECIFICITY AND MECHANISM OF A DEAD-BOX PROTEIN.

**Anna L. Mallam**, David J. Sidote, Alan M. Lambowitz

**1685-SYMP 8:45 AM**

SINGLE-MOLECULE IMAGING OF PRE-MRNA SPLICING.

**Sanjay Tyagi**

**1686-SYMP 9:15 AM**

AUXILIARY FACTORS AND RNA SUBSTRATES REGULATE DEAD-BOX PROTEIN ACTIVITY BY MODULATION OF THE DEAD-BOX PROTEIN CONFORMATIONAL CYCLE. Ulf Harms, Alexandra Z. Andreou, Airat Gubaev, **Dagmar Klostermeier**

**1687-SYMP 9:45 AM**

MOLECULAR MECHANISMS OF VIRAL RNA DETECTION: RIG-I AND MDA5. **Sun Hur**

8:15 AM–10:15 AM, BALLROOM II

## Symposium

### Molecules of Memory: Glutamate Receptor Channels

#### Chair

*Mark Mayer, NIH*

**1688-SYMP 8:15 AM**

CONFORMATIONAL CHANGES UNDERLYING GLUTAMATE RECEPTOR GATING. **Mark Mayer**

**1689-SYMP 8:45 AM**

AMPA RECEPTOR STRUCTURE, FUNCTION, AND DYNAMICS. **Robert E. Oswald**, Ahmed H. Ahmed, Christopher P. Ptak, Madeline Martinez

**1690-SYMP 9:15 AM**

INTRACELLULAR DOMAINS OF NMDA RECEPTORS CONTROL CHANNEL PERMEATION AND GATING PROPERTIES. **Gabriela K. Popescu**

**1691-SYMP 9:45 AM**

NMDA RECEPTORS AS DYNAMIC ALLOSTERIC MACHINES. **Pierre Paoletti**

8:15 AM–10:15 AM, BALLROOM III

## Platform

### Single-Molecule Spectroscopy

#### Co-Chairs

*H. Peter Lu, Bowling Green State University*

*Lori Goldner, University of Massachusetts*

**1692-PLAT 8:15 AM**

NMDA RECEPTOR ION CHANNEL DYNAMICS IN LIVING CELLS BY A NOVEL SINGLE-MOLECULE PATCH-CLAMP FRET MICROSCOPY: REVEALING THE MULTIPLE CONFORMATIONAL STATES ASSOCIATED WITH A CHANNEL AT ITS ELECTRICAL OFF STATE. Dibyendu Sasmal, **H. Peter Lu**

**1693-PLAT 8:30 AM**

EXPLORING TAU CONFORMATIONS AT THE SINGLE-MOLECULE LEVEL IN A MICROFLUIDIC TRAP.

**Randall H. Goldsmith**, Sharla Wood, Lydia Manger, Michael Holden, Martin Margittai

**1694-PLAT 8:45 AM**

3D TRACKING OF SINGLE QUANTUM DOTS THROUGH OFF-FOCUS IMAGING. **Lucia Gardini**, Marco Capitanio, Francesco Saverio Pavone

**1695-PLAT 9:00 AM**

DECONSTRUCTING PIPE: A SPECTROSCOPIC INVESTIGATION OF THE "PROTEIN INDUCED FLUORESCENCE ENHANCEMENT" PHENOMENON IN CY3. Elana Maria Shepherd Stennett, Monika Anna Ciuba, **Marcia Levitus**

**1696-PLAT 9:15 AM**

FABRICATION AND SURFACE FUNCTIONALIZATION OF HIGHLY BIREFRINGENT RUTILE PARTICLES FOR TRAPPING IN AN OPTICAL TORQUE WRENCH. **Seungkyu Ha**, Yera Ussembayev, Richard Janissen, Maarten van Oene, Nynke H. Dekker

**1697-PLAT 9:30 AM**

ELECTRON PARAMAGNETIC RESONANCE FROM A SINGLE BIOMOLECULE. **Richelle M. Teeling-Smith**, Young Woo Jung, Nicolas J. Scozzaro, Jeremy Cardellino, Isaac Rampersaud, Justin A. North, Marek Simon, Vidya P. Bhallamudi, Arfaan Rampersaud, Ezekiel Johnston-Halperin, Michael G. Poirier, P. Chris Hammel

**1698-PLAT 9:45 AM**

DYNAMICS OF POLYMERIC PROTEIN ASSEMBLIES IN LIVE CELLS REVEALED BY FLUORESCENCE POLARIZATION IMAGING OF SINGLE MOLECULES. **Shalin B. Mehta**, Molly McQuilken, Patricia Occhipinti, Amitabh Verma, Rudolf Oldenbourg, Amy S. Gladfelter, Tomomi Tani

**1699-PLAT 10:00 AM**

SINGLE-MOLECULE-SENSITIVE FRET IN FREELY-DIFFUSING ATTOLITER DROPLETS. Peker Milas, Sheema Rahmanseresht, Kieran P. Ramos, Ben D. Gamari, **Lori S. Goldner**

8:15 AM–10:15 AM, BALLROOM IV

**Platform**  
**Skeletal Muscle Mechanics, Structure, and Regulation**

**Co-Chairs**

*Brett Colson, University of Minnesota*  
*Barbara Joureau, VU University Medical Center, The Netherlands*

**1700-PLAT 8:15 AM**  
ACTIVATION AND RELAXATION KINETICS IN SKELETAL AND CARDIAC MUSCLES. **Srboljub M. Mijailovich**, Boban Stojanovic, Djordje Nedic, Michael A. Geeves

**1701-PLAT 8:30 AM**  
ALTERNATIVE VERSIONS OF THE MYOSIN CONVERTER VARY CROSS-BRIDGE STIFFNESS AND MUSCLE FORCE GENERATION. **Douglas M. Swank**, Bernadette M. Glasheen, Seemanti Ramanath, Qian Wang

**1702-PLAT 8:45 AM**  
INTERMOLECULAR COOPERATIVITY OF SKELETAL MYOSINS ENHANCES FORCE OUTPUT IN MYOFILAMENTS. **Motoshi Kaya**, Yoshiaki Tani, Takumi Washio, Toshiaki Hisada, Hideo Higuchi

**1703-PLAT 9:00 AM**  
SHORTENING-INDUCED FORCE DEPRESSION IN SINGLE SARCOMERES IS ABOLISHED BY MGADP-ACTIVATION. **Neal Trecarten**, Fabio C. Minozzo, Felipe S. Leite, Dilson E. Rassier

**1704-PLAT 9:15 AM**  
FORCE-SARCOMERE LENGTH RELATIONS IN PATIENTS WITH THIN FILAMENT MYOPATHY CAUSED BY MUTATIONS IN NEB, ACTA1, TPM2, TPM3, KBTBD13, KLHL40 AND KLHL41. **Barbara Joureau**, J.M de Winter, Christopher T. Pappas, Edoardo Malfatti, Alan Beggs, Nigel Clarke, Norma Romero, Carol Gregorio, Henk Granzier, Ger J.M. Stienen, Coen C.A Ottenheijm

**1705-PLAT 9:30 AM**  
AN ACTIVE ROLE FOR THE Z-BAND DURING CONTRACTION AND RELAXATION. Lloyd Zhao, Lanette R. Fee, Sehyang Han, Michael K. Reedy, **Robert J. Perz-Edwards**

**1706-PLAT 9:45 AM**  
EFFECTS OF CARDIAC MYOSIN BINDING PROTEIN-C ON ACTIN MOTILITY ARE EXPLAINED WITH A DRAG-ACTIVATION-COMPETITION MODEL. **Sam Walcott**, Steffen Docken, Samantha P. Harris

**1707-PLAT 10:00 AM**  
THE MYOSIN SUPER-RELAXED STATE IS REGULATED BY ESTRADIOL. **Brett A. Colson**, Karl J. Petersen, Brittany C. Collins, David D. Thomas, Dawn A. Lowe

8:15 AM–10:15 AM, ROOM 307/308

**Platform**  
**Intracellular Channels and Calcium Sparks and Waves**

**Co-Chairs**

*Montserrat Samsó, Carnegie Mellon University*  
*Qiu-Xing Jiang, University of Texas Southwestern Medical Center*

**1708-PLAT 8:15 AM**  
STRUCTURAL INSIGHTS INTO THE NATURE OF THE UNIQUE ANION BINDING SITE WITHIN THE CARDIAC RYANODINE RECEPTOR N-TERMINAL REGION AND ASSOCIATED DISEASE MUTATIONS. **Siobhan Wong**, Michele Bedin, Filip Van Petegem

**1709-PLAT 8:30 AM**  
CROSSTALK BETWEEN RYR2 OXIDATION AND PHOSPHORYLATION CONTRIBUTES TO CARDIOMYOPATHY IN MICE WITH DUCHENNE MUSCULAR DYSTROPHY. **George G. Rodney**, Qiongling Wang, Guoliang Wang, Xander H.T. Wehrens

**1710-PLAT 8:45 AM**  
SECRETONEURIN, A NOVEL ENDOGENOUS CAMKII INHIBITOR, AUGMENTS CARDIOMYOCYTE CALCIUM HANDLING AND INHIBITS ARRHYTHMOGENIC CALCIUM RELEASE. Anett H. Ottesen, Cathrine R. Carlson, Andrew G. Edwards, Ole J. B. Landsverk, Rune F. Johansen, Morten K. Moe, Magnar Bjørås, Mats Stridsberg, Tørbjørn Omland, Geir Christensen, Helge Røsjø, **William E. Louch**

**1711-PLAT 9:00 AM**  
LARGE-SCALE, AUTOMATED CALCIUM SPARK ANALYSIS USING ISPARK REVEALS FUNCTIONAL AND SPATIAL REMODELING DURING CARDIAC HYPERTROPHY. Qinghai Tian, Laura Schröder, Aline Flockerzi, Andre Zeug, Lars Kaestner, **Peter Lipp**

**1712-PLAT 9:15 AM**  
REGULATION OF CALCIUM CLOCK-MEDIATED PACEMAKING BY INOSITOL-1,4,5-TRISPHOSPHATE RECEPTORS IN MOUSE SINOATRIAL NODAL CELLS. **Nidhi Kapoor**, Andrew Tran, Jeanney Kang, Rui Zhang, Kenneth D. Philipson, Joshua I. Goldhaber

**1713-PLAT 9:30 AM**  
STRUCTURAL STUDIES OF IP3R BY CRYOEM. **Qiu-Xing Jiang**, Hui Zheng, Marc Llaguno

**1714-PLAT 9:45 AM**  
MULTIPLE CLOSED STATES OF THE RYANODINE RECEPTOR DETERMINED BY CRYOEM. Pablo Castro-Hartmann, Joshua Lobo, **Montserrat Samsó**

**1715-PLAT 10:00 AM**  
CRYSTAL STRUCTURES OF THE RYANODINE RECEPTOR SPRY2 DOMAIN. **Kelvin Lau**, Filip Van Petegem

8:15 AM–10:15 AM, ROOM 309/310

**Platform**  
**Membrane Structure**

**Co-Chairs**

*Stephanie Tristram-Nagle, Carnegie Mellon University*  
*Helgi Ingólfsson, Cornell University*

**1716-PLAT 8:15 AM**  
INTERACTION OF HIV-1 GAG PROTEIN'S MA MEMBRANE BINDING DOMAIN WITH MEMBRANE MIMICS PROBED BY LOW- AND WIDE-ANGLE X-RAY SCATTERING. Lauren O'Neil, Leah Langer, Davina Perera, Zachary Dell, John F. Nagle, **Stephanie Tristram-Nagle**

**1717-PLAT 8:30 AM**  
INFLUENCE OF DOMAIN SIZE ON STRUCTURE AND ELASTIC FLUCTUATIONS IN COMPLEX LIPID MIXTURES. **Peter Heftberger**, Benjamin Kollmitzer, Frederick Heberle, Jonathan Nickels, John Katsaras, Georg Pabst

**1718-PLAT 8:45 AM**  
PHASE COEXISTENCE IN LIPID MEMBRANES INDUCED BY BUFFERING AGENTS AND CHARGED LIPID HEADGROUPS. Merrell A. Johnson, Soenke Seifert, Millicent A. Firestone, Horia I. Petrache, **Ann C. Kimble-Hill**

**1719-PLAT 9:00 AM**

ANALYSIS OF PI(4,5)P2 LATERAL ORGANIZATION AT THE PLASMA MEMBRANE OF LIVING CELLS THROUGH FRET. **Maria João Sarmento**, Ana Coutinho, Manuel Prieto, Fábio Fernandes

**1720-PLAT 9:15 AM**

IMPACT OF PI(3,4,5)P3-MEDIATED BETA-ARRESTIN-1 RECRUITMENT ON STRUCTURE OF ASYMMETRIC LIPID BILAYERS. **Achebe N. O. Nzulumike**, Signe Mathiasen, Jacob P. Mahoney, Marité Cárdenas Gómez, Dimitrios G. Stamou, Kell Mortensen

**1721-PLAT 9:30 AM**

COMPUTATIONAL LIPIDOMICS AND THE LIPID ORGANIZATION OF CELL ENVELOPES. **Helgi I. Ingólfsson**, Manuel N. Melo, Tsjerk A. Wassenaar, Xavier Periole, Alex H. de Vries, D. Peter Tieleman, Siewert J. Marrink

**1722-PLAT 9:45 AM**

PHASE BEHAVIOR OF SYNAPTOSOMAL MEMBRANES: THE EFFECT OF LIPID COMPOSITION AND TEMPERATURE. **Atsuko Kimura**, Gulcin Pekurnaz, Tomohiro Kimura, Sierra C. Germeyan, Jessica Zimmerberg-Helms, James Loewke, Paul S. Blank, Thomas S. Reese, Klaus Gawrisch, Ludmila Bezrukov, Joshua Zimmerberg

**1723-PLAT 10:00 AM**

MORPHOLOGY INDUCED RECEPTOR TRAPPING IN ARTIFICIAL DENDRITIC SPINES. **Wim Pomp**, Thomas Schmidt

**8:15 AM–10:15 AM, ROOM 314/315**

### Platform

## Protein Structure and Conformation III

#### Co-Chairs

*Nadia Izadi Pruneyre, Institute Pasteur, France*  
*Roberto Delgadillo, CNRS, France*

**1724-PLAT 8:15 AM**

TRANSMEMBRANE SIGNALING THROUGH A BACTERIAL HEME TRANSPORTER. **Nadia Izadi Pruneyre**

**1725-PLAT 8:30 AM**

TOM1 MODULATES THE ENDOSOMAL FUNCTION OF TOLLIP VIA A FOLDING-UPON-BINDING MECHANISM. Shuyan Xiao, Mary K. Brannon, Geoffrey S. Armstrong, Kristen Fread, Jeffrey Ellena, John H. Bushweller, Carla V. Finkielstein, **Daniel G. S. Capelluto**

**1726-PLAT 8:45 AM**

X-RAY STRUCTURE OF A CALCIUM ACTIVATED TMEM16 LIPID SCRAMBLASE. **Janine D. Brunner**, Novandy K. Lim, Stephan Schenck

**1727-PLAT 9:00 AM**

AUTOPHAGY: SOLUTION STRUCTURE OF THE ATG17-ATG29-ATG31-ATG1-ATG13 COMPLEX. **Juergen Koefinger**, Michael J. Ragusa, Gerhard Hummer, James H. Hurley

**1728-PLAT 9:15 AM**

STRUCTURAL STUDIES OF G-ALPHA-Q SIGNALING. **Veronica G. Taylor**, Elena Kondrashkina, Paige Bommarito, George Lund, Tomasz Cierpicki, John J G Tesmer

**1729-PLAT 9:30 AM**

KINETICS AND THERMODYNAMICS OF APICOMPLEXA AMA1-RON2SP INTERACTION. **Roberto F. Delgadillo**, Maryse Lebrun, Martin Boulanger, Dominique Douguet

**1730-PLAT 9:45 AM**

CONFORMATION OF THE TROPONIN I C-TERMINAL DOMAIN IN SILICO AND IN VITRO: A CONSIDERATION OF DYNAMICS IN COMPARING SIMULATION AND EXPERIMENT. **Lauren Ann Metskas**, Elizabeth Rhoades

**1731-PLAT 10:00 AM**

NMR STRUCTURAL STUDIES OF A 52 KDA HETEROCYLIZATION DOMAIN OF THE YERSINIABACTIN NON-RIBOSOMAL PEPTIDE SYNTHETASE. **Subrata H. Mishra**, Bradley J. Harden, Scott R. Nichols, Dominique P. Frueh

**8:15 AM–10:15 AM, ROOM 316/317**

### Platform

## Bioengineering and Biomaterials

#### Co-Chairs

*Jacob Schmidt, University of California, Los Angeles*  
*Stavroula Sofou, Rutgers University*

**1732-PLAT 8:15 AM**

NANOPARTICLE-INDUCED MEMBRANE PORE FORMATION STUDIED WITH LIPID BILAYER ARRAYS. **Jacob Schmidt**

**1733-PLAT 8:30 AM**

STICKY PATCHES ON LIPID NANOPARTICLES GENERATE BINDING GEOMETRIES THAT ENABLE EFFECTIVE TARGETING OF OTHERWISE UNTARGETABLE CANCERS. Michelle Sempkowski, Yannis Kevrekidis, **Stavroula Sofou**

**1734-PLAT 8:45 AM**

CONTROLLED ACTIVATION OF PROTEIN ROTATIONAL DYNAMICS USING SMART HYDROGEL TETHERING. Yijia Xiong, Brenda M. Beech, Curt B. Boschek, Cheryl L. Baird, Diana J. Bigelow, Kathleen McAteer, **Thomas C. Squier**

**1735-PLAT 9:00 AM**

IMMOBILIZATION OF PROTEINS ON CHEMICALLY MODIFIED GERMANIUM INVESTIGATED BY ATR-FTIR. **Jonas Schartner**, Konstantin Gavriljuk, Andreas Nabers, Klaus Gerwert, Carsten Kötting

**1736-PLAT 9:15 AM**

USE OF SHORT AMYLOIDOGENIC PEPTIDES IN PROTEIN-LIGAND DETECTION SYSTEMS. Gabriela M. Guerra, Sónia Gonçalves, Nuno C. Santos, **Ivo C. Martins**

**1737-PLAT 9:30 AM**

ICE GROWTH CONTROL WITH ICE-BINDING PROTEINS. **Ido Braslavsky**, Ran Drori, Yeliz Celik, Peter L. Davies

**1738-PLAT 9:45 AM**

A TWO-COLOR NON-MUSCLE SERCA FRET SENSOR FOR DIABETES DRUG DISCOVERY USING FLUORESCENCE LIFETIME DETECTION. **Tory Schaaf**, Ji Li, Rocio Foncea, Simon Gruber, Kurt Peterson, Karl Petersen, Cornea Razvan, Greg Gillispie, David Bernlohr, David Thomas

**1739-PLAT 10:00 AM**

A NOVEL MOLECULAR RULER BETWEEN FLUORESCENT PROTEINS. **Gary CH Mo**, Jin Zhang



9:00 AM–10:00 AM, ROOM 318  
**Subgroup Chairs Meeting**

9:30 AM–10:30 AM, ROOM 301/302/303

**Career Center Workshop**  
**Successfully Navigating the International**  
**Job Search**

Applying for a job in one country while finishing up your education and training in another can be challenging, but it can be done with success. In this workshop we will discuss specific strategies to finding jobs in another country while one is abroad and how to leverage your networks in-country to access opportunities, especially those that are hidden. Special emphasis will be placed on establishing your reputation as a leader in your field with professionals in the country or region in which you wish to work. Case studies will be shared.

10:00 AM–5:00 PM, HALL C  
**Biomolecular Discovery Dome**

Visit this 3-D portable Dome, sponsored by the Public Affairs Committee, to see how difficult biophysical topics can be made accessible to high school students and the public. Short videos that communicate the excitement of looking at macromolecular complexes and understanding the molecular basis for life are being shown throughout the week.

10:00 AM–5:00 PM, HALL C  
**Exhibits**

10:15 AM–11:00 AM, HALL C  
**Coffee Break**

10:30 AM–12:00 PM, HALL C, ROOM B  
**Exhibitor Presentation**  
**SensiQ Technologies Inc**

**High End Microscope Platform for Multimodal Live Cell Imaging**  
 SensiQ's dynamic injection methods provide complete, one-pass kinetic and equilibrium data from a single injection while reducing statistical error/noise. Simply load one, highest analyte concentration vial and the instrument exposes the surface to either a stepwise (FastStep®) or continuous gradient (OneStep®) of concentrations. These approaches increase the ease/throughput of SPR experiments and provide complete data sets for interactions that are complicated by incomplete surface regeneration. FastStep® uses a patented onboard micro-mixing technique to create increasing fixed concentrations of analyte in real time without generating partial dissociation responses as the instrument prepares subsequent concentrations. This technique improves throughput by decreasing the time to complete a full run while simplifying data analysis. OneStep® is the ultimate evolution of FastStep®. Taylor dispersion fluidics establish a continuous gradient of analyte concentrations which is flowed over the surface to generate a sigmoidal binding curve. This technique introduces a time dependent variable that is not possible in traditional injection techniques and allows for the quantitative separation of multiple binding sites with different affinities. OneStep® also increases the dynamic range of allowable concentrations thereby removing the need to perform test injections or accurately guess the affinity of an unknown interaction. Importantly, OneStep® also provides added data content in SPR experiments by providing a measure of the analyte diffusion coefficient to help identify analytes that have a tendency to oligomerize or aggregate. SensiQ's operational software was developed to simplify assay development and instrument operation. Using a drag and drop icon based programming approach, traditional program "scripting" is eliminated

to simplify and speed assay development. Executable protocols for high throughput experiments can be developed in minutes. Programming examples will show how operational actions have been optimized to decrease runtime and increase throughput. Streamlining data analysis of small or large data sets using our Q-Dat software will also be presented.

**Presenters**

Derek Beahm, SensiQ Application Scientist  
 Rick Cope, SensiQ Sales Representative

10:45 AM–12:45 PM, BALLROOM I  
**Symposium**  
**Awards Symposium**

**Chair**

*Dorothy Beckett, University of Maryland, Society President*

**NO ABSTRACT 10:45 AM**

RECENT PROGRESS ON OLD PROBLEMS. **Harold Scheraga**

**NO ABSTRACT 11:05 AM**

MEMBRANE PROTEINS NEED LIPIDS. **Anthony Watts**

**NO ABSTRACT 11:25 AM**

EVOLUTION AND ASSEMBLY OF PROTEIN COMPLEXES.  
**Sarah Teichmann**

**NO ABSTRACT 11:45 AM**

SURPRISES I FOUND IN STUDYING MEMBRANES.  
**Gerald W. Feigenson**

**NO ABSTRACT 12:05 PM**

TALES OF TUBULIN TAILS. **Antonina Roll-Mecak**

**NO ABSTRACT 1:25 PM**

FROM CYTOKINESIS TO THE EARLY MOUSE EMBRYO DEVELOPMENT: A SIMPLE PHYSICAL VIEW OF CELL MORPHOGENESIS. **Hervé Turlier**

10:45 AM–12:45 PM, BALLROOM II  
**Platform**  
**Protein Fold Stability**

**Co-Chairs**

*Dominika Gruszka, Cambridge University, United Kingdom*  
*Nathaniel Nucci, Rowan University*

**1740-PLAT 10:45 AM**

THE FOLDING OF SASG: A LONG AND REMARKABLY STRONG MONOMERIC PROTEIN RESPONSIBLE FOR BIOFILM FORMATION IS A HIGHLY COOPERATIVE SYSTEM.

**Dominika T. Gruszka**, Fiona Whelan, Emanuele Paci, David J. Brockwell, Jennifer R. Potts, Jane Clarke

**1741-PLAT 11:00 AM**

PUTTING ON THE SQUEEZE: SOLUTION NMR INVESTIGATIONS OF PROTEIN STRUCTURE AND HYDRATION UNDER HIGH PRESSURE. **Nathaniel V. Nucci**, Brian Fuglestad, Connie Liao, Evangelia A. Athanasoula, A. Joshua Wand

**1742-PLAT 11:15 AM**

EFFECTS OF CROWDING, OSMOLYTES, TEMPERATURE AND PRESSURE ON THE INTERACTION POTENTIAL OF DENSE PROTEIN SOLUTIONS. **Roland Winter**

**1743-PLAT 11:30 AM**

A MULTISCALE MODEL FOR PH-DEPENDENT FOLDING AND BINDING OF A CONDITIONALLY DISORDERED CHAPERONE. **Logan S. Ahlstrom**, Sean M. Law, Alex Dickson, Charles L. Brooks III

**1744-PLAT 11:45 AM**  
STRUCTURAL ORIGIN OF LANDSCAPE ROUGHNESS IN PROTEIN FOLDING FROM SINGLE-MOLECULE FRET AND ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS. **Hoi Sung Chung**, Stefano Piana-Agostinetti, David E. Shaw, William A. Eaton

**1745-PLAT 12:00 PM**  
RESOLVING COOPERATIVE INTERACTIONS IN PROTEIN FOLDING. **Jacob D. Marold**, Thuy P. Dao, Tural Aksel, Doug Barrick

**1746-PLAT 12:15 PM**  
MAPPING THE MECHANISM OF FAST PROTEIN FOLDING WITH MULTIPLE PROBES. **Taras V. Pogorelov**, Maxim B. Prigozhin, Shu-Han Chao, Martin Gruebele

**1747-PLAT 12:30 PM**  
PHOTOBLEACHING AND STABILITY OF RED FLUORESCENT PROTEINS. **Mengyang Xu**, Deepu K. George, Ralph Jimenez, Andrea G. Markelz

**10:45 AM–12:45 PM, BALLROOM III**

### **Platform** **Voltage-gated K Channels II**

#### **Co-Chairs**

*Jianmin Cui, Washington University in St. Louis*  
*Kelly Aromolaran, Albert Einstein College of Medicine*

**1748-PLAT 10:45 AM**  
EMERGING ROLE FOR KCNQ1 IN ISCHEMIA-INDUCED NEURONAL DEATH. **Kelly A. Aromolaran**, Jee-Yeon Hwang, Thomas V. McDonald, R. Suzanne Zukin

**1749-PLAT 11:00 AM**  
SPECTROSCOPIC AND BIOCHEMICAL STUDIES OF TRIP8B REGULATION OF HCN CHANNELS. **John R. Bankston**, Hannah A. DeBerg, Joel C. Rosenbaum, Peter S. Brzovic, Stefan Stoll, William N. Zagotta

**1750-PLAT 11:15 AM**  
EPILEPSY RELATED SLACK CHANNEL MUTANTS LEAD TO CHANNEL OVER-ACTIVITY BY TWO DIFFERENT MECHANISMS. Qiong-Yao Tang, Fei-Fei Zhang, Jie Xu, Ran Wang, Jian Chen, **Zhe Zhang**

**1751-PLAT 11:30 AM**  
QUANTUM CALCULATIONS SHOW A WATER COLUMN IN A POTASSIUM ION CHANNEL PORE, AND ITS ROLE IN GATING AND CONDUCTION. Alisher M. Kariev, **Michael E. Green**

**1752-PLAT 11:45 AM**  
PIP2 AND SURFACE EXPRESSION UNDERLIE APO-CALMODULIN DEPENDENT KV7.2/KCNQ2 CURRENT POTENTIATION. **Carolina Gomis-Perez**, Maria Virginia Soldovieri, Aritz Alberdi, Paolo Ambrosino, Michela Di Maria, Alessandro Alaimo, Ganeko Bernardo-Seisdedos, Covadonga Malo, Pilar Areso, Maurizio Tagliatalata, Alvaro Villarrol

**1753-PLAT 12:00 PM**  
THE MECHANISM OF KCNE1 MODULATION OF KCNQ1 CHANNELS. Mark A. Zaydman, Marina Kasimova, Kelli Delaloye, Jingyi Shi, Hongwu Liang, Zachary Beller, Mounir Tarek, **Jianmin Cui**

**1754-PLAT 12:15 PM** INTERNATIONAL TRAVEL AWARDEE  
DISRUPTION OF ASSEMBLY/CALMODULIN-BINDING COUPLING AND CALMODULIN-DEPENDENT POTENTIATION OF KV7.2 CHANNELS BY A EPILEPTOGENIC HELIX D MUTATION. **Aritz Alberdi**, Ganeko Bernardo-Seisdedos, Carolina Gomis-Perez, Alessandro Alaimo, Covadonga Malo, Elisabeth Butz, Christian Wahl-Schott, Pilar Areso, Alvaro Villarrol

**1755-PLAT 12:30 PM**  
STATIN INHIBITS IKS INTERNALIZATION IN RESPONSE TO PROLONGED STRESS STIMULUS. **Xiaorong Xu Parks**, Elsa Ronzier, Rachael E. Abraham, Jin O-Uchi, Coeli M. Lopes

**10:45 AM–12:45 PM, BALLROOM IV**

### **Platform** **Membrane Receptors and Signal Transduction**

#### **Co-Chairs**

*Kalina Hristova, Johns Hopkins University*  
*Nils Berglund, Bioinformatics Institute, Singapore*

**1756-PLAT 10:45 AM**  
CONFRONTATIONAL DYNAMICS OF A GPCR REVEALED BY SINGLE MOLECULE FRET. **Reza Vafabakhsh**, Joshua Levitz, Ehud Y. Isacoff

**1757-PLAT 11:00 AM**  
BIASED AGONISM AT OPIOID RECEPTORS: INSIGHTS FROM ANALYSIS OF STRUCTURAL INTERACTION FINGERPRINTS. **Davide Provasi**, Paola Bisignano, Marta Filizola

**1758-PLAT 11:15 AM**  
CONFORMATIONAL DYNAMICS OF A G PROTEIN-COUPLED RECEPTOR AT THE SINGLE-MOLECULE LEVEL. **Rajan Lamichhane**, Jeffrey J. Liu, Raymond C. Stevens, David P. Millar

**1759-PLAT 11:30 AM**  
ENTRY FROM THE LIPID BILAYER: A NOVEL PATHWAY FOR INHIBITION OF A PEPTIDE G-PROTEIN COUPLED RECEPTOR BY A LIPOPHILIC SMALL MOLECULE. **Michael P. Bokoch**, Hyunil I. Jo, James R. Valcourt, Yoga Srinivasan, Kazuma Yasuhara, Albert C. Pan, Ron O. Dror, David E. Shaw, William F. DeGrado, Shaun R. Coughlin

**1760-PLAT 11:45 AM**  
SINGLE MOLECULE IMAGING OF M<sub>2</sub> MUSCARINIC RECEPTORS IN LIVE HEART EXPLANTS. **Gregory I. Mashanov**, Tatiana A. Nenasheva, Ross A. Breckenridge, Nigel J.M. Birdsall, Justin E. Molloy

**1761-PLAT 12:00 PM**  
THE STRUCTURAL BASIS FOR LIPID A RECOGNITION IN THE CD14 INNATE IMMUNE CO-RECEPTOR. **Nils A. Berglund**, Daniel A. Holdbrook, Syma Khalid, Peter J. Bond

**1762-PLAT 12:15 PM**  
INSIDE-OUT SIGNALING OF ONCOGENIC EGFR MUTANTS PROMOTES LIGAND-INDEPENDENT DIMERIZATION. **Christopher C. Valley**, Donna J. Arndt-Jovin, Thomas M. Jovin, Mara P. Steinkamp, Alexey I. Chizhik, Narain Karedla, William S. Hlavacek, Bridget S. Wilson, Keith A. Lidke, Diane S. Lidke

**1763-PLAT 12:30 PM**  
MECHANISMS OF AUTOINHIBITION AND DIMERIZATION OF THE EGF RECEPTOR FAMILY. **Patrick Byrne**, Kalina Hristova, Daniel Leahy

10:45 AM–12:45 PM, ROOM 307/308

## Platform DNA Structure

### Co-Chairs

*Luis Marky, University of Nebraska Medical Center*  
*Thomas Kuhlman, University of Illinois at Urbana-Champaign*

**1764-PLAT 10:45 AM**

SOLID-TO-FLUID DNA TRANSITION INSIDE HSV-1 CAPSID CLOSE TO THE TEMPERATURE OF INFECTION. **Alex Evilevitch**, Udom Sae-Ueng, Dong Li, Xiaobing Zuo, Jamie Huffman, Fred Homa, Donald Rau

**1765-PLAT 11:00 AM EDUCATION TRAVEL AWARDEE**

NANOPORE SENSORS FOR ANALYSIS OF CIRCULAR DNA TOPOLOGY. **Eric Krueger**, Jiwook Shim, A. Nicole Chang, Basheer Subei, Arman Fathizadeh, Katie Livingston, Paul Davis, Elton Graugnard, Fatemeh Khalili-Araghi, Rashid Bashir, David Estrada, Daniel Folega

**1766-PLAT 11:15 AM**

MECHANICAL PROPERTIES AND STRAND INVASION OF DUPLEX TELOMERE DNA PROBED USING MAGNETIC TWEEZERS. **Xi Long**, Michael D. Stone

**1767-PLAT 11:30 AM**

HIGH-THROUGHPUT QUANTIFICATION OF THE IMPACT OF DIFFERENT OSMOLYTES ON THE THERMAL STABILITY OF DNA. **Prem K. Sinha**, Mikhail Sinev, Jörg Rösger

**1768-PLAT 11:45 AM**

REAL TIME TRANSPOSABLE ELEMENT DYNAMICS.  
**Thomas E. Kuhlman**

**1769-PLAT 12:00 PM**

EFFECT OF METHYLATION ON THE NANOMECHANICS OF DOUBLE-STRANDED DNA. **Csaba I. Pongor**, Pasquale Bianco, Miklós Kellermayer

**1770-PLAT 12:15 PM**

THERMODYNAMICS FOR THE INTERACTION OF PEG-PLL COPOLYMERS WITH DNA. Hui-Ting Lee, Alexander J. Lushnikov, Irine Khustsishvili, **Luis A. Marky**

**1771-PLAT 12:30 PM**

CORRELATING DRUG BINDING AFFINITIES WITH BASE PAIR OPENING RATES IN DNA. **Mary E. Hatcher**, Mary Creedon

10:45 AM–12:45 PM, ROOM 309/310

## Platform Exocytosis, Endocytosis and Membrane Fusion

### Co-Chairs

*Anne Kenworthy, Vanderbilt University*  
*Gregory Melikian, Emory University*

**1772-PLAT 10:45 AM**

MICROTUBULE MOTORS DRIVE PLASMA MEMBRANE TUBULATION IN CLATHRIN-INDEPENDENT ENDOCYTOSIS. Charles A. Day, Nicholas W. Baetz, Ajit Tiwari, Kimberly R. Drake, Courtney A. Copeland, Lewis J. Kraft, Bing Han, Daniel J. Chinnapan, Michael W. Davidson, Randall K. Holmes, Michael G. Jobling, Trina A. Schroer, Wayne I. Lencer, **Anne K. Kenworthy**

**1773-PLAT 11:00 AM**

HIGH-SPEED ATOMIC FORCE MICROSCOPY OF ESCRT PROTEIN ASSEMBLY. Lorena Redondo, Nicolas Chiaruttini, Atsushi Miyagi, Adai Colom, Aurélien Roux, **Simon Scheuring**

**1774-PLAT 11:15 AM**

MECHANISMS OF MEMBRANE SHAPING BY PERIPHERAL PROTEINS. **Tobias Baumgart**

**1775-PLAT 11:30 AM**

ROLE OF HEMAGGLUTININ PALMITOYLATION IN ASSEMBLY AND FUSION OF INFLUENZA VIRUS-LIKE PARTICLES. **Petr Chlanda**, Elena Mekhedov, Hang Waters, Paul S. Blank, Josh Zimmerberg

**1776-PLAT 11:45 AM**

PREFUSION STRUCTURES OF LIPID-BOUND SNARE PROTEINS SUGGEST FOLDING PATHWAYS OF TRANS-SNARE COMPLEX. **Binyong Liang**, Volker Kiessling, Damian Dawidowski, David S. Cafiso, Lukas K. Tamm

**1777-PLAT 12:00 PM**

ENERGETICS AND KINETICS OF SNARE ZIPPERING AND REGULATION REVEALED BY SINGLE-MOLECULE MANIPULATION APPROACH. **Yongli Zhang**

**1778-PLAT 12:15 PM**

TEMPORALLY RESOLVING PROTEIN AND LIPID COLOCALIZATION AT EXOCYTIC SITES IN INS-1 CELLS. **Adam J. Trexler**, Justin Taraska

**1779-PLAT 12:30 PM**

DEFINING A RETROVIRUS ENTRY SITE BY SINGLE PARTICLE TRACKING. **Gregory Melikian**, Sergi Padilla-Parra, Naoyuki Kondo, Mariana Marin

10:45 AM–12:45 PM, ROOM 314/315

## Platform Force Spectroscopy and Scanning Probe Microscopy

### Co-Chairs

*Felix Rico, INSERM and Aix-Marseille University, France*  
*Yan Jiang, Harvard University*

**1780-PLAT 10:45 AM**

IMAGING AND THREE-DIMENSIONAL RECONSTRUCTION OF CHEMICAL GROUPS IN A PROTEIN COMPLEX USING DNA LABELS. **Duckhoe Kim**, Ozgur Sahin

**1781-PLAT 11:00 AM**

ACOUSTIC FORCE SPECTROSCOPY. **Douwe Kamsma**, Gerrit Sitters, Gregor Thalhammer, Monika Ritsch-Marte, Erwin J.G. Peterman, Gijs J.L. Wuite

**1782-PLAT 11:15 AM**

REVISITING THE FREE ENERGY OF MODULAR PROTEINS UNDER FORCE. **Ionel Popa**, Jaime Andrés Rivas-Pardo, Edward C. Eckels, Jessica Valle-Obrero, Thomas B. Kahn, Ronen Berkovich, Guillaume Stirnemann, Hu Chen, Vicente I. Fernandez, Bruce J. Berne, Jie Yan, Julio M. Fernandez

**1783-PLAT 11:30 AM EDUCATION TRAVEL AWARDEE**

DIRECTLY OBSERVING THE REVERSIBLE UNFOLDING AND REFOLDING OF AN ALPHA/BETA PROTEIN BY SINGLE-MOLECULE ATOMIC FORCE MICROSCOPY. **Chengzhi He**, Chunguang Hu, Xiaodong Hu, Xiaotang Hu, Adam Xiao, Hongbin Li

**1784-PLAT 11:45 AM**  
ELECTROMAGNETIC TWEEZERS WITH INDEPENDENT FORCE AND TORQUE CONTROL. **Chang Jiang**, Troy A. Lionberger, Diane M. Wiener, Edgar Meyhöfer

**1785-PLAT 12:00 PM**  
SURFACE-FREE SINGLE-MOLECULE FORCE SPECTROSCOPY. **Yan Jiang**, Wesley Wong

**1786-PLAT 12:15 PM**  
HIGH-SPEED FORCE SPECTROSCOPY UNBINDS STREPTAVIDIN-BIOTIN AT THE VELOCITY OF MOLECULAR DYNAMICS SIMULATIONS. **Felix Rico**, Andreas Russek, Helmut Grubmueller, Simon Scheuring

**1787-PLAT 12:30 PM**  
THE PRINCESS AND THE PEA: A STORY OF CELL MECHANICS. **Mehdi Roeinpeikar**, Qian Xu, Xuefeng Wang, Taekjip Ha

10:45 AM–12:45 PM, ROOM 316/317

### Platform Protein-Small Molecule Interactions

#### Co-Chairs

*Jürgen Bosch, Johns Hopkins University*  
*Sonya Hanson, Memorial Sloan Kettering Cancer Center*

**1788-PLAT 10:45 AM**  
BIASING POTENTIAL REPLICA EXCHANGE MULTI-SITE  $\lambda$ -DYNAMICS FOR EFFICIENT FREE ENERGY CALCULATIONS OF PROTEIN-LIGAND INTERACTIONS. **Kira A. Armacost**, Garrett B. Goh, Charles L. Brooks

**1789-PLAT 11:00 AM**  
SURVEY OF PHOSPHORYLATION NEAR DRUG BINDING SITES IN THE PROTEIN DATA BANK (PDB) AND THEIR EFFECTS. **Kyle P. Smith**, Kathleen M. Gifford, Joshua S. Waitzman, Sarah E. Rice

**1790-PLAT 11:15 AM EDUCATION TRAVEL AWARDEE**  
IDENTIFICATION AND CHARACTERIZATION OF PROTEIN-PROTEIN INTERACTION EFFECTORS TARGETING THE INVASION MACHINERY OF THE MALARIA PARASITE. **Lauren E. Boucher**, Christine S. Hopp, Photini Sinnis, Jürgen Bosch

**1791-PLAT 11:30 AM**  
ABSOLUTE BINDING FREE ENERGY CALCULATIONS OF BROMODOMAIN INHIBITORS. **Matteo Aldeghi**, Stefan Knapp, Alexander Heifetz, John J. Barker, Michael J. Bodkin, Richard J. Law, Philip C. Biggin

**1792-PLAT 11:45 AM**  
POSITIVE MODULATORS OF GLYCINE RECEPTORS WITH ANALGESIC POTENTIAL IDENTIFIED BY VIRTUAL SCREENING. **Marta M. Wells**, David D. Mowrey, Edom Seyoum, Tianmo Sun, Yan Xu, Pei Tang

**1793-PLAT 12:00 PM**  
GREEN AND BLACK TEA POLYPHENOLS MECHANISTICALLY INHIBIT THE AGGREGATION OF AMYLOID- $\beta$  IN ALZHEIMER'S DISEASE. **Shelby E. Chastain**, Melissa Moss

**1794-PLAT 12:15 PM**  
EFFECT OF REACTIVE ALDEHYDES ON IONOPHORE-MEDIATED TRANSMEMBRANE TRANSLOCATIONS OF H<sup>+</sup> AND K<sup>+</sup>. **Alina A. Pashkovskaya**, Elena E. Pohl

**1795-PLAT 12:30 PM**  
DEVELOPING HIGH-THROUGHPUT FLUORESCENCE-BASED ASSAYS FOR MEASURING KINASE INHIBITOR FREE ENERGIES OF BINDING. **Sonya M. Hanson**, Jan-Hendrik Prinz, Julie M. Behr, Patrick B. Grinaway, Arien S. Rustenburg, Kyle A. Beauchamp, Daniel L. Parton, John D. Chodera

12:00 PM–1:30 PM, ROOM 331/332

### Funding Opportunities for Faculty at Primarily Undergraduate Institutions

The Education Committee is hosting this session aimed at helping PUI faculty find funding sources that will help them to establish or maintain an active and productive undergraduate research laboratory.

#### Speakers

Jean Chin, NIGMS  
Kamal Shukla, NSF

12:00 PM–2:00 PM, ROOM 318/319

### Postdoc to Faculty Q&A: Transitions Forum and Luncheon

This question-and-answer luncheon, sponsored by the Committee for Professional Opportunities for Women (CPOW), is designed for postdocs finishing and actively applying for academic faculty positions. New faculty and recently tenured faculty in basic science and/or medical school departments will lead the discussion, as well as experienced senior-level faculty who have served as department chairs and/or part of faculty search committees. Topics for discussion include how to prepare the curriculum vitae, the interview process, networking, how to negotiate the job offer, and advice for new faculty as they balance research with their department obligations. Pre-registration was required for lunch. If you are interested in attending and did not register in advance, you are welcome to participate in the discussion on a space-available basis.

#### Speakers

Sarah Bondos, Texas A&M Health Science Center  
Jane Clarke, University of Cambridge, United Kingdom  
Barry Grant, University of Michigan  
Anne Hinderliter, University of Minnesota, Duluth  
Rohit Pappu, Washington University, St. Louis  
Catherine Royer, Rensselaer Polytechnic Institute  
Madeline Shea, University of Iowa Carver College of Medicine  
Shai Silberberg, NIH/NINDS  
Joanna Sulkowska, University of Warsaw, Poland

12:30 PM–2:00 PM, HALL C, ROOM B

### Exhibitor Presentation Nanon Technologies GmbH

#### Measure More Membrane: Cells, Bilayers and Transporter Activity

The Port-a-Patch turned 10 years old last year, and is going stronger than ever. It's still the smallest patch clamp rig in the world, and makes patch clamp recordings accessible to anyone spending a couple of hours with it. Giga-seal recordings and the excellent voltage-clamp of the cellular membrane ensure high quality data, and the Port-a-Patch add-ons allow unprecedented experimental freedom, including temperature control, internal perfusion, automated action potential recordings, and recordings from primary and stem cell-derived cells.

The Orbit 16 is a parallel device for efficient formation of and recordings from up to 16 artificial bilayers at once, for parallel bilayer-reconstitution of ion channels and nanopores. Using Micro Electrode Cavity Array (MECA, Ionera), a 4 x 4 array of circular micro-cavities in a highly inert polymer, the bilayer is automatically formed by remotely actuated painting (Ionera-SPREAD), which all will be demonstrated during the session.



Ion transporters and pumps play an important role within general metabolism and information processing of organisms. The SURFE2R is a unique platform for direct measurements ion transporters and ion channels in diverse and heterologous membranes. It is easy-to-handle, highly sensitive and a very efficient screening platform. The SURFE2R N1 is a small footprint, fully automated device recording from membrane preparations, with proven success using native tissue, mammalian and insect cell lines, bacteria, organelles, and proteoliposomes.

Join this workshop for hands-on experiments and information about three outstanding platforms: Port-a-Patch, Orbit 16 and SURFE2R N1! We look forward to seeing you!

Spaces are limited so reserve yours by sending an email to [info@nanion.de](mailto:info@nanion.de).

#### Presenters

Andrea Brüggemann, CSO, Nanion Technologies GmbH  
Maria Barthmes, Application Specialist, Nanion Technologies GmbH  
Gerhard Baaken, CEO, Ionera

1:00 PM–3:00 PM, HALL C

### Industry and Agency Opportunities Fair

This fair will introduce attendees to companies and agencies that have employment and funding opportunities outside of academia. Stop by the fair to learn about the variety of opportunities available to scientists in industry and government and to talk one-on-one with representatives from participating organizations. Don't forget to check out the Career Center, Room 301/302/303, for current job prospects offered by many of the participating organizations.

1:30 PM–3:00 PM, HALL C, ROOM A

### Exhibitor Presentation KinTek Corporation

#### KinTek Explorer Software: New Advances in Fitting Kinetic and Equilibrium Data

Fitting kinetic data based upon numerical integration of rate equations offers many advantages over conventional fitting of data based upon equations derived from simple models. Fitting by simulation is the most rigorous and eliminates numerous errors in simplifying assumptions needed to derive equations. Every day papers are published that contain errors in kinetic analysis that could have been avoided if the data had been fit using KinTek Explorer software.

In this presentation, Dr. Johnson will show how global fitting of kinetic data can be accomplished with ease using the fast, dynamic simulation in KinTek Explorer software, overcoming the all-to-common errors in conventional fitting. Moreover, data are fit to derive rate constants directly defining steps in a model, not merely observed rates (Eigenvalues). New advances in the software allow fitting kinetic data from single molecule experiments and families of curves can be fit simultaneously to define voltage-dependent rate constants or data from Temperature-jump or Pressure-jump experiments. In addition, equilibrium titration data can be fit using a unique endpoint simulation method, and time-resolved spectra can be fit using singular value decomposition (SVD). All experiments can be fit simultaneously and accurate error estimates are derived using robust confidence contour analysis.

#### Presenters

Kenneth A. Johnson, President, KinTek Corporation  
Roger Williams, Professor of Biochemistry, University of Texas at Austin

1:30 PM–2:30 PM, ROOM 309/310  
**Conversation with NIGMS Director  
Jon Lorsch**

Jon Lorsch assumed the role of Director of the National Institute of General Medical Sciences in 2013. One year in, he is leading a five-year strategic planning effort at NIH for the Institute and examining how the Institute can make the most of its resources to support fundamental research. Come to this session to learn more about Lorsch's vision for NIGMS as well as what is new at the Institute.

1:45 PM–3:00 PM, HALL C  
**Snack Break**

2:30 PM–3:30 PM, ROOM 301/302/303  
**Career Center Workshop  
Ten Tough Industrial Interview Questions  
(and Ten Pretty Good Responses)**

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

2:30 PM–4:30 PM, ROOM 330

### Grant Opportunities for Early Career Faculty

In this panel, hosted by the Early Careers Committee, program coordinators and research administrators from key funding agencies will discuss and answer questions about the timeline, strategies, and funding opportunities for new faculty working to establish their independent laboratories.

#### Speakers

Bishow Adhikari, NIH  
Beth Schachter, Beth Schachter Consulting  
Kamal Shukla, NSF

3:00 PM–4:00 PM, ROOM 327/328/329

### Networking with Minority Biophysicists: Resources and Opportunities

This networking event, sponsored by the Minority Affairs Committee, provides minority students and scientists the opportunity to network and discuss challenges and resources with other minority biophysicists.

3:00 PM–5:00 PM, ROOM 333

### Education Committee Meeting

4:00 PM–6:00 PM, BALLROOM I

### Symposium Nanoclustering of Membranes and Membrane Proteins

#### Chair

*Ka Yee Lee, University of Chicago*

1796-SYMP 4:00 PM

STRUCTURE AND FUNCTION OF MEMBRANE-REMODELING ESCRT-III ASSEMBLIES. John McCullough, Marissa Saunders, Jeremy Colf, Wes Sundquist, **Adam Frost**

**1797-SYMP 4:30 PM**  
IN VIVO-STUDIES OF GPCR CONFORMATIONAL CHANGES USING FLUORESCENCE-BASED ASSAYS. **Martin Lohse**

**1798-SYMP 5:00 PM**  
LIPID ORGANIZATION OF THE PLASMA MEMBRANE. Helgi I. Ingolfsson, Peter Tieleman, **Siewert Marrink**

**1799-SYMP 5:30 PM**  
DIFFERENTIAL PHOSPHATIDYLSERINE RECOGNITION BY THE TIM FAMILY OF IMMUNE REGULATORY RECEPTORS. **Ka Yee C. Lee**

**4:00 PM–6:00 PM, BALLROOM II**

### Symposium

## Extremophiles: Testing the Physical Limits of Living Systems

#### Chair

*Catherine Royer, Rensselaer Polytechnic Institute*

**1800-SYMP 4:00 PM**  
PROTEIN FOLDING AT EXTREME TEMPERATURES: CURRENT ISSUES. **Georges Feller**

**1801-SYMP 4:30 PM**  
USING SINGLE MOLECULE FORCE SPECTROSCOPY TO PROBE PROTEINS FROM EXTREMOPHILES. **Lorna Dougan**

**1802-SYMP 5:00 PM**  
MECHANISMS OF PRESSURE EFFECTS IN BIOLOGY: FROM PROTEINS TO LIVE BACTERIA. **Catherine Ann Royer**

**1803-SYMP 5:30 PM**  
WHAT LIMITS MICROBIAL GROWTH AT HIGH PRESSURE? **Doug Bartlett**

**4:00 PM–6:00 PM, BALLROOM III**

### Platform

## Optical Microscopy and Super-Resolution Imaging II

#### Co-Chairs

*Luca Lanzano, Italian Institute of Technology, Italy*  
*Johan Elf, Uppsala University, Sweden*

**1804-PLAT 4:00 PM**  
BACKGROUND-FREE SUPER-RESOLUTION MICROSCOPY OF SUBCELLULAR STRUCTURES BY LIFETIME TUNING AND PHOTONS SEPARATION. **Luca Lanzano**, Ivan Coto Hernandez, Marco Castello, Enrico Gratton, Alberto Diaspro, Giuseppe Vicidomini

**1805-PLAT 4:15 PM**  
INVESTIGATING CELLULAR FOCAL ADHESIONS ON NANOPATTERNED SUBSTRATES WITH DUAL COLOR PHOTO-ACTIVATED LOCALIZATION MICROSCOPY. **Hendrik G. Deschout**, Michelle A. Baird, Michael W. Davidson, Joachim P. Spatz, Aleksandra Radenovic

**1806-PLAT 4:30 PM MINORITY AFFAIRS TRAVEL AWARDEE**  
QUANTITATIVE ANALYSIS OF NANOSCALE LIPID BILAYER MODIFICATIONS VIA SECOND HARMONIC GENERATING PROBES. **Erick K. Moen**, Hope Beier, Andrea Armani, Bennett Ibey

**1807-PLAT 4:45 PM**  
FUNCTIONAL IMAGING OF INTACT PANCREATIC ISLETS BY INVERTED SELECTIVE PLANE ILLUMINATION MICROSCOPY. **Zeno Lavagnino**, David W. Piston

**1808-PLAT 5:00 PM**  
SINGLE MOLECULE TRACKING IN LIVING CELLS - MULTISTEP REACTIONS, SIMULATED MICROSCOPY AND NEW ANALYSIS METHODS. **Martin Lindén, Johan Elf**

**1809-PLAT 5:15 PM**  
MAPPING THE DIFFUSIVE ROUTE OF NANOPARTICLES IN LIVE CELLS REVEALS SHAPE TO CONTROL NUCLEAR ACCESSIBILITY. **Elizabeth Hinde**, Hien T. Duong, Bunyamin Karagoz, Justin J. Gooding, Cyrille Boyer, Katharina Gaus

**1810-PLAT 5:30 PM**  
CORRELATIVE IPALM AND PLATINUM REPLICA ELECTRON TOMOGRAPHY PINPOINTS ENDOCYTTIC PROTEINS ON THE MAMMALIAN CELL CORTEX IN 3D. **Kem A. Sochacki**, Gleb Shtengel, Harald F. Hess, Justin W. Taraska

**1811-PLAT 5:45 PM**  
REFSOFI FOR IMAGING PROTEIN-PROTEIN INTERACTIONS IN LIVING CELLS IN SUPER-RESOLUTION. **Fabian Hertel**, Gary Mo, Sam Duwé, Peter Dedecker, Jin Zhang

**4:00 PM–6:00 PM, BALLROOM IV**

### Platform

## Cardiac Muscle Regulation

#### Co-Chairs

*Maegen Ackermann, University of Maryland, Baltimore*  
*Michael Previs, University of Vermont*

**1812-PLAT 4:00 PM**  
OVEREXPRESSION OF FOXO IN THE HEART AMELIORATES PERFORMANCE DECLINE THROUGH ENHANCED UPS PROCESSING IN AGING DROSOPHILA. **Anna C. Blice-Baum**, Gaurav Kaushik, Meera C. Viswanathan, Alexander C. Zambon, Adam J. Engler, Rolf Bodmer, Anthony Cammarato

**1813-PLAT 4:15 PM**  
OBSCURINS' MECHANISTIC INVOLVEMENT IN SIGNAL TRANSDUCTION AT THE CARDIAC INTERCALATED DISC. **Maegen Ackermann**, Nicole Perry, Aikaterini Kontrogianni-Konstantopoulos

**1814-PLAT 4:30 PM**  
THE N-TERMINAL HYPERVARIABLE REGION OF TROPONIN T DIFFERENTIALLY MODULATES THE AFFINITY OF TROPOMYOSIN-BINDING SITES. **Chinthaka K. Amarasinghe**, Jian-Ping Jin

**1815-PLAT 4:45 PM**  
CONSTITUTIVE PHOSPHORYLATION OF MYOSIN REGULATORY LIGHT CHAIN (RLC) IN VIVO IS MAINTAINED BY LOW KINASE AND PHOSPHATASE ACTIVITIES. **Audrey N. Chang**, Patrick M. Cowley, Anthony J. Baker, Kristine E. Kamm, James T. Stull

**1816-PLAT 5:00 PM**  
EPIGALLOCATECHIN-3-GALLATE REVERSES THE DEFECTS IN MODULATION OF  $Ca^{2+}$ -SENSITIVITY BY TROPONIN I PHOSPHORYLATION CAUSED BY HYPERTROPHIC AND DILATED CARDIOMYOPATHY MUTATIONS IN CARDIAC MUSCLE. **Maria Papadaki**, Petr Vikhorev, Steven Marston, Andrew Messer

**1817-PLAT 5:15 PM**  
 MYOSIN-BINDING PROTEIN C CORRECTS AN INTRINSIC NON-UNIFORMITY IN CARDIAC EXCITATION-CONTRACTION COUPLING. **Michael J. Previs**, Benjamin L. Prosser, Ji Young Mun, Samantha Beck Previs, James Gulick, Kyoungwan Lee, Jeffrey Robbins, Roger Craig, W. Jonathan Lederer, David M. Warsaw

**1818-PLAT 5:30 PM**  
 DIRECT DETECTION OF THE THERMODYNAMICS AND STRUCTURAL KINETICS OF A 2-COLOR SERCA BIOSENSOR BY TRANSIENT TIME-RESOLVED FRET. Simon J. Gruber, **Rebecca Goldblum**, Jenica Zhong, Kurt Peterson, Tory M. Schaaf, Joseph M. Autry, Gregory D. Gillispie, David D. Thomas, Joseph M. Muretta

**1819-PLAT 5:45 PM**  
 PHOSPHOLAMBAN-INDEPENDENT ADRENERGIC RESERVE IN SERCA2 ABLATED HEARTS. **Frazer I. Heinis**, Joseph M. Metzger

4:00 PM–6:00 PM, ROOM 307/308

**Platform**  
**Protein Dynamics and Allostery II**

**Co-Chairs**

*James Munro, Tufts University*  
*Joana Paulino, Florida State University*

**1820-PLAT 4:00 PM**  
 CONFORMATIONAL DYNAMICS OF SINGLE HIV-1 ENVELOPE PROTEINS ON THE SURFACE OF NATIVE VIRIONS. **James B. Munro**, Jason Gorman, Xiaochu Ma, Zhou Zhou, James Arthos, Dennis Burton, Wayne Koff, Joel Courter, Amos Smith, Peter Kwong, Scott Blanchard, Walther Mothes

**1821-PLAT 4:15 PM**  
 ALLOSTERIC REGULATION OF NIPAH VIRUS ENTRY INTO HOST CELLS. **Sameer Varma**, Priyanka Dutta, Mohsen Botlani

**1822-PLAT 4:30 PM**  
 SPECIFIC PROTEIN-LIPID INTERACTIONS STABILIZE AN ACTIVE STATE OF THE BETA 2 ADRENERGIC RECEPTOR. **Chris Neale**, Henry D. Herce, Régis Pomès, Angel E. García

**1823-PLAT 4:45 PM**  
 DYNAMICS OF M2 PROTON CHANNEL: INSIGHTS INTO THE MOTIONS OF THE PRIMARY AND SECONDARY GATES. **Joana Paulino**, Ivan Hung, Timothy A. Cross

**1824-PLAT 5:00 PM**  
 IDENTIFICATION OF AN ENDOGENOUS ALLOSTERIC MODULATOR'S BINDING SITE AT THE HUMAN CANNABINOID-1 RECEPTOR, USING FORCED-BIASED METROPOLIS MONTE CARLO SIMULATED ANNEALING METHOD (MMC) AND MOLECULAR DYNAMICS. **Derek M. Shore**, Dow P. Hurst, Diane L. Lynch, Patricia H. Reggio

**1825-PLAT 5:15 PM**  
 LIGAND-G PROTEIN ALLOSTERIC COMMUNICATION THROUGH INTERNAL WATERS IN GPCR COMPLEXES. **Roman Osman**, Jose Carlos Gomez, Mihaly Mezei, Dov Barak, Arnau Cordini, Leonardo Pardo

**1826-PLAT 5:30 PM**  
 INSERTION OF  $\beta$ -BARREL PROTEINS IN GRAM-NEGATIVE BACTERIA. **Karl Lundquist**, James C. Gumbart

**1827-PLAT 5:45 PM**  
 SUPER-RESOLUTION MAPPING OF THE DYNAMICS OF PERIODIC STRUCTURAL DEFECTS IN COLLAGEN FIBRILS. **Andrew Dittmore**, Jonathan Silver, Barry Marmer, Gregory I. Goldberg, Keir C. Neuman

4:00 PM–6:00 PM, ROOM 309/310

**Platform**  
**Systems Biophysics**

**Co-Chairs**

*Cees Dekker, Delft University of Technology, The Netherlands*  
*Hye Ran Koh, University of Illinois at Urbana-Champaign*

**1828-PLAT 4:00 PM**  
 SYMMETRY AND SCALE ORIENT MIN OSCILLATION PATTERNS IN BACTERIAL SHAPE SCULPTURES. Fabai Wu, bas van Schie, Juan Keymer, **Cees Dekker**

**1829-PLAT 4:15 PM**  
 QUANTITATIVE ANALYSIS OF RNA INTERFERENCE BY MRNA COUTING AT SINGLE-CELL LEVEL. **Hye Ran Koh**, Sua Myong

**1830-PLAT 4:30 PM**  
 ENVIRONMENTAL STATISTICS AND OPTIMAL REGULATION. **David A. Sivak**, Matt Thomson

**1831-PLAT 4:45 PM**  
 FUNDAMENTAL CONSTRAINTS ON THE ABUNDANCES OF CHEMOTAXIS PROTEINS. **Anne-Florence Bitbol**, Ned S. Wingreen

**1832-PLAT 5:00 PM**  
 EARLY LINEAGE BIFURCATION DURING DIFFERENTIATION OF EMBRYONIC STEM CELLS REVEALED BY SINGLE-CELL TRANSCRIPTOMICS. **Stefan Semrau**, Johanna Goldmann, Magali Soumillon, Tarjei Mikkelsen, Rudolf Jaenisch, Alexander van Oudenaarden

**1833-PLAT 5:15 PM**  
 EMERGENT BEHAVIOURS OF STEM CELLS IN ORGANOGENESIS DEMONSTRATED BY HYBRID MODELLING. **Benjamin A. Hall**, Nir Piterman, Alex Hajnal, Jasmin Fisher

**1834-PLAT 5:30 PM**  
 PHAGE DNA DYNAMICS IN CORRELATION WITH CELL FATES. Qiuyan Shao, Alexander Hawkins, **Lanying Zeng**

**1835-PLAT 5:45 PM**  
 SYSTEMS MECHANO-BIOLOGY: TENSION-INHIBITED PROTEIN TURNOVER IS SUFFICIENT TO PHYSICALLY CONTROL GENE CIRCUITS. **P. C. Dave P. Dingal**, Dennis E. Discher

4:00 PM–6:00 PM, ROOM 314/315

**Platform**  
**Ion Channel Regulatory Mechanisms**

**Co-Chairs**

*Takanari Inoue, Johns Hopkins University*  
*Michelle Yen, Stanford University*

**1836-PLAT 4:00 PM**  
 COUPLING OF DISTINCT ION CHANNEL TYPES IN NEURONS MEDIATED BY AKAP79/150. Jie Zhang, **Mark S. Shapiro**

**1837-PLAT 4:15 PM**  
STOICHIOMETRY OF CRAC CHANNEL ASSEMBLY AND GATING. **Michelle Yen**, Lumila A. Lokteva, Richard S. Lewis

**1838-PLAT 4:30 PM**  
STRUCTURE AND SELECTIVITY IN BESTROPHIN ION CHANNELS. **Tingting Yang**, Qun Liu, Brian Kloss, Renato Bruni, Ravi C. Kalathur, Youzhong Guo, Edda Kloppmann, Burkhard Rost, Henry M. Colecraft, Wayne A. Hendrickson

**1839-PLAT 4:45 PM**  
HCN CHANNELS: THE MOLECULAR BASIS FOR THEIR CAMP-TRIP8B REGULATION. **Andrea Saponaro**, Chiara Donadoni, Sofia R. Pauleta, Francesca Cantini, Manolis Matzapetakakis, Gerhard Thiel, Lucia Banci, Bina Santoro, Anna Moroni

**1840-PLAT 5:00 PM**  
LIVE CELL BIOCHEMISTRY IMPLICATES PROTEIN KINASE A MODULATION OF L-TYPE CAV1.4 CHANNELS. **Lingjie Sang**, Ivy E. Dick, David T. Yue

**1841-PLAT 5:15 PM**  
A COMPREHENSIVE SEARCH FOR CALCIUM BINDING SITES CRITICAL FOR TMEM16A CALCIUM-ACTIVATED CHLORIDE CHANNEL ACTIVITY. **Huanghe Yang**, Jason Tien, Christian J. Peters, Xiu Ming Wong, Tong Cheng, Yuh Nung Jan, Lily Y. Jan

**1842-PLAT 5:30 PM**  
MOLECULAR MECHANISM OF ZINC INHIBITION ON VOLTAGE-GATED PROTON CHANNEL HV1. **Feng Qiu**, Adam Chamberlin, Sergei Noskov, H. Peter Larsson

**1843-PLAT 5:45 PM**  
ALCOHOL INHIBITION OF A CHEMICALLY-ACTIVATED GIRK2 CHANNEL. **Ian W. Glaaser**, Nidaa O. Marsh, Senyon Choe, Paul A. Slesinger

4:00 PM–6:00 PM, ROOM 316/317

### Platform

## Bioenergetics and Mitochondrial Signaling

#### Co-Chairs

*Eduardo Maldonado, Medical University of South Carolina*  
*Nathan Alder, University of Connecticut*

**1844-PLAT 4:00 PM**  
INVESTIGATION OF THE ROLE OF THE PHOSPHOLIPID CARDIOLIPIN IN ACTIVATING RESPIRATORY COMPLEX ACTIVITY. Murugappan Sathappa, Christine T. Schwall, Matthew R. Greenwood, Matthew G. Baile, Steven M. Claypool, **Nathan N. Alder**

**1845-PLAT 4:15 PM**  
BACTERIAL NANOWIRES OF SHEWANELLA ONEIDENSIS MR-1 ARE OUTER MEMBRANE AND PERIPLASMIC EXTENSIONS OF THE EXTRACELLULAR ELECTRON TRANSPORT COMPONENTS. **Sahand Pirbadian**, Sarah E. Barchinger, Kar Man Leung, Hye Suk Byun, Yamini Jangir, Rachida A. Bouhenni, Samantha B. Reed, Margaret F. Romine, Daad A. Saffarini, Liang Shi, Yuri A. Gorby, John H. Golbeck, Mohamed Y. El-Naggar

**1846-PLAT 4:30 PM**  
PIGMENT-SPECIFIC FLUORESCENCE SPECTROSCOPY OF SINGLE ANTENNA COMPLEXES IN SOLUTION. **Quan Wang**, W. E. Moerner

**1847-PLAT 4:45 PM**  
AUTOMATED DETECTION OF WHOLE-CELL MITOCHONDRIAL MOTILITY AND ITS DEPENDENCE ON CYTOARCHITECTURAL INTEGRITY. **Judith Kandel**, Philip Chou, David M. Eckmann

**1848-PLAT 5:00 PM** EDUCATION TRAVEL AWARDEE  
MOLECULAR IDENTITY AND FUNCTIONAL CHARACTERIZATION OF CHLORIDE INTRACELLULAR CHANNEL (CLIC) PROTEINS IN CARDIAC MITOCHONDRIA. **Devasena Ponnalagu**, Jason Farber, Sowmya Sukur, Wenyu Xin, Shubha Gururaja Rao, Harpreet Singh

**1849-PLAT 5:15 PM**  
MITOCHONDRIAL NM23-H4/NDPK-D IS MULTIFUNCTIONAL: FUELING MITOCHONDRIAL GTPASE OPA1 AND TRIGGERING MITOPHAGY. **Uwe Schlattner**, Mathieu Boissan, Guillaume Montagnac, Malgorzata Tokarska-Schlattner, Cécile Cottet-Rousselle, Céline Desbourdes, Marie-Lise Lacombe, Lorena Griparic, Zhentai Huang, Yulia Y. Tyurina, Jian Fei Jiang, Alexander M. van der Blik, Aurélien Roux, Philippe Chavrier, Valerian E. Kagan

**1850-PLAT 5:30 PM**  
VDAC OPENING DRUGS TO INDUCE MITOCHONDRIAL DYSFUNCTION AND CELL DEATH. **Eduardo N. Maldonado**, Monika Gooz, David N. DeHart, John J. Lemasters

**1851-PLAT 5:45 PM**  
THE 18KDA TRANSLOCATOR PROTEIN INTERACTS WITH VDAC1 AND TRIGGERS A ROS-MEDIATED INHIBITION OF MITOCHONDRIAL AUTOPHAGY. **Michelangelo Campanella**

7:30 PM–9:30 PM, BALLROOM I

### Workshop

## Managing Data and Statistics in the Informatics Era

#### Chair

*Nathan Baker, Pacific Northwest National Laboratory*

**1852-WKSHP 7:30 PM**  
A PHYSICIST'S APPROACH TO STATISTICAL ANALYSES OF BIOLOGICAL DATA. **Patrice Koehl**

**1853-WKSHP 8:00 PM**  
GLYCAN BIOSYNTHESIS: STRUCTURE, INFORMATION, AND HETEROGENEITY. Anjali Jaiman, **Mukund Thattai**

**1854-WKSHP 8:30 PM**  
LARGE-SCALE MACHINE LEARNING APPROACHES FOR MOLECULAR BIOPHYSICS. **Arvind Ramanathan**, Chakra S. Chennubhotla, Pratul K. Agarwal, Christopher B. Stanley

**1855-WKSHP 9:00 PM**  
INFORMATICS APPROACHES TO DATA PRESERVATION AND ANALYSIS IN PROTEIN ELECTROSTATICS. **Nathan A. Baker**, Chase Dowling, Luke Gosink, Trenton Pulsipher, Susanna-Assunta Sansone



7:30 PM–9:30 PM, BALLROOM II

## Workshop

### Advances in Computing Large Systems

#### Chair

*Emad Tajkhorshid, University of Illinois at Urbana-Champaign*

**1856-WKSHP 7:30 PM**

REVERSIBLE FOLDING OF HYPERSTABLE RNA TETRALOOPS USING MOLECULAR DYNAMICS SIMULATIONS.

**Angel E. Garcia**, Jacob Miner, Alan A. Chen

**1857-WKSHP 8:00 PM**

BACTERIAL OUTER MEMBRANES AND INTERACTIONS WITH MEMBRANE PROTEINS. **Wonpil Im**

**1858-WKSHP 8:30 PM**

PROTEIN FOLDING AND RECOGNITION IN THE CELL -- AN IN SILICO APPROACH. **Margaret S. Cheung**

**1859-WKSHP 9:00 PM**

ADVANCES IN ATOMIC-LEVEL SIMULATIONS OF LARGE-SCALE FUNCTIONAL MOTIONS OF MEMBRANE TRANSPORTERS. **Emad Tajkhorshid**, Mahmoud Moradi, Jing Li, Po-Chao Wen, Sundar Thangapandian, Josh Vermaas

7:30 PM–9:30 PM, BALLROOM III

## Workshop

### Microfluidics Tools for Studying Molecules and Cells

#### Chair

*Petra Dittrich, ETH Zurich, Switzerland*

**1860-WKSHP 7:30 PM**

INTEGRATED MICROFLUIDIC DEVICES FOR STUDYING AGING AND ADHESION OF INDIVIDUAL BACTERIA.

**Stephen C. Jacobson**, Joshua D. Baker, David T. Kysela, Yves V. Brun

**1861-WKSHP 8:00 PM**

DEMOCRATIZATION OF NEXT-GENERATION IMAGING, DIAGNOSTICS AND MEASUREMENT TOOLS THROUGH COMPUTATIONAL PHOTONICS. **Aydogan Ozcan**

**1862-WKSHP 8:30 PM**

A MICROFLUIDIC RAPID FREEZE QUENCH APPARATUS FOR HIGH FIELD EPR MEASUREMENTS. Alberto Collauto, Royi Kaufmann, **Daniella Goldfarb**

**1863-WKSHP 9:00 PM**

CELL AND VESICLE ANALYSIS IN MICROCHAMBERS.

**Petra S. Dittrich**

8:00 PM–10:00 PM, ROOM 330

## SOBLA

### (The Society for Latinoamerican Biophysicists) Meeting

## TUESDAY POSTER SESSIONS

*Below is the list of poster presentations of abstracts submitted by October 1. The list of late abstracts scheduled for Tuesday is available in the Program addendum. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted at 6:00 PM on Monday and must be removed NO LATER THAN 4:30 PM on Tuesday evening. Posters will be on view until 10:00 PM the night before presentation. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

On Tuesday the Exhibit Hall will close completely at 4:30 PM to accommodate the tear down of exhibits. **ALL POSTERS MUST BE REMOVED BY THIS TIME.** Posters remaining on boards after that time will be discarded. Posters being presented on Wednesday can be mounted beginning at 7:00 AM on Wednesday.

**ODD-NUMBERED BOARDS 1:45 PM–2:45 PM**

**EVEN-NUMBERED BOARDS 2:45 PM–3:45 PM**

Board Numbers	Category
B1–B28	Protein Structure and Conformation III
B29–B49	Protein Dynamics and Allostery II
B50–B70	Membrane Protein Interactions
B71–B94	Intrinsically Disordered Proteins (IDP) and Aggregates III
B95–B103	Ribosomes and Translation
B104–B131	DNA Structure and Dynamics II
B132–B154	Protein-Nucleic Acid Interactions II
B155–B175	Membrane Physical Chemistry II
B176–B199	Membrane Fusion
B200–B223	Membrane Structure II
B224–B245	Membrane Receptors and Signal Transduction III
B246–B252	Excitation-Contraction Coupling II
B253–B270	Muscle Regulation
B271–B291	Mechanisms of Voltage Sensing and Gating
B292–B318	Ligand-gated Channels II
B319–B338	Ion Channel Regulatory Mechanisms II
B339–B366	Other Channels
B367–B386	Cardiac Muscle Mechanics and Structure II
B387–B405	Microtubules, Structure Dynamics, and Associated Proteins
B406–B422	Cytoskeletal Assemblies and Dynamics
B423–B450	Cell Mechanics, Mechanosensing, and Motility III
B451–B467	Membrane Pumps, Transporters, and Exchangers III
B468–B473	Genetic and Epigenetic Regulatory Systems
B474–B481	Synthetic Biology
B482–B506	Molecular Dynamics III
B507–B528	Computational Methods and Bioinformatics
B529–B558	Optical Microscopy and Super-Resolution Imaging II
B559–B578	Biosensors II
B579–B603	Biomaterials

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

## Protein Structure and Conformation III (Boards B1-B28)

- 1864-Pos BOARD B1**  
THE MECHANOEZYMATIC PROPERTIES OF DRP1 IN NUCLEOTIDE INDUCED CONSTRICTION OF LIPID BILAYERS. **Christopher A. Francy**, Frances J.D. Alvarez, Louie Zhou, Jason A. Mears
- 1865-Pos BOARD B2**  
CAVEOLIN REVEALED: A MUTAGENESIS STUDY OF CAVEOLIN-1. **Sarah Plucinsky**, Kerney J. Glover
- 1866-Pos BOARD B3**  
RECONSTITUTION AND TOPOLOGICAL ANALYSIS OF CAVEOLIN-1 IN BICELLES. **Kyle Root**
- 1867-Pos BOARD B4**  
FRAGMENT-BASED DRUG DESIGN APPROACH FOR TARGETING PHOSPHOLIPID BIOSYNTHESIS PATHWAY IN PLASMODIUM FALCIPARUM. **Ewelina Guca**, Marina Lavigne, François Hoh, Jean-François Guichou, Christian Roumestand, Henri Vial, Rachel Cerdan
- 1868-Pos BOARD B5**  
MECHANISMS OF PIN1 REGULATION OF IRAKM STABILITY IN TOLL-LIKE RECEPTOR/INTERLEUKIN-1 RECEPTOR SIGNALING. **Jeahoo Kwon**, Morris Nechama, Kun Ping Lu, Linda K. Nicholson
- 1869-Pos BOARD B6**  
USING BIOCHEMICAL AND STRUCTURAL APPROACHES TO STUDY ERBB2-CONTAINING HETERODIMERS. **Lily L. Raines**, Daniel J. Leahy
- 1870-Pos BOARD B7**  
PROBING THE CELLULAR ENTRY PATHWAY VIA TOLC OF THE CYTOTOXIN, COLICIN E1. **Karen S. Jakes**, Stanislav D. Zakharov, Xin S. Wang, Ilya Seleznev, William A. Cramer
- 1871-Pos BOARD B8**  
THE MEMBRANE CATALYSIS MODEL: APELIN AND ITS RECEPTOR. **Robin E. Patterson**, Nathan Weatherbee-Martin, Nigel A. Chapman, Denis J. Dupré, Jan K. Rainey
- 1872-Pos BOARD B9**  
FUNCTIONALITY OF MSCL IN DROPLET INTERFACE BILAYER. **Mohammad Heiranian**, Amir Barati Farimani, Narayana Aluru
- 1873-Pos BOARD B10**  
HOMOLOGY MODELS OF THE TRIMERIC CNG CHANNEL C-LEUCINE ZIPPER DOMAINS OFFER INSIGHT ABOUT THE OLFACTORY CNG CHANNEL SUBUNIT STOICHIOMETRY. Dillion M. Fox, Christopher M. MacDermaid, **Jacqueline Tanaka**
- 1874-Pos BOARD B11**  
MOLECULAR DYNAMICS SIMULATIONS OF WILD-TYPE AND MUTANT AQP6 CHANNELS: INVESTIGATION OF ANION TRANSPORT IN HUMAN AQP6. Ravi Kumar Verma, **Ramasubbu Sankararamkrishnan**

- 1875-Pos BOARD B12**  
AN INTRA-MOLECULAR DISULFIDE CROSS-LINK STABILIZES AN INWARD-ORIENTED TRANSPORT INTERMEDIATE CONFORMATION OF THE TONB-DEPENDENT TRANSPORTERS. **Shimei Gong**, Nazir Barekzi, Katarzyna Niedzielska, Nicholas E. Sherman, Robert K. Nakamoto
- 1876-Pos BOARD B13**  
LIVE-CELL MEASUREMENTS OF THE CONFORMATIONAL REARRANGEMENTS IN BAX AT THE INITIATION OF APOPTOSIS. **Robert F. Gahl**, Yi He, Shiqin Yu, Nico Tjandra
- 1877-Pos BOARD B14**  
FIS1 AND DNM1L COOPERATE IN MITOCHONDRIAL FISSION: CONVERGENCE OF EVOLUTION AND INTELLIGENT DESIGN. **Blake Hill**, Megan Cleland Harwig, Cara Marie Manlandro, Lora K. Picton, Nolan W. Kennedy
- 1878-Pos BOARD B15**  
STRUCTURAL BASIS FOR ENHANCED HIV-1 NEUTRALIZATION BY A DIMERIC IMMUNOGLOBULIN G FORM OF THE GLYCAN-RECOGNIZING ANTIBODY 2G12. **Yunji Wu**, Pamela J. Bjorkman
- 1879-Pos BOARD B16**  
A COMPUTATIONAL AND EXPERIMENTAL STUDY OF THE STRUCTURE OF FOXL1 PROTEIN. **Jessica E. Besaw**, Valerie Booth, Christopher N. Rowley
- 1880-Pos BOARD B17**  
ALL-ALPHA TO ALL-BETA STRUCTURAL CONVERSION IN THE TRANSCRIPTION FACTOR RFAH. **Jeevan B. Gc**
- 1881-Pos BOARD B18**  
SMALL-ANGLE X-RAY SCATTERING AND BIOCHEMICAL STUDIES OF AN INTRAMOLECULAR TANDEM COILED COIL. **Donghyuk Shin**, Seungsu Han, Gwanho Kim, Gyu Hee Kim, Xu Xheng, Yang-Gyun Kim, Sangho Lee
- 1882-Pos BOARD B19**  
CHARACTERIZATION OF AMYNTHAS GRACILIS HEMOGLOBIN (HBAG) AND ITS SUBUNITS BY AUC AND MALDI-TOF-MS. **Patricia S. Santiago**, Francisco Adriano O. Carvalho, Jonathan B. S Oliveira, Angela P. D Linhares, Patrícia G. Morgante, José Wilson P. Carvalho, Marcel Tabak
- 1883-Pos BOARD B20**  
STRUCTURE AND FUNCTION OF CLOSTRIDIAL YTER. **Margaret Hurley**, Katherine L. Germane, Matthew Servinsky, Elliot Gerlach, Christian Sund
- 1884-Pos BOARD B21**  
NMR STRUCTURAL CHARACTERIZATION FOR PROTEASES OF DENGUE AND WEST NILE VIRUSES AND ITS INSIGHT INTO DRUG DISCOVERY. **Congbao Kang**
- 1885-Pos BOARD B22**  
MONITORING PROTEIN STRUCTURE ON THE SURFACE OF GOLD NANOPARTICLES USING NMR SPECTROSCOPY. Ailin Wang, Karen Woods, Tam Vo, Alex Coats, **Nicholas C. Fitzkee**
- 1886-Pos BOARD B23**  
3D RECONSTRUCTION OF THE S885A MUTANT OF THE HUMAN MITOCHONDRIAL LON PROTEASE. **Sami Kereiche**, Lubomir Kovacic

**1887-Pos BOARD B24**  
STRUCTURE AND DYNAMICS OF THE EIIC SUGAR UPTAKE SYSTEM. **Zhenning Ren**, Ming Zhou

**1888-Pos BOARD B25**  
PREDICTING THE EFFECTS OF CLINICALLY OBSERVED KINASE MUTATIONS USING MOLECULAR MODELING AND MACHINE LEARNING ALGORITHMS. **E. Joseph Jordan**, Peter J. Huwe, Yael Mosse, Mark Lemmon, Ravi Radhakrishnan

**1889-Pos BOARD B26**  
ACTIVATION MECHANISM OF A SIGNALING PROTEIN AT ATOMIC RESOLUTION. **Francesco Pontiggia**, Dimitar V. Pachov, Michael W. Clarkson, Janice Villali, Michael F. Hagan, Vijay S. Pande, Dorothee Kern

**1890-Pos BOARD B27**  
CRYSTAL STRUCTURES OF TREHALOSE SYNTHASE FROM DEINOCOCCUS RADIODURANS REVEAL A CLOSED CONFORMATION FOR INTRAMOLECULAR ISOMERIZATION CATALYSIS AND MUTANT INDUCTION OF AN ACTIVE-SITE APERTURE. **Sih-Yao Chow**, Yung-Lin Wang, Li-Ci Ye, Shwu-Huey Liaw

**1891-Pos BOARD B28**  
BIOPHYSICAL CHARACTERIZATION OF NATURALLY OCCURRING TITIN-M10 MUTATIONS. **Nathan T. Wright**, Michael W. Rudloff

## Protein Dynamics and Allostery II (Boards B29-B49)

**1892-Pos BOARD B29**  
INVESTIGATING THE MECHANISM OF IRON DEPENDENT REPRESSOR (IDER) ACTIVATION AND DNA BINDING. **Soma Ghosh**, Nagasuma Chandra, Saraswathi Vishveshwara

**1893-Pos BOARD B30**  
DYNAMIC CHARACTERISTICS OF ALLOSTERIC PATHWAYS IN SCFV ANTIBODY FRAGMENTS. **Amit Srivastava**, Malgorzata B. Tracka, Shahid Uddin, Jose Casas-Finet, Dennis R. Livesay, Donald J. Jacobs

**1894-Pos BOARD B31**  
FUNCTIONALLY IMPORTANT RESIDUES FROM MODE COUPLING DURING SHORT-TIME PROTEIN DYNAMICS. Onur Varol, Deniz Yuret, Burak Erman, **Alkan Kabakcioglu**

**1895-Pos BOARD B32**  
HIGH-SPEED AFM OBSERVATION OF ANTIBODY IGG CHARACTERISTIC OF SWINGING ARMS. **Norito Kotani**, Tomohiro Hirano, Takashi Morii, Takao Okada

**1896-Pos BOARD B33**  
VISUALIZING GLOBAL PROPERTIES OF A MOLECULAR DYNAMICS TRAJECTORY. **Hao Zhou**, Shangyang Li, Makowski Lee

**1897-Pos BOARD B34**  
COMPUTATIONAL MODELING OF THE FC $\alpha$ RI RECEPTOR BINDING IN THE FC $\alpha$  DOMAIN OF THE HUMAN ANTIBODY IGA: COARSE-GRAINED MOLECULAR DYNAMICS (MD) METHODS. **Manori Jayasinghe**, Monica T. Posgai, Sam Tonddast-Navaei, George M. Ibrahim, George Stan, Andrew B. Herr

**1898-Pos BOARD B35**  
COMPUTER-AIDED DRUG DISCOVERY APPROACH FINDS CALCIUM SENSITIZER OF CARDIAC TROPONIN. **Steffen Lindert**, Monica X. Li, Brian Sykes, J. Andrew McCammon

**1899-Pos BOARD B36**  
A COARSE-GRAINED LANGEVIN EQUATION FOR PROTEIN DYNAMICS: GLOBAL ANISOTROPY AND A MODE APPROACH TO LOCAL COMPLEXITY. **Jeremy T. Copperman**, Marina G. Guenza

**1900-Pos BOARD B37**  
LOOKING AT ESTROGEN RECEPTOR FROM SMALL ANGLES. **Sichun Yang**, Wei Huang, Krishna M. Ravikumar

**1901-Pos BOARD B38 EDUCATION TRAVEL AWARDEE**  
STUDY OF PROTON TRANSFER IN ESCHERICHIA COLI PHOTOLYASE. **Meng Zhang**, Zheyun Liu, Jiang Li, Lijuan Wang, Dongping Zhong

**1902-Pos BOARD B39**  
ABROGATING RAS ABNORMAL FUNCTION BY TARGETING MEMBRANE BOUND RAS MONOMERS AND OLIGOMERS. **Priyanka Prakash Srivastava**, Alemayehu A. Gorfe

**1903-Pos BOARD B40**  
IDENTIFYING TRANSIENT BINDING POCKETS IN PROTEIN DYNAMICS FOR ALLOSTERIC DRUG DESIGN. **Supriyo Bhattacharya**, Vinod Kasam, Hubert Li, Nagarajan Vaidehi

**1904-Pos BOARD B41**  
LEARNING ABOUT TRANSITIONS: ADAPTIVE CONTROL IN THE MOLECULAR MARSHAL (M2) FRAMEWORK. **Thomas B. Woolf**, Sarana Y. Nutanong, Yanif Ahmad, Raman Arora

**1905-Pos BOARD B42**  
CHARACTERIZING DYNAMICS OF ANION/PI INTERACTIONS THROUGH MOLECULAR DYNAMICS SIMULATIONS. **Karan Kapoor**, Michael Duff, Robert Hinde, Jerome Baudry, Elizabeth Howell

**1906-Pos BOARD B43**  
SIMULTANEOUS IDENTIFICATION, VISUALIZATION, AND COMPARISON OF COMPLEX EVENTS IN MOLECULAR DYNAMICS SIMULATIONS. **Michael V. LeVine**, George Khelashvili, Harel Weinstein

**1907-Pos BOARD B44**  
UNRAVELING THE DYNAMICS OF THE EF1 HAND UPON CA<sup>2+</sup> BINDING IN NEUROCALCIN DELTA. **Yang Yang**, Anuradha Krishnan, Jeffrey Viviano, Venkat Venkataraman

**1908-Pos BOARD B45**  
MECHANICAL PROPERTIES OF DNA BINDING PROTEINS: TALES IN SILICO. **Yuichi Togashi**, Naoya Tochio

**1909-Pos BOARD B46**  
WATCHING CONFORMATIONAL CHANGES IN PROTEINS BY MOLECULAR DYNAMICS SIMULATIONS. **Kresten Lindorff-Larsen**

**1910-Pos BOARD B47**  
A HINGE MIGRATION MECHANISM UNLOCKS THE EVOLUTION OF GREEN-TO-RED PHOTOCONVERSION IN GFP-LIKE PROTEINS. **Rebekka M. Wächter**, Hanseong Kim, Taisong Zou, S. Banu Ozkan



**1911-Pos BOARD B48**  
 A MULTI-PRONGED APPROACH FOR UNCOVERING ALLOSTERIC NETWORKS IN CASPASES. **Jeanne A. Hardy**

**1912-Pos BOARD B49**  
 REGULATION OF KINASES: 1 BILLION YEARS OF EVOLUTION. **Roman Agafonov**, Chris Wilson, Sarita Biswas, Dorothee Kern

## Membrane Protein Interactions (Boards B50-B70)

**1913-Pos BOARD B50**  
 INTERACTIONS OF DOK7 WITH MODEL MEMBRANES CONTAINING ANIONIC LIPIDS AND PHOSPHOINOSITIDES. **Amanda Buyan**, Antreas C. Kalli, Mark S.P. Sansom

**1914-Pos BOARD B51**  
 THE DIFFERENCE IN ARL2 AND ARL3 MEMBRANE BINDING AND LOCALIZATION. Shobhna Kapoor, Simone Möbitz, Shehab A. Ismail, Eyad Kalawy Fansa, Alfred Wittinghofer, Roland Winter, **Katrin Weise**

**1915-Pos BOARD B52**  
 REGULATION OF K-RAS MEMBRANE ASSOCIATION: CALMODULIN VERSUS PDE $\delta$ . **Benjamin Sperlich**, Shobhna Kapoor, Alexander Werkmüller, Simone Möbitz, Gunther Zimmermann, Gemma Triola, Herbert Waldmann, Roland Winter, Katrin Weise

**1916-Pos BOARD B53**  
 ROLE OF FISB-CARDIOLIPIN INTERACTIONS IN MEMBRANE FISSION DURING SPORULATION IN BACILLUS SUBTILIS. **Martha Braun**, Christopher Daniel Rodrigues, David Rudner, Erdem Karatekin

**1917-Pos BOARD B54**  
 INTERACTION OF MODEL LIPID VESICLES WITH ALVEOLAR MACROPHAGES. **Robinah Maasa**

**1918-Pos BOARD B55**  
 INVESTIGATION OF THE STRUCTURE OF DIMERS OF THE VOLTAGE-GATED PROTON CHANNEL. **Adam C. Chamberlin**, Sergei Noskov, Feng Qiu, Peter Larsson

**1919-Pos BOARD B56**  
 ACTIVATION OF THE CA<sup>2+</sup>-ACTIVATED CHLORIDE CHANNEL TMEM16A. **Novandy K. Lim**, Janine D. Brunner, Stephan Schenck, Raimund Dutzler

**1920-Pos BOARD B57**  
 INVESTIGATING THE EFFECT OF PKA PHOSPHORYLATION ON INTRAMOLECULAR INTERACTIONS IN PURIFIED FULL LENGTH WILDTYPE CFTR. **Stephanie Chin**, Mohabir Ramjeesingh, Paul Eckford, Christine Bear

**1921-Pos BOARD B58**  
 BIPHASIC INFLUENCE OF BULK ANIONIC PHOSPHOLIPIDS FOR PIP<sub>2</sub> GATING OF KIR2.1 CHANNELS THROUGH BINDING TO TWO DISTINCT SITES. **Sun-Joo Lee**, Jacob Gyore, Sarah Heyman, Colin G. Nichols

**1922-Pos BOARD B59**  
 CONFORMATIONAL CHANGES THAT OPENS TRKH ION CHANNEL. **Hanzhi Zhang**, Yaping Pan, Ming Zhang

**1923-Pos BOARD B60 INTERNATIONAL TRAVEL AWARDEE**  
 IDENTIFICATION OF A CHOLESTEROL RECOGNITION/ INTERACTION AMINO ACID CONSENSUS DOMAIN IN STIM1 AND ITS ROLE IN SOCE. **Jonathan E. Pacheco**, Luis Vaca

**1924-Pos BOARD B61**  
 MODELING STRUCTURE OF HUMAN PAPILLOMAVIRUS TYPE 16 E5 PROTEIN - A MOLECULAR DYNAMICS SIMULATION STUDY. **Dhani R. Mahato**, Wolfgang B. Fischer

**1925-Pos BOARD B62**  
 BCL-XL DESTABILIZATION OF CERAMIDE CHANNELS: ROLE OF THE HYDROPHOBIC GROOVE. **Kai-Ti Chang**, Andriy Anishkin, Marco Colombini

**1926-Pos BOARD B63**  
 CONFORMATION CHANGES OF A 7TM RECEPTOR CAUSED BY THE SAMPLE ENVIRONMENT AS STUDIED BY MULTIDISCIPLINARY BIOPHYSICAL METHODS. Xiaoyan Ding, Zhen Cao, Bo Peng, Anthony Watts, **Xin Zhao**

**1927-Pos BOARD B64 EDUCATION TRAVEL AWARDEE**  
 STRIPPING THE CLC-EC1 DIMERIZATION INTERFACE: AN INVESTIGATION INTO THE ROLE OF VAN DER WAALS INTERACTIONS IN MEMBRANE PROTEIN ASSEMBLY. **Kacey Mersch**, Ankita Chadda, Venkatramanan Krishnamani, Janice L. Robertson

**1928-Pos BOARD B65**  
 SARCOLIPIN-MEDIATED REGULATION OF SERCA BY COMPUTER SIMULATIONS. **Alessandro Cembran**, Alysha A. Dicke, Alfonso De Simone, Kaustubh R. Mote, Vitaly V. Vostrikov, Gianluigi Veglia

**1929-Pos BOARD B66**  
 MONITORING APOLIPOPROTEIN BINDING TO SINGLE LIPOPROTEINS. **Michel de Messieres**, Abby Ng, Cornelio J. Duarte, Alan T. Remaley, Jennifer C. Lee

**1930-Pos BOARD B67**  
 NMDA RECEPTOR TRANSMEMBRANE DOMAIN: STRUCTURE AND MECHANISM OF ION SELECTIVITY. **Samaneh Mesbahi**, Lea Veras, Jon W. Johnson, Maria Kurnikova

**1931-Pos BOARD B68**  
 ELUCIDATION OF THE CHANNEL ACTIVITIES OF GRAMICIDIN A IN THE PRESENCE OF IONIC LIQUIDS (ILS) USING MODEL CELL MEMBRANES. **Hyunil Ryu**, Hwanky Lee, Iwata Seigo, Sangbaek Choi, Young-Rok Kim, Maruta Shinsaku, Sun Min Kim, Tae-Joon Jeon

**1932-Pos BOARD B69 EDUCATION TRAVEL AWARDEE**  
 TUG OF WAR IN LUNG SURFACTANT COMPONENTS: MINIB DOMINATES OVER CHOLESTEROL DURING LIPID DOMAIN FORMATION. **Aishik Chakraborty**, Erica Hui, Alan J. Waring, Prajnaparamita Dhar

**1933-Pos BOARD B70 EDUCATION TRAVEL AWARDEE**  
 DYNAMIC MEASUREMENTS OF MEMBRANE INSERTION POTENTIAL OF SYNTHETIC CELL PENETRATING PEPTIDE/ PDNA/CA<sup>2+</sup> COMPLEXES. **Nabil A. Alhakamy**, Cory J. Berkland, Prajna Dhar

## Intrinsically Disordered Proteins (IDP) and Aggregates III (Boards B71-B94)

**1934-Pos BOARD B71**  
SECONDARY METAL BINDING TO AMYLOID-BETA MONOMER IS INSIGNIFICANT UNDER SYNAPTIC CONDITIONS. Thomas Branch, Mauricio Barahona, **Liming Ying**

**1935-Pos BOARD B72**  
GAS-PHASE CONFORMATIONS OF A HUNTINGTIN N-TERMINAL PEPTIDE REVEAL CONDENSED-PHASE HETEROGENEITY WITH AND WITHOUT THE PRESENCE OF A PPII HELIX. **James R. Arndt**, Samaneh G. Kondalaji, Olivia Sarver, Megan M. Maurer, Arlo Parker, Justin Legleiter, Stephen J. Valentine

**1936-Pos BOARD B73**  
HUNTINGTIN N-TERMINAL FRAGMENT FIBRILS HAVE A RIGID AMYLOID CORE FLANKED BY NON-AMYLOID DOMAINS WITH INCREASED DYNAMICS. Cody L. Hoop, Hsiang-Kai Lin, Karunakar Kar, Ronald Wetzel, **Patrick C A van der Wel**

**1937-Pos BOARD B74**  
INITIATING POLYGLUTAMINE AGGREGATION --- COMPUTATIONAL CLARIFICATION OF THE STRUCTURAL DETAILS. **Markus S. Miettinen**, Luca Monticelli, Praveen Nedumpully-Govindan, Volker Knecht, Zoya Ignatova

**1938-Pos BOARD B75 INTERNATIONAL TRAVEL AWARDEE**  
THE ROLE OF STRUCTURAL DYNAMICS IN DETERMINING THE PRION STRAIN DIVERSITY. **Dominic Narang**, Anup K. Srivastava, Samrat Mukhopadhyay

**1939-Pos BOARD B76 EDUCATION TRAVEL AWARDEE**  
AMYLOIDOGENICITY OF IMMUNOGLOBULIN LIGHT CHAINS. **Kathrin Andrich**, Ute Hegenbart, Stefan Schönland, Erich Wanker, Jan Bieschke

**1940-Pos BOARD B77**  
PREDICTION OF THE EFFECTS OF THE VAL66MET POLYMORPHISM AND ADJACENT STRUCTURED DOMAINS ON THE CONFORMATIONAL ENSEMBLE OF AN INTRINSICALLY DISORDERED PROTEIN, BRAIN-DERIVED NEUROTROPHIC FACTOR. **Ruchi Lohia**, Reza Salari, Grace Brannigan

**1941-Pos BOARD B78**  
STRUCTURAL STABILITY OF DIABETES-RELATED AMYLIN PROTOFILAMENTS: APPLICATIONS TO FIBRIL DESIGN. **Ye Yuan**, Bartłomiej Tywoniuk, Nicolae-Viorel Buchete

**1942-Pos BOARD B79**  
EXPLOSIVE FIBRILLATION KINETICS OF TWO-CHAIN INSULIN FRAGMENT RELEASED UPON PARTIAL DIGESTION WITH PEPSIN. **Wojciech Dzwolak**, Marcin Piejko, Robert Dec, Viktoria Babenko, Agnieszka Hoang, Monika Szewczyk, Pawel Mak

**1943-Pos BOARD B80**  
ELUCIDATING THE ROLE OF OLIGOMERS IN INSULIN AGGREGATION USING BIOPHYSICAL METHODS. **Matthew T. Mawhinney**, Brigita Urbanc

**1944-Pos BOARD B81**  
DMSO INDUCED BREAKING UP OF INSULIN FIBRILS MONITORED BY VIBRATIONAL CIRCULAR DICHROISM. **Ge Zhang**, Viktoria Babenko, Wojciech Dzwolak, Timothy A. Keiderling

**1945-Pos BOARD B82 EDUCATION TRAVEL AWARDEE**  
THE INTRINSICALLY DISORDERED TERMINI OF ZDHHC S-PALMITOYLTRANSFERASES FACILITATE MULTIPLE REGULATORY FUNCTIONS. **Krishna D. Reddy**, Jeremy D. Baker, Bin Xue, Robert J. Deschenes, Vladimir N. Uversky

**1946-Pos BOARD B83**  
PROTEIN DISORDER IN DYNEIN REGULATION BY DYNACTIN AND NUDE. **Jing Jie**, Elisar Barbar

**1947-Pos BOARD B84**  
A FUZZY DNA BINDING REGION IN MBD2 RECRUITS THE HISTONE DEACETYLASE CORE COMPLEX OF NURD AND MODIFIES KINETICS OF DNA BINDING. **David C. Williams**, Megha Desai, Gordon D. Ginder

**1948-Pos BOARD B85**  
C/EBP $\beta$ ; CASE STUDY FOR THE IMPORTANCE OF INTRINSIC DISORDER FOR PROTEIN FUNCTION. **Maria Miller**

**1949-Pos BOARD B86**  
STRUCTURAL AND DYNAMIC ANALYSIS ON DISORDERED H4 HISTONE TAIL BY MODIFIED AWSEM-MD. **Hao Wu**, Garegin Papoian

**1950-Pos BOARD B87**  
THE ACETYLATION LANDSCAPE OF THE H4 HISTONE TAIL. **David Winogradoff**, Ignacia Echeverria, Garegin Papoian

**1951-Pos BOARD B88**  
COMPARING SOLUTION STRUCTURES OF AMYLIN AND CGRP BY NANOSECOND LASER-PUMP SPECTROSCOPY AND ATOMISTIC SIMULATIONS. Sara M. Sizemore, Gül H. Zerze, Stephanie M. Cope, Jeetain Mittal, **Sara M. Vaiana**

**1952-Pos BOARD B89**  
PRIMARY SEQUENCE CONTROLS THE SPECIFICITY AND AFFINITY OF A SMALL MOLECULE BINDING TO THE INTRINSICALLY DISORDERED PROTEIN C-MYC. **Lisette M. Fred**, Kaitlyn P. Gerhart, Bethany L. Zablotsky, Scott A. Barnett, Steven J. Metallo

**1953-Pos BOARD B90**  
INTERACTION OF THE INTRINSICALLY DISORDERED C-MYC ONCOPROTEIN WITH RACEMIC AND ENANTIOPURE SMALL MOLECULES. **Kaitlyn P. Gerhart**, Steven J. Metallo

**1954-Pos BOARD B91**  
THE INTRINSICALLY DISORDERED C-TERMINAL TAILS OF E.COLI SINGLE-STRANDED DNA BINDING PROTEIN REGULATE COOPERATIVE BINDING TO SINGLE-STRANDED DNA. **Alexander G. Kozlov**, Elizabeth Weiland, Anuradha Mittal, Vince Waldman, Rohit V. Pappu, Lohman M. Timothy

**1955-Pos BOARD B92**  
ASSESSING BINDING PERTURBATION DUE TO ARTIFICIAL VIBRATIONAL PROBE GROUPS IN THE NUCLEOPROTEIN-PHOSPHOPROTEIN COMPLEX OF THE NIPAH VIRUS. **Rebecca B. Wai**, Shana R. Burstein, Sara K. Hess, Jenny Eroles, Sonia Longhi, Casey H. Londergan

**1956-Pos BOARD B93**  
CLAWS, DISORDER, AND CONFORMATIONAL DYNAMICS OF THE C TERMINAL REGION OF HUMAN DESMOPLAKIN. **Charles E. McAnany**, Cameron Mura

**1957-Pos BOARD B94**

THE ROLE OF HIGHER-ORDER SPOP OLIGOMERS FOR LOCALIZATION TO CELLULAR "BODIES" AND UBIQUITINATION ACTIVITY. Melissa R. Marzahn, Jihun Lee, Suresh Marada, Amanda Nourse, Huaying Zhao, Peter Schuck, Stacey K. Ogden, **Tanja Mittag**

## Ribosomes and Translation (Boards B95-B103)

**1958-Pos BOARD B95**

TOWARDS A WHOLE-CELL MODEL OF RIBOSOME BIOGENESIS: KINETIC MODELING OF SSU ASSEMBLY. **Tyler M. Earnest**, Ke Chen, Jonathan Lai, Zan Luthey-Schulten

**1959-Pos BOARD B96**

A STRUCTURAL MODEL OF THE RIBOSOME-BOUND PROTEIN INSERTASE YIDC REVEALS LATERAL TRANSLOCATION OF THE NASCENT CHAIN. **Abhishek Singharoy**, Stephan Wickles, Roland Beckmann, Klaus Schulten

**1960-Pos BOARD B97**

RNA STRUCTURAL MODULATION IN THE HEART OF THE RIBOSOME. **Jared J. Childs**, Jirair Gevorgyan, Eda Koculi

**1961-Pos BOARD B98**

SIMULATING RIBOSOME DYNAMICS AND TRNA TRANSLOCATION. **Kien Nguyen**, Paul Charles Whitford

**1962-Pos BOARD B99**

SINGLE-MOLECULE PROFILING OF RIBOSOME RECODING PHENOMENA. **Jin Chen**, Joseph D. Puglisi

**1963-Pos BOARD B100**

RIBOSOME ASSISTED GTP HYDROLYSIS BY EF-TU - MECHANISM AND THE ROLE OF ASP21. **Ram Prasad Bora**

**1964-Pos BOARD B101**

USING HYDROXYL RADICAL FOOTPRINTING TO OBSERVE RIBOSOME ASSEMBLY INTERMEDIATES IN VIVO. **Ryan Hulscher**

**1965-Pos BOARD B102**

EXPLORING THE MECHANISM OF DHH1-MEDIATED TRANSLATIONAL REPRESSION. **Aditya Radhakrishnan**, Rachel Green

**1966-Pos BOARD B103**

EXTRA-CODING CHARACTERISTICS OF HERG MRNA ARE ESSENTIAL FOR CHANNEL FUNCTION. **Marika L. Osterbur**, Thomas V. McDonald

## DNA Structure and Dynamics II (Boards B104-B131)

**1967-Pos BOARD B104 INTERNATIONAL TRAVEL AWARDEE**

TARGETING HUMAN TELOMERIC G-QUADRUPLEX DNA BY BERBERINE ANALOGS: A COMPARATIVE BIOPHYSICAL INVESTIGATION. **Debipreeta Bhowmik**, Gopinatha Suresh Kumar

**1968-Pos BOARD B105 INTERNATIONAL TRAVEL AWARDEE**

STUDYING LIGAND BINDING AND SITE-SPECIFIC MODE OF DNA BINDING BY GAMMA-BUTYROLACTONE RECEPTOR PROTEIN CPRB FROM STREPTOMYCES COELICOLOR A3(2) USING TWO DIFFERENT FLUORESCENCE TECHNIQUES. **Anwasha Biswas**, G. Naresh Patwari, G. Krishnamoorthy, Ruchi Anand

**1969-Pos BOARD B106**

DNA PSEUDOKNOTS WITH APPROPRIATE LOOP LENGTHS AND SEQUENCE COMPLEMENTARY TO THE STEM FORM STABILIZING BASE-TRIPLET STACKS. **Calliste Reiling**, Irine Khutsishvili, Luis A. Marky

**1970-Pos BOARD B107**

SEQUENCE DEPENDENT PLECTONEME DYNAMICS. **Marco Tompitak**, Behrouz Eslami Mossallam, Gerard Barkema, Helmut Schiessel

**1971-Pos BOARD B108 EDUCATION TRAVEL AWARDEE**

MISMATCHED DNA BASE PAIRS SHOW INCREASED CONFORMATIONAL FLUCTUATIONS. **Adelaide Kingsland**, Lutz Maibaum

**1972-Pos BOARD B109**

THE STUDY OF COMPLEXATION PROCESS BETWEEN CATIONIC GEMINI SURFACTANTS AND DNA USING STRUCTURAL AND SPECTROSCOPIC METHODS. **Weronika J. Andrzejewska**, Michalina Skupin, Magdalena Murawska, Andrzej Skrzypczak, Maciej Kozak

**1973-Pos BOARD B110**

DNA-BINDING PROPERTIES OF PEPTIDE-FUNCTIONALIZED GRAPHENE QUANTUM DOTS. **Bedanga Sapkota**, Mirela Mustata, Jian Zhang, Gevorg Grigoryan, Meni Wanunu

**1974-Pos BOARD B111**

HIGH-AFFINITY FLUORESCENCE SENSING OF G-QUADRUPLEXES. **D. Cibrán Pérez-González**, Flor Rodríguez-Prieto, J. Carlos Penedo

**1975-Pos BOARD B112**

SINGLE MOLECULE MEASUREMENTS OF THE UNFOLDING BEHAVIOR OF DIVERSE DNA HAIRPIN ASSEMBLIES. Caitlin J. Cain, Sally Ruderman, Catherine A. Deitrich, Diana Seminario, Micah J. McCauley, Mark C. Williams, **Megan E. Nunez**

**1976-Pos BOARD B113**

OPTIMIZING TETHERED PARTICLE MOTION TO MEASURE DNA COMPACTION BY PROTAMINE. **Matthew Woop**, Robert D. Schwab, Ji Hoon Lee, Ashley R. Carter

**1977-Pos BOARD B114**

COMPARING EFFECTS OF DIFFERENT TRANSITION METAL COMPLEXES UNDER OSMOTIC STRESS IN THE B-TO-Z DNA TRANSITION. **Richard S. Preisler**, Maimouna Cisse, Daniela Rey-Ardila, Aloise Diedrich, Kelsey Polak

**1978-Pos BOARD B115**

THE EFFECTS OF IONIC STRENGTH ON THE HYDRODYNAMIC PROPERTIES OF I-MOTIF FOLDING. **Robert T. Wright**, Samantha M. Reilly, Randy M. Wadkins, John J. Correia



**1979-Pos BOARD B116**  
MOLECULAR DYNAMICS INVESTIGATION OF IMMOBILE DNA FOUR-WAY JUNCTIONS. **Matthew R. Adendorff**, Mark Bathe

**1980-Pos BOARD B117**  
ENSEMBLE MODELS OF NUCLEOSOME ARRAYS CONSTRAINED BY SMALL-ANGLE X-RAY SCATTERING. **Steven C. Howell**, Wei Meng, Kurt Andresen, Agnes Mendonca, Chongli Yuan, Bing-Rui Zhou, Yawen Bai, Joseph E. Curtis, Xiangyun Qiu

**1981-Pos BOARD B118**  
TORQUE MEASUREMENTS DURING THE SPONTANEOUS UNBRAIDING OF DNA MOLECULES SHOWED LARGE FLUCTUATIONS ATTRIBUTABLE TO THE FORMATION OF STABLE DNA-DNA INTERACTIONS. **Carlos J. Martínez-Santiago**, Mónica Fernández-Sierra, Edwin Quiñones

**1982-Pos BOARD B119**  
QUANTIFYING THE STABILITY OF ACRIDINES TO RIBOSOMAL G-QUADRUPLEXES. **Billy Nicholson**, Adam Green, Samuel Cho

**1983-Pos BOARD B120**  
MOLECULAR IDENTIFICATION OF THE EARTHWORM AMYNTHAS GRACILIS. **Patricia G. Morgante**, Ana Caroline Conrado, Patricia S. Santiago

**1984-Pos BOARD B121**  
MOLECULAR DYNAMICS INVESTIGATIONS OF Z[WC] DNA AND THE B TO Z-DNA TRANSITION. **Michael G. Lerner**, Alma Gracic, Jinhee Kim, Ashutosh Rai, Alexander K. Seewald, Benjamin L. Yee

**1985-Pos BOARD B122**  
STRUCTURE AND THERMODYNAMICS OF AEGIS NUCLEOTIDES P AND Z IN DNA. Xiaoyu Wang, Kenneth K. Sharp, Shuichi Hoshika, Stanislav Bellaousov, Xiaoju Zhang, David H. Mathews, Steven A. Benner, Raymond J. Peterson, **Jason D. Kahn**

**1986-Pos BOARD B123**  
BINDING STUDIES OF SMALL MOLECULES TO TELOMERIC QUADRUPLEX DNA FOR TARGETED SINGLET OXYGEN PRODUCTION. **Yasemin Kopkalli**, Craig Biegel, Ryan Khemraj, Lesley Davenport

**1987-Pos BOARD B124**  
REGULATION OF THE 3' UTR IN BDNF MRNA AT THE DNA LEVEL. **Brett A. DeMarco**

**1988-Pos BOARD B125**  
QUANTITATIVE INVESTIGATION OF THE ROLE OF SEQA IN ESCHERICHIA COLI CHROMOSOME SEGREGATION. **Julie A. Cass**, Nathan J. Kuwada, Paul A. Wiggins

**1989-Pos BOARD B126**  
PACKING AND PHASE TRANSITIONS IN DNA DUPLEXES AND TETRAPLEXES: SIMILARITIES AND DIFFERENCES. Selcuk Yasar, Rudolf Podgornik, **V. Adrian Parsegian**

**1990-Pos BOARD B127**  
THE RELATIONSHIP BETWEEN ELECTROPHORETIC MOBILITY AND POLYELECTROLYTE CHARGE. **Nancy C. Stellwagen**

**1991-Pos BOARD B128**  
ENHANCED SAMPLING OF DNA STEP PARAMETERS: IMPACT OF METHYLATION ON DNA SHAPE AND FLEXIBILITY. **Aleksandra Karolak**, Arjan van der Vaart

**1992-Pos BOARD B129**  
THREE-DIMENSIONAL MODELING OF SINGLE STRANDED HAIRPIN DNA APTAMERS. Iman Jeddi, **Leonor Saiz**

**1993-Pos BOARD B130**  
RESOLVING THE DNA BINDING MODE OF A ROTATIONALLY FLEXIBLE BINUCLEAR RUTHENIUM COMPLEX. **Ali A. Almaqwashi**, Johanna Andersson, Per Lincoln, Ioulia Rouzina, Fredrik Westerlund, Mark C. Williams

**1994-Pos BOARD B131**  
EPIGENETICS AND OTHER FACTORS THAT AFFECT FOLDING AND STABILITY OF DNA I-MOTIF STRUCTURES. Samantha M. Reilly, Yogini P. Bhavsar-Jog, Sara E. Wingate, Daniel F. Lyons, Robert T. Wright, Tracy A. Brooks, John J. Correia, David M. Jameson, **Randy M. Wadkins**

## Protein-Nucleic Acid Interactions II (Boards B132-B154)

**1995-Pos BOARD B132**  
ACTIVATION OF PKR BY STEM-LOOP RNAs WITH FLANKING SSRNA TAILS. **Christopher Mayo**, Prisma Lopez, James Cole

**1996-Pos BOARD B133**  
DETERMINING THE DNA DIFFUSION BEHAVIOR OF SA2 ON VARIOUS DNA SUBSTRATES. **Preston J. Countryman**, Jiangguo Lin, Parminder Kaur, Edward Brennan, Haijiang Chen, Changjiang You, Jacob Piehler, Yizhi Jane Tao, Hong Wang

**1997-Pos BOARD B134 MINORITY AFFAIRS TRAVEL AWARDEE**  
A HUMAN TRANSCRIPTION FACTOR IN SEARCH MODE. **Kevin Hauser**, Bernard Essuman, Evangelos Coutsiias, Miguel Garcia-Diaz, Carlos Simmerling

**1998-Pos BOARD B135**  
TWO-STEP DNA INTERCALATION BY THREADING OF THE FLEXIBLE RUTHENIUM DIMER STUDIED BY THE SINGLE MOLECULE DNA STRETCHING. **Ioulia Rouzina**, Meriem Bahira, Ali Almaqwashi, Micah McCauley, Fredrik Westerlund, Mark C. Williams

**1999-Pos BOARD B136**  
THE ROLE OF THE THREADING MOIETY IN DNA THREADING INTERCALATION BY RUTHENIUM DIMER COMPLEXES. **Andrew G. Clark**, Thayaparan Paramanathan, Fredrik Westerlund, Per Lincoln, Micah J. McCauley, Ioulia Rouzina, Mark C. Williams

**2000-Pos BOARD B137**  
MOLECULAR INTERACTION BETWEEN ESCHERICHIA COLI TOPOISOMERASE I AND PBAD/THIO SUPERCOILED PLASMID DNA. **Purushottam Tiwari**, Thirunavukkarasu Annamalai, Bokun Cheng, Gagandeep Narula, Xuewen Wang, Yuk-Ching Tse-Dinh, Jin He, Yesim Darici

**2001-Pos BOARD B138**  
FORCE REGULATED ASSOCIATION DYNAMICS OF RPA ON FORKED DNA. **Felix E. Kemmerich**, Peter Daldrop, Maryna Levikova, Petr Cejka, Ralf Seidel

**2002-Pos BOARD B139**  
SPECIFIC BINDING OF THE NUCLEOCAPSID PROTEIN TRANSFORMS THE FOLDING LANDSCAPE OF THE HIV-1 TAR RNA HAIRPIN. **Micah J. McCauley**, Ioulia Rouzina, Kelly Hadley, Robert J. Gorelick, Karin Musier-Forsyth, Mark C. Williams



**2003-Pos BOARD B140 EDUCATION TRAVEL AWARDEE**  
FACTORS THAT INFLUENCE PKR DIMERIZATION AND ACTIVATION. **Bushra Husain**, Michael Bruno, Matthew Angelidis, James Cole

**2004-Pos BOARD B141**  
QUANTITATIVE DNA BINDING, LOOPING, AND COMPACTION PROPERTIES OF THE HIV-1 VIRAL PROTEIN R. **Divakaran Murugesapillai**, Micah J. McCauley, Ioulia Rouzina, Serge Bouaziz, Mark C. Williams

**2005-Pos BOARD B142**  
REPETITIVE SINGLE-MOLECULE FRET FLUCTUATIONS UPON T4 GENE 32 PROTEIN BINDING TO SINGLE-STRANDED DNA. **Wonbae Lee**, John P. Gillies, Davis Jose, Peter H. von Hippel, Andrew H. Marcus

**2006-Pos BOARD B143**  
HOW MECP2 AND R.DPNI PROTEINS RECOGNIZE METHYLATED DNA. **Volkhard Helms**, Siba Shanak

**2007-Pos BOARD B144**  
DNA LOOPING AND GENOME ARCHITECTURE: HOW PROTEINS CAN CONNECT AND ORGANIZE CHROMOSOMES. **Nicolas Clauvelin**, Wilma K. Olson

**2008-Pos BOARD B145**  
COMMON ASPECTS OF G-QUADRUPLEX DESTABILIZATION AMONG HELICASES AND SINGLE STRANDED DNA BINDING PROTEINS. **Jagat B. Budhathoki**, Sujay Ray, Pavel Janscak, Jaya Yodh, Hamza Balci

**2009-Pos BOARD B146**  
DYNAMIC INTERACTIONS BETWEEN DNA AND THE T4 SINGLE-STRANDED BINDING PROTEIN GP32: MULTI-DIMENSIONAL CORRELATION ANALYSIS OF MICROSECOND SINGLE-MOLECULE FRET AND LINEAR DICHROISM FLUCTUATIONS. **Carey Phelps**, Brett Israels, Wonbae Lee, Davis Jose, Peter H. von Hippel, Andrew H. Marcus

**2010-Pos BOARD B147**  
EXPLORATION OF CYTOSINE METHYLATION EFFECTS ON PROTEIN-DNA BINDING. Sklyer Uhl, Amber M. Velasco, Allison M. Nice, **Winston Timp**

**2011-Pos BOARD B148**  
MOLECULAR MECHANISM OF PROGRESSIVE 3' TO 5' RNA TRANSLOCATION IN THE RNA EXOSOME COMPLEX. **Lela Vukovic**, Debora L. Makino, Christophe Chipot, Elena Conti, Klaus Schulten

**2012-Pos BOARD B149**  
PROBING DNA BENDING KINETICS BY YNHP6A WITH ULTRAFAST TEMPERATURE JUMP SPECTROSCOPY. **Manas K. Sarangi**, Molly Nelson-Holte, Jim Maher, Anjum Ansari

**2013-Pos BOARD B150**  
SINGLE-MOLECULE DNA MELTING BUBBLE FORMATION AND SINGLE-STRAND BINDING PROTEIN INTERACTION. **Marko Swoboda**, Lisa Hannusch, Maj Svea Grieb, Michael Schlierf

**2014-Pos BOARD B151**  
INVESTIGATION OF THE ROLE PLAYED BY THE RNA G-QUADRUPLEX STRUCTURE IN ALS/FTD PATHOLOGY. **Damian McAninch**, Mihaela Rita Mihailescu

**2015-Pos BOARD B152**  
CHARACTERIZATION OF AIM2 DNA-BINDING PROPERTIES AND FILAMENT FORMATION. **Seamus Morrone**, Mariusz Matyszewski, Jungsan Sohn

**2016-Pos BOARD B153**  
CHARACTERIZATION OF IHF BINDING TO DNA FOUR-WAY JUNCTIONS AND FORKS. **Veronica Birdsall**, Vivian Deng, Ishita Mukerji

**2017-Pos BOARD B154**  
DYNAMICS OF GLYCERALDEHYDE-3-PHOSPHATE DEHYDROGENASE INTERFACIAL REGIONS AFFECT BINDING TO AU-RICH RNA. **Michael White**, Mohsin Khan, Daniel Deredge, Christina Ross, Royston Quintyn, Beth Zucconi, Vicki Wysocki, Patrick Wintrode, Gerald Wilson, Elsa Garcin

## Membrane Physical Chemistry II (Boards B155-B175)

**2018-Pos BOARD B155**  
CALCIUM EFFECT ON DIRECTED LIPID FLOW IN MEMBRANE: IMPROVING KNOWLEDGE ABOUT DIRECTED CELL PROCESSES IN BIOLOGICAL CELLS. **Baharan Ali Doosti**

**2019-Pos BOARD B156 EDUCATION TRAVEL AWARDEE**  
DIRECT MEASUREMENT OF DIPOLE ELECTRIC FIELD IN MODEL MEMBRANES USING VIBRATIONAL SHIFTS OF P-CYANOPHENYLALANINE AND COUPLED WITH MOLECULAR DYNAMICS SIMULATIONS. **Rebika Shrestha**, Lauren J. Webb

**2020-Pos BOARD B157**  
CELL PENETRATING PEPTIDE MEDIATED TRANSPORT ACROSS MEMBRANES. **Xin Li**, Jing Huang, Matthew A. Holden

**2021-Pos BOARD B158**  
ENHANCED MEMBRANE PERMEABILITY IN E. COLI INDUCED BY EXTRACELLULAR ADENOSINE TRIPHOSPHATE. **Michael J. Wilhelm**, Mohammad Sharifian Gh., Hai-Lung Dai

**2022-Pos BOARD B159**  
TRANS-MEMBRANE PERMEATION MECHANISM OF CHARGED METHYL GUANIDINE. **Yukun Wang**

**2023-Pos BOARD B160**  
IMAGING POTASSIUM FLUX THROUGH INDIVIDUAL ELECTROPORES. **Marc Szabo**, Mark I. Wallace

**2024-Pos BOARD B161**  
VARIABLE ADHESION STRENGTH FOR GIANT UNILAMELLAR VESICLES CONTROLLED BY EXTERNAL ELECTROSTATIC POTENTIALS. **Jan Steinkuehler**, Jaime Agudo-Canalejo, Reinhard Lipowsky, Rumiana Dimova

**2025-Pos BOARD B162**  
SINGLE CELL FORCE SPECTROSCOPY ANALYSIS FOR ACINETOBACTER BAYLYI MUTATION AGGREGATION. **Mehrdad M. Tajkarimi**, Albert M. Hung, Scott H. Harrison, Jeffrey E. Barrick, Joseph L. Graves Jr.

**2026-Pos BOARD B163**  
MEMBRANE ENVIRONMENT CAN ENHANCE THE INTERACTION OF GLYCAN BINDING PROTEIN TO CELL SURFACE GLYCAN RECEPTORS. Lei Shen, Yini Wang, Chia-I Lin, Hung-wen Liu, Athena Guo, **Xiaoyang Zhu**

**2027-Pos BOARD B164**

IMPACT OF COMPOSITION UPON ORDERED MEMBRANE DOMAIN("RAFT") FORMATION BY LIPIDS FROM PATHOGENIC BACTERIA. **Zhen Huang**

**2028-Pos BOARD B165**

STABILIZATION OF GLYCOSPHINGOLIPID DOMAINS BY PALMITOYL CERAMIDE IN UNSATURATED PHOSPHATIDYLCHOLINE BILAYERS. **Abdullah Al Sazzad**, J.Peter Slotte, Max Lönnfors

**2029-Pos BOARD B166**

COMPARISON OF LINE TENSION MEASUREMENT TECHNIQUES IN PHASE SEPARATED MULTI-COMPONENT LIPID MONOLAYERS. **Juan TigreLazo**, Joan C. Kunz, Vision Bagonza, Andrew H. Nguyen, Emil Eldo, Benjamin L. Stottrup

**2030-Pos BOARD B167**

THE AVERAGE AREA PER MOLECULE OF CHOLESTEROL/PC-LIPID BILAYERS: A REVIEW OF EXPERIMENTAL DATA AND A PHYSICALLY INSPIRED MODEL. **Jonathan P. Litz**, Sarah L. Keller

**2031-Pos BOARD B168**

CHOLESTEROL BILAYER DOMAIN IN PHOSPHOLIPID BILAYER MEMBRANES CAN BE DETECTED BY CONFOCAL MICROSCOPE. Marija Raguz, Nada Ilic, Suresh Kumar, Mariusz Zereba, **Laxman Mainali**, Witold K. Subczynski

**2032-Pos BOARD B169**

CORRELATED MOTION AND COMPLEX FORMATION OF LIPID-RAFT COMPONENTS ANALYZED BY HIGH-RESOLUTION SECONDARY ION MASS SPECTROMETRY. **Monica M. Lozano**, Jennifer S. Hovis, Frank R. Moss III, Krishna Kumar, Steven G. Boxer

**2033-Pos BOARD B170**

DOMAIN MORPHOLOGIES OF COMPLEX PHOSPHOINOSITIDE/LIPID LANGMUIR FILMS IN THE PRESENCE OF BIVALENT CATIONS. **Katrice E. King**, Arne Gericke

**2034-Pos BOARD B171**

CERAMIDE AND CHOLESTEROL EFFECTS ON PHOSPHOLIPID BILAYERS UNDER THE AFM: CHARACTERIZATION OF COMPLEX LIPID PHASES. Aritz B. García-Arribas, Jon V. Busto, Alicia Alonso, **Felix M Goni**

**2035-Pos BOARD B172**

END-PRODUCT DIACYLGLYCEROL ENHANCES ACTIVITY OF PHOSPHATIDYLINOSITOL PHOSPHOLIPASE C THROUGH CHANGES IN MEMBRANE LIPID DOMAIN STRUCTURE. Hasna Ahyayauch, Jesús Sot, M. Isabel Collado, Nerea Huarte, José Requejo-Isidro, Félix M. Goñi, **Alicia Alonso**

**2036-Pos BOARD B173**

LESSONS FROM KINETICS: ASSESSING NUANCES IN BILAYER PROPERTIES BY EXAMINING EQUILIBRATION. **John D. Bell**, Clinton S. McCleskey, Joseph Chen, Emma R. Moulton, Morgan M. Schwab, Holli K. Wiberg

**2037-Pos BOARD B174**

THE CHEMICAL POTENTIAL OF CHOLESTEROL REGULATES THE PRO-METASTATIC PHENOTYPE IN A CELL CULTURE MODEL OF BREAST CANCER. **Artem G. Ayuyan**, Fredric S. Cohen

**2038-Pos BOARD B175**

MEMBRANE RESISTANCE TO DETERGENT-INDUCED SOLUBILIZATION AS A MATTER OF PHYSICAL PHASE IN BINARY LIPID MIXTURES. **Bruno Mattei**, Ana David Cruz França, Karin Amaral Riske

**Membrane Fusion (Boards B176-B199)****2039-Pos BOARD B176**

ACTIN AND DYNAMIN CONTROL THE FATE OF THE FUSION INTERMEDIATE - THE  $\Omega$ -PROFILE. **Peter Wen**

**2040-Pos BOARD B177**

THE MOLECULAR MECHANISM OF MONOLAYER SCISSION. **Shachi Katira**, Berend Smit

**2041-Pos BOARD B178**

LIPID TRANSFER KINETICS FROM NANOLIPOPROTEIN PARTICLES TO BICELLES. **Robert Renthal**, Ginny Lai, Kevin Munoz Forti

**2042-Pos BOARD B179**

DRUNKEN MEMBRANES: HOW DOES ETHANOL IMPACT FUSION OF VESICLES TO PLANAR LIPID BILAYERS? **Brady Hunt**, Jason R. Paxman, D. Coulson Huntington, Dixon J. Woodbury

**2043-Pos BOARD B180**

ROLE OF ELECTROSTATIC INTERACTIONS IN THE ANCHORING OF DENGUE E PROTEIN TO LIPID MEMBRANES. **Juan M. Vanegas**, David M. Rogers, Michael S. Kent, Susan B. Rempe

**2044-Pos BOARD B181**

CALCIUM SENSITIVE RING-LIKE OLIGOMERS OF SYNAPTOTAGMIN: IMPLICATIONS FOR REGULATION OF NEUROTRANSMITTER RELEASE. **Shyam Krishnakumar**

**2045-Pos BOARD B182 EDUCATION TRAVEL AWARDEE**

VIRAL MEMBRANE FUSION AT SINGLE PORE RESOLUTION. **Brett E. Alcott**, Zhenyong Wu, Ben O'Shaughnessy, Erdem Karatekin

**2046-Pos BOARD B183**

EFFECT OF CHOLESTEROL DEPLETION ON HA DISTRIBUTION IN THE VIRAL MEMBRANE OF INFLUENZA. **Rebecca A. Dunning**, Marta K. Domanska, Kelly Dryden, Mark Yeager, Peter M. Kasson

**2047-Pos BOARD B184**

CHOLESTEROL AND INFLUENZA VIRAL FUSION MECHANISMS: USING STEROL ANALOGUES TO PROBE MECHANISM. **Katarzyna E. Zawada**, Dominik Wrona, Marta K. Domańska, Peter M. Kasson

**2048-Pos BOARD B185**

CHARACTERIZATION OF HIV-1 ENTRY SITE SPECIFICITY USING SINGLE-PARTICLE TRACKING. **Chetan Sood**, Mariana Marin, Gregory B. Melikian

**2049-Pos BOARD B186**

RECOGNITION OF LIPID DOMAIN BOUNDARIES BY THE HIV FUSION PEPTIDE IS AN ESSENTIAL STEP FOR HIV MEMBRANE FUSION. **Sung-Tae Yang**, Volker Kiessling, Lukas K. Tamm

**2050-Pos BOARD B187**

POST FUSION STRUCTURE OF THE TRANSMEMBRANE DOMAIN OF THE EBOLA VIRUS SURFACE GLYCOPROTEIN. **Jinwoo Lee**, Lukas K. Tamm

**2051-Pos BOARD B188**

THE ROLE OF ACIDIC PH IN EBOLA MEDIATED CELL-CELL FUSION. **Ruben Markosyan**, Grigory Melikyan, Shan-Lu Liu, Fred Cohen

**2052-Pos BOARD B189**

REAL-TIME IMAGING REVEALS THAT HIV-1 VPR DISSOCIATES FROM THE CORE AND ACCUMULATES IN THE NUCLEUS AFTER VIRAL FUSION. **Tanay M. Desai**, Mariana Marin, Gregory B. Melikyan

**2053-Pos BOARD B190**

DELIVERY OF LIPOSOMAL CONTENTS TO OUTER MEMBRANE VESICLES FROM GRAM NEGATIVE BACTERIA. Michael Ficurilli, Carol Liu, Christopher Riviello, Maria Jose Pozo, **Paul R. Meers**

**2054-Pos BOARD B191**

FUSION FORE DILATION BY SNARE PROTEINS. **Zhenyong Wu**, Oscar Daniel Bello, Sarah Marie Auclair, Wensi Vennekate, Shyam Sundar Krishnakumar, Erdem Karatekin

**2055-Pos BOARD B192**

CONTROL OF FUSION PORE NUCLEATION AND DYNAMICS BY SNARE PROTEIN TRANSMEMBRANE DOMAINS. Zhenyong Wu, Sarah M. Auclair, Oscar D. Bello, Wensi Vennekate, Shyam Krishnakumar, **Erdem Karatekin**

**2056-Pos BOARD B193**

SNARE MEDIATED FUSION WITH MEMBRANE TENSION CONTROL. **Joerg Nikolaus**, Erdem Karatekin

**2057-Pos BOARD B194**

COLLECTIVE ACTION OF SNAREPINS EXERTS FORCES BETWEEN MEMBRANES THAT ACTIVATE FUSION. **Hakhamanesh Mostafavi**, Ben Stratton, Jason M. Warner, Erdem Karatekin, Ben O'Shaughnessy

**2058-Pos BOARD B195**

CHOLESTEROL MODULATES SNARE MEDIATED HEMI- AND FULL-FUSION. **Alex J. B. Kreutzberger**, Volker Kiessling, Lukas K. Tamm

**2059-Pos BOARD B196**

CHASING THE FUNCTIONAL ASYMMETRY BETWEEN C2A AND C2B IN FULL-LENGTH SYNAPTOTAGMIN 1 DURING  $Ca^{2+}$ -DEPENDENT MEMBRANE BINDING. **Volker Kiessling**, Bin Lu, Lukas K. Tamm, David S. Cafiso

**2060-Pos BOARD B197**

MECHANICAL MODEL FOR SELF-ASSEMBLY OF SYNAPTOTAGMIN ON A LIPID MEMBRANE. **Jie Zhu**, James E. Rothman

**2061-Pos BOARD B198**

SINGLE VESICLE ASSAY TO STUDY MEMBRANE TETHERING AND DOCKING FACTORS. **Jijie Diao**

**2062-Pos BOARD B199**

DEFICIENCY OF HID-1 LEADS TO IMPAIRED PROINSULIN PROCESSING. **Wen Du**, Tao Xu

**Membrane Structure II (Boards B200-B223)****2063-Pos BOARD B200**

ROLE OF HEADGROUP DIPOLE INTERACTIONS IN PHOSPHATIDYLCHOLINE AND PHOSPHATIDYLSERINE BILAYERS. **Hongcheng Xu**, Sai Ganesan, Silvina Matysiak

**2064-Pos BOARD B201**

DOMAIN FORMATION IN QUARTERNARY LIPID BILAYER SYSTEM: A COARSE-GRAINED MOLECULAR DYNAMICS STUDY. **Shushan He**, Lutz Maibaum

**2065-Pos BOARD B202**

INVESTIGATING LIPID PHASE CHANGES FROM LIQUID CRYSTALLINE TO RIPPLE TO GEL PHASES WITH ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS. **Pouyan Khakbaz**, Jeffery Klauda

**2066-Pos BOARD B203**

MOLECULAR DYNAMICS SIMULATIONS OF SPHINGOMYELIN-CHOLESTEROL BILAYERS. **Hojin Kang**, Jeffery B. Klauda

**2067-Pos BOARD B204**

INFLUENCE OF CHOLESTEROL ON PHOSPHOLIPID BILAYER DYNAMICS. **Christopher T. Boughter**, Jeffery B. Klauda

**2068-Pos BOARD B205**

MICROSCOPIC MODEL AND ANALYTIC DERIVATION OF AREA PER MOLECULE FOR DPPC-CHOLESTEROL BILAYERS. Boris B. Kheyfets, **Sergei I. Mukhin**

**2069-Pos BOARD B206**

SIMULATION STUDY OF COMPOSITION FLUCTUATIONS IN LIPID BILAYERS. **Svetlana Baoukina**, Dmitri Rozmanov, D. Peter Tieleman

**2070-Pos BOARD B207**

FATTY ACID INTERACTIONS WITH RNA BUILDING BLOCKS: ORIGIN OF LIFE IMPLICATIONS. **Parisa Akhshi**, Peter Tieleman

**2071-Pos BOARD B208**

OPEN COLLABORATION THAT USES NMR DATA TO JUDGE THE CORRECTNESS OF PHOSPHOLIPID GLYCEROL AND HEAD GROUP STRUCTURES IN MOLECULAR DYNAMICS SIMULATIONS. Patrick F. J. Fuchs, Matti Javanainen, Antti Lamberg, **Markus S. Miettinen**, Luca Monticelli, Jukka Määttä, O. H. Samuli Ollila, Marius Retegan, Hubert Santuz

**2072-Pos BOARD B209**

SOLID-STATE 2H NMR INVESTIGATION OF TRANSDUCIN ACTIVATION BY RHODOPSIN. **Xiaolin Xu**, Andrey V. Struts, Aswini Kumar Giri, Trivikram R. Molugu, Charitha Guruge, Samira Faylough, Carolina L. Nascimento, Nasri Nesnas, Victor J. Hruby, Michael F. Brown

**2073-Pos BOARD B210**

N-3 PUFA-CONTAINING PHOSPHOLIPIDS STUDIED BY MD SIMULATIONS: A COMPARISON OF EPA, DPA AND DHA. **Xiaoling Leng**, Jacob J. Kinnun, Saame Shaikh, Stephen Wassall, Scott Feller

**2074-Pos BOARD B211**

DHA DISORDERS RAFT-LIKE DOMAINS AS REVEALED BY SOLID STATE 2H NMR. **Jacob J. Kinnun**, Justin A. Williams, William Stillwell, Robert Bittman, Saame R. Shaikh, Stephen R. Wassall

**2075-Pos BOARD B212**

DISORDERLY POLYUNSATURATED FATTY ACIDS AND ORDERLY CHOLESTEROL: JUST HOW DO THEY GET ALONG IN A MEMBRANE? Denise V. Greathouse, Jacob J. Kinnun, Justin A. Williams, Drew Marquardt, Jeffrey B. Klauda, Roger E. Koeppe II, John Katsaras, Thad A. Harroun, **Stephen R. Wassall**

**2076-Pos BOARD B213 MINORITY AFFAIRS TRAVEL AWARDEE**

AN INVESTIGATION OF WHETHER VITAMIN E PREFERENTIALLY INTERACTS WITH POLYUNSATURATED LIPIDS. **Andres T. Cavazos**, Jacob J. Kinnun, Justin A. Williams, Bruce D. Ray, Morris Bank, Paul E. Harper, Jeffrey Atkinson, Horia I. Petrache, Stephen R. Wassall



**2077-Pos BOARD B214**

MOLECULAR DYNAMICS STUDIES OF LIPID I AND LIPID II IN VARIOUS OF LIPID BILAYER ENVIRONMENTS. **Seonghoon Kim**, Wonpil Im

**2078-Pos BOARD B215**

EICOSAPENTAENOIC ACID-CONTAINING MEMBRANE DOMAIN INVOLVED IN CELL DIVISION OF A COLD-ADAPTED BACTERIUM. **Jun Kawamoto**, Nobuyoshi Esaki, Tatsuo Kurihara

**2079-Pos BOARD B216**

STRONG H-BONDS FORM BILAYERS: OCHROMONAS DANICA IS AN EXTREME EXAMPLE. **Thomas H. Haines**

**2080-Pos BOARD B217**

CHOLESTEROL FLIP-FLOP AND LACK OF SWELLING IN STRATUM CORNEUM LIPID BILAYERS. **Peter Olmsted**, Chinmay Das, Massimo Noro

**2081-Pos BOARD B218**

HYDRATION AND SUPRAMOLECULAR ORGANIZATION STUDIES OF LAMELLAR BODIES IN A549 LUNG CELLS USING LAURDAN FLUORESCENCE. **Leonel S. Malacrida**, Soledad Astrada, Mariela Bolatti, Arturo Briva, Luis A. Bagatolli

**2082-Pos BOARD B219**

MODULATION OF PHOSPHOINOSITIDE MONOLAYER COMPRESSIBILITIES BY PHYSIOLOGICAL LEVELS OF  $Ca^{2+}$ . **Adolphe Kazadi Badiambile**, Martin B. Forstner

**2083-Pos BOARD B220**

PROTON PERMEATION THROUGH EXTREMOPHILE-INSPIRED LIPID MEMBRANES. **Thomas B. H. Schroeder**, Kathryn N. Haengel, Mitchell A. Johnson, Claire L. Wang, Geoffray Leriche, Takaoki Koyanagi, Jerry Yang, Michael Mayer

**2084-Pos BOARD B221**

VIBRATIONAL SPECTROSCOPIC STUDIES PROBING CARDIOLIPIN CONTAINING LIPOSOMES WITH AND WITHOUT CYTOCHROME C BOUND TO ITS ANIONIC SURFACE. **Dzmitry Malyshka**, Leah Pandiscia, Reinhard Schweitzer-Stenner

**2085-Pos BOARD B222**

DROPLET INTERFACE BILAYER AS CELL MEMBRANE MIMICS: WATER PERMEABILITY STUDIES. **Sunghee Lee**

**2086-Pos BOARD B223**

COMPARISON OF REACTIVE OXYGEN SPECIES PRODUCTION ACTIVITY AND BINDING ABILITY OF PORPHYRINS IN CELL MEMBRANE MODELS. **Barnabás Bócskei-Antal**, Bianka Nagy, Szilvia Anikó Tóth, Nikolett Kósa, István Voszka, Gabriella Csík, Levente Herényi

## Membrane Receptors and Signal Transduction III (Boards B224-B245)

**2087-Pos BOARD B224**

INVESTIGATING THE EFFECT OF SODIUM AND VOLTAGE ON  $\delta$ -OPIOID RECEPTORS. **Owen N. Vickery**, Daniel T. Baptista-Hon, Daniel Seeliger, Tim G. Hales, Ulrich Zachariae

**2088-Pos BOARD B225**

STRUCTURE-GUIDED DISCOVERY OF POSITIVE ALLOSTERIC MODULATORS OF THE MU-OPIOID RECEPTOR. **Paola Bisignano**, Neil T. Burford, Samuel W. Gerritz, Andrew Alt, Marta Filizola

**2089-Pos BOARD B226**

BINDING POCKETS AND POSES OF ALLOSTERIC MODULATORS OF OPIOID RECEPTORS IDENTIFIED BY METADYNAMICS. **Yi Shang**, Holly R. Yeatman, Neil Burford, Kathryn Livingston, Paola Bisignano, John Traynor, Andrew Alt, Arthur Christopoulos, Meritxell Canals, Marta Filizola

**2090-Pos BOARD B227**

STRUCTURAL DYNAMICS AND ENERGETICS UNDERLYING ALLOSTERIC INACTIVATION OF A GPCR: INSIGHTS GAINED FROM SITE-DIRECTED FLUORESCENCE LABELING (SDFL) STUDIES OF THE CANNABINOID RECEPTOR CB1. Jonathan Fay, **David L. Farrens**

**2091-Pos BOARD B228**

OPTIMIZATION OF SYNTHETICALLY NOVEL AGONISTS OF THE PUTATIVE CANNABINOID RECEPTOR, GPR55, USING AN ACTIVATED STATE MODEL. **Mary A. Lingerfelt**, Pingwei Zhao, Lara Fakhouri, Mary E. Abood, Mitchell P. Croatt, Patricia H. Reggio

**2092-Pos BOARD B229**

SIGNALING THROUGH HOMOMERIC AND HETEROMERIC DOPAMINE D2 AND CANNABINOID CB1 RECEPTORS. **Guoqing Xiang**

**2093-Pos BOARD B230**

PHARMACOLOGICAL IMPLICATIONS OF A2AR-D2R HETEROMERIZATION AND THE SIGNIFICANCE FOR PARKINSON'S DISEASE. **Candice Hatcher-Solis**, Diomedes E. Logothetis

**2094-Pos BOARD B231**

STRUCTURAL BASIS FOR THE ALLOSTERIC PHARMACOLOGY OF SB269652 IN DOPAMINE D2 RECEPTOR. **Mayako Michino**, Christopher J. Draper-Joyce, Prashant Donthamsetti, Jonathan A. Javitch, J. Robert Lane, Lei Shi

**2095-Pos BOARD B232**

CROSS-SIGNALING BETWEEN THE METABOTROPIC GLUTAMATE RECEPTOR 2 AND THE SEROTONIN 2A RECEPTOR IN HEK-293 CELLS. **Lia Baki**, Jason Younkin, Jose Miguel Eltit, Miguel Fribourg, Amr Ellaithy, Gyu Park, Zhanna Vysotskaya, Diomedes E. Logothetis

**2096-Pos BOARD B233**

A POSITIVE ALLOSTERIC MODULATOR OF THE METABOTROPIC GLUTAMATE 2 RECEPTOR ALTERS 5-HT<sub>2A</sub> RECEPTOR SIGNALING IN A HETEROMERIC COMPLEX. **Amr Ellaithy**, Jason Younkin, Lia Baki, Diomedes Logothetis

**2097-Pos BOARD B234**

ASSEMBLY AND COOPERATIVITY OF METABOTROPIC GLUTAMATE RECEPTORS. **Josh Levitz**, Reza Vafabakhsh, Shashank Bharill, Shashank Bharill, Ehud Y. Isacoff

**2098-Pos BOARD B235**

GLYCAN-BASED CONNECTIVITY REGULATES THE HIERARCHICAL ORGANIZATION OF MEMBRANE RECEPTORS BY COUPLING THEIR MICRO- AND NANO-SCALE LATERAL MOBILITY. Juan A. Torreno-Pina, Bruno Castro, Alessandra Cambi, Carlo Manzo, **Maria Garcia-Parajo**

**2099-Pos BOARD B236**

THE ROLE OF LIGAND DENSITY IN THE BINDING OF VON WILLEBRAND FACTOR BY THE GLYCOPROTEIN IB-IX-V COMPLEX IN PLATELETS. **Zeinab Al-Rekabi**, Shirin Feghhi, Nikita Taparia, Adam D. Munday, Wendy E. Thomas, Jose A. Lopez, Joachim P. Spatz, Nathan J. Sniadecki



**2100-Pos BOARD B237 INTERNATIONAL TRAVEL AWARDEE**  
CHELIDONINE INTERFERES WITH IL-6R/STAT3 SIGNALING IN UVEAL MELANOMA CELLS. **Istvan Csomos**, Eniko Nizsaloczki, Gabriella Nagy, Laszlo Matyus, Andrea Bodnar

**2101-Pos BOARD B238**  
THE SITE OF ARACHIDONIC ACID RELEASE DRIVES CALCIUM DYNAMICS IN  $\beta$ -CELLS. **Dmytro A. Yushchenko**, André Nadler, Rainer Mueller, Frank Stein, Gurleen Khandpur, Suihan Feng, Carsten Schultz

**2102-Pos BOARD B239**  
MULTI-SCALE LINKAGES BETWEEN SINGLE-MOLECULE INTEGRIN DYNAMICS AND CELL PROTRUSION. **Khuloud Jaqaman**, James A. Galbraith, Michael Davidson, Gaudenz Danuser, Catherine G. Galbraith

**2103-Pos BOARD B240**  
WEAK ERGODICITY BREAKING OF MEMBRANE RECEPTOR MOTION STEMMING FROM RANDOM DIFFUSIVITY. **Carlo Manzo**, Juan A. Torreno-Pina, Pietro Massignan, Gerald J. Lapeyre Jr., Maciej Lewenstein, Maria F. Garcia-Parajo

**2104-Pos BOARD B241**  
RESTRICTED MOBILITY OF TONB AND FEPA IN E. COLI MEMBRANES. Yoriko Lill, Lorne D. Jordan, Chuck R. Smallwood, Salete M. Newton, Phillip E. Klebba, **Ken Ritchie**

**2105-Pos BOARD B242**  
CRYO-ELECTRON TOMOGRAPHY AND COMPUTER SIMULATIONS REVEAL DISTINCT CHEA KINASE CONFORMATION IN BACTERIAL CHEMOTAXIS SIGNALING RECEPTOR COMPLEX. **Benjamin A. Himes**, C. Keith Cassidy, Jun Ma, Frances Joan D. Alvarez, Juan R. Perilla, Gongpu Zhao, Klaus Schulten, Peijun Zhang

**2106-Pos BOARD B243**  
TRACKING CEACAM1 INTERACTIONS AND DYNAMICS WITH HOMO-FRET AND IMAGE CORRELATION TECHNIQUES. **Amy M. Won**, Scott D. Gray-Owen, Christopher M. Yip

**2107-Pos BOARD B244**  
MOLECULAR MECHANISM ASSOCIATED TO THE OFFSPRING'S COGNITIVE IMPAIRMENT DUE TO MATERNAL THYROID HORMONES DEFICIENCY DURING GESTATION. **Maria Cecilia Opazo**, Luis Venegas, Pablo Cisternas, Eduardo Albornoz, Enzo Seguel, Susan Bueno, Alexis Kalergis, Claudia Riedel

**2108-Pos BOARD B245**  
P2X4 FORMS ATP-ACTIVATED CHANNELS ON LYSOSOMAL MEMBRANES REGULATED BY LUMINAL PH AND SLC17A9 PROTEINS. **Xianping Dong**

### Excitation-Contraction Coupling II (Boards B246-B252)

**2109-Pos BOARD B246**  
IDENTIFICATION OF MAJOR FKBP12 BINDING DETERMINANTS IN RYR1. Razvan L. Cornea, Filip Van Petegem, **James D. Fessenden**

**2110-Pos BOARD B247**  
GENETIC DELETION OF FKBP12.6 ACCELERATES CARDIAC AGING IN MICE. **Guangju Ji**

**2111-Pos BOARD B248**  
PROPERTIES OF ATRIAL MYOCYTE CALCIUM HANDLING IN CANINE MODEL OF CHRONIC HEART FAILURE. **Andriy Belevych**, Hsiang-Ting Ho, Qing Lou, Lucia Brunello, Ingrid Bonilla, Karsten Schober, Kent Mowrey, Raul Weiss, Cynthia A. Carnes, Sandor Gyorke

**2112-Pos BOARD B249**  
EFFECT OF HYPERTROPHIC CALCIUM SIGNALS AND ALTERED EXCITATION-CONTRACTION COUPLING ON THE CALCINEURIN-NFAT PATHWAY. **Joseph L. Greenstein**, Tejas Mehta, Raimond L. Winslow

**2113-Pos BOARD B250**  
EC COUPLING FOR MUSCLE AFICIONADOS: ABNORMAL CONTRACTION AND DISRUPTED EXCITABILITY IN SOME ENZYMATICALLY DISSOCIATED SKELETAL MUSCLE FIBERS. **Camilo Vanegas**, Martin F. Schneider, Erick O. Hernández-Ochoa

**2114-Pos BOARD B251**  
EXCITATION-CONTRACTION COUPLING IN HUMAN EXTRAOCULAR MUSCLES: THERE IS MORE THAN MEETS THE EYE. Marijana Sekulic-Jablanovic, Anja Palmowski-Wolfe, Francesco Zorzato, **Susan Treves**

**2115-Pos BOARD B252**  
THE CALCIUM-ACTIVATED CHLORIDE CHANNEL IN ZEBRAFISH SKELETAL MUSCLE IS ACTIVATED DURING EXCITATION-CONTRACTION COUPLING. **Shu Fun Josephine Ng**, Anamika Dayal, Manfred Grabner

### Muscle Regulation (Boards B253-B270)

**2116-Pos BOARD B253**  
PROTEINS IN STRIATED MUSCLES THAT TRANSCRIBED FROM THE CONTIGUOUS REGION OF CONNECTIN GENE. **Akira Hanashima**, Naruki Sato, Sumiko Kimura, Takashi Sakurai, Takashi Murayama

**2117-Pos BOARD B254**  
SKELETAL MYOSIN BINDING PROTEIN-C ISOFORMS MODULATE ACTOMYOSIN CONTRACTILITY AND ARE REGULATED BY PHOSPHORYLATION. **Amy Li**, Samantha Beck Previs, Michael Previs, Brian Lin, Cristobal dos Remedios, Roger Craig, Sakthivel Sadayappan, David Warshaw

**2118-Pos BOARD B255**  
IN VITRO RECONSTITUTION OF SKELETAL MUSCLE CONTRACTION USING NATIVE THIN FILAMENTS. Augustine Cleetus, Khushboo Rastogi, **Ravikrishnan Elangovan**

**2119-Pos BOARD B256**  
DIRECT TROPONIN-MYOSIN INTERACTION ENHANCES ATPASE ACTIVITY OF CARDIAC HMM. **Nazanin Bohlooli Ghashghaee**, King-Lun Li, Wen-Ji Dong

**2120-Pos BOARD B257**  
THE REGULATION OF ACTOMYOSIN ATPASE IN CARDIAC MUSCLE BY THE N-TERMINAL EXTENSION OF CARDIAC TROPONIN T. **Laura Gunther**, Hanzhong Feng, Hongguang Wei, Justin Raupp, Jian-Ping Jin, Takeshi Sakamoto

**2121-Pos BOARD B258**  
PSEUDO-ACETYLATION OF ACTIN RESIDUES K326 AND K328 DISRUPTS DROSOPHILA FLIGHT PERFORMANCE AND MUSCLE STRUCTURE. **William M. Schmidt**, Meera Cozhimuttam Viswanathan, Anna C. Blice-Baum, D. Brian Foster, Anthony Cammarato

**2122-Pos BOARD B259**

STUDYING TROPONIN WITHIN REGULATED ACTIN AT SINGLE MOLECULE RESOLUTION. **Christopher Solis-Ocampo**, Maria E. Moutsoglou, Gi-Ho Kim, John M. Robinson

**2123-Pos BOARD B260**

OBSERVING THE PCA-FORCE RELATIONSHIP WITH A 3-BEAD LASER TRAP ASSAY. **Thomas J. Longyear**, Sam Walcott, Edward P. Debold

**2124-Pos BOARD B261**

ENERGY LANDSCAPES REVEAL THE MYOPATHIC EFFECTS OF TROPOMYOSIN MUTATIONS. Marek Orzechowski, Gerrie P. Farman, Jeffrey R. Moore, Stefan Fischer, **William Lehman**

**2125-Pos BOARD B262**

ESTIMATION OF LOCAL FORCES IN MYOFILAMENTS USING X-RAY DIFFRACTION PATTERNS AND MUSCLE MECHANICS DATA. Momcilo Prodanovic, Djordje Nedic, **Thomas C. Irving**, Srbljub M. Mijailovich

**2126-Pos BOARD B263**

HIERARCHY OF REGULATORY INTERACTIONS IN THE SARCOPLASMIC RETICULUM CALCIUM TRANSPORT COMPLEX. John E. Rubin, Bengt Svensson, Kurt C. Peterson, Seth L. Robia, David D. Thomas, **Joseph M. Autry**

**2127-Pos BOARD B264**

REGULATION OF MYOBLAST PROLIFERATION AND DIFFERENTIATION BY ANOCTAMIN 5 AND 6. **Li Xu**, Renzhi Han, LiXia Zhao

**2128-Pos BOARD B265**

CHARGED VESICLES POTENTLY INDUCE NLRP3 INFLAMMASOME ACTIVATION. **Lixia Zhao**, Li Xu, Zhenyu Zhong, Yougang Zhai, Liang Qiao, Renzhi Han

**2129-Pos BOARD B266**

MITOCHONDRIUM 56 IS AN MBOAT FAMILY MEMBER AND CONTRIBUTES TO POSTNATAL MUSCLE MATURATION. **Myuki Nishi**, Bo Van, Shinji Komazaki, Daiju Yamazaki, Ki-Ho Park, Jianjie Ma, Hiroshi Takeshima

**2130-Pos BOARD B267**

SUPPRESSED AUTOPHAGY FLUX IN SKELETAL MUSCLE OF AN AMYOTROPHIC LATERAL SCLEROSIS MOUSE MODEL. **Yajuan Xiao**, Changling Ma, Jianxun Yi, Shaoping Wu, Guo Luo, Xiulong Xu, Pei-Hui Lin, Jun Sun, Jingsong Zhou

**2131-Pos BOARD B268 INTERNATIONAL TRAVEL AWARDEE**

IMPAIRMENT IN ACETYLCHOLINE RELEASE BY CARDIOMYOCYTES LEADS TO ENHANCED PATHOLOGICAL HYPERTROPHY. **Cibele Rocha-Resende**, Vania Prado, Marco Prado, Aristobolo Mendes Silva, Silvia Guatimosim

**2132-Pos BOARD B269**

MYOPATHIC CHANGES IN MURINE SKELETAL MUSCLE LACKING SYNEMIN. **Karla Garcia-Pelagio**, Joaquin Muriel, Andrea O'Neill, Patrick Desmond, Richard M. Lovering, Linda Lund, Meredith Bond, Robert Bloch

**2133-Pos BOARD B270**

CYTOKINE STIMULATION INDUCES NOX2-DEPENDENT ROS PRODUCTION AND DECREASES MUSCLE FUNCTION. **James A. Loehr**, Reem Abo-Zahrah, Rituraj Pal, George G. Rodney

## Mechanisms of Voltage Sensing and Gating (Boards B271-B291)

**2134-Pos BOARD B271**

AN EXPERIMENTALLY-VALIDATED MODEL STRUCTURE OF THE HV1 PROTON CHANNEL VOLTAGE SENSOR IN ITS RESTING STATE. Younes Mokrab, Ashley Bennett, Mark S. P. Sansom, **I. Scott Ramsey**

**2135-Pos BOARD B272**

UNVEILING POTENTIAL BINDING SITES IN THE HV1 FOUR HELIX BUNDLE. **Eleonora Gianti**, Lucie Delemotte, Vincenzo Carnevale, Francesco Tombola, Douglas Tobias, Michael L. Klein

**2136-Pos BOARD B273**

ALLOSTERIC COUPLING BETWEEN OPEN SUBUNITS IN THE HV1 PROTON CHANNEL PROBED BY GUANIDINOTHIAZOLES. **Liang Hong**, Vikrant Singh, Heike Wulff, Francesco Tombola

**2137-Pos BOARD B274**

CHARACTERIZATION AND SUBCELLULAR LOCALIZATION OF HV1 IN LINGULODINIUM POLYEDRUM CONFIRMS ITS ROLE IN BIOLUMINESCENCE. **Juan D. Rodriguez**, Saddef Haq, Kristine F. Nowak, Deri Morgan, Vladimir V. Cherny, Steven Bernstein, Meredith S. Sapp, John R. Curcuro, Coretha Antchouey, Scott J. Nowak, Allen Place, Thomas E. DeCoursey, Susan M E Smith

**2138-Pos BOARD B275**

ENGINEERED VOLTAGE SENSING PHOSPHATASES: WHAT DO THEY TELL US ABOUT THE GATING MECHANISM? Angeliki Mavrantoni, Kirstin Hobiger, Michael G. Leitner, Dominik Oliver, **Christian R. Halaszovich**

**2139-Pos BOARD B276 EDUCATION TRAVEL AWARDEE**

THE ROLE OF THE C2 DOMAIN OF VOLTAGE SENSING PHOSPHATASE (VSP). **Kevin D. Zolman**, Paul M. Castle, Susy C. Kohout

**2140-Pos BOARD B277**

INVESTIGATING THE FUNCTION OF A NOVEL VOLTAGE-SENSING PROTEIN. **Erika Babikow**, Ferenc Papp, Suwendu Lomash, Jamie Smith, Kenton Swartz

**2141-Pos BOARD B278 EDUCATION TRAVEL AWARDEE**

POTENTIAL VOLTAGE SENSITIVE ENZYMES IN PROKARYOTES. **Joshua P. Clark**, Susan M. E. Smith

**2142-Pos BOARD B279**

SEQUENCE SIGNATURE OF VOLTAGE SENSING DETECTED VIA DIMENSIONALITY REDUCTION TECHNIQUES. **Daniele Granata**, Matteo Marsili, Michael L. Klein, Vincenzo Carnevale

**2143-Pos BOARD B280**

LIPID-DEPENDENT CONFORMATIONAL TRANSITIONS IN KVAP ARE DRIVEN BY VOLTAGE SENSING DOMAIN. **Qufei Li**, Julia Skalska, Sherry Wanderling, Eduardo Perozo

**2144-Pos BOARD B281**

MOLECULAR DETERMINANTS OF TEMPERATURE DEPENDENT GATING OF ION CHANNELS. **Sandipan Chowdhury**, Brian W. Jarecki, Baron Chanda

**2145-Pos BOARD B282**

THE GATING CHARGE OF KV1.2 IS LESS THAN EXPECTED FROM ITS SIMILARITY TO SHAKER. **Itzel G. Ishida**, Gisela E. Rangel-Yescas, Leon D. Islas

**2146-Pos BOARD B283**  
DISCONTINUITY BETWEEN THE VOLTAGE-SENSOR AND THE PORE DOMAIN DOES NOT ABOLISH VOLTAGE-GATING OF KV10.1 POTASSIUM CHANNEL. **Adam P. Tomczak**, Eva Lörinczi, Juan Camilo Gomez-Posada, Walter Stühmer, Luis A. Pardo

**2147-Pos BOARD B284**  
TWO KCNQ1 MUTATIONS ASSOCIATED WITH FAMILIAL ATRIAL FIBRILLATION, S140G AND V141M, DEMONSTRATE DISTINCT VOLTAGE SENSOR PHENOTYPES. **Gary Peng**, Kevin J. Sampson, Rene Barro-Soria, H. Peter Larsson, Robert S. Kass

**2148-Pos BOARD B285**  
MOLECULAR DETERMINANTS OF VOLTAGE SENSOR DOMAIN ACTIVATION. **Lucie Delemotte**, Vincenzo Carnevale, Michael L Klein, Marina A. Kasimova, Mounir Tarek

**2149-Pos BOARD B286**  
ROLE OF THE VOLTAGE SENSING DOMAIN S1-S4 IN TRPV1 CHANNELS. **Juan Zhao**, Rikard Blunck

**2150-Pos BOARD B287**  
SENSING THE ELECTROCHEMICAL K<sup>+</sup> GRADIENT: THE VOLTAGE GATING MECHANISM IN K2P POTASSIUM CHANNELS. **Marcus Schewe**, Ehsan Nematian-Ardestani, Thomas Linke, Klaus Benndorf, Stephen J. Tucker, Markus Rapedius, Thomas Baukrowitz

**2151-Pos BOARD B288**  
CAN CLC-2 CHLORIDE CHANNEL BE ACTIVATED BY HYPERPOLARIZATION ALONE IN CELLS DIALYZED WITH NON-PERMEANT ANIONS? José J. De Jesús-Pérez, Alejandra Castro-Chong, Ru-Chi Shieh, Carmen Y. Hernández-Carballo, Jose A. De Santiago-Castillo, **Jorge Arreola**

**2152-Pos BOARD B289**  
MOLECULAR BASIS OF VOLTAGE-DEPENDENT GATING IN CLC TRANSPORTERS. **Jan-Philipp Machtens**, Matthias Grieschat, Christoph Fahlke, Alexi K. Alekov

**2153-Pos BOARD B290**  
MULTIPHASIC PROFILES: DISCONTINUOUS TRANSITIONS IN CONDUCTANCE-VOLTAGE DATA FOR ION CHANNELS. **Per Nissen**

**2154-Pos BOARD B291**  
A HIGHLY COOPERATIVE AND STEEPLY VOLTAGE GATED CHANNEL TRIPLET. **Shang H. Lin**, Benjamin Wu, Marco Colombini

## Ligand-gated Channels II (Boards B292-B318)

**2155-Pos BOARD B292**  
NON-EQUIVALENT LIGAND SELECTIVITY OF AGONIST SITES IN (α4β2)2α4 NICOTINIC ACETYLCHOLINE RECEPTORS: A KEY DETERMINANT OF AGONIST EFFICACY. **Simone Mazzaferro**, Federica Gasparri, karina New, Constanza Alcaino, Isabel Bermudez

**2156-Pos BOARD B293**  
DESFORMYLFLUSTRABROMINE POTENTIATES HIGH-SENSITIVITY α4β2 RECEPTORS BY INCREASING CHANNEL OPENING RATE. **Arianna Demmerly**, Brian W. Edmonds

**2157-Pos BOARD B294**  
IS THE ACHR A CUCKOO-CLOCK? LOCAL AND REMOTE INTERACTIONS OF THE α M2-3 LINKER IN GATING. **Shaweta Gupta**, Prasad Purohit, Anthony Auerbach

**2158-Pos BOARD B295**  
MOLECULAR SIMULATIONS OF MUSCLE ACHR AGONIST BINDING SITES. **Srirupa Chakraborty**, Tapan K. Nayak, Iva Bruhova, Wenjun Zheng, Anthony L. Auerbach

**2159-Pos BOARD B296**  
DIFFERENCES IN AGONIST ENERGY AT THE NEUROTRANSMITTER BINDING SITES IN THE NEUROMUSCULAR ACETYLCHOLINE RECEPTORS. **Tapan K. Nayak**, Anthony Auerbach

**2160-Pos BOARD B297**  
INTERACTION OF 7-METHOXYTACRINE-ADAMANTYLAMINE CHOLINESTERASE INHIBITORS WITH NICOTINIC AND MUSCARINIC ACETYLCHOLINE RECEPTORS. Ze-Jun Wang, Vendula Sepsova, Katarina Spilovska, Tasnim S. Mohamed, **Ayman K. Hamouda**

**2161-Pos BOARD B298**  
STEPCHILD NICOTINE: EFFECT OF THE NAME-GIVING AGONIST ON MUSCLE-TYPE NICOTINIC ACETYLCHOLINE RECEPTOR. **Abhilasha Ladha**, Klaus Benndorf, Jana Kusch

**2162-Pos BOARD B299**  
THE ROLE OF THE M3 HELIX IN ACHR GATING AND PAM ACTION. **Aashutosh Vihani**, Prasad Purohit, Anthony Auerbach

**2163-Pos BOARD B300**  
MODAL GATING OF MUSCLE ACHRS HAVING LOOP C MUTATIONS. **Ridhima Vij**

**2164-Pos BOARD B301**  
DISSECTING THE INHIBITORY AND POTENTIATION EFFECTS OF DESFORMYLFLUSTRABROMINE ON A MUSCLE-TYPE NICOTINIC ACETYLCHOLINE RECEPTOR (NACHR). **Tasnim S. Mohamed**, Ze-Jun Wang, Tiffany R. Trevino, Ayman K. Hamouda

**2165-Pos BOARD B302 INTERNATIONAL TRAVEL AWARDEE**  
EXPLORING ALPHA7 POSITIVE ALLOSTERIC MODULATORS FROM A SINGLE-CHANNEL PERSPECTIVE. **Natalia D. Andersen**, Jeremias Corradi, Fernanda Tolosa, Nehuen Gasparini, Hugo R. Arias, Cecilia B. Bouzat

**2166-Pos BOARD B303**  
GATING RITUAL: SIMULATIONS OF GATING IN GLUTAMATE-GATED CHLORIDE CHANNEL. **Ozge Yoluk**, Stephanie Heusser, Magnus Andersson, Laura Orellana, Erik Lindahl

**2167-Pos BOARD B304**  
AROMATIC RESIDUES IN THE TRANSMEMBRANE HELICES PLAY AN ESSENTIAL ROLE IN THE HOMOPENTAMERIC ASSEMBLY OF THE GLUCL α. **Anke Dopychai**, Clairentine F. Pokam, Gunther Schmalzing

**2168-Pos BOARD B305**  
OPENING AND SELECTIVITY OF THE GLIC LIGAND-GATED ION CHANNEL CAN BE TUNED BY MUTATION OF HYDROPHOBIC RESIDUES IN THE PORE. Özge Yoluk, Stephanie Heusser, Iman Pouya, Rebecca Howard, Göran Klement, **Erik Lindahl**

**2169-Pos BOARD B306**  
GLIC-ELIC CHIMERAS HAVE UNEXPECTED CHARACTERISTICS. **Sarah C. Lummis**, Mona Alqazzaz

**2170-Pos BOARD B307**  
ROLE OF THE TRANSMEMBRANE α-HELIX M4 IN THE POTENTIATION OF PENTAMERIC LIGAND-GATED ION CHANNELS. **Camille M. Hénault**, Casey L. Carswell, Sruthi Murlidaran, JP Daniel Therien, Peter F. Juranka, Julian A. Surujballi, Grace Brannigan, John E. Baenziger



**2171-Pos BOARD B308**

THE KINETIC PROPERTIES OF THE HUMAN GLYCINE RECEPTOR IN RESPONSE TO DIFFERENT AGONISTS. **Elliot J. Hurdiss**, Timo Greiner, Riley Yu, Phillip C. Biggin, Lucia G. Sivilotti

**2172-Pos BOARD B309**

EVOLUTION OF PRO-LOOP CHANNELS: A FRESH LOOK AT THE FORMER CYS-LOOP FAMILY. Mariama Jaiteh, Antoine Taly, **Jérôme Hénin**

**2173-Pos BOARD B310**

ELECTROMAGNETIC FIELDS INHIBIT CYS-LOOP RECEPTOR FUNCTION BY INDUCING A NOVEL CONFORMATIONAL STATE. Fernanda Tolosa, Walter R. Cravero, **Cecilia B. Bouzat**

**2174-Pos BOARD B311**

SUPER-RESOLUTION IMAGING AND SINGLE PARTICLE TRACKING OF SEROTONIN 5HT<sub>3A</sub> RECEPTOR IN BIOMIMETIC MEMBRANES. **Adam O. Barden**, Adam S. Goler, James A. Brozik

**2175-Pos BOARD B312**

INTERACTION OF BUPROPION WITH 5-HT<sub>3A</sub> RECEPTORS. **Akash Pandhare**, Dominique Gagnon, Henrik Wilms, Michael P. Blanton, Michaela Jansen

**2176-Pos BOARD B313**

EXPLORING THE GATING PATHWAY IN AN EUKARYOTIC LIGAND-GATED ION CHANNEL. **Stephanie A. Heusser**, Ozge Yoluk, Erik Lindahl

**2177-Pos BOARD B314**

COMPLEX MODULATION OF THE GABA<sub>A</sub>  $\alpha 1\beta 2\gamma 2$  RECEPTOR FUNCTION BY BUPROPION. **Jeremy M. Thompson**, Aneesh Pappu, Akash Pandhare, Michaela Jansen

**2178-Pos BOARD B315**

BUILDING GABAA RECEPTORS FOR STRUCTURAL DETERMINATION. **Duncan C. Lavery**, Adam Cryar, Konstantinos Thalassinou, Trevor G. Smart

**2179-Pos BOARD B316**

DOPAMINE DIRECTLY MODULATES GABAA RECEPTORS. **Paul Hoerbelt**, Mark W. Fleck

**2180-Pos BOARD B317**

MMTX1 AND MMTX2 FROM CORAL SNAKE VENOM POTENTLY MODULATE GABA(A) RECEPTOR ACTIVITY. Jean-Pierre Rosso, Jürgen R. Schwarz, Marcelo Diaz-Bustamante, Brigitte Céard, José María Gutiérrez, Matthias Kneussel, Olaf Pongs, **Frank Bosmans**, Pierre E. Bougis

**2181-Pos BOARD B318**

MONITORING MOTIONS IN GABA-A RECEPTOR INTERSUBUNIT TRANSMEMBRANE CAVITIES. **Tzu-Wei Tsao**, Borna Ghosh, Cynthia Czajkowski

## Ion Channel Regulatory Mechanisms II (Boards B319-B338)

**2182-Pos BOARD B319**

LIBERATION OF PSER68-PLM INHIBITION OF NCX1 BY AN OPTIMIZED ANCHORING DISRUPTOR PEPTIDE. **Kjetil Hodne**, Pimthanya Wanichawan, Tandekile Lubelwana Hafver, William Edward Louch, Marianne Lunde, Marita Martinsen, Ole Mathias Sejersted, Cathrine Rein Carlson

**2183-Pos BOARD B320**

THE TALK-1 C-TERMINUS IS A CHARGE-SENSITIVE MODULE REGULATING CHANNEL ACTIVITY. **Nicholas Vierra**, Prasanna K. Dadi, Farah Ladak, David A. Jacobson

**2184-Pos BOARD B321**

INVESTIGATING VIRAL CHANNEL FORMING PROTEIN VPU WITH COARSE-GRAINING MOLECULAR DYNAMICS SIMULATION. **Meng-Han Lin**, Wolfgang Fischer

**2185-Pos BOARD B322**

KIR2.1 CHANNELS COMPENSATE FOR THE LOSS OF KATP CHANNELS IN SUR1 NULL ISLETS. **Suryakiran Vadrevu**, Jinhua Ren, Min Zhang, Eric J. Glynn, Arthur Sherman, Leslie S. Satin

**2186-Pos BOARD B323**

SECRETED HUMAN CLCA1 ACTIVATES CALCIUM-DEPENDENT CHLORIDE CURRENTS VIA INTERACTION WITH TMEM16A (ANOCTAMIN 1). **Monica Sala-Rabanal**, Zeynep Yurtsever, Colin G. Nichols, Tom J. Brett

**2187-Pos BOARD B324**

INHIBITION OF THE CFTR CHLORIDE CHANNEL BY SPHINGOMYELINASE. **Brandon Stauffer**, Guiying Cui, Daniel T. Infield, Nael McCarty

**2188-Pos BOARD B325**

MOLECULAR DYNAMICS SIMULATIONS OF CALCIUM BINDING SITES IN THE RCK DOMAIN OF THE MTHK GATING RING. **Tangzhen Zhao**, Yukun Wang, Qin Xu, Dongqing Wei

**2189-Pos BOARD B326**

FUNCTIONAL COUPLING BETWEEN ANO1 AND TRPV1 CHANNELS IN SENSORY NEURONS. Shihab Shah, **Nikita Gamper**

**2190-Pos BOARD B327**

PHOSPHOLIPASE D2 SPECIFICALLY REGULATES TREK CHANNELS VIA DIRECT INTERACTION AND LOCAL PRODUCTION OF PHOSPHATIDIC ACID. Yannick Comoglio, Levitz Joshua, Michael Kienzler, Florian Lesage, Ehud Isacoff, **Guillaume Sandoz**

**2191-Pos BOARD B328**

THE MODULATORY FUNCTION OF THE BK CHANNEL  $\gamma 1$  SUBUNIT IS DETERMINED BY ITS TRANSMEMBRANE DOMAIN. Qin Li, Jiyuan Zhang, Karren Yen, **Jiusheng Yan**

**2192-Pos BOARD B329**

DIFFERENTIAL EFFECTS OF PIP2 ON SLO1 BK CHANNELS WITH DIFFERENT AUXILIARY SUBUNITS. **Yutao Tian**, Florian Ullrich, Rong Xu, Heinemann H. Stefan, Shangwei Hou, Toshinori Hoshi

**2193-Pos BOARD B330**

A FLUOROGEN-ACTIVATING BIOSENSOR FOR ANALYSIS OF BK CHANNEL TRAFFIC AND SURFACE RESIDENCY. **Christopher Pratt**, Jianjun He, Alison Barth, Marcel Bruchez

**2194-Pos BOARD B331**

UNDERSTANDING THE DYNAMICS OF K2P CHANNELS IN COMPLEX LIPID BILAYERS. **Prafulla Aryal**, Stephen J. Tucker, Mark SP Sansom

**2195-Pos BOARD B332 EDUCATION TRAVEL AWARDEE**  
NON-MARKOVIAN PROTEIN DYNAMICS IN A NEAR-CRITICAL MEMBRANE MODEL. **Ofer Kimchi**, Benjamin B. Machta



**2196-Pos BOARD B333**  
MECHANISMS OF TREK-2 POTASSIUM CHANNEL GATING. **Conor McClenaghan**, Elizabeth Carpenter, Tucker J. Stephen

**2197-Pos BOARD B334**  
THE MOLECULAR BASIS FOR HEME MODULATION OF KATP CHANNELS. **Mark Burton**, Sofia Kapetanaki, Noel Davies, John Mitcheson, Ralf Schmid, Peter Moody, Emma Raven, Nina Storey

**2198-Pos BOARD B335**  
NMR STRUCTURAL STUDIES OF THE BINDING OF ACTIVATING MAMBA TOXIN TX7335 ON THE POTASSIUM CHANNEL KCSA. **Jing Zhu**, Ulfat Shahzad, Sebastien F. Poget

**2199-Pos BOARD B336**  
MECHANISM OF INHIBITION OF THE GLUA1 AMPA RECEPTOR CHANNEL OPENING BY 2,3-BENZODIAZEPINE COMPOUNDS. **Andrew Wu**

**2200-Pos BOARD B337**  
SIMULTANEOUS MEASUREMENTS OF INTRACELLULAR  $[Ca^{2+}]_i$  AND  $[cAMP]_i$  IN INTACT ISLETS TO STUDY THE MECHANISM UNDERLYING DOPAMINERGIC INHIBITION OF INSULIN SECRETION. **Alessandro Ustione**, David W. Piston

**2201-Pos BOARD B338**  
DETERMINING THE DOPAMINERGIC FEEDBACK PATHWAY IN PANCREATIC  $\beta$ -CELLS WITH FLUORESCENCE FLUCTUATION SPECTROSCOPY. **Brittany Caldwell**, Alessandro Ustione, David Piston

### Other Channels (Boards B339-B366)

**2202-Pos BOARD B339**  
STATISTICAL ANALYSIS OF MULTICHANNEL SIGNALS. Rishabh Kumar, Prashant Srinivasa, **Horia I. Petrache**

**2203-Pos BOARD B340**  
NOVEL STEP DETECTION ALGORITHMS FOR PHOTOBLEACHING ANALYSIS OF PROTEIN COMPLEXES WITH MANY SUBUNITS. **Nathan C. Deffenbaugh**, Yalei Chen, Charles T. Anderson, William O. Hancock

**2204-Pos BOARD B341**  
SINGLE-FILE WATER PERMEATION THROUGH AQUAPORIN CHANNELS. **Peter H. Nelson**

**2205-Pos BOARD B342**  
MAKING AN AQUAPORIN WATER-TIGHT: STRUCTURAL BASIS OF SELECTIVITY IN PLANT NODULIN 26 INTRINSIC PROTEINS. **Zachary G. Beamer**, Tian Li, Jerome Baudry, Daniel M. Roberts

**2206-Pos BOARD B343**  
MECHANISM OF PROTON TRANSPORT OF THE M2 PROTON CHANNEL STUDIED BY CONSTANT PH MOLECULAR DYNAMICS. **Wei Chen**, Jana K. Shen

**2207-Pos BOARD B344**  
PROTON PERMEATION IN CI-HV1 VOLTAGE-GATED PROTON CHANNELS OCCURS THROUGH A PROTON WIRE INVOLVING RESIDUES D160 AND D222 AND IT IS MODULATED BY N264. **Amaury Pupo**, David Baez-Nieto, Ester Otarola, Osvaldo Yañez, Ariela Vergara-Jaque, Wendy Gonzalez, Karen Castillo, Gustavo Contreras, H. Peter Larsson, Ramón Latorre, Carlos Gonzalez

**2208-Pos BOARD B345**  
FREE ENERGY SIMULATIONS OF ION TRANSLOCATION THROUGH VOLTAGE-GATED PROTON CHANNEL HV1. **Kethika Kulleperuma**, Susan M. E. Smith, Thomas E. DeCoursey, Regis Pomes

**2209-Pos BOARD B346**  
INVESTIGATING THE POTENTIATION EFFECT OF 2-APB ON CRAC CHANNELS. **Xiaolan Xu**, Sher Ali Syed, Tao Xu

**2210-Pos BOARD B347**  
SLO2.X POTASSIUM CHANNELS ARE INVOLVED IN THE REGULATION OF HEART MITOCHONDRIAL FUNCTION. **Charles Owen Smith**

**2211-Pos BOARD B348**  
HUMAN ERYTHROCYTE MECHANO-ACTIVATED  $K^+$  CHANNEL A. A KINETIC STUDY OF INTRABURST ACTIVITY: EFFECT OF CHLORPROMAZINE. Alejandro Mata, **Jesus G. Romero**

**2212-Pos BOARD B349**  
MECHANISMS UNDERLYING THE LOSS-OF-FUNCTIONAL KIR6.1 KATP CHANNEL MUTATIONS IN SUDDEN INFANT DEATH SYNDROME. **Bi-Hua Tan**, Blaise Z. Peterson, Ryan Li, Tianyu Sun, Sinisa Dovar, Michael J. Ackerman, Chunhua Song

**2213-Pos BOARD B350**  
STUDYING CLUSTERING OF KCSA CHANNELS USING SINGLE-CHANNEL VOLTAGE-CLAMP FLUORESCENCE IMAGING. **Hugo McGuire**, Rikard Blunck

**2214-Pos BOARD B351**  
CRYSTAL STRUCTURE OF FLUC, A MICROBIAL FLUORIDE CHANNEL. **Randy Stockbridge**, Ludmila Kolmakova-Partensky, Akiko Koide, Shohei Koide, Simon Newstead, Christopher Miller

**2215-Pos BOARD B352**  
TWO-SIDED SIMULTANEOUS BLOCK OF A F- CHANNEL (FLUC). **Daniel L. Turman**, Randy Stockbridge, Christopher Miller

**2216-Pos BOARD B353**  
REGULATION OF CLC-3  $Cl^-/H^+$  TRANSPORT AND "GATING" TRANSIENTS BY CHLORIDE PATHWAY RESIDUES AND EXTERNAL PROTONS. **Jeffrey Rohrbough**, Fred S. Lamb, Hong-Ngan Nguyen

**2217-Pos BOARD B354**  
ENERGETICS AND MECHANISM OF PERMEATION ACROSS FNT CHANNELS. **Kalina Atkovska**, Jochen Hub

**2218-Pos BOARD B355** INTERNATIONAL TRAVEL AWARDEE  
EXTRACELLULAR CHLORIDE REGULATES TMEM16A GATING. Juan A. Contreras-Vite, **Silvia Cruz-Rangel**, Patricia Pérez-Cornejo, H. Criss Hartzell, Jorge Arreola

**2219-Pos BOARD B356**  
ACTIVATION OF ATP SECRETION VIA VOLUME-REGULATED ANION CHANNELS BY SPHINGOSINE-1-PHOSPHATE IN RAW MACROPHAGES. Philipp Burow, Manuela Klapperstück, **Fritz Markwardt**

**2220-Pos BOARD B357**  
POSITIONING OF THE FIRST EXTRACELLULAR LOOP OF CFTR HAS SIGNIFICANT EFFECTS ON CFTR GATING. **Daniel T. Infield**, Guiying Cui, Christopher Kuang, Nael A. McCarty

**2221-Pos BOARD B358**

EFFECTS OF THE CONNEXIN43 CT ON GAP JUNCTION SUB-DOMAIN ORGANIZATION AND MYOCYTE-FIBROBLAST INTERACTIONS IN THE INJURY BORDER ZONE.

**Emily L. Ongstad**, Robert G. Gourdie

**2222-Pos BOARD B359**

MOLECULAR DYNAMICS OF SELECTIVE SUGAR PERMEATION THROUGH THE CONNEXIN26 CHANNEL. Lyna Luo, Angelo R. Rossi, **Andrew L. Harris**

**2223-Pos BOARD B360**

THE RESIDUES IN THE FIRST EXTRACELLULAR DOMAIN PLAY AN IMPORTANT ROLE IN TRANSJUNCTIONAL-VOLTAGE DEPENDENT GATING AND UNITARY CHANNEL CONDUCTANCE OF CX50 GAP JUNCTION CHANNELS. Xiaoling Tong, Hiroshi Aoyama, Swathy Sudhakar, Honghong Chen, **Donglin Bai**

**2224-Pos BOARD B361**

RESIDUES INVOLVED IN CX26 HEMICHANNELS VOLTAGE DEPENDENT GATING. **Bernardo I. Pinto**, David Baez-Nieto, Amaury Pupo, Agustin Martinez, Ramon Latorre, Carlos Gonzalez

**2225-Pos BOARD B362**

UNDERSTANDING THE CONFORMATIONAL DYNAMICS OF THE PORIN OCCK5. **Karunakar Reddy Pothula**

**2226-Pos BOARD B363**

CYCLODEXTRIN INTERACTION WITH SPECIFIC CHANNEL CYMA FROM K. OXYTOCA. **Satya Prathyusha Bhamidimarri**, Jing Lu, Jigneshkumar Dahyabhai Prajapati, Ivan Barcena Uribarri, Bert van den Berg, Ulrich Kleinekathoefer, Mathias Winterhalter

**2227-Pos BOARD B364**

MIMICKING BIOLOGY WITH NANOMATERIALS: CARBON NANOTUBE PORINS IN LIPID MEMBRANES. **Aleksandr Noy**

**2228-Pos BOARD B365**

UNDERSTANDING THE TRANSLOCATION OF FLUOROQUINOLONES THROUGH OMPC USING THE METADYNAMICS. **Jigneshkumar D. Prajapati**, Harsha Bajaj, Matteo Ceccarelli, Mathias Winterhalter, Ulrich Kleinekathoefer

**2229-Pos BOARD B366**

SINGLE-MOLECULE DETECTION OF INSERTION AND FOLDING OF OMPA IN DROPLET INTERFACE BILAYERS.

**Eve E. Weatherill**, David P. Marshall, Mark I. Wallace

## Cardiac Muscle Mechanics and Structure II (Boards B367-B386)

**2230-Pos BOARD B367**

FROM MOLECULE TO ORGAN: A MULTISCALE SIMULATOR OF HEART CONTRACTION. **Lorenzo Marcucci**, Toshio Yanagida, Takumi Washio

**2231-Pos BOARD B368**

SUBSTRATE STIFFNESS-MODULATED REGISTRY PHASE CORRELATIONS IN CARDIOMYOCYTES MAPS STRUCTURAL ORDER TO COHERENT BEATING. **Kinjal Dasbiswas**, Stephanie J. Majkut, Dennis E. Discher, Samuel A. Safran

**2232-Pos BOARD B369 INTERNATIONAL TRAVEL AWARDEE**

REGULATION OF CARDIOMYOCYTE T-TUBULE ORGANIZATION AND DENSITY BY VENTRICULAR WALL STRESS. **Marianne Ruud**, Michael Frisk, Per Andreas Norseng, Åsmund Treu Røe, Emil Espe, Jan Magnus Aronsen, Ivar Sjaastad, Ole M. Sejersted, Geir Arve Christensen, William Edward Louch

**2233-Pos BOARD B370**

COMPUTATIONAL MODEL OF CROSS-BRIDGE CYCLING AND FORCE GENERATION TO EXPLAIN THE EFFECT OF METABOLITES ON CARDIAC MUSCLE MECHANICS.

**Shivendra Tewari**, Scott Bugenhagen, Bradley Palmer, Daniel Beard

**2234-Pos BOARD B371**

FROM CONTRACTILE NON-UNIFORMITIES AND MECHANICAL INSTABILITIES TO HYPERTROPHIC CARDIOMYOPATHY. **Alf Mansson**

**2235-Pos BOARD B372**

OXIDATIVE STRESS REGULATES TITIN ELASTICITY BY AFFECTING IG-DOMAIN STABILITY. **Nazha Hamdani**, Jorge Alegre-Cebollada, Martin Breitreuz, Lars Leichert, Julio M. Fernandez, Wolfgang A Linke

**2236-Pos BOARD B373**

AB-CRYSTALLIN BINDS TO TITIN IG DOMAINS AND INCREASES STIFFNESS OF SKINNED CARDIAC TRABECULAE. **Cameron W. Turtle**, Georg Hochberg, Henrik Müller, Katja Gehmlich, Andrew Baldwin, Charles Redwood, Justin Benesch

**2237-Pos BOARD B374**

STRUCTURAL THERMODYNAMICS AND KINETICS OF THE CARDIAC MYOSIN/OMECAMTIV MECARBIL COMPLEX REVEALED BY TIME-RESOLVED FRET. **John Rohde**, Daniel O. Johnsrud, Sinziana Cornea, Kurt C. Peterson, Gregory D. Gillispie, David D. Thomas, Joseph M. Muretta

**2238-Pos BOARD B375**

IMPACT OF OMECAMTIV MECARBIL ON HUMAN  $\beta$ -CARDIAC MYOSIN STRUCTURE AND FUNCTION. **Anja M. Swenson**, Howard D. White, Christopher M. Yengo

**2239-Pos BOARD B376**

THE R146N AND R249Q MYOSIN MUTATIONS DISRUPT MOTOR FUNCTION AND MYOFIBRILLAR STRUCTURE AND CAUSE CARDIOMYOPATHY IN DROSOPHILA.

**Meera Cozhimuttam Viswanathan**, William Kronert, Girish Melkani, Anju Melkani, Anthony Cammarato, Sanford Bernstein

**2240-Pos BOARD B377**

EFFECTS OF HYPERTROPHIC CARDIOMYOPATHY CAUSING R403Q MUTATION ON HUMAN BETA-CARDIAC MYOSIN BIOMECHANICAL FUNCTION: SINGLE MOLECULE TO ENSEMBLE STUDIES. **Suman Nag**, Ruth Sommese, Shirley Sutton, Kathleen Ruppel, James Spudich

**2241-Pos BOARD B378**

CHARACTERIZATION OF  $\alpha$ -TROPOMYOSIN (TM) MUTANTS THAT CAUSE HYPERTROPHIC CARDIOMYOPATHY (HCM) IN HUMANS: IN VITRO MOTILITY ASSAYS WITH A MICROSCOPIC HEAT PULSE. **Shuya Ishii**, Kotaro Oyama, Madoka Suzuki, Masataka Kawai, Shin'ichi Ishiwata

**2242-Pos BOARD B379**

PEPTIDE MODULATION OF MYOSIN COILED COIL STABILITY MONITORED WITH OPTICAL AND FORCE SPECTROSCOPY. **James W. Dunn**, Michael Bih, Rohit Singh, Douglas D. Root

**2243-Pos BOARD B380**

ENHANCED TROPONIN-I BINDING EXPLAINS THE FUNCTIONAL CHANGES PRODUCED BY THE HYPERTROPHIC CARDIOMYOPATHY A8V MUTATION OF CARDIAC TROPONIN-C. **Clara A. Michell**, Jose R. Pinto, Javier E. Hasbun, Henry G. Zot

**2244-Pos BOARD B381**

STEADY-STATE PREDICTIONS FROM A COMPACT COOPERATIVE KINETIC MODEL OF CARDIAC SARCOMERE DYNAMICS. **William C. Hunter**

**2245-Pos BOARD B382**

SERINE 61 PHOSPHORYLATION RESCUES CARDIOMYOPATHIC EFFECTS OF TROPOMYOSIN MUTATION. Gerrie P. Farman, Marek Orzechowski, Stefan Fischer, Lehman William, **Jeffrey R. Moore**

**2246-Pos BOARD B383**

MOLECULAR DYNAMICS STUDIES ON PHOSPHORYLATED AND UNPHOSPHORYLATED CARDIAC TROPONIN. **Andrew E. Messer**, Maria Papadaki, Steven B. Marston, Ian R. Gould

**2247-Pos BOARD B384**

BORROWING FROM THE PLATYPUS: PROLINE SUBSTITUTION IN CARDIAC TROPONIN I. **Anthony D. Vetter**, Brian R. Thompson, Evelyn H. Houang, Yuk Sham, Joseph M. Metzger

**2248-Pos BOARD B385**

A COARSE-GRAINED MODEL TO STUDY CALCIUM ACTIVATION OF THE CARDIAC THIN FILAMENT. **Jing Zhang**, Steven D. Schwartz

**2249-Pos BOARD B386**

AN EXPLICITLY SOLVATED FULL ATOMISTIC MODEL OF THE CARDIAC THIN FILAMENT AND APPLICATION ON THE CALCIUM BINDING AFFINITY EFFECTS FROM FAMILIAL HYPERTROPHIC CARDIOMYOPATHY LINKED MUTATIONS. **Michael R. Williams**, Sarah J. Lehman, Jil C. Tardiff, Steven D. Schwartz

## Microtubules, Structure Dynamics, and Associated Proteins (Boards B387-B405)

**2250-Pos BOARD B387**

TRANSFORMATION OF TAXOL-STABILIZED MICROTUBULES INTO INVERTED TUBULIN TUBULES TRIGGERED BY A TUBULIN CONFORMATION SWITCH. **Chaeyeon Song**, Miguel A. Ojeda-Lopez, Daniel J. Needleman, Avi Ginsburg, Phillip A. Kohl, Youli Li, Herbert P. Miller, Leslie Wilson, Uri Raviv, Myung Chul Choi, Cyrus R. Safinya

**2251-Pos BOARD B388**

SINGLE-MOLECULE FRET REVEALS AN EXTENDED STRUCTURE OF TAU BOUND TO TUBULIN HETERODIMERS. **Ana M. Melo**, Garrett Cobb, Juliana Coraor, Shana Elbaum-Garfinkle, Elizabeth Rhoades

**2252-Pos BOARD B389**

STATISTICAL MECHANICS PROVIDES NOVEL INSIGHTS INTO MICROTUBULE STABILITY AND MECHANISM OF SHRINKAGE. **Ishutesh Jain**, Mandar M. Inamdar, Ranjith Padinhateeri

**2253-Pos BOARD B390**

MOLECULAR DYNAMICS STUDY OF THE EFFECT OF POLYAMINE ON MICROTUBULE CONFORMATIONS. **Chola Regmi**, Shengfeng Cheng

**2254-Pos BOARD B391**

MOLECULAR BASIS FOR AGE-DEPENDENT MICROTUBULE ACETYLATION. **Antonina Roll-Mecak**, Agnieszka Szyk, Alexandra Deaconescu, Jeffrey Spector, Max Valenstein, Niko Grigorieff

**2255-Pos BOARD B392**

KATANIN ACTIVITY IS REGULATED BY COMMON CELLULAR COMPONENTS. **Megan E. Bailey**, Jennifer L. Ross

**2256-Pos BOARD B393**

MOLECULAR BASIS FOR AGE-DEPENDENT ACETYLATION BY TUBULIN ACETYLTRANSFERASE. **Jeffrey Spector**, Agnieszka Szyk, Alexandra M. Deaconescu, Max Valenstein, Benjamin Goodman, Vasilisa Kormendi, Nikolaus Grigorieff, Antonina Roll-Mecak

**2257-Pos BOARD B394 INTERNATIONAL TRAVEL AWARDEE**

MICROTUBULE ELECTRODYNAMICS ASSOCIATED WITH VIBRATIONAL NORMAL MODES. **Michal Cifra**, Daniel Havelka, Marco A. Deriu, Ondřej Kučera

**2258-Pos BOARD B395**

MICROTUBULE-DRIVEN CONFORMATIONAL CHANGES IN PLATELET MORPHOGENESIS. **Wylie Stroberg**, Seth Lichter

**2259-Pos BOARD B396**

TRIM50 INTERACTS WITH MICROTUBULES TO FACILITATE VESICLE TRAFFICKING IN GASTRIC PARIETAL CELLS. **Kristyn N. Gumper**, Mingzhai Sun, Jiaqing Huang, Pei-Hui Lin, Miyuki Nishi, Hiroshi Takeshima, Jianjie Ma

**2260-Pos BOARD B397**

GENERATION OF DIFFERENTIALLY MODIFIED MICROTUBULES USING IN VITRO ENZYMATIC APPROACHES. **Annapurna Vemu**

**2261-Pos BOARD B398**

DYNAMICS OF MICROTUBULE NETWORKS WITH ANTIPARALLEL CROSSLINKERS. **Kasimira T. Stanhope**, Jennifer L. Ross

**2262-Pos BOARD B399**

KINETOCHORE DYNAMIC STRUCTURE AT SUPER-RESOLUTION ACCURACY AND MECHANICAL STIFFNESS REVEALED IN VITRO BY COMBINED TIRF AND OPTICAL TWEEZERS. **Yi Deng**, Kwaku Opoku, Charles Asbury

**2263-Pos BOARD B400**

ASYMMETRIC FRICTION OF NON-MOTOR MAPS CAN LEAD TO THEIR DIRECTIONAL MOTION IN ACTIVE MICROTUBULE NETWORKS. **Scott Forth**, Kuo-Chiang Hsia, Yuta Shimamoto, Tarun Kapoor

**2264-Pos BOARD B401**

THE DETERMINATION OF YOUNG'S MODULUS FOR MICROTUBULES STABILIZED WITH TAXOL AND ANALYSIS OF VIBRATIONAL MODES. **John Palmieri**, Camelia Prodan, Gordon Thomas

**2265-Pos BOARD B402**

REGULATION OF TAU DYNAMICS BY PHOSPHORYLATION IN THE SQUID GIANT AXON. **Miranda Redmond**, Gregory Hoepflich, Meghan Pantalia, Gerardo Morfini, Christopher Berger

**2266-Pos BOARD B403**

GENERATION OF DIFFERENTIALLY MODIFIED MICROTUBULES USING IN VITRO ENZYMATIC APPROACHES. Annapurna Vemu, **Christopher P. Garnham**, Duck-Yeon Lee, Antonina Roll-Mecak

**2267-Pos BOARD B404**

A COMPARISON OF THE CONFORMATIONAL CHANGES OF TAU ISOFORMS IN THE TAU-TUBULIN COMPLEX. **Juliana Coraor**, Ana M. Melo, Garrett Cobb, Elizabeth Rhoades

**2268-Pos BOARD B405**

ANALYZING THE FREQUENCY OF THERMALLY FLUCTUATING SEGMENTS OF MICROTUBULES. **Jennifer Rochette**, Camelia Prodan, Gordon Thomas



## Cytoskeletal Assemblies and Dynamics (Boards B406-B422)

- 2269-Pos BOARD B406**  
EFFECTS OF ADDED DIVALENT COUNTERIONS ON THE PROPERTIES AND BEHAVIORS OF MICROTUBULE FILAMENTS. Nathan F. Boussein, **George D. Bachand**
- 2270-Pos BOARD B407**  
SPATIO-TEMPORAL MODEL FOR SILENCING OF THE MITOTIC SPINDLE ASSEMBLY CHECKPOINT. **Jing Chen**, Jian Liu
- 2271-Pos BOARD B408**  
A BUNDLE OF ANTIPARALLEL MICROTUBULES CONNECTS SISTER K-FIBERS AND BALANCES FORCES WITHIN THE METAPHASE SPINDLE. **Anastasia Solomatina**, Janko Kajtez, Jonas Rudiger, Anna H. Klemm, Gheorghe Cojoc, Ivana Šumanovac Šestak, Maja Novak, Nenad Pavin, Iva M. Tolić
- 2272-Pos BOARD B409**  
THE KINETICS OF FESSELIN (AVIAN SYNAPTOPODIN 2) BINDING TO SMOOTH MUSCLE MYOSIN IS DEPENDENT ON CALCIUM-CALMODULIN. **Joseph M. Chalovich**, Nathaniel Kingsbury, Alexandria Mara
- 2273-Pos BOARD B410**  
FORCE GENERATION AND CONTRACTION OF RANDOM ACTOMYOSIN RINGS. **Dietmar B. Oelz**, Boris Rubinstein, Alex Mogilner
- 2274-Pos BOARD B411**  
SIMULATING COMPLEX MECHANOCHEMISTRY OF ACTIN NETWORKS. **James E. Komianos**, Konstantin Popov, Garegin Papoian
- 2275-Pos BOARD B412**  
VISUALIZING F-ACTIN STRUCTURE IN DEVELOPING ZEBRAFISH ZYGOTES TO SUPPLEMENT VISCOELASTIC MEASUREMENTS. **Luka Matej Devenica**, Marco A. Catipovic, Josef G. Trapani, Ashley R. Carter
- 2276-Pos BOARD B413**  
VISUALIZING THE COMPARTMENTALIZATION OF THE SURFACE OF MAMMALIAN CELLS BY CORTICAL ACTIN WITH SUPERRESOLUTION. **Sanaz Sadegh**, Jenny L. Higgins, Michael M. Tamkun, Diego Krapf
- 2277-Pos BOARD B414**  
NON-INVASIVE IMAGING OF F-ACTIN DYNAMICS IN LIVING CELLS BY ATOMIC FORCE MICROSCOPY. **Aiko Yoshida**
- 2278-Pos BOARD B415**  
STUDYING THE MECHANICAL PROPERTIES OF CYTOSKELETAL FORMATION USING MICRORHEOLOGY. **Elizabeth D. White**, Marco A. Catipovic, Maria L. Kilfoil, Josef G. Trapani, Ashley R. Carter
- 2279-Pos BOARD B416**  
ADAPTATION OF ACTIN CYTOSKELETON DURING SUSPENDED ANIMATION. Clara Kao, Mark A. Messerli, Jonathan D. Gitlin, **Shalin B. Mehta**
- 2280-Pos BOARD B417**  
HOW DOES THE INTERPLAY BETWEEN SEMIFLEXIBLE POLYMERS DETERMINE COMPOSITE NETWORK MECHANICS? **Mikkel H. Jensen**, Eliza J. Morris, Robert D. Goldman, David A. Weitz

- 2281-Pos BOARD B418**  
AXIAL ELASTICITY AND MECHANICAL FRAGMENTATION OF DESMIN INTERMEDIATE FILAMENTS. **Balazs Kiss**, Miklós S.Z. Kellermayer
- 2282-Pos BOARD B419**  
A COMPETE-AND-SURVIVE MECHANISM EXPLAINS THE SINGLE FTSZ-RING FORMATION. **Liping Xiong**, Ganhui Lan
- 2283-Pos BOARD B420**  
FLUORESCENCE MICROSCOPY AND SOLUTION NMR STUDIES OF CYTOSKELETAL PROTEINS FROM TETRAHYMENA. **Robert Sterner**, Jerry Honts, Adina Kilpatrick
- 2284-Pos BOARD B421**  
TEMPORAL RESPONSE OF BACTERIAL CELLS TO HIGH PRESSURES. **Sudip Nepal**, Pradeep Kumar
- 2285-Pos BOARD B422**  
DEVELOPMENT OF A MICROFLUIDIC PLATFORM TO STUDY EFFECTS OF PHYSICAL STRESSES ON MICROGLIAL ACTIVATION. **Jin-Sung Park**, Song Ih Ahn, Eun Young Park, Minjeong Son, Sukhyun Song, jennifer H. Shin

## Cell Mechanics, Mechanosensing, and Motility III (Boards B423-B450)

- 2286-Pos BOARD B423 EDUCATION TRAVEL AWARDEE**  
MECHANICAL ADAPTABILITY OF CELL MIGRATION IN 3D COLLAGEN GELS. **Nicholas A. Kurniawan**, Wei Sun, Chwee Teck Lim
- 2287-Pos BOARD B424**  
ACTIN DYNAMICS AND SIGNALING ACTIVATION OF B LYMPHOCYTES RESPOND TO SUBSTRATE TOPOGRAPHY. **Christina M. Ketchum**, Xiaoyu Sun, Heather Miller, John Fourkas, Wenxia Song, Arpita Upadhyaya
- 2288-Pos BOARD B425 MINORITY AFFAIRS TRAVEL AWARDEE**  
MECHANICS OF NEUTROPHIL MIGRATION IN THREE-DIMENSIONAL MATRICES. **Joshua Francois**, Ruedi Meili, Juan Carlos del Alamo, Richard Firtel, Juan C. Lasheras
- 2289-Pos BOARD B426**  
COLLECTIVE 3D MIGRATION OF EMBRYONIC EPITHELIAL MESENCHYMAL COMPOSITE TISSUES ARE REGULATED BY SURFACE TOPOLOGY. **Jiho Song**, Joe Shawky, Yong Tae Kim, Melis Hazar, Metin Sitti, Philip R. LeDuc, Lance A. Davidson
- 2290-Pos BOARD B427 EDUCATION TRAVEL AWARDEE**  
HIGH LOCAL CURVATURE REDUCES MIGRATION RATE IN SPREADING MULTI-LAYER TISSUES. **Holley E. Lynch**, Shirley X. Yancey, Lance A. Davidson
- 2291-Pos BOARD B428**  
KEY EFFECTS OF CONFINEMENT ON CELL MOTILITY. **Amélie Godeau**, Daniel Riveline
- 2292-Pos BOARD B429**  
CELLS AS ACTIVE PARTICLES IN ASYMMETRIC POTENTIALS: MOTILITY UNDER EXTERNAL GRADIENTS. **Jordi Comelles**, David Caballero, Raphael Voituriez, Verónica Hortigüela, Viktoria Wollrab, Amélie L. Godeau, Josep Samitier, Elena Martínez, Daniel Riveline



**2293-Pos BOARD B430**  
 CHARACTERIZING NEW GENES REGULATING CELL-SUBSTRATE ADHESION TO DISCOVER NOVEL REGULATORY MECHANISMS OF CELL MOTILITY. **Thomas J. Lampert**, Peter N. Devreotes

**2294-Pos BOARD B431**  
 EVOLUTIONARILY CONSERVED COUPLING OF ADAPTIVE AND EXCITABLE NETWORKS MEDIATES EUKARYOTIC CHEMOTAXIS. **Chuan-Hsiang Huang**, Ming Tang, Mingjie Wang, Changji Shi, Pablo A. Iglesias, Peter N. Devreotes

**2295-Pos BOARD B432**  
 CELL POLARISATION DRIVEN BY SUBSTRATE-MEDIATED INTRACELLULAR INTERACTIONS - CONSEQUENCES FOR MIGRATION AND CHEMOTAXIS. **Marco Leoni**, Pierre Sens

**2296-Pos BOARD B433**  
 THE INTERPLAY BETWEEN CELL MOTILITY AND PROTEOLYSIS IN THE ESTABLISHMENT OF BRAIN METASTASIS. **Alexus Devine**, Kandice Tanner

**2297-Pos BOARD B434**  
 COMPARISON OF MIGRATION PATTERN BETWEEN YOUNG AND SENESCENT MESENCHYMAL STEM CELLS IN TIME LAPSE MICROSCOPY. **Ching-Fen Jiang**, Shan-hui Hsu, Ka-Pei Tsai, Jia-Yin Li

**2298-Pos BOARD B435**  
 SINGLE CELL BIOPHYSICS DRIVES WOUND HEALING DYNAMICS. **Dhruv K. Vig**

**2299-Pos BOARD B436**  
 FEEDBACK INTERACTIONS BETWEEN INTRACELLULAR CONTRACTION AND LEADING EDGE PROTRUSION IN DIRECTED CELL MIGRATION. **Sangyoon J. Han**, Gaudenz Danuser

**2300-Pos BOARD B437**  
 FORCES BEHIND CELL ADHESION AND MIGRATION IN MICROGRAVITY. **Carlos Luna**, Rebecca J. Stevick, Alvin G. Yew, Adam H. Hsieh

**2301-Pos BOARD B438**  
 A MOLECULE BASED REACTION-TRANSPORTATION MODEL EXPLAINS THE OSCILLATORY MIGRATION OF ZYXIN-DEPLETED HUMAN FIBROSARCOMA CELLS. **Jianlei Chen**, Ganhui Lan

**2302-Pos BOARD B439**  
 FLOW-DRIVEN CELL MOTILITY UNDER ELECTRICAL FIELDS. **Yizeng Li**, Sean Sun

**2303-Pos BOARD B440**  
 CIRCULAR DORSAL RUFFLES INCREASE DIRECTIONAL PERSISTENCE OF CELL MIGRATION BY ACTIN DIFFUSION FROM RUFFLES TO LAMELLIPODIA. **Yukai Zeng**, Philip LeDuc, Cheng Gee Koh, Keng-Hwee Chiam

**2304-Pos BOARD B441**  
 MODELING TRANSMIGRATION OF MALARIA INFECTED RED BLOOD CELLS THROUGH INTER-ENDOTHELIAL SLITS IN HUMAN SPLEENS USING DISSIPATIVE PARTICLE DYNAMICS. **Zhangli Peng**, Igor Pivkin, Ming Dao, George Karniadakis

**2305-Pos BOARD B442**  
 RESTRICTED EXCHANGE ENVIRONMENT CHAMBERS FOR CREATING AND MANIPULATING DIFFUSIVE GRADIENTS IN 2D CELL CULTURE. **William F. Heinz**, Jeffrey Werbin, Jan H. Hoh

**2306-Pos BOARD B443**  
 COUPLING A MECHANOSENSITIVE CHANNEL WITH A VESICLE UNDER SHEAR FLOW. **On Shun Pak**, Yuan-nan Young, Shравan Veerapaneni, Howard Stone

**2307-Pos BOARD B444**  
 PERTURBING THE ACTIVE PROCESS OF HAIR CELLS: SELF RECOVERY OF SPONTANEOUS OSCILLATIONS FOLLOWING OVERSTIMULATION. **Elizabeth Mills**, Dolores Bozovic

**2308-Pos BOARD B445**  
 EQUATIONS OF INTER-DOUBLET SEPARATION EXPLAIN WAVE PROPAGATION AND OSCILLATIONS IN FLAGELLA. **Philip V. Bayly**, Kate S. Wilson

**2309-Pos BOARD B446**  
 HOW CILIA OR EUKARYOTIC FLAGELLA BEAT. **Kenneth W. Foster**, Jyothish Vidyadharan, Ashok Sangani

**2310-Pos BOARD B447**  
 INHIBITION OF CA<sup>2+</sup> TRANSPORT TRIGGERS CHANGES IN CILIARY INTRAFLAGELLAR TRANSPORT RATE AND PARTICLE COMPOSITION. **Mikhail Sergeev**, Jagesh V. Shah

**2311-Pos BOARD B448**  
 USING IN VIVO OPTICAL SECTIONING TO INVESTIGATE MECHANICAL ASPECTS OF VOLVOX DEVELOPMENT. **Aurelia R. Honerkamp-Smith**, Stephanie Hoehn, Hugo Wioland, Pierre A. Haas, Philipp Khuc Trong, Raymond E. Goldstein

**2312-Pos BOARD B449**  
 SELF-HEALING BIOMATERIALS: ENTANGLED DNA NETWORKS. **Maria Kilfoil**

**2313-Pos BOARD B450**  
 TITIN HYSTERESIS IS GREATER FOR ACTIVELY LENGTHENED COMPARED TO PASSIVELY LENGTHENED SKELETAL MUSCLE SARCOMERES. Jens Herzog, **Timothy R. Leonard**, Azim Jinha, Walter Herzog

### Membrane Pumps, Transporters, and Exchangers III (Boards B451-B467)

**2314-Pos BOARD B451**  
 VIBRATIONAL STUDIES OF CHANNELRHODOPSIN-1 FROM CHLAMYDOMONAS AUGUSTAE: PROTONATION CHANGES DURING THE EARLY PHOTOCYCLE. **Adrian Yi**, John I. Ogren, Sergey Mamaev, Hai Li, Johan Lugtenburg, Willem J. DeGrip, John L. Spudich, Kenneth J. Rothschild

**2315-Pos BOARD B452**  
 RECONSTITUTION OF POTASSIUM-COUPLED SUBSTRATE TRANSPORT IN AN ARCHAEAL HOMOLOGUE OF GLUTAMATE TRANSPORTERS. **Secheol Oh**, Olga Boudker

**2316-Pos BOARD B453**  
 A MUTATION IN TM7 OF EXCITATORY AMINO ACID TRANSPORTERS DISRUPTS THE SUBSTRATE-DEPENDENT GATING OF THE INTRINSIC ANION CONDUCTANCE AND DRIVES THE CHANNEL INTO A CONSTITUTIVELY OPEN STATE. **Delany Torres Salazar**, Jennie Garcia-Olivares, Susan G. Amara

**2317-Pos BOARD B454**  
 STUDYING ELECTROGENIC TRANSPORTERS OF THE SOLUTE CARRIER FAMILY (SLC) UTILIZING SOLID SUPPORTED MEMBRANE TECHNOLOGY. **Maria Barthmes**, Melanie Giesler, Andrea Brüggemann

**2318-Pos BOARD B455**  
PHYSIOLOGICAL IMPLICATIONS OF TRANSEPITHELIAL CARBOXYLIC ACID ABSORPTION AND REGULATION BY SLC26A6. **Ehud Ohana**, Nikolay Shcheynikov, Shmuel Muallem

**2319-Pos BOARD B456**  
ASSESSING PROTOMER INDEPENDENCE OF THE DIMERIC C4-DICARBOXYLATE TRANSPORTER, VCINDY. **Christopher Mulligan**, Gabriel A. Fitzgerald, Joseph A. Mindell

**2320-Pos BOARD B457 EDUCATION TRAVEL AWARDEE**  
MOLECULAR DETERMINANTS OF SUBSTRATE SELECTIVITY IN OCT3 (SLC22A3). **Dan C. Li**, Colin G. Nichols, Monica Sala-Rabanal

**2321-Pos BOARD B458**  
THE ROLE OF ANNULAR LIPIDS IN THE MECHANISM OF MEMBRANE PROTEIN SOLUBILIZATION AND FORMATION OF FUNCTIONALLY COMPETENT PROTEOMICELLES. Michael V. LeVine, **George Khelashvili**, Lei Shi, Matthias Quick, Jonathan Javitch, Harel Weinstein

**2322-Pos BOARD B459**  
THE ENVIRONMENT MODULATES THE CONFORMATION OF TRANSMEMBRANE HELIX 1A IN THE LEUCINE TRANSPORTER (LEUT). **Kumaresan Jayaraman**, Azmat Sohail, Santhoshkannan Venkatesan, Walter Sandtner, Harald Sitte, Thomas Stockner

**2323-Pos BOARD B460**  
COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF THE HUMAN AND D. MELANOGASTER DOPAMINE TRANSPORTERS. **Tyler Steele**, Louis J. De Felice

**2324-Pos BOARD B461**  
VISUALIZATION OF MOLECULAR EVENTS FROM DOPAMINE-BINDING TO -RELEASE BY HUMAN DOPAMINE TRANSPORTER. **Mary H. Cheng**, Ivet Bahar

**2325-Pos BOARD B462**  
CHARACTERIZATION OF A SECONDARY SITE OF DRUG ACTION ON THE HUMAN DOPAMINE TRANSPORTER. **Ernesto Solis, Jr.**, Igor Zdravkovic, Renata Kolanos, Farhana Sakloth, Sergei Y. Noskov, Richard A. Glennon, Louis J. De Felice

**2326-Pos BOARD B463**  
CARBOXYL RESIDUES REQUIRED FOR TRANSPORT BY A VESICULAR MONOAMINE TRANSPORTER HOMOLOG FROM BREVIBACILLUS BREVIS (BBMAT). **Ariela Vergara-Jaque**, Dana Yaffe, Yonatan Shuster, Dina Listov, Sitaram Meena, Satinder K. Singh, Shimon Schuldiner, Lucy R. Forrest

**2327-Pos BOARD B464**  
MONOAMINE TRANSPORTERS PRODUCE CALCIUM SIGNALS THROUGH L-TYPE CALCIUM CHANNEL ACTIVATION. Krasnodara N. Cameron, Ernesto Solis, Jr, Iwona Ruchala, Louis J. De Felice, **Jose M. Eltit**

**2328-Pos BOARD B465**  
A KINETIC ASSESSMENT OF LIGAND BINDING TO MONOAMINE-TRANSPORTERS. Peter S. Hasenhuettl, Michael Freissmuth, Harald H. Sitte, **Walter Sandtner**

**2329-Pos BOARD B466**  
PROTON TRANSPORT MECHANISM OF THE E.COLI COPPER TRANSPORT EFFLUX PUMP. **Arman Fathizadeh**, Fatemeh Khalili-Araghi

**2330-Pos BOARD B467**  
THE ROLE OF HISTIDINE RESIDUES IN THE SPECIFICITY OF THE HUMAN ZINC TRANSPORTER HZIP4. **Robert Dempksi**, Sagar Antala, Elizabeth Bafaro

## Genetic and Epigenetic Regulatory Systems (Boards B468-B473)

**2331-Pos BOARD B468**  
HYBRID MICRORNA CONTROL OF COLON CANCER STEM CELL ASYMMETRIC DIVISION. **Xiling Shen**

**2332-Pos BOARD B469**  
NUCLEOCYTOPLASMIC SHUTTTLING OF A GATA-FAMILY TRANSCRIPTION FACTOR FUNCTIONS AS A DEVELOPMENT TIMER. **Huaqing Cai**, Mariko Katoh-Kurasawa, Tetsuya Muramoto, Balaji Santhanam, Yu Long, Lei Li, Masahiro Ueda, Pablo A. Iglesias, Gad Shaulsky, Peter N. Devreotes

**2333-Pos BOARD B470**  
STOCHASTIC CONTROL OF INTRACELLULAR LATENCY AND TRANSACTIVATION IN HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 (HIV-1). **Youfang Cao**, Jie Liang

**2334-Pos BOARD B471**  
PATH ATTRACTORS AND THE ORIGINS OF STOCHASTIC BIFRUCATION AND DEPHASING IN GENETIC NETWORKS. **Davit Potoyan**, Peter Wolynes

**2335-Pos BOARD B472**  
WORMS IN SPACE: EPIGENETIC RESPONSE OF C. ELEGANS IN SIMULATED MICROGRAVITY. **Chandran R. Sabanayagam**, Aroshan K. Jayasinghe, Jung H. Doh, Irem Celen, Andrew Moore, Michael T. Moore

**2336-Pos BOARD B473**  
STOCHASTIC MULTISTABILITY FROM SIMPLE NETWORK MOTIFS. **Anna Terebus**, Youfang Cao, Jie Liang

## Synthetic Biology (Boards B474-B481)

**2337-Pos BOARD B474**  
METABOLIC CHANNELING AND SPATIAL EFFECTS OF BIFUNCTIONAL ENZYMES. **Wenlong Xu**, Ashok Prasad

**2338-Pos BOARD B475**  
SURFACE DISPLAY OF A UNIQUE ENZYME AS A NEW REPORTER IN SYNTHETIC BIOLOGY. **Felicia Y. Scott**, Warren C. Ruder

**2339-Pos BOARD B476**  
A MULTISCALE DISSECTION OF DECISION-MAKING IN MICROBIAL ECOSYSTEMS. **James Boedicker**

**2340-Pos BOARD B477**  
ENGINEERING ELECTRON TRANSFERRING PROTEINS AND THEIR ASSEMBLY AT ELECTRONIC INTERFACES. Bryan A. Fry, Chris Bialas, Zhenyu Zhao, Geetha Goparaju, Christopher C. Moser, P. Leslie Dutton, **Bohdana M. Discher**

**2341-Pos BOARD B478**  
AUTOMATED DESIGN OF ENZYME-DRIVEN DNA CIRCUITS. **Tom F. A. de Greef**

**2342-Pos BOARD B479**  
COUPLING THE INCREASE IN MEMBRANE TENSION AND THE SYNTHESIS OF PHOSPHATIDYL SERINE IN A "SMART" ARTIFICIAL CELL. **Kenneth Kwun Yin Ho**, Victoria Murray, Jin Woo Lee, Allen Liu

**2343-Pos BOARD B480**  
LIGHT-CONTROLLED GROWTH FACTOR-MEDIATED SIGNAL TRANSDUCTION. **Kai Zhang**

**2344-Pos BOARD B481**  
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## Molecular Dynamics III (Boards B482-B506)

**2345-Pos BOARD B482**  
COARSE-GRAINED MD SIMULATIONS OF PEGYLATED COILED COILS AND THEIR SELF-ASSEMBLED MICELLES. **Sun Young Woo**, Hwankyoo Lee

**2346-Pos BOARD B483**  
MOLECULAR DYNAMICS SIMULATIONS ON THE PERIPLASMIC-OPEN STATE LACTOSE PERMEASE. **Xiaohong Zhuang**, Jeffery B. Klauda

**2347-Pos BOARD B484**  
ELASTIC PROPERTY OF DYNEIN MOTOR DOMAIN OBTAINED FROM ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS IN EXPLICIT WATER. **Narutoshi Kamiya**, Tadaaki Mashimo, Yu Takano, Takahide Kon, Genji Kurisu, Haruki Nakamura

**2348-Pos BOARD B485**  
MEMBRANE BINDING OF THE OSH4 CURVATURE-SENSING PEPTIDE. **Viviana Monje-Galvan**, Jeffery B. Klauda

**2349-Pos BOARD B486 MINORITY AFFAIRS TRAVEL AWARDEE**  
COMBINED QM/MM STUDY OF THE TRANSLOCATION OF CHLORIDE IONS THROUGH ESCHERICHIA COLI CHLORIDE ION TRANSPORTERS. **Christal R. Davis**, Soroosh Pezeshki, Christina Garza, Hai Lin

**2350-Pos BOARD B487**  
MOLECULAR MODELS OF NANODISCS FOR STUDYING MEMBRANE PROTEINS. **Iwona Siuda**, D. Peter Tieleman

**2351-Pos BOARD B488**  
INFLUENCE OF YERSINIA PESTIS LIPOPOLYSACCHARIDE STRUCTURE UPON OUTER MEMBRANE DYNAMICS: INSIGHT FROM MOLECULAR DYNAMICS SIMULATIONS. **Thomas J. Piggot**, Syma Khalid, Richard B. Sessions

**2352-Pos BOARD B489**  
COMPUTATIONAL STUDIES OF NILE RED IN LIPID BILAYERS. **Gurpreet Singh**, Adam C. Chamberlin, Sergei Y. Noskov, D. Peter Tieleman

**2353-Pos BOARD B490**  
MOLECULAR DYNAMICS STUDIES FOR THE SUGAR TRANSPORTATION MECHANISM IN PHOSPHOTRANSFERASE SYSTEMS (PTSS). **Jumin Lee**, Wonpil Im

**2354-Pos BOARD B491**  
EFFECT OF ASYMMETRY ON BILAYER MEMBRANE SYSTEMS. **Soohyung Park**, Wonpil Im

**2355-Pos BOARD B492**  
CONFORMATIONAL DYNAMICS OF PHUS. **Zhi Yue**, Jana Shen

**2356-Pos BOARD B493**  
AQUAPORIN-0 WATER CONDUCTION REGULATION BY CALMODULIN. Thanh Bach, Lucas Montgomery, **Ugur Akgun**

**2357-Pos BOARD B494**  
RESOLVING MEMBRANE-PROTEIN COMPLEXES WITH JOINT NEUTRON REFLECTIVITY AND MOLECULAR SIMULATION REFINEMENT. **Bradley W. Treece**, Mathias Lösche, Hirsh Nanda

**2358-Pos BOARD B495**  
A COMPUTATIONAL STUDY OF MONO- AND POLY-UBIQUITIN RECOGNITION BY THE PROTEASOME SUBUNIT RPN10. **Yi Zhang**

**2359-Pos BOARD B496**  
EVALUATING POLYGLUTAMINE PEPTIDE MONOMERS AND DIMERS WITH ENHANCED SAMPLING MD SIMULATIONS. **Riley J. Workman**, Jeffery D. Madura

**2360-Pos BOARD B497**  
POLYMERIZATION OF FTSZ AT HIGH PRESSURES: A MOLECULAR DYNAMICS STUDY. **Scott M. Dicken**, Sudip Nepal, Pradeep Kumar

**2361-Pos BOARD B498**  
DEVELOPMENT OF A NOVEL COARSE-GRAINED MODEL OF THE NUCLEOSOME CORE PARTICLE FOR LONG-TIMESCALE SIMULATIONS. **Mohammad Alwarawrah**, Jeff Wereszczynski

**2362-Pos BOARD B499**  
MEMBRANE CURVATURE INDUCED VIA INFLUENZA M2 PROTEIN CLUSTERS. **Eduardo Mendez-Villuendas**, D. Peter Tieleman

**2363-Pos BOARD B500**  
HYDROGEN BOND FLEXIBILITY AND WATER DYNAMICS IN THE FAR RED FLUORESCENT PROTEIN TAGRFP675. **Prem Chapagain**, Chola K. Regmi, Bernard S. Gerstman

**2364-Pos BOARD B501**  
MOLECULAR DYNAMICS STUDY OF THE BIODEGRADATION PROCESS OF THE BIOPOLYMER POLY (LACTIC)/POLY (VINYL) SCAFFOLD FOR BONE TISSUE ENGINEERING. **Samara M. Oña**, Ana C. Cadena, Miguel M. Mendez

**2365-Pos BOARD B502**  
A MOLECULAR DYNAMICS STUDY ON SSRI ANTIDEPRESSANT DRUGS. **Mohsen Ramezanpour**, Hamed Seyed-Allaei

**2366-Pos BOARD B503**  
MOLECULAR DYNAMICS SIMULATIONS HELPS TO RATIONALIZE COPB MUTATIONS AND THEIR RELATIONSHIPS TO WILSON DISEASE. **Samuel Jayakanthan**, Megan M. McEvoy, Thomas B. Woolf

**2367-Pos BOARD B504**  
MOLECULAR UNDERSTANDING OF THE BINDING OF MACROLIDE ANTIBIOTICS TO THE RIBOSOME USING SITE-IDENTIFICATION VIA LIGAND COMPETITIVE SATURATION. **Meagan C. Small**, Sirish Kaushik Lakkaraju, E. Prabhu Raman, Rodrigo B. Andrade, Alexander D. MacKerell, Jr.



**2368-Pos BOARD B505**  
INTRODUCING MOLECULAR FLEXIBILITY IN EFFICIENT SIMULATIONS OF MANY-PROTEIN SYSTEMS. **Vera Prytkova**, Matthias Heyden, Douglas Tobias, J. Alfredo Freitas

**2369-Pos BOARD B506**  
DOCKING AND DESIGN OF OLIGOSACCHARIDES, GLYCOPROTEINS, AND GLYCOLIPIDS. **Jason W. Labonte**, Jeffrey J. Gray

## Computational Methods and Bioinformatics (Boards B507-B528)

**2370-Pos BOARD B507**  
SIMULATING METABOLISM WITH STATISTICAL THERMODYNAMICS. **William R. Cannon**, Dennis G. Thomas, Douglas J. Baxter

**2371-Pos BOARD B508**  
BAYESIAN CRYO-EM REFINEMENT. **Christian Blau**, Lars Bock, Carsten Kutzner, Andrea Vaiana, Helmut Grubmüller

**2372-Pos BOARD B509**  
APPLYING DERIVATIVE-FREE OPTIMIZATION TO FIT KINETIC PARAMETERS OF VIRAL CAPSID SELF-ASSEMBLY MODELS FROM MULTI-SOURCE BULK IN VITRO DATA. **Lu Xie**, Gregory Smith, Russell Schwartz

**2373-Pos BOARD B510**  
A COMPUTATIONAL MODEL OF CELL-GENERATED TRACTION FORCES AND FIBRONECTIN ASSEMBLY. **Seth H. Weinberg**, Lewis E. Scott, Devin B. Mair, Christopher A. Lemmon

**2374-Pos BOARD B511**  
NUMERICAL MODELING OF LIPID BIOSYNTHESIS IN MICROALGAE. **Nicole J. Carbonaro**, May M. Li, Matthew W. Sweeney, Ian F. Thorpe

**2375-Pos BOARD B512**  
ROBUST ELASTIC NETWORK MODEL: PRECISE PREDICTION OF ATOMIC FLUCTUATIONS IN PROTEIN CRYSTAL STRUCTURES. **Min Hyeok Kim**, Byung Ho Lee, Moon Ki Kim

**2376-Pos BOARD B513**  
PROTEIN TRANSLOCATION THROUGH AN ELECTRICALLY TUNABLE MEMBRANE. Ining Amy Jou, Dmitriy V. Melnikov, **Maria Gracheva**

**2377-Pos BOARD B514**  
TRAVELING WAVE SOLUTIONS TO REACTION-DIFFUSION EQUATIONS BASED ON THE LAMBERT W FUNCTION. **Brian W. Williams**

**2378-Pos BOARD B515**  
QUANTITATIVE THEORY OF ACTIVE DIFFUSION TRAJECTORIES BY INSTANTANEOUS DIFFUSION COEFFICIENT. **Soya Shinkai**, Yuichi Togashi

**2379-Pos BOARD B516**  
ANALYSIS OF AMINO ACID PROPERTIES IN INTERACTION SURFACES OF DECOYS GENERATED BY RE-DOCKING SCHEME. **Nobuyuki Uchikoga**, Yuri Matsuzaki, Masahito Ohue, Takatsugu Hirokawa, Yutaka Akiyama

**2380-Pos BOARD B517**  
INFERENCEMAP: MAPPING OF SINGLE-MOLECULE DYNAMICS USING BAYESIAN INFERENCE. **Mohamed El Beheiry**, Maxime Dahan, Jean-Baptiste Masson

**2381-Pos BOARD B518**  
NEUROIMAGE: A NOVEL HIGHLY EFFICIENT TOOL FOR IMAGE PROCESSING OF IN VIVO NEURAL NETWORKS. **Christian Heusinger**, André Drews, Aune Koitmäe, Robert Blick

**2382-Pos BOARD B519 INTERNATIONAL TRAVEL AWARDEE**  
INTEGRATIVE MODELING APPROACHES TO INTERPRET HIGH-RESOLUTION CRYO-EM RECONSTRUCTIONS. Alejandro Jesús Canosa-Valls, Erney Ramírez-Aportela, Pablo Chacón, **José R. López-Blanco**

**2383-Pos BOARD B520**  
ENERGY TABULATION STRATEGIES FOR ACCELERATED MONTE CARLO SIMULATION AT MULTIPLE LENGTH SCALES. **Justin M. Spiriti**, Daniel M. Zuckerman

**2384-Pos BOARD B521**  
G-LOSA: AN EFFICIENT COMPUTATIONAL TOOL FOR LOCAL STRUCTURE-CENTRIC BIOLOGICAL STUDIES. **Hui Sun Lee**, Wonpil Im

**2385-Pos BOARD B522**  
MULTI-SCALE DEEP NEURAL NETWORK MICROSCOPIC IMAGE SEGMENTATION. **Xundong Wu**, Yong Wu, Enrico Stefani

**2386-Pos BOARD B523**  
USING RULES & PATHWAY DATABASES TO CREATE QUANTITATIVE MECHANISTIC MODELS IN VIRTUAL CELL. Michael L. Blinov, Dan Vasilescu, James C. Schaff, Ion I. Moraru, **Leslie M. Loew**

**2387-Pos BOARD B524**  
A STATISTICAL OVERVIEW OF EXPERIMENTALLY DEFINED ANISOTROPIC DISPLACEMENT PARAMETERS (ADP) CURRENTLY DEPOSITED IN THE RCSB PDB. **Christopher B. Waite**, Lei Zhou

**2388-Pos BOARD B525 EDUCATION TRAVEL AWARDEE**  
PREDICTION OF FUNCTIONALLY LINKED INTERFACE (FLIP) REGIONS IN RESIDUE INTERACTION NETWORK (RIN) MODELS OF PROTEIN STRUCTURES. **Isha D. Mehta**, Brian W. Beck

**2389-Pos BOARD B526**  
A LANGEVIN DYNAMICS ALGORITHM FOR COARSE-GRAIN MODELING OF PROTEIN CLUSTERS. **Paul J. Michalski**, Leslie M. Loew

**2390-Pos BOARD B527**  
DFGMODEL: PREDICTING PROTEIN KINASE STRUCTURES IN INACTIVE STATES FOR STRUCTURE-BASED DISCOVERY OF TYPE-II INHIBITORS. **Peter Man-Un Ung**, Avner Schlessinger

**2391-Pos BOARD B528**  
VIRTUAL REALITY ENVIRONMENT FOR PATCHING AND IMAGING IN BRAIN SLICES. **Jaime V.K. Hibbard**, Marco A. Navarro, Michael E. Miller, Tyler W. Nivin, Lorin S. Milesco



## Optical Microscopy and Super-Resolution Imaging II (Boards B529-B558)

**2392-Pos BOARD B529** INTERNATIONAL TRAVEL AWARDEE  
3 COLOR - 3 DIMENSIONAL STED NANOSCOPY. **Chiara Peres**, Michele Oneto, Francesca D'Autilia, Silvia Galiani, Luca Lanzano', Giuseppe Vicidomini, Alberto Diaspro, Paolo Bianchini

**2393-Pos BOARD B530**  
EFFICIENT INTEGRATED 3D AND MULTI-COLOR SINGLE MOLECULE SUPER-RESOLUTION IMAGING. Kenny Chung, Tobias Hartwich, **David Baddeley**

**2394-Pos BOARD B531**  
THREE-DIMENSIONAL SUPER-RESOLUTION PROTEIN LOCALIZATION CORRELATED WITH VITRIFIED CELLULAR CONTEXT. **Wei Ji**, Bei Liu, Yanhong Xue, Wei Zhao, Tao Xu

**2395-Pos BOARD B532**  
3D MICROSCOPY OF ROD-SHAPED BACTERIA REVEALS ROLES OF MREB IN DIAMETER CONTROL AND CENTER-LINE CURVATURE. **Benjamin P. Bratton**, Jeffrey P. Nguyen, Nikolay Ouzounov, Randy M. Morgenstein, Zemer Gitai, Joshua P. Shaevitz

**2396-Pos BOARD B533**  
ENABLING SINGLE-MOLECULE DETECTION IN LIVING CELLS: ULTRA-SENSITIVE MICROSCOPY AND SPECTROSCOPY IN 3D. **Ankun Dong**, Alexandros Pertsinidis

**2397-Pos BOARD B534**  
ANALYSIS OF NANOSCALE PROTEIN CLUSTERING WITH QUANTITATIVE LOCALIZATION MICROSCOPY. **Philip R. Nicovich**, Thibault Tabarin, Johannes Stiegler, Sophie V. Pageon, Katharina Gaus

**2398-Pos BOARD B535**  
VIDEO-RATE SUPER RESOLUTION MICROSCOPY IN LIVING CELLS. **Fang Huang**, Caroline E. Laplante, Yu Lin, Thomas D. Pollard, Joerg Bewersdorf

**2399-Pos BOARD B536**  
DUAL-OBJECTIVE POINTILLISM MICROSCOPY SETUP WITH INTERFEROMETRIC AND ASTIGMATIC DETECTION. **Nora C. Schmidt**, Jana Hüve, Jürgen Klingauf

**2400-Pos BOARD B537**  
HIV GP120 EPI TOPE PROFILE ON CELL-BOUND VIRIONS ASSESSED USING VARIOUS MICROSCOPY TECHNIQUES. **Meron Mengistu**, George K. Lewis, Anthony L. DeVico

**2401-Pos BOARD B538**  
STRUCTURAL STUDY OF CILIARY TRANSITION ZONE WITH MULTICOLOR 3D STORM. **Xiaoyu Shi**, Galo Garcia, Jeremy F. Reiter, Bo Huang

**2402-Pos BOARD B539**  
CHARACTERIZATION OF CEACAM1 STRUCTURE AND DYNAMICS BY CORRELATED HOMO-FRET AND DSTORM IMAGING. **Amine Driouchi**, Scott D. Gray-Owen, Christopher M. Yip

**2403-Pos BOARD B540**  
SUB-DIFFRACTION LIMIT CHARACTERIZATION OF THE HIGHER-ORDER STRUCTURE AND NANOSCALE CYTOSKELETAL ARRANGEMENT OF SEPTINS BY DSTORM. **Adriano Vissa**, Theodore Pham, William S. Trimble, Peter K. Kim, Christopher M. Yip

**2404-Pos BOARD B541**  
DYNAMICS OF THE ACTIN CYTOSKELETON AND PLASMA MEMBRANE AT THE IMMUNOLOGICAL SYNAPSE REVEALED USING LIVE-CELL SUPER-RESOLUTION MICROSCOPY. **George W. Ashdown**, Andrew Cope, Paul W. Wiseman, Dylan M. Owen

**2405-Pos BOARD B542**  
FULL FIELD NONLINEAR STRUCTURED ILLUMINATION MICROSCOPY WITH STED. Han Zhang, **Yu Li**, Ming Zhao, Leilei Peng

**2406-Pos BOARD B543**  
REDUCING PHOTBLEACHING IN STED MICROSCOPY WITH HIGHER SCANNING SPEED. **Yong Wu**, Xundong Wu, Ligia Toro, Enrico Stefani

**2407-Pos BOARD B544**  
DNA-PAINT AND EXCHANGE-PAINT FOR MULTIPLEXED 3D SUPER-RESOLUTION MICROSCOPY. **Jesse L. Silverberg**, Ralf Jungmann, Maier S. Avendano, Johannes B. Woehrstein, Mingjie Dai, Peng Yin

**2408-Pos BOARD B545**  
QUANTITATIVE MULTIPLEXED SUPER-RESOLUTION NEURONAL SYNAPSE IMAGING USING DNA-PAINT. **Syuan-Ming Guo**, Remi Veneziano, Russell E. McConnell, Sarit Agasti, Simon Gordonov, Tony Kulesa, Frank B. Gertler, Paul Blainey, Ed Boyden, Peng Yin, Mark Bathe

**2409-Pos BOARD B546**  
SINGLE-MOLECULE DIGITAL IMAGING WITH MOLECULAR RESOLUTION USING DNA-PAINT. **Mingjie Dai**, Ralf Jungmann, Peng Yin

**2410-Pos BOARD B547**  
CHARACTERIZING FIBROSIS IN MOUSE KIDNEY USING AUTO FLUORESCENCE FLIM AND SHG IN UVO MODEL. **Moshe Levi**, Evgenia Dobrinskikh, Suman Ranjit, John Montford, Alexander Dvornikov, Allison Lehman, Seth Furgeson, Raphael Nemenoff, Enrico Gratton

**2411-Pos BOARD B548**  
HIGH SENSITIVITY NDD FLIM AND PATTERN MATCHING BASED FLUOROPHORE IDENTIFICATION. **Marcelle Koenig**, Benedikt Kraemer, Volker Buschmann, Matthias Patting, Felix Koberling, Rainer Erdmann

**2412-Pos BOARD B549**  
METABOLIC PROFILING OF THE SKIN TO MONITOR THE ONSET AND PROGRESSION OF SQUAMOUS CELL CARCINOMA THROUGH TIME- AND WAVELENGTH-RESOLVED FLUORESCENCE LIFETIME IMAGING. **Christina R. Miller**, Michael G. Nichols

**2413-Pos BOARD B550**  
MAPPING P53 ALTERATIONS IN METABOLISM UPON DNA DAMAGE USING THE PHASOR/FLIM AND NUMBER & MOLECULAR BRIGHTNESS ANALYSIS. **Michelle A. Digman**, Swathi Bagilthaya

**2414-Pos BOARD B551** INTERNATIONAL TRAVEL AWARDEE  
QUANTITATIVE ANALYSIS OF ANCHORING PROTEINS OF THE INHIBITORY SYNAPSE THROUGH SINGLE MOLECULE LOCALIZATION TECHNIQUES. **Francesca Pennacchietti**, Sebastiano Vascon, Alessio Del Bue, Enrica Maria Petrini, Andrea Barberis, Francesca Cella Zancchi, Alberto Diaspro

**2415-Pos BOARD B552**  
SINGLE MOLECULE ANALYSIS OF ENDOGENOUS MRNA IN STRESS GRANULES. **Ko Sugawara**, Kohki Okabe, Takashi Funatsu

**2416-Pos BOARD B553**  
SUPER-OSCILLATORY IMAGING OF NANOPARTICLE INTERACTIONS WITH NEURONS. **Edward T F Rogers**, Shmma Quraishe, Joanne L. Bailey, Tracey A. Newman, John E. Chad, Nikolay I. Zheludev, Peter J S Smith

**2417-Pos BOARD B554**  
QUANTITATIVE SUPER-RESOLUTION MICROSCOPY USING NOVEL MEDITOPE REAGENTS. **Ottavia Golfetto**, Eliedonna E. Cacao, Raphael Jorand, Sunetra Biswas, Cindy Zer, Kendra N. Avery, John C. Williams, Tijana Jovanovic-Talisman

**2418-Pos BOARD B555**  
FOURIER TRANSFORM INFRARED SPECTROSCOPY AND IMAGING IN CANCER DIAGNOSIS AND CHARACTERIZATION. **Feride Severcan**, Nihal Simsek Ozek, Seher Gok

**2419-Pos BOARD B556**  
QUANTITATIVE IMAGING OF PROTEOME DEGRADATION IN LIVE CELLS BY STIMULATED RAMAN SCATTERING. **Yihui Shen**, Fang Xu, Wei Min

**2420-Pos BOARD B557**  
VIBRATIONAL IMAGING OF GLUCOSE UPTAKE IN LIVE CELLS AND TISSUES BY STIMULATED RAMAN SCATTERING MICROSCOPY. **Fanghao Hu**, Zhixing Chen, Luyuan Zhang, Yihui Shen, Lu Wei, Wei Min

**2421-Pos BOARD B558**  
BEAM-SCANNING BROADBAND CARS MICROSCOPY FOR RAPID TISSUE IMAGING. **Ian Seungwan Ryu**, Charles H. Camp, Jr., Marcus T. Cicerone, Young Jong Lee

## Biosensors II (Boards B559-B578)

**2422-Pos BOARD B559**  
FLUOROPHOTOMETRIC DETERMINATION OF CRITICAL MICELLE CONCENTRATION (CMC) OF IONIC AND NON-IONIC SURFACTANTS WITH CARBON DOTS BASED ON THE STOKES SHIFT. **Mukesh L. Bhaisare**, Sunil Pandey, M Shahnawaz Khan, Abou Talib, Hui-Fen Wu

**2423-Pos BOARD B560**  
NOVEL BIOSENSORS BASED ON WATER-SOLUBLE FLUORESCENT SILVER NANOCCLUSERS FOR SELECTIVELY DETECTION OF THIOL-AMINO ACID. Taiqun Yang, Yuting Chen, Kun Zhang, Kehan Huang, Haifeng Pan, **Sanjun Zhang**, Jianhua Xu

**2424-Pos BOARD B561**  
NOVEL STRATEGIES FOR MICRO-CONTACT PRINTING BASED PROTEIN-PROTEIN INTERACTION DETECTION. **Ulrike Müller**, Peter Lanzerstorfer, Andreas Arnold, Eva Sevcik, Gerald Kreindl, Otmar Höglinger, Gerhard Schütz, Julian Weghuber

**2425-Pos BOARD B562**  
MILLISECOND TIME RESOLVED ELECTROCHEMICAL DETECTION OF NON-ELECTROACTIVE NEUROTRANSMITTER RELEASE. **Ann-Sofie Cans**, Jacqueline Keighron, Michael Kurczyk, Joakim Wigström, Yuanmo Wang, Jenny Bergman

**2426-Pos BOARD B563**  
SOLID-STATE NANOPORE DETECTION OF EPIGENETIC DNA MODIFICATIONS. **Osama K. Zahid**, Fanny Wang, Jan A. Ruzicka, Ethan W. Taylor, Adam R. Hall

**2427-Pos BOARD B564**  
DYNAMICS AND ENERGY CONTRIBUTIONS FOR TRANSPORT OF PERTACTIN THROUGH AN AEROLYSIN NANOPORE. **Benjamin Cressiot**, Esther Braselmann, Abdelghani Oukhaled, Juan Pelta, Patricia L. Clark

**2428-Pos BOARD B565**  
A NEW ENVIRONMENTAL BIOSENSOR FOR CELL FREE SYNTHETIC BIOLOGICAL SYSTEMS. **Ruihua Zhang**, Warren C. Ruder

**2429-Pos BOARD B566**  
NANOPORE SEQUENCING OF "ALIEN" DNA BASES. **Jonathan M. Craig**, Mark Svet, Ian Derrington, Jens Gundlach, Henry Brinkerhoff, Andrew Laszlo, Ian Nova, Kenji Doering, Matt Noakes

**2430-Pos BOARD B567**  
ROBUST MEMBRANE-EMBEDDED PHI29 MOTOR CHANNEL FOR SENSING OF SINGLE MOLECULE AND HIGH-THROUGHPUT FINGERPRINTING OF DNA. **Peixuan Guo**, Shaoying Wang, Farzin Haque

**2431-Pos BOARD B568 EDUCATION TRAVEL AWARDEE**  
SINGLE MOLECULE NUCLEIC ACID SENSING IN AN OPTICAL NANOPORE ARRAY. **Shuo Huang**

**2432-Pos BOARD B569**  
AN ATR-FTIR BASED IMMUNO-BIOSENSOR FOR THE DETECTION AND ANALYSIS OF DISEASE RELATED BIOMARKERS FROM LIQUID SAMPLES. **Andreas Nabers**, Julian Ollesch, Jonas Schartner, Klaus Gerwert

**2433-Pos BOARD B570**  
SLOWING DOWN DNA TRANSLOCATION AND NEUTRAL SINGLE MOLECULES DETECTION THROUGH SOLID-STATE NANOPORES BY PRESSURE. **Qing Zhao**

**2434-Pos BOARD B571**  
A NEXT GENERATION LABEL-FREE POC SENSING PLATFORM. **Jasmine Sze**

**2435-Pos BOARD B572**  
REAL-TIME DETECTION OF LIPID BILAYER ASSEMBLY AND DETERGENT-INITIATED SOLUBILIZATION. **Victoria L. Sun**

**2436-Pos BOARD B573**  
A GENERAL STRATEGY TO SYNTHESIZE ULTRASTABLE, LIGAND-GENERAL MOLECULAR TENSION PROBES FOR VISUALIZING CELL FORCES. **Yuan Chang**, Khalid Salaita

**2437-Pos BOARD B574 EDUCATION TRAVEL AWARDEE**  
COMPUTER AIDED DESIGN OF APTAMER FOR PROTHROMBIN DETECTION IN BLOOD. **Andrea C. Montero Oleas**, Miguel A. Mendez

**2438-Pos BOARD B575**  
ROS DETECTION AND QUANTIFICATION WITH LANTHANIDE-BASED NANOSENSORS. **Mouna Abdesselem**, Thierry Gacoin, Jean-Pierre Boilot, Pierre-Louis Tharaux, Antigoni Alexandrou, Cédric Bouzigues

**2439-Pos BOARD B576**  
SINGLE-LAYER MOLEBDENUM DISULPHIDE NANOPORE FOR DNA DETECTION. **Amir Barati Farimani**, Kyoungmin Min, Narayana Aluru

**2440-Pos BOARD B577**  
BIOSENSOR APPROACH BY UV SPECTROPHOTOMETRIC DETECTION. **Yekbun Adiguzel**

**2441-Pos BOARD B578**  
BIOLOGICAL CHANNEL CONFINEMENT IN NANOSTRUCTURED NANOPORE. **Sébastien Balme**, Mathilde Lepoitevin, Adib Abou-Chayaa, Mikhael Bechelany, Jean-Marc Janot, Emmanuel Balanzat

## Biomaterials (Boards B579-B603)

**2442-Pos BOARD B579**  
1H NMR STUDY OF THE ADSORPTION MECHANISM FOR TI-BINDING PEPTIDE ON TiO<sub>2</sub> NANOPARTICLES. **Yu Suzuki**, Tetsuo Asakura

**2443-Pos BOARD B580**  
ROLES OF SPIDER WRAPPING SILK PROTEIN DOMAINS IN FIBRE PROPERTY. **Lingling Xu**, Marie-Laurence Tremblay, Kathleen E. Orrel, Xiang-Qin Liu, Jan K. Rainey

**2444-Pos BOARD B581**  
A STUDY IN SEMENOGLIN I HYDROGEL AGGREGATION KINETICS. **Beatrice Ary**, Connie Friedman, Matthew Rohn, Birgitta Frohm, Luigi Gentile, Ulf Olsson, Sara Linse, Karin Akerfeldt

**2445-Pos BOARD B582**  
LOCAL O<sub>2</sub> GRADIENTS IN POROUS 3D SCAFFOLD MONITORED BY PHOSPHORESCENT LIFETIME IMAGING MICROSCOPY. **James Jenkins**

**2446-Pos BOARD B583**  
ROLE OF HIGH-ORDER HYDRODYNAMIC INTERACTION OF SEMIFLEXIBLE FILAMENT DYNAMICS. **Jyothirmai J. Simhadri**, Preethi L. Chandran

**2447-Pos BOARD B584**  
CHARACTERIZING THE POLYETHYLENIMINE POLYMER DYNAMICS AS A PH BUFFER FOR ITS USE AS DNA AGGREGATING AGENT. **Danielle N. Miller**, Quentinn Roby, Preethi L. Chandran, Kimberly Curtis

**2448-Pos BOARD B585**  
INTERACTIONS OF CELL SURFACE GLYCOPROTEINS. **Komitige H. Perera**, Preethi L. Chandran

**2449-Pos BOARD B586**  
EFFECT OF POLY-ETHYLENIMINE DYNAMICS ON DNA NANOPARTICLE PACKING. **Paul A. Millard**, Preethi L. Chandran

**2450-Pos BOARD B587**  
BIO-INSPIRED PH RESPONSIVE HYDROGELS FOR PROGRAMMED ACTIVATION OF ELECTROCHEMICAL STORAGE SYSTEMS IN BIOLOGY. **Nateé Johnson**, Young Jo Kim, Hangjun Dingh, Philip LeDuc, Christopher Bettinger

**2451-Pos BOARD B588**  
DIFFUSING COLLOIDAL PROBES OF CELL SURFACES. **Gregg A. Duncan**, Michael A. Bevan

**2452-Pos BOARD B589**  
ARCHAEL TETRAETHER FREE STANDING LIPID MEMBRANES IN A PDMS AND PCB BASED FLUIDIC PLATFORM. **Parkson Chong**, Xiang Ren, Hongseok Noh, Caglan Kumbur, Wenqiao Yuan, Jack Zhou

**2453-Pos BOARD B590**  
DEDUCING THE MACROMOLECULAR ORGANIZATION OF *ARABIDOPSIS THALIANA* LEAF CUTICLES BY SOLID-STATE NMR. **Subhasish Chatterjee**, Frederic Beisson, Gaetan Verdier, Ruth E. Stark

**2454-Pos BOARD B591**  
INJECTABLE REVERSE THERMAL GEL BIOPOLYMERS MAY ACT AS AN EXTRACELLULAR MATRIX AND CELL VEHICLE FOR CARDIAC TISSUE ENGINEERING. **Brisa M. Pena Castellanos**, Daewon Park, Carlin S S. Long, Valentina Martinelli, Susanna Bosi, Laura Ballerini, Maurizio Prato, Carmen Sucharov, Mark Jeong, Matthew R. G. Taylor, Robin Shandas, Luisa Mestroni

**2455-Pos BOARD B592**  
INFLUENCE OF CHEMICAL CONJUGATION STRATEGIES ON FIBRONECTIN'S BIOACTIVITY. **Michael Byad**, Karine Vallières, Pascale Chevallier, Corinne Hoesli, Gaëtan Laroche

**2456-Pos BOARD B593**  
DECONSTRUCTING THE ROLE OF THE MICROENVIRONMENT ON DRUG EFFICACY IN A BRAIN-MIMETIC PLATFORM FOR CUTANEOUS METASTATIC MELANOMA. **Benjamin H. Blehm**, Nancy Jiang, Yorihsa Kotobuki, Kandice Tanner

**2457-Pos BOARD B594**  
RIGIDITY OF POLY-L-GLUTAMIC ACID: INFLUENCE OF SECONDARY AND SUPRAMOLECULAR STRUCTURES. **Stefania Perticaroli**, Jonathan D. Nickels, Alexei P. Sokolov

**2458-Pos BOARD B595**  
BIO-LITHOGRAPHY: A NOVEL PROCESS FOR MODIFICATION AND PATTERNING OF SUPPORTED LIPID BILAYERS USING LIPOPOLYSACCHARIDE, A BIOLOGICAL AMPHIPHILE. **Peter G. Adams**, Kirstie L. Swingle, Walter F. Paxton, John J. Nogan, Loreen Lamoureux, Millicent A. Firestone, Harshini Mukundan, Gabriel A. Montaño

**2459-Pos BOARD B596**  
THE BACTERIAL SPORE AS AN ENERGY-RICH ADAPTIVE MATERIAL. **Michael DeLay**, Xi Chen, Jonathan Dworkin, Adam Driks, Ozgur Sahin

**2460-Pos BOARD B597**  
STRESS-INDUCED LAMELLAR ORDER IN SPIDER SILK FIBERS. **Eduardo R. Cruz-Chu**, Patil Sandeep, Imke Greving, Martin Mueller, Frauke Graeter

**2461-Pos BOARD B598**  
LIVE CELL INTERACTIONS WITH BIOCOMPATIBLE ULTRA-SHORT CARBON NANOTUBE PORINS. **Jia Geng**, Whitney Stannard, Arthur Escalada, Kyunghoon Kim, Michael P. Thelen, Vadim A. Frolov, Aleksandr Noy

**2462-Pos BOARD B599**  
TITRATION PROPERTIES AND PH-DEPENDENT AGGREGATION OF CHITOSAN. **Brian H. Morrow**, Gregory F. Payne, Jana K. Shen

**2463-Pos BOARD B600**

USING SPORES OF BACILLUS TO CREATE EVAPORATION-DRIVEN ENGINES. **Xi Chen**, Davis W. Goodnight, Zhenghan Gao, Ahmet-Hamdi Cavusoglu, Nina Sabharwal, Michael DeLay, Adam Driks, Ozgur Sahin

**2464-Pos BOARD B601**

TRANSPORT PROPERTIES OF CARBON NANOTUBE PORINS IN LIPID VESICLES. **Ramya H. Tunuguntla**, Allison Belliveau, Kyunghoon Kim, Jia Geng, Caroline Ajo-Franklin, Aleksandr Noy

**2465-Pos BOARD B602**

FIELD EFFECT TRANSISTORS BASED ON SEMICONDUCTIVE MICROBIALY SYNTHESIZED CHALCOGENIDE NANOFIBERS. **Ian R. McFarlane**, Julia R. Lazzari-Dean, Mohamed Y. El-Naggar

**2466-Pos BOARD B603**

NANOMECHANICAL DEFORMATION BEHAVIOR OF AMYLOID FIBRILS. Bumjoon Choi, Sangwoo Lee, **Kilho Eom**



# Wednesday, February 11, 2015

## Daily Program Summary

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

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8:00 AM–11:00 AM	<b>New Council Meeting</b>	<b>Room 318</b>
8:00 AM–3:00 PM	<b>Poster Viewing</b>	<b>Hall C</b>
8:15 AM–10:15 AM	<p><b>Symposium: Membrane Trafficking</b>  <b>Chair:</b> <i>Kerney Jebrell Glover, Lehigh University</i></p> <p>PROBING THE STRUCTURE, TOPOLOGY, AND OLIGOMERIZATION OF CAVEOLIN-1. <i>Kerney Jebrell Glover</i>            PHO85/CDK5 IS A POSITIVE REGULATOR OF PHOSPHATIDYLINOSITOL 3,5-BISPHOSPHATE VIA DIRECT PHOSPHORYLATION OF FAB1/PIKFYVE. <i>Lois Weisman</i>            DYNAMIN AT THE BRINK OF FISSION. <i>Jenny E. Hinshaw</i>            STUDYING MEMBRANE FUSION AT THE MOLECULAR LEVEL USING A BIOMIMETIC MODEL SYSTEM. <i>Alexander Kros</i></p>	<b>Ballroom I</b>
8:15 AM–10:15 AM	<p><b>Symposium: Nanopores: Methods and Mechanistic Insights</b>  <b>Chair:</b> <i>Zuzanna Siwy, University of California, Irvine</i></p> <p>POLYMERS THROUGH PROTEIN PORES: SINGLE-MOLECULE EXPERIMENTS WITH NUCLEIC ACIDS, POLYPEPTIDES AND POLYSACCHARIDES. <i>Hagan Bayley</i>            MOLYBDENUM DISULFIDE NANOPORES: WHY 3 ATOMS ARE BETTER THAN ONE? <i>Aleksandra Radenovic</i>            REAL-TIME SHAPE DETERMINATION AND 5-D FINGERPRINTING OF SINGLE PROTEINS. <i>Michael Mayer</i>            PORES WITH UNDULATING DIAMETER FOR MULTIPRONGED CHARACTERIZATION OF SINGLE PARTICLES AND CELLS IN RESISTIVE-PULSE TECHNIQUE. <i>Zuzanna S. Siwy</i></p>	<b>Ballroom II</b>
8:15 AM–10:15 AM	<b>Platform: Voltage-gated Na and Ca Channels</b>	<b>Ballroom III</b>
8:15 AM–10:15 AM	<b>Platform: Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence</b>	<b>Ballroom IV</b>
8:15 AM–10:15 AM	<b>Platform: Cell Mechanics, Mechanosensing, and Motility II</b>	<b>Room 307/308</b>
8:15 AM–10:15 AM	<b>Platform: Intrinsically Disordered Proteins (IDP) and Aggregates</b>	<b>Room 309/310</b>
8:15 AM–10:15 AM	<b>Platform: Membrane Active Peptides and Toxins</b>	<b>Room 314/315</b>
9:00 AM–1:00 PM	<b>Biomolecular Discovery Dome</b>	<b>Hall C</b>
10:30 AM–11:15 AM	<b>Coffee Break</b>	<b>Hall C</b>
12:00 PM–3:00 PM	<b>Publications Committee Meeting</b>	<b>Room 333</b>
1:00 PM–3:00 PM	<p><b>Symposium: Advances in Electron Microscopy</b>  <b>Chair:</b> <i>Yifan Cheng, University of California, San Francisco</i></p> <p>CRYO-EM OF DNA REPAIR PROTEIN COMPLEXES. <i>Hong-Wei Wang</i>            STRUCTURAL MATURATION OF HEPATITIS B CORE PROTEIN CAPSIDS. <i>Bettina Boettcher</i>            SINGLE PARTICLE CRYO-EM OF CALCIUM RELEASE CHANNELS. <i>Irina I. Serysheva</i>            SINGLE PARTICLE CRYOEM OF INTEGRAL MEMBRANE PROTEINS. <i>Yifan Cheng</i></p>	<b>Ballroom I</b>
1:00 PM–3:00 PM	<p><b>Symposium: Catalysis in the Membrane</b>  <b>Chair:</b> <i>Jochen Zimmer, University of Virginia</i></p> <p>ZMPSTE24 AND PREMATURE AGEING: A UNIQUE INTEGRAL MEMBRANE METALLOPROTEASE WITH A HOLE IN THE MIDDLE. <i>Liz Carpenter</i>            THE MECHANISM OF RHOMBOID INTRAMEMBRANE PROTEASE. <i>Ya Ha</i>            CLEAVAGE-DEPENDENT AND INDEPENDENT ROLE OF THE SERINE PROTEASE CAP1/PRSS8. <i>Edith Hummler</i>            A MOLECULAR DESCRIPTION OF CELLULOSE BIOSYNTHESIS. <i>Jochen Zimmer</i></p>	<b>Ballroom II</b>

<b>1:00 PM–3:00 PM</b>	<b>Platform: Protein-Lipid Interactions III</b>	<b>Ballroom III</b>
<b>1:00 PM–3:00 PM</b>	<b>Platform: Protein Folding and Chaperones</b>	<b>Ballroom IV</b>
<b>1:00 PM–3:00 PM</b>	<b>Platform: Excitation-Contraction Coupling</b>	<b>Room 307/308</b>
<b>1:00 PM–3:00 PM</b>	<b>Platform: Mechanosensation</b>	<b>Room 309/310</b>
<b>1:00 PM–3:00 PM</b>	<b>Platform: DNA Replication and Transcription</b>	<b>Room 314/315</b>
<b>1:00 PM–3:00 PM</b>	<b>Platform: Actin Filaments and Microtubules</b>	<b>Room 316/317</b>

# Wednesday, February 11

8:00 AM–11:00 AM, ROOM 318  
**New Council Meeting**

8:00 AM–3:00 PM, HALL C  
**Poster Viewing**

8:15 AM–10:15 AM, BALLROOM I  
**Symposium  
Membrane Trafficking**

## Chair

*Kerney Jebrell Glover, Lehigh University*

**2467-SYMP 8:15 AM**  
PROBING THE STRUCTURE, TOPOLOGY, AND OLIGOMERIZATION OF CAVEOLIN-1. **Kerney Jebrell Glover**

**2468-SYMP 8:45 AM**  
PHO85/CDK5 IS A POSITIVE REGULATOR OF PHOSPHATIDYLINOSITOL 3,5-BISPHOSPHATE VIA DIRECT PHOSPHORYLATION OF FAB1/PIKFYVE. Natsuko Jin, **Lois Weisman**

**2469-SYMP 9:15 AM**  
DYNAMIN AT THE BRINK OF FISSION. **Jenny E. Hinshaw**, Anna C. Sundborger, Shunming Fang, Jurgen A. Heymann, Pampa Ray, Joshua S. Chappie

**2470-SYMP 9:45 AM**  
STUDYING MEMBRANE FUSION AT THE MOLECULAR LEVEL USING A BIOMIMETIC MODEL SYSTEM. **Alexander Kros**

8:15 AM–10:15 AM, BALLROOM II  
**Symposium**

**Nanopores: Methods and Mechanistic Insights**

## Chair

*Zuzanna Siwy, University of California, Irvine*

**2471-SYMP 8:15 AM**  
POLYMERS THROUGH PROTEIN PORES: SINGLE-MOLECULE EXPERIMENTS WITH NUCLEIC ACIDS, POLYPEPTIDES AND POLYSACCHARIDES. **Hagan Bayley**

**2472-SYMP 8:45 AM**  
MOLYBDENUM DISULFIDE NANOPORES: WHY 3 ATOMS ARE BETTER THAN ONE? **Aleksandra Radenovic**

**2473-SYMP 9:15 AM**  
REAL-TIME SHAPE DETERMINATION AND 5-D FINGERPRINTING OF SINGLE PROTEINS. **Michael Mayer**

**2474-SYMP 9:45 AM**  
PORES WITH UNDULATING DIAMETER FOR MULTIPRONGED CHARACTERIZATION OF SINGLE PARTICLES AND CELLS IN RESISTIVE-PULSE TECHNIQUE. **Zuzanna S. Siwy**, Laura Innes, Matthew Schiel, Ivan Vlasiouk, Kenneth J. Shea, Luke Theogarajan

8:15 AM–10:15 AM, BALLROOM III  
**Platform**

**Voltage-gated Na and Ca Channels**

## Co-Chairs

*Jon Silva, Washington University in St. Louis*

*Bonnie Wallace, Birkbeck College, University of London, United Kingdom*

**2475-PLAT 8:15 AM**  
SODIUM ION COORDINATION IN THE SELECTIVITY FILTER OF A VOLTAGE-GATED SODIUM CHANNEL. **Claire E. Naylor**, Claire Bagneris, Paul G. DeCaen, David E. Clapham, B.A. Wallace

**2476-PLAT 8:30 AM**  
CONDUCTION AND SELECTIVITY IN NA<sup>+</sup> CHANNELS ANALYZED BY BIAS-EXCHANGE METADYNAMICS SIMULATIONS. **Simone Furini**, Paolo Barbini, Carmen Domene

**2477-PLAT 8:45 AM**  
INACTIVATION VOLTAGE SENSOR S4 IN DOMAIN IV OF NAV1.2 CONTROLS IMMOBILIZATION OF S4 IN DOMAIN III AS SHOWN BY OMEGA CURRENTS. **Nikolaus G. Greeff**, Claudia Lehmann, Hansjakob Heldstab

**2478-PLAT 9:00 AM**  
AUTOSOMAL RECESSIVE INHERITANCE OF CONGENITAL MYASTHENIC SYNDROME IS ASSOCIATED WITH SKELETAL MUSCLE SODIUM CHANNEL MUTATIONS. Karima Habbout, Serena Guiliano, Hugo Poulin, Damien Sternberg, Bruno Eymard, François Rivier, Raul Juntas Morales, Mohamed Chahine, Sophie Nicole, **Saïd Bendahhou**

**2479-PLAT 9:15 AM**  
OPTICAL TRACKING OF NAV1.5 CONFORMATION REVEALS MOLECULAR MECHANISMS  $\beta$ 1 SUBUNIT REGULATION. **Wandi Zhu**, Eric J. Hsu, Angela R. Schubert, Zoltan Varga, Jonathan R. Silva

**2480-PLAT 9:30 AM**  
LIVE-CELL IMAGING OF MIDCHANNEL PROTEOLYSIS OF NEURONAL SURFACE L-TYPE CALCIUM CHANNELS. **Ioannis E. Michailidis**, Dan Zhang, Jian Yang

**2481-PLAT 9:45 AM**  
MECHANISMS OF AUXILIARY  $\alpha$ 2 $\delta$ -1 SUBUNIT REGULATION OF VOLTAGE-GATED CALCIUM CHANNELS. **Sihui Ma**, Henry M. Colecraft

**2482-PLAT 10:00 AM**  
TOWARDS A COMMON STRUCTURE-FUNCTION FRAMEWORK FOR CALMODULIN REGULATION OF CALCIUM AND SODIUM CHANNELS. **Manu B. Johnny**, Paul J. Adams, Billy Kang, David T. Yue

8:15 AM–10:15 AM, BALLROOM IV  
**Platform**

**Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence**

## Co-Chairs

*Richard Thompson, University of Maryland*

*Rudra Kafle, University of Michigan*

**2483-PLAT 8:15 AM**  
RATIOMETRIC BIOLUMINESCENCE-BASED ZINC BIOSENSOR WITH NANOMOLAR SENSITIVITY. Evgenia G. Matveeva, Graham Franke, Leslie Bourne, Andrea K. Stoddard, Carol A. Fierke, **Richard B. Thompson**

**2484-PLAT 8:30 AM**  
FROM CHARGE STATE TO ISOSURFACES TO SPECTRA:  
UNRAVELING THE MYSTERY OF LYS-TRP DIPEPTIDE  
FLUORESCENCE. **Azaria Eisenberg**, Laura Juszczak

**2485-PLAT 8:45 AM**  
REAL-TIME QUANTIFICATION OF TIME-GATED  
AUTOFLUORESCENCE SPECTRUM SHAPE TO TRACK  
MITOCHONDRIAL METABOLISM. **Paul Urayama**, Jeff Maltas, Zac  
Long, Arthur Oliva, Jeff Folz, Lana Amer, Dylan Palo

**2486-PLAT 9:00 AM**  
NANOSCALE INFRARED SPECTROSCOPY OF BIOLOGICAL  
SYSTEMS. **Eoghan Dillon**, Mike Lo, Kevin Kjoller, Qichi Hu, Roshan  
Shetty

**2487-PLAT 9:15 AM**  
FLAVONOLS AS LUMINESCENT PROBES OF WATER ACTIVITY  
IN FOODS AND PHARMACEUTICALS. Siyu (Suzie) Wang, An N.  
Le, Maria G. Corradini, **Richard D. Ludescher**

**2488-PLAT 9:30 AM**  
SENSITIVE DETECTION OF NAD<sup>+</sup>/NADP<sup>+</sup> VIA STRONG  
COUPLING FLUORESCENCE FROM SILVER NANOCCLUSERS.  
Yufeng Yuan, Yan Chen, Kehan Huang, Haifeng Pan, Sanjun Zhang,  
**Jianhua Xu**

**2489-PLAT 9:45 AM**  
NON-DESTRUCTIVE LABEL-FREE MONITORING OF DRUG  
INTAKE IN LIVE CELLS USING ATR FT-IR SPECTROSCOPY.  
**Pedro L. Fale**, K. L. Andrew Chan

**2490-PLAT 10:00 AM**  
PHOTOBLEACHING CORRECTION IN FLUORESCENCE  
CORRELATION SPECTROSCOPY. **Rudra P. Kaffle**, Molly R.  
Liebeskind, Jens-Christian Meiners

**8:15 AM–10:15 AM, ROOM 307/308**

**Platform**  
**Cell Mechanics, Mechanosensing, and**  
**Motility II**

**Co-Chairs**

*Begona Alvarez-Gonzalez, University of California, San Diego*  
*Christian Franck, Brown University*

**2491-PLAT 8:15 AM**  
HIGH RESOLUTION, LARGE DEFORMATION 3D TRACTION  
FORCE MICROSCOPY. Jennet Toyjanova, Eyal Bar-Kochba, Cristina  
Lopez-Fagundo, Jonathan Reichner, Diane Hoffman-Kim,  
**Christian Franck**

**2492-PLAT 8:30 AM**  
CORRELATIVE TRACTION FORCE MICROSCOPY AND  
FLUORESCENCE FLUCTUATION ANALYSIS OF MOLECULAR  
AGGREGATION AND COMPLEX FORMATION IN CELL  
ADHESIONS IN DISTINCT MICROENVIRONMENTS.  
**Alexia I. Bachir**, Jessica Zareno, Kristopher E. Kubow, Sangyoon Han,  
Kostadinos Moissoglou, Gaudenz Danuser, Enrico Gratton, Edward Plow,  
Alan R. Horwitz

**2493-PLAT 8:45 AM**  
TRACKING ROTATION DURING LEUKOCYTE ROLLING  
REVEALS ASYMMETRIC ADHESION PROPERTIES. **Isaac T.S. Li**,  
Taekjip Ha, Yann R. Chemla

**2494-PLAT 9:00 AM**  
CHROMATIN ASSOCIATION WITH THE NUCLEAR ENVELOPE  
SUPPORTS STABLE NUCLEAR MECHANICS. **Sarah M. Schreiner**,  
Peter K. Koo, Yao Zhao, Simon G. J. Mochrie, Megan C. King

**2495-PLAT 9:15 AM**  
THREE-DIMENSIONAL BALANCE OF CORTICAL TENSION  
AND AXIAL CONTRACTILITY ENABLES FAST AMOEBOID  
MIGRATION. **Begona Alvarez-Gonzalez**, Ruedi Meili, Effie Bastounis,  
Richard A. Firtel, Juan C. Lasheras, Juan C. del Alamo

**2496-PLAT 9:30 AM**  
MEASURING MECHANICAL FORCE DURING ZEBRAFISH  
DEVELOPMENT USING AN EXPRESSIBLE TENSION SENSOR.  
**Andrea Hamilton**, Victoria Wu, Alex Dunn, Ingmar Riedel-Kruse

**2497-PLAT 9:45 AM**  
TWO DISTINCT REGIMES OF INTEGRIN MOLECULAR  
FORCES. **Xuefeng Wang**, Taekjip Ha

**2498-PLAT 10:00 AM**  
DYNAMIC TRACTION FORCES OF HUMAN NEUTROPHIL  
ADHESION. **Steven J. Henry**, Christopher S. Chen, John C. Crocker,  
Daniel A. Hammer

**8:15 AM–10:15 AM, ROOM 309/310**

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

**Co-Chairs**

*Alexandra Klinger, University of Pennsylvania*  
*Mark Brown, Yale University*

**2499-PLAT 8:15 AM**  
SEQUENCE SPECIFIC RADIOLYTIC FOOTPRINTING STUDY  
OF MONOMER, OLIGOMERIC AND FIBRILLAR AMYLOID  
BETA (1-42). **Alexandra L. Klinger**, Janna Kiselar, Anant Paravastu,  
Terrone Rosenberry

**2500-PLAT 8:30 AM**  
NOVEL METHODOLOGIES FOR THE COMPUTATIONAL  
STUDY OF PROTEIN AGGREGATION. **David Shorthouse**, Thomas  
Gallagher, Mark Sansom

**2501-PLAT 8:45 AM**  
MULTISCALE SIMULATIONS PROVIDE MECHANISTIC  
INSIGHTS INTO THE EFFECTS OF SEQUENCE CONTEXTS ON  
EARLY-STAGE POLYGLUTAMINE-MEDIATED AGGREGATION.  
**Kiersten M. Ruff**, Rohit V. Pappu

**2502-PLAT 9:00 AM**  
NEW INSIGHT INTO AMYLOID- $\beta$  FIBRIL GROWTH AND ITS  
INHIBITION: KINETIC NETWORK ANALYSIS OF MULTI-SCALE  
MOLECULAR DYNAMICS SIMULATIONS. **Wei Han**, Klaus  
Schulten

**2503-PLAT 9:15 AM**  
A ROLE FOR UNSTRUCTURED RESIDUES IN THE INDUCTION  
OF MEMBRANE PORATION BY PRE-AMYLOID ASSEMBLIES  
OF ISLET AMYLOID POLYPEPTIDE. **Mark A. Brown**, Elizabeth  
Rhoades, Andrew D. Miranker

**2504-PLAT 9:30 AM**  
KEEPING IT DISORDERED: A NEW MECHANISM OF PROTEIN  
QUALITY CONTROL? **Priya R. Banerjee**, Ashok Deniz



**2505-PLAT 9:45 AM**

HIV-TAT PROTEIN-AMYLOID BETA COMPLEX: FROM MOLECULAR INTERACTION TO INCREASED NEUROTOXICITY. **Alina Popescu Hategan**, Joseph Steiner, Mario A. Blanchet, Elena Karnaukhova, Emilios K. Dimitriadis, Avindra Nath

**2506-PLAT 10:00 AM**

THE INTRINSICALLY DISORDERED MEMBRANE ENZYMES SELENOPROTEIN S AND SELENOPROTEIN K. Liu Jun, zhengqi Zhang, **Sharon Rozovsky**

**8:15 AM–10:15 AM, ROOM 314/315**

### Platform

## Membrane Active Peptides and Toxins

#### Co-Chairs

*Patricia Clark, University of Notre Dame*

*B. Scott Perrin, NIH/NHLBI*

**2507-PLAT 8:15 AM**

MULTIPLE DRIVING FORCES CONTRIBUTE TO TRANSLOCATION OF AUTOTRANSPORTER VIRULENCE PROTEINS. Igor Drobnak, Esther Braselmann, **Patricia L. Clark**

**2508-PLAT 8:30 AM**

DECIPHERING PROTEIN MEMBRANE INTERACTIONS INVOLVED IN THE TRANSLOCATION PROCESS OF A BACTERIAL TOXIN, THE ADENYLATE CYCLASE (CYAA) TOXIN FROM B. PERTUSSIS. Orso Subrini, Johanna Karst, Ana-Cristina Sotomayor-Pérez, Audrey Hessel, Edithe Selwa, Nicolas Sapay, Rémi Veneziano, Jonathan Pansieri, Joel Chopineau, Daniel Ladant, **Alexandre Chenal**

**2509-PLAT 8:45 AM**

MOVING ALONG THE FREE ENERGY LANDSCAPE OF MEMBRANE INSERTION OF THE DIPHTHERIA TOXIN TRANSLOCATION DOMAIN. **Mauricio Vargas-Uribe**, Mykola V. Rodnin, Alexander Kyrychenko, Alexey S. Ladokhin

**2510-PLAT 9:00 AM**

ASSESSING THE TRANSLOCATION OF CPPS USING FORCE MEASUREMENT, SINGLE MOLECULES AND EMULSIONS. **Pierre Soule**, Abdou Rachid Thiam, Frédéric Pincet, Alain Joliot, Sandrine Sagan, Sophie Cribier, Nicolas Rodriguez

**2511-PLAT 9:15 AM**

SYNTHETIC MOLECULAR EVOLUTION APPROACH: DISCOVERY AND CHARACTERIZATION OF NOVEL ANTIVIRAL PEPTIDES. **Jing He**, Gregory Wiedman, Kalina Hristova, William C. Wimley

**2512-PLAT 9:30 AM**

PORE FORMATION MECHANISMS OF MELITTIN-LIKE MEMBRANE-ACTIVE PEPTIDES. **Charles H. Chen**, Gregory Wiedman, Yukun Wang, Ayesha Khan, Martin B. Ulmschneider

**2513-PLAT 9:45 AM**

THE CURVATURE INDUCTION OF SURFACE-BOUND ANTIMICROBIAL PEPTIDES PISCIDIN 1 AND PISCIDIN 3 VARIES WITH LIPID CHAIN LENGTH. **Bradley S. Perrin**, Alexander J. Sodt, Myriam L. Cotten, Richard W. Pastor

**2514-PLAT 10:00 AM**

A GENERAL MECHANISM FOR OFF-TARGET EFFECTS: STUDIES WITH AMIODARONE AND OTHER ANTIARRHYTHMICS. **Radda Rusinova**, Roger E. Koeppe II, Olaf S. Andersen

**9:00 AM–1:00 PM, HALL C**

## Biomolecular Discovery Dome

Visit this 3-D portable Dome, sponsored by the Public Affairs Committee, to see how difficult biophysical topics can be made accessible to high school students and the public. Short videos that communicate the excitement of looking at macromolecular complexes and understanding the molecular basis for life are being shown throughout the week.

**10:30 AM–11:15 AM, HALL C**

### Coffee Break

**12:00 PM–3:00 PM, ROOM 333**

## Publications Committee Meeting

**1:00 PM–3:00 PM, BALLROOM I**

### Symposium

## Advances in Electron Microscopy

#### Chair

*Yifan Cheng, University of California, San Francisco*

**2515-SYMP 1:00 PM**

CRYO-EM OF DNA REPAIR PROTEIN COMPLEXES.

**Hong-Wei Wang**

**2516-SYMP 1:30 PM**

STRUCTURAL MATURATION OF HEPATITIS B CORE PROTEIN CAPSIDS. **Bettina Boettcher**

**2517-SYMP 2:00 PM**

SINGLE PARTICLE CRYO-EM OF CALCIUM RELEASE CHANNELS. **Irina I. Serysheva**

**2518-SYMP 2:30 PM**

SINGLE PARTICLE CRYOEM OF INTEGRAL MEMBRANE PROTEINS. **Yifan Cheng**

**1:00 PM–3:00 PM, BALLROOM II**

### Symposium

## Catalysis in the Membrane

#### Chair

*Jochen Zimmer, University of Virginia*

**2519-SYMP 1:00 PM**

ZMPSTE24 AND PREMATURE AGEING: A UNIQUE INTEGRAL MEMBRANE METALLOPROTEASE WITH A HOLE IN THE MIDDLE. **Liz Carpenter**

**2520-SYMP 1:30 PM**

THE MECHANISM OF RHOMBOID INTRAMEMBRANE PROTEASE. **Ya Ha**

**2521-SYMP 2:00 PM**

CLEAVAGE-DEPENDENT AND INDEPENDENT ROLE OF THE SERINE PROTEASE CAPI/PRSS8. **Edith Hummler**

**2522-SYMP 2:30 PM**

A MOLECULAR DESCRIPTION OF CELLULOSE BIOSYNTHESIS. **Jochen Zimmer**

1:00 PM–3:00 PM, BALLROOM III  
**Platform**  
**Protein-Lipid Interactions III**

**Co-Chairs**

*Renee Jiji, University of Missouri*  
*James Sturgis, Aix-Marseille Université, France*

**2523-PLAT 1:00 PM**  
ELUCIDATING THE INTERACTION OF 5-LIPOXYGENASE AND FLAP. **Ramakrishnan B.Kumar**, Hans Hebert, Caroline Jegerschöld

**2524-PLAT 1:15 PM**  
DESTABILIZING AQUAPORIN Z ASSEMBLY: EFFECTS ON STRUCTURE, FUNCTION AND DYNAMICS. Victoria Schmidt, Pierre Hubert, Valerie Prima, **James Sturgis**

**2525-PLAT 1:30 PM**  
THE ROLE OF LIPID ENVIRONMENT ON PEPTIDE STRUCTURE AND FOLDING. **Renee D. Jiji**, Jian Xiong, Anahita Zare, Jason W. Cooley

**2526-PLAT 1:45 PM**  
INVESTIGATION ON THE INTERACTION BETWEEN PLEXIN INTRACELLULAR PLUS TRANSMEMBRANE DOMAINS WITH GTPASES AND WITH THE LIPID BILAYER USING ALL-ATOM MOLECULAR DYNAMICS SIMULATIONS. **Liqun Zhang**, Buck Matthias

**2527-PLAT 2:00 PM**  
ROLE OF PHOSPHOLAMBAN MUTATIONS IN PROTEIN-PROTEIN INTERACTIONS. **Vitaly V. Vostrikov**, Kailey J. Soller, Kim N. Ha, Sarah E. Nelson, Tata Gopinath, Gianluigi Veglia

**2528-PLAT 2:15 PM**  
SINGLE-MOLECULE FRET DETECTION OF GXXXG-MEDIATED TRANSMEMBRANE HELIX-HELIX INTERACTIONS. **Yoshiaki Yano**, Kotaro Kondo, Katsumi Matsuzaki

**2529-PLAT 2:30 PM**  
SPONTANEOUS RECONSTITUTION OF BOVINE RHODOPSIN INTO ARTIFICIAL MEMBRANES. **Udeep Chawla**, Wan Zheng, Liangju Kuang, Yunjiang Jiang, Suchithranga M. D. C. Perera, Michael F. Brown, Hongjun Liang

**2530-PLAT 2:45 PM**  
COARSE-GRAINED MODELING OF MINUTE-TIMESCALE CO-TRANSLATIONAL MEMBRANE PROTEIN INTEGRATION VIA THE SEC-TRANSLOCON. **Michiel J.M. Niesen**, Thomas F. Miller III

1:00 PM–3:00 PM, BALLROOM IV

**Platform**  
**Protein Folding and Chaperones**

**Co-Chairs**

*Wilfredo Colon, Rensselaer Polytechnic Institute*  
*Liliana Quintanar, Cinvestav, Mexico*

**2531-PLAT 1:00 PM**  
PROTEOMICS-LEVEL IDENTIFICATION OF DEGRADATION-RESISTANT PROTEINS PROVIDE INSIGHT ABOUT THEIR POTENTIAL ROLES IN ORGANISMAL ADAPTATION TO STRESS. Ke Xia, Jennifer Wilcox, Kayleigh Kobovitch, Brian Ortiz, Areeg Khalil, **Wilfredo Colon**

**2532-PLAT 1:15 PM** INTERNATIONAL TRAVEL AWARDEE  
SURPRISING ABUNDANCE OF MISFOLDING DURING REFOLDING OF MULTIDOMAIN PROTEINS. **Alessandro Borgia**, Katherine R. Kemplen, Madeleine B. Borgia, Robert B. Best, Andrea Soranno, Daniel Nettels, Bengt Wunderlich, Jane Clarke, Benjamin Schuler

**2533-PLAT 1:30 PM**  
TWO-DIMENSIONAL FLUORESCENCE LIFETIME CORRELATION SPECTROSCOPY ON THE FOLDING MECHANISM OF B DOMAIN OF PROTEIN A. **Takuhiko Otsu**, Kunihiko Ishii, Hiroyuki Oikawa, Munechito Arai, Satoshi Takahashi, Tahei Tahara

**2534-PLAT 1:45 PM**  
CONFORMATIONAL DYNAMICS OF MOLECULAR CHAPERONES INVESTIGATED BY SINGLE MOLECULE MULTICOLOR FÖRSTER RESONANCE ENERGY TRANSFER. **Lena Voith von Voithenberg**, Anders Barth, Swati Tyagi, Christine Koehler, Edward A. Lemke, Don C. Lamb

**2535-PLAT 2:00 PM**  
COPPER AND ZINC BINDING SPECIFICALLY INDUCE THE AGGREGATION OF HUMAN I-D CRYSTALLIN. **Liliana Quintanar**, Evgene Serebryany, Jose Antonio Domínguez-Calva, Cameron Haasse-Pettingell, Jonathan A. King

**2536-PLAT 2:15 PM** EDUCATION TRAVEL AWARDEE  
ROLE OF PORE LOOPS IN THE MECHANISM OF POLYPEPTIDE TRANSLOCATION BY A AAA+ PROTEASE MACHINE. **Piere Rodriguez-Aliaga**, Luis E. Ramirez, Frank Kim, Andreas Martin, Carlos Bustamante

**2537-PLAT 2:30 PM**  
(DIS)ASSEMBLY AND STRUCTURAL STABILITY OF MTHSP60 AND ITS PRECURSOR NAÏVE FORM. **Dario Spigolon**, Silvia Vilasi, Maria Rosalia Mangione, PierLuigi San Biagio, Donatella Bulone

**2538-PLAT 2:45 PM**  
CHARACTERIZING THE CONFORMATIONAL ENSEMBLES OF THE E. COLI HSP70, DNAK REVEALS THE ROLE OF THE INTERMEDIATE STATE. **Alex Liqi Lai**, Mandy Blackburn, Eugenia M. Clerico, Peter Borbat, Lila M. Gierasch, Jack H. Freed

1:00 PM–3:00 PM, ROOM 307/308

**Platform**  
**Excitation-Contraction Coupling**

**Co-Chairs**

*Benjamin Prosser, University of Pennsylvania*  
*William Louch, University of Oslo, Norway*

**2539-PLAT 1:00 PM**  
IDENTIFICATION OF A CALSEQUESTRIN-1 MUTATION IN A HUMAN VACUOLAR MYOPATHY. **Daniela Rossi**, Bianca Vezzani, Valeria Del Re, Virginia Barone, Simone Spinozzi, Alessandra Gamberucci, Stefania Lorenzini, Cecilia Paolini, Feliciano Protasi, Carlo Reggiani, Vincenzo Sorrentino, Lucia Galli

**2540-PLAT 1:15 PM**  
MICROTUBULE DETYROSINATION MODULATES STRETCH-DEPENDENT X-ROS SIGNALING IN HEART. Patrick G. Robison, Jaclyn P. Kerr, Alexey I. Bogush, Daniel A. Harki, Christopher W. Ward, **Benjamin L. Prosser**

**2541-PLAT 1:30 PM**  
 SERCA LOCATED IN THE JUNCTIONAL SR SHAPES CALCIUM RELEASE IN CARDIAC MYOCYTES. **Terje R. Kolstad**, Mathis K. Stokke, Espen Stang, Sverre H. Brorson, Louch E. William, Ole M. Sejersted

**2542-PLAT 1:45 PM**  
 LARGE AMPLITUDE RATE-DEPENDENT MECHANICAL ALTERNANS MAY PRECEDE ARRHYTHMOGENESIS IN HUMAN HEART FAILURE AND ARE LINKED TO ELECTRICAL ALTERNANS VIA ABNORMAL CALCIUM HANDLING. **Melanie Zile**, Natalia Trayanova

**2543-PLAT 2:00 PM**  
 NA<sup>+</sup>/H<sup>+</sup> EXCHANGE BLOCKERS REVEAL THE EXISTENCE OF A SKELETAL MUSCLE CA<sup>2+</sup>/H<sup>+</sup> EXCHANGER, WHICH IS ALTERED IN MALIGNANT HYPERTHERMIA MUSCLE CELLS. **Gaelle Robin**, Francisco Altamirano, Eric Esteve, Isaac N. Pessah, Paul D. Allen, Jose R. Lopez

**2544-PLAT 2:15 PM**  
 CALCIUM SPARKLETS IN INTACT MAMMALIAN SKELETAL MUSCLE FIBERS EXPRESSING THE EMBRYONIC CAV1.1 SPLICE VARIANT. **Beatrix Dienes**, Nasreen Sultana, Janos Vincze, Monika Sztretye, Peter Szentesi, Bernhard E. Flucher, **Laszlo Csernoch**

**2545-PLAT 2:30 PM**  
 CALCIUM CHANNEL DYSFUNCTION IN A MUTANT MOUSE MODEL OF MALIGNANT HYPERTHERMIA(CAV1.1 R174W). **Donald Beqollari**, Christin F. Romberg, Wei Feng, Jose R. Lopez, Manuela Lavorato, Stefano Perni, Philip M. Hopkins, Clara Franzini-Armstrong, Isaac N. Pessah, Paul D. Allen, Kurt G. Beam, **Roger A. Bannister**

**2546-PLAT 2:45 PM**  
 SPATIALLY LOCALIZED DISRUPTIONS OF VOLTAGE ACTIVATED CALCIUM RELEASE IN MTM1-DEFICIENT MUSCLE FIBERS. **Candice Kutchukian**, Karine Poulard, Anna Buj-Bello, **Vincent Jacquemond**

1:00 PM–3:00 PM, ROOM 309/310

**Platform  
 Mechanosensation**

**Co-Chairs**  
*Camilo Andres Aponte-Santamaria, Heidelberg Institute for Theoretical Studies (HITS), Germany*  
*Anthony Peng, Stanford University*

**2547-PLAT 1:00 PM**  
 THE PRIMARY CILIUM IS A SELF-ADAPTABLE, INTEGRATING NEXUS FOR MECHANICAL STIMULI AND CELL SIGNALING. **An M. Nguyen**, Yuan N. Young, **Christopher R. Jacobs**

**2548-PLAT 1:15 PM**  
 MECHANOSENSITIVE VON WILLEBRAND FACTOR PROTEIN-PROTEIN INTERACTIONS REGULATE HEMOSTASIS. **Camilo A. Aponte Santamaria**, Volker Huck, Sandra Posch, Agnieszka K. Bronowska, Sandra Grässle, Maria A. Brehm, Tobias Obser, Reinhard Schneppenheim, Peter Hinterdorfer, Stefan W. Schneider, Carsten Baldauf, Frauke Gräter

**2549-PLAT 1:30 PM**  
 STRUCTURAL STUDY OF A NOVEL PARTIAL CALCIUM-FREE LINKER AND A POSITIVELY SELECTED VARIATION IN PROTOCADHERIN-15: IMPLICATIONS FOR HEARING AND CELL ADHESION. **Robert E. Powers**, Rachelle Gaudet, Marcos Sotomayor

**2550-PLAT 1:45 PM**  
 CALCIUM INFLUX THROUGH TRPV1 INHIBITS PIEZO CHANNELS VIA PHOSPHOINOSITIDE DEPLETION. **Istvan Borbiri**, Doreen Badheka, Tibor Rohacs

**2551-PLAT 2:00 PM**  
 PIEZO1 TRANSDUCES EXTRACELLULAR MATRIX MECHANICAL CUES TO DIRECT HUMAN NEURAL STEM CELL FATE. **Medha M. Pathak**, Jamison L. Nourse, Truc Tran, Jennifer Hwe, Janahan Arulmoli, Dai Trang T. Le, Elena Bernardis, Lisa A. Flanagan, Francesco Tombola

**2552-PLAT 2:15 PM**  
 MECHANOSIGNALING OF FOCAL ADHESION KINASE. **Jing Zhou**, Camilo Aponte-Santamaria, Agnieszka Bronowska, Frauke Gräter

**2553-PLAT 2:30 PM**  
 MODULATION OF RAT AUDITORY HAIR CELL MECHANOTRANSDUCTION CHANNEL RESTING OPEN PROBABILITY IMPLICATES A ROLE FOR THE LIPID BILAYER. **Anthony Peng**, Radhakrishnan Gnanasamdandam, Frederick Sachs, Anthony Ricci

**2554-PLAT 2:45 PM**  
 PROBING THE STRUCTURE AND FUNCTION OF TMC1 IN SENSORY HAIR CELLS USING MUTAGENESIS AND CYSTEINE MODIFICATION. **Xiao-Ping Liu**, Bifeng Pan, Yukako Asai, Kyoto Kurima, Andrew J. Griffith, Jeffrey R. Holt

1:00 PM–3:00 PM, ROOM 314/315

**Platform  
 DNA Replication and Transcription**

**Co-Chairs**  
*Enrico Gratton, University of California, Irvine*  
*Laura Finzi, Emory University*

**2555-PLAT 1:00 PM INTERNATIONAL TRAVEL AWARDEE**  
 INITIATION OF ASYMMETRIC ROLLING-CIRCLE PLASMID REPLICATION BY REPD STUDIED USING MAGNETIC TWEEZERS. **Algirdas Toleikis**, Simone Kunzelmann, Gregory I. Mashanov, Martin R. Webb, Justin E. Molloy

**2556-PLAT 1:15 PM**  
 MECHANISTIC STUDIES OF DNA-PROTEIN INTERACTIONS IN BACTERIOPHAGE T4 DNA REPLICATION COMPLEXES AT SINGLE-BASE RESOLUTION. **Davis Jose**, Lee Wonbae, Gillies P. John, Marcus H. Andrew, Peter H. von Hippel

**2557-PLAT 1:30 PM**  
 DNA TRANSLOCATIONS IN REAL-TIME: INSIGHTS INTO NON-HOMOLOGOUS END JOINING PATHWAY. **Andrea Candelli**, Ineke Brouwer, Gerrit Sitters, Stephanie Heerema, Mauro Modesti, Erwin J.G. Peterman, Gijs J.L. Wuite

**2558-PLAT 1:45 PM**  
 CORRELATIVE NANOMANIPULATION AND COLOCALIZATION OF SINGLE-MOLECULES TO STUDY TRANSCRIPTION-COUPLED DNA REPAIR. **Evan T. Graves**, Camille Duboc, Jun Fan, Terence Strick

**2559-PLAT 2:00 PM**  
 FUNCTIONAL IMPLICATIONS OF THE RECQ HELICASE - TOPOISOMERASE III - SSB COMPLEX: INSIGHTS FROM SINGLE MOLECULE MEASUREMENTS. **Maria Mills**, Yeonee Seol, Keir Neuman

**2560-PLAT 2:15 PM**

TRANSCRIPTION KINETICS HETEROGENEITY OF HIGHLY MOBILE IDENTICAL GENES REVEALED BY SIMULTANEOUS MEASUREMENT AT THE SINGLE CELL LEVEL. **Enrico Gratton**, Paolo Annibale

**2561-PLAT 2:30 PM**

DYNAMICS OF GREB INTERACTIONS WITH RNA POLYMERASE: HOW A REGULATORY PROTEIN MAY PATROL THE GENOME FOR TRANSCRIPTION COMPLEXES TO RESCUE. **Larry E. Tetone**, Larry J. Friedman, Melisa L. Osborne, Harini Ravi, Scotty Kyzer, Rachel A. Mooney, Robert Landick, Jeff Gelles

**2562-PLAT 2:45 PM**

A SINGLE MOLECULE PERSPECTIVE OF ELONGATION BY RNA POLYMERASE I. Suleyman Ucuncuoglu, David A. Schneider, David D. Dunlap, **Laura Finzi**

**1:00 PM–3:00 PM, ROOM 316/317**

### **Platform**

## **Actin Filaments and Microtubules**

#### **Co-Chairs**

*Peter Chung, University of California, Santa Barbara*  
*Ekaterina Grishchuk, University of Pennsylvania*

**2563-PLAT 1:00 PM**

DIRECT MONOMER-BY-MONOMER OBSERVATION OF GELSOLIN-MEDIATED ACTIN FILAMENT NUCLEATION. **Alvaro H. Crevenna**, Maria Hoyer, Don C. Lamb

**2564-PLAT 1:15 PM**

ACTIN FILAMENT NUCLEATION IS INFLUENCED BY ELECTROSTATIC INTERACTIONS WITH THE BNI1P FORMIN FH2 DOMAIN. **Joseph L. Baker**, Naomi Courtemanche, Daniel L. Parton, Martin McCullagh, Thomas D. Pollard, Gregory A. Voth

**2565-PLAT 1:30 PM**

THREE DIMENSIONAL RECONSTRUCTION OF THE NATIVE CARDIAC THIN FILAMENT DECORATED WITH MYOSIN-BINDING PROTEIN C FRAGMENT: IMPLICATIONS FOR CARDIAC REGULATION. Samantha Harris, Betty Virok, Howard White, **Vitold E. Galkin**

**2566-PLAT 1:45 PM**

NEW MODELS FOR REGULATION OF VINCULIN BY ACTIN AND PHOSPHOLIPIDS. **Peter M. Thompson**, Hyunna T. Lee, Laura Kim, Srinivas Ramachandran, Arpit Tandon, Raul Mendez-Giraldez, Gregory M. Alushin, Nikolay V. Dokholyan, Sharon L. Campbell

**2567-PLAT 2:00 PM**

TOWARDS A MODEL OF THE TAU-TUBULIN COMPLEX. **Xiaohan Li**, Jacob Culver, Elizabeth Rhoades

**2568-PLAT 2:15 PM**

MULTIPLE REVERSIBLE MOLECULAR EVENTS AT THE MICROTUBULE TIP DRIVE THE AGE-DEPENDENT MICROTUBULE CATASTROPHES. Pavel Zakharov, Nikita Gudimchuk, Vladimir Voevodin, Alexander Tikhonravov, Fazly I. Ataullakhanov, **Ekaterina L. Grishchuk**

**2569-PLAT 2:30 PM**

INTRINSICALLY DISORDERED MAP TAU MEDIATES BOTH SHORT-RANGE ATTRACTION AND LONG-RANGE REPULSION BETWEEN MICROTUBULES. **Peter J. Chung**, M.C. Choi, Uri Raviv, Herb P. Miller, Les Wilson, Stuart C. Feinstein, Cyrus R. Safinya

**2570-PLAT 2:45 PM**

EB1: A HIGHLY DYNAMIC AND DIFFUSIVE MICROTUBULE +TIP-TRACKING PROTEIN. **Benjamin J. Lopez**, Megan T. Valentine



# WEDNESDAY POSTER SESSIONS

*Below is the list of poster presentations of abstracts submitted by October 1. The list of late abstracts scheduled for Wednesday is available in the Program addendum. All abstracts are available through the desktop planner and mobile app.*

Posters should be mounted between 7:00 AM and 8:00 AM on Wednesday and removed by 3:00 PM. Poster numbers shown refer to the program order of abstracts as they appear in the online Abstracts Issue. Board numbers indicate where boards are located in the Exhibit Hall.

**ODD-NUMBERED BOARDS 10:30 AM–11:30 AM**

**EVEN-NUMBERED BOARDS 11:30 AM–12:30 PM**

Board Numbers	Category
B1–B29	Protein Structure and Conformation IV
B30–B60	Protein Folds
B61–B76	Protein Stability
B77–B98	Protein Assemblies II
B99–B116	Protein Dynamics and Allostery III
B117–B134	Enzymes and Protein Dynamics II
B135–B146	Transcription
B147–B174	Chromatin and the Nucleoid
B175–B200	Membrane Physical Chemistry III
B201–B227	Membrane Active Peptides and Toxins II
B228–B243	Proteins, Lipids, and Small Molecules
B244–B269	Protein-Lipid Interactions III
B270–B292	Mechanosensation
B293–B299	Calcium Signaling II
B300–B316	Intracellular Calcium Channels and Calcium Sparks and Waves II
B317–B322	Nucleo-Cytoplasmic Transport
B323–B350	Voltage-gated Na Channels
B351–B370	Voltage-gated Ca Channels
B371–B400	Ion Channels, Pharmacology, and Disease
B401–B428	Skeletal Muscle Mechanics, Structure, and Regulation
B429–B444	Cardiac Muscle Regulation II
B445–B449	Cytoskeletal-based Intracellular Transport
B450–B467	Bacterial Mechanics, Cytoskeleton, and Motility
B468–B485	Energy Transduction, Electron and Proton Transfer, and Light Harvesting
B486–B514	Mitochondria in Cell Life and Death
B515–B530	Cellular Signaling and Metabolic Networks
B531–B542	Magnetic Resonance Spectroscopy, Imaging, and EPR Spectroscopy
B543–B559	Electron Microscopy, Diffraction, and Scattering Techniques
B560–B588	Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence
B589–B611	Bioengineering
B612–B617	Engineered Biosurfaces
B618–B629	Biosurface Interactions

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

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

- 2571-Pos BOARD B1**  
BIOCHEMICAL STATE OF THE ARYL CARRIER PROTEIN DIRECTS SEQUENTIAL DOMAIN-DOMAIN INTERACTIONS IN THE YERSINIABACTIN SYNTHETASE SYSTEM. **Andrew C. Goodrich**, Dominique P. Frueh
- 2572-Pos BOARD B2 EDUCATION TRAVEL AWARDEE**  
SYSTEMATIC PERTURBATION OF PROTEIN:PROTEIN INTERFACES MAY AID IN FUNCTIONAL CLASSIFICATION. **Cameron J. Jones**, Ambreen Qureshi, Sanjana Sudarshan, Brian Beck
- 2573-Pos BOARD B3**  
STRUCTURAL ANALYSIS OF LIPOCALIN-TYPE PROSTAGLANDIN D SYNTHASE COMPLEXED WITH PROSTAGLANDIN J. **Yuta Nakahata**, Shigeru Shimamoto, Tadayasu Ohkubo, Kosuke Aritake, Yoshihiro Urade, Yuji Hidaka
- 2574-Pos BOARD B4**  
THE ORIGIN OF CDR H3 STRUCTURAL DIVERSITY. **Brian D. Weitzner**, Roland L. Dunbrack, Jeffrey J. Gray
- 2575-Pos BOARD B5**  
BIOPHYSICAL, BIOCHEMICAL AND FUNCTIONAL STUDIES OF A NOVEL FUNGAL TEC1 PARALOG. **Lenka Slachtova**, Matthew Lohse, Sandy Johnson, Sudha Veeraghavan
- 2576-Pos BOARD B6**  
STRUCTURE AND MOLECULAR DYNAMICS OF THE IG58/58 DOMAINS OF OBSCURIN. **Tracy A. Caldwell**, Nathan T. Wright, Rachel A. Policke, Isaiah Sumner, Christopher E. Berndsen
- 2577-Pos BOARD B7**  
STRUCTURAL STUDIES OF OBSCURIN IG2. **Matthew C. Oehler**, Nathan T. Wright, Christopher E. Berndsen
- 2578-Pos BOARD B8**  
THE UNUSUAL HEME COORDINATION OF THB1, A HEMOGLOBIN FROM CHLAMYDOMONAS REINHARDTII. **Selena L. Rice**, Matt R. Preimesberger, Jamie L. Schlessman, Lauren E. Boucher, Jurgen Bosch, Juliette T.J. Lecomte
- 2579-Pos BOARD B9**  
CHARACTERIZING STERIC LIMITATIONS OF THE HEME POCKET IN THE GAS-BINDING TT H-NOX PROTEIN USING SITE-SPECIFIC INCORPORATION OF UNNATURAL AMINO ACIDS. **Lukasz T. Olenginski**, Christine M. Phillips-Piro
- 2580-Pos BOARD B10**  
SINGLE MOLECULE FÖRSTER RESONANCE ENERGY TRANSFER STUDIES OF THE EFFECT OF DEGLYCOSYLATION ON THE STRUCTURE OF IMMUNOGLOBULIN G. **Cathrine A. Southern**, Mark S. Piraino, Jihad Aburas, Alan J. Mlotkowski
- 2581-Pos BOARD B11**  
PROBING STRUCTURAL IMPLICATIONS OF UNNATURAL AMINO ACID INCORPORATION INTO GREEN FLUORESCENT PROTEIN. **Nicole Maurici**, Andrew Dippel, Melanie Liskov, Scott Brewer, Christine Phillips-Piro
- 2582-Pos BOARD B12 INTERNATIONAL TRAVEL AWARDEE**  
ENGINEERING THE CYSTEINE MOTIF 'CXXC' INTO A PROTEIN IMPARTS IT NOVEL PROPERTIES. **Likhesh Sharma**
- 2583-Pos BOARD B13**  
DECIPHERING THE GLYCOSYLATION CODE. **Christopher Ellis**, Will Noid
- 2584-Pos BOARD B14**  
INTERACTIONS BETWEEN THROMBOMODULIN AND COMPLEMENT COMPONENT C3 STUDIED BY FLUORESCENCE RESONANCE ENERGY TRANSFER. **Gavin Palowitch**, Caroline Gambone, Julia R. Koeppel
- 2585-Pos BOARD B15**  
STRUCTURAL ANALYSIS OF THE ECTODOMAIN OF THE ANTI-VIRAL PROTEIN BST-2. **Kelly E. Du Pont**, Aidan M. McKenzie, Samantha B. Chinn, Christopher E. Berndsen
- 2586-Pos BOARD B16**  
MACROMOLECULAR CROWDING OF A PROTEIN COMPLEX BY SMALL ANGLE NEUTRON SCATTERING AND SMALL ANGLE X-RAY SCATTERING. **Ajith Rajapaksha**, Christopher B. Stanley, Brian A. Todd
- 2587-Pos BOARD B17**  
CONFORMATIONAL DYNAMICS AND FUNCTIONAL ASYMMETRY OF ABCE1, A RIBOSOME RECYCLING PROTEIN. **Hadas Leonov**, Bert L. de Groot, Helmut Grubmueller
- 2588-Pos BOARD B18 INTERNATIONAL TRAVEL AWARDEE**  
MOVING MACROMOLECULAR SURFACES UNDER HYDROPHOBIC/HYDROPHILIC STRESS. **David V. Svintradze**
- 2589-Pos BOARD B19**  
DYNAMICS OF GAL80P IN THE GAL80P-GAL3P COMPLEX DIFFER SIGNIFICANTLY FROM THE DYNAMICS IN THE GAL80P-GAL1P COMPLEX: IMPLICATIONS FOR THE HIGHER SPECIFICITY OF GAL3P TOWARDS TRANSCRIPTIONAL INDUCTION OF GAL GENES. **Sanjay K. Upadhyay**, Jakob P. Ulmschneider
- 2590-Pos BOARD B20**  
DEATH EFFECTOR DOMAIN FLEXIBILITY IN MEDIATING PROTEIN-PROTEIN INTERACTIONS. **Yufeng Wei**
- 2591-Pos BOARD B21**  
INHIBITION OF GPR18 THROUGH DOCKING OF KNOWN ANTAGONISTS USING A HOMOLOGY MODEL. **Jenn L. Reynolds**
- 2592-Pos BOARD B22**  
TARGETING APICOMPLEXAN ATG8 FOR RATIONAL DRUG DESIGN. **Alexia S. Miller**, Adelaide U.P. Hain, Jürgen Bosch
- 2593-Pos BOARD B23**  
PROBING CONFORMATIONAL CHANGE IN THE FIRST ACTIN-BINDING DOMAIN OF DYSTROPHIN. **Michael E. Fealey**, David D. Thomas
- 2594-Pos BOARD B24**  
THE INTERACTION BETWEEN L-PGDS AND ITS SUBSTRATES OR PRODUCTS, AS DETERMINED BY ISOTHERMAL TITRATION CALORIMETRY AND NMR. **Shigeru Shimamoto**, Yutaro Fukuda, Takahiro Maruno, Yuji Kobayashi, Tadayasu Ohkubo, Kosuke Aritake, Yoshihiro Urade, Yuji Hidaka
- 2595-Pos BOARD B25**  
INVESTIGATING INTERACTIONS BETWEEN THE LECTIN-LIKE DOMAIN OF THROMBOMODULIN AND COMPLEMENT COMPONENT 3. **Daniel DeHelian**, Thomas Holt, Nathan Fritzingler, Julia R. Koeppel

**2596-Pos BOARD B26**  
 PROBING BUFFER-SPECIFIC EFFECTS ON NUCLEOTIDE BINDING TO RECA USING DIFFERENCE FTIR. **Joshua E. Temple**, Gina MacDonald

**2597-Pos BOARD B27**  
 REVISITING ALLOSTERY IN THE LAC REPRESSOR PROTEIN. **Matthew A. Stetz**, Marie V. Carter, Kathleen G. Valentine, A. Joshua Wand

**2598-Pos BOARD B28**  
 ACTIVATION OF PHOSPHOLIPASE C- $\beta$  BY G $\beta$ T INVOLVES INTERACTIONS WITH THE PH-EF HAND DOMAIN INTERFACE. **Ganesh Kadamur**, Elliott M. Ross

**2599-Pos BOARD B29**  
 LOCALIZATION OF SMALL LIGANDS IN A METABOLIC PROTEIN COMPLEX USING CRYO-ELECTRON MICROSCOPY. **Mario J. Borgnia**, Soojay Banerjee, Prashant Rao, Alberto Bartesaghi, Allan Merk, Jason Pierson, Sriram Subramaniam, Jacqueline Milne

### Protein Folds (Boards B30-B60)

**2600-Pos BOARD B30**  
 UREA INTERACTIONS WITH NATIVE AND UNFOLDED PROTEINS: A VOLUMETRIC STUDY. **Iksae Son**

**2601-Pos BOARD B31**  
 PREDICTION OF CO-TRANSLATIONAL PROTEIN FOLDING IN LIVING CELLS. **Edward P. O'Brien**, Daniel A. Nissley

**2602-Pos BOARD B32**  
 ELUCIDATING THE FOLDING PATHWAYS OF CALCIUM-BINDING PROTEINS. **Apurva Shah**, Daniel Goldman, Lisa Alexander, Carlos Bustamante

**2603-Pos BOARD B33**  
 THE COMPUTATIONAL STUDIES OF CO-TRANSLATIONAL PROTEIN FOLDING. **Tomasz Wlodarski**, Chris Waudby, Chan Sammy, Michele Vendruscolo, John Christodoulou

**2604-Pos BOARD B34**  
 RARE EXAMPLE OF A PROTEIN WHERE AN ISOLATED DOMAIN IS MORE STABLE THAN THE FULL-LENGTH. Swati Bandi, Surinder Singh, **Krishna Mallela**

**2605-Pos BOARD B35 CPOW TRAVEL AWARDEE**  
 GLOBAL CONTACTS DIRECT HYDROPHOBIC COLLAPSE IN PROTEIN FOLDING. **Loan K. Huynh**, Chris Neale, Régis Pomès, Hue Sun Chan

**2606-Pos BOARD B36**  
 CHEMICAL REGULATION OF DISULFIDE COUPLED FOLDING OF DISULFIDE RICH PEPTIDE, HEPICIDIN, AND ITS PRECURSOR PROTEIN. **Yuji Hidaka**, Kana Ohshige, Takeyoshi Nakanishi, Shigeru Shimamoto

**2607-Pos BOARD B37**  
 SPECTROSCOPIC AND SAXS STUDIES OF HUMAN CYSTATIN C MUTANTS - EARLY STAGES OF AMYLOID FORMATION PROCESS. **Maciej Kozak**, Zuzanna Pietralik, Aneta Szymanska, Michal Taube

**2608-Pos BOARD B38**  
 DIFFERENTIAL EFFECTS ON LIGHT CHAIN AMYLOID FORMATION DEPEND ON MUTATIONS AND TYPE OF GLYCOSAMINOGLYCANS. **Luis M. Blancas-Mejia**, Jared A. Hammernik, Marta Marin-Argany, Marina Ramirez-Alvarado

**2609-Pos BOARD B39**  
 SMALL ANGLE NEUTRON AND X-RAY SCATTERING OF PLASMA GLYCOPROTEIN INTERACTIONS WITH LIPID MEMBRANES. **Luis A. Palacio**, Christopher B. Stanley, Soenke Seifert, Ryan Lybarger, Horia I. Petrache

**2610-Pos BOARD B40**  
 ANALYTICAL CHARACTERIZATION OF FGF SIGNALING COMPLEX. **Jason N. Payne**, Tulsi Modi, Oluwadamilola Filani, Raja Murthy

**2611-Pos BOARD B41**  
 INTERACTIONS BETWEEN PAIRS OF CHARGES BURIED IN THE HYDROPHOBIC INTERIOR OF A PROTEIN ARE UNEXPECTEDLY WEAK. **Aaron Robinson**, Andrea Theodoru, Jamie Schlessman, Bertrand Garcia-Moreno E

**2612-Pos BOARD B42**  
 A REASON FOR LONG TALES. **Kathryn R. Geiger**, Doug Barrick

**2613-Pos BOARD B43**  
 EFFECT OF GAMMA RADIATION ON THE STRUCTURAL AND FUNCTIONAL INTEGRITY OF IGG. Claudia C. Smeltzer, Nina N. Lukinova, Nicole D. Towcimak, David Mann, William N. Drohan, **Yuri V. Griko**

**2614-Pos BOARD B44**  
 PHOTOACOUSTIC CALORIMETRY STUDIES OF FERRIC CYTOCHROME-C FOLDING USING AN NO PHOTO-TRIGGER. **Tarah A. Word**, Randy W. Larsen

**2615-Pos BOARD B45**  
 SIMULATION OF PRESSURE-INDUCED AND TEMPERATURE-INDUCED DENATURATION OF PHOSPHOGLYCERATE KINASE. **Jianfa Chen**, Margaret S. Cheung

**2616-Pos BOARD B46**  
 INTERMOLECULAR INTERACTIONS IN HIGHLY CONCENTRATED PROTEIN SOLUTIONS UPON COMPRESSION AND THE ROLE OF THE SOLVENT. Sebastian Grobely, **Mirko Erkkamp**, Johannes Möller, Metin Tolan, Roland Winter

**2617-Pos BOARD B47**  
 ATOMISTIC AND COARSE-GRAINED MD SIMULATIONS OF THE INTRINSICALLY DISORDERED BACILLUS SUBTILIS RIBONUCLEASE P PROTEIN. **Cecilia G. Rambarat**

**2618-Pos BOARD B48**  
 THE DOCK-AND-COALESCE MECHANISM FOR THE ASSOCIATION OF INTRINSICALLY DISORDERED WASP WITH THE CDC42 GTPASE. **Li Ou**, Megan Matthews, Xiaodong Pang, Huan-Xaing Zhou

**2619-Pos BOARD B49**  
 COOPERATIVE HELIX FORMATION IN THE (AAQAA)<sub>3</sub> PEPTIDE OBTAINED WITH THE DRUDE POLARIZABLE FORCE FIELD. **Jing Huang**, Alexander D. MacKerell

**2620-Pos BOARD B50**  
 DEPENDENCE OF INTERNAL FRICTION ON NATIVE TOPOLOGY. **Wenwei Zheng**, David de Sancho, Travis Hoppe, Robert B. Best

**2621-Pos BOARD B51**  
 THERMODYNAMICS OF  $\beta$ -STRUCTURES FROM MOLECULAR DYNAMICS SIMULATIONS. **Anthony Hazel**, James C. Gumbart

**2622-Pos BOARD B52**  
USING KINETIC NETWORK MODELS TO UNDERSTAND FOLDING MECHANISMS OF GB1 HAIRPIN AND ITS TRPZIP VARIANTS. **Vincent A. Voelz**, Asghar Razavi

**2623-Pos BOARD B53**  
INFLUENCE OF ZINC-BINDING ON FOLDING AND DYNAMICS OF ZINC FINGER PROTEINS: IN SILICO. **Ryan Godwin**, William Gmeiner, Freddie Salisbury

**2624-Pos BOARD B54**  
FOLDING MECHANISM OF PROTEINS IM7 AND IM9, FROM COMPUTER SIMULATIONS IN A REALISTIC ATOMISTIC FORCE FIELD. **Fang Wang**, Giorgia Cazzolli, Patrick Wintrode, Pietro Faccioli

**2625-Pos BOARD B55**  
MELTDOWN - A TOOL FOR CLASSIFICATION AND ANALYSIS OF DSF DATA. Michael Jayne, Marko Ristic, Nicholas Rosa, Shane A. Seabrook, Janet Newman, David Lovell, **Del Lucent**

**2626-Pos BOARD B56**  
PHYSICS BASED STRUCTURE REFINEMENT IN CASP11 USING GEOMETRIC UNFOLDING AND HIERARCHICALLY RESTRAINED REPLICA EXCHANGE MOLECULAR DYNAMICS. **Avishek Kumar**, Paul Campitelli, Sefika Banu Ozkan, Michael F. Thorpe

**2627-Pos BOARD B57**  
ROLE OF SIDE CHAIN SIZE IN THE FORMATION OF SECONDARY STRUCTURES IN MODEL PEPTIDES. **Farbod Mahmoudinobar**, Cristiano L. Dias, Ronen Zangi

**2628-Pos BOARD B58**  
THE ASSOCIATION LANDSCAPE OF UBIQUITIN DIMERIZATION. **Haiqing Zhao**, David Fushman, Garegin A. Papoian

**2629-Pos BOARD B59**  
ROLES OF UREA AND TMAO ON THE INTERACTION BETWEEN EXTENDED NON-POLAR PEPTIDES. **Zhaoqian Su**, Jampani R. Srinivasa, Cristiano L. Dias

**2630-Pos BOARD B60**  
PROBING THE DOWNHILL FOLDING KINETICS OF LAMBDA{6-85} MUTANTS WITH OPTICAL TWEEZERS. **Ann Mukhortava**, Andreas Hartmann, Michael Schlierf

## Protein Stability (Boards B61-B76)

**2631-Pos BOARD B61**  
MECHANICAL ASPECTS OF PROTEIN THERMOSTABILITY. **Guillaume Stirnemann**, Maria Kalimeri, Fabio Sterpone

**2632-Pos BOARD B62**  
THERMAL STABILITY OF A B-TYPE HEME PEROXIDASE FROM THE PSYCHROPHILIC DIATOM FRAGILARIOPSIS CYLINDRUS. **Thuy Duong Nguyen**, Katherine Frato

**2633-Pos BOARD B63**  
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**Toshihiro Miyabe**, Yufuku Matsushita, Kosuke Kasadera, Yuko Kozono,  
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**Lucila A. Acevedo**, Alex I. Greenwood, Jehoo Kwon, Kun P. Lu, Linda  
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**Bertrand Garcia-Moreno**, Gabriel Ortega, Meredith T. Peck, Aaron  
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A NUDIX HYDROLASE NECESSARY FOR MYCOBACTERIUM TUBERCULOSIS SURVIVAL UNDER OXIDATIVE STRESS. Kerstin A. Wolff, **Andres H. de la Peña**, Hoa T. Nguyen, L. Mario Amzel, Sandra B. Gabelli, Liem Nguyen

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PROBING AND MANIPULATING ENZYME ACTIVITY AND CONFORMATIONAL DYNAMICS BY SINGLE-MOLECULE AFM-FRET AND MAGNETIC TWEEZERS-FRET ULTRAMICROSCOPY. Qing Guo, Yufan He, **H. Peter Lu**

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ACTO-MYOSIN CONTRACTILITY REGULATES NUCLEAR AND CHROMATIN PLASTICITY. **Ekta Makhija**, D.S. Jokhun, G.V. Shivashankar

### Membrane Physical Chemistry III (Boards B175-B200)

- 2745-Pos BOARD B175**  
AMINO ACIDS AND PEPTIDES STABILIZE FATTY ACID MEMBRANES AGAINST SALT-INDUCED FLOCCULATION. **Moshe Gordon**, Roy A. Black, Matthew C. Blosser, Sarah L. Keller



**2746-Pos BOARD B176**

MEASUREMENT OF THE VISCOSITY OF E.COLI MEMBRANES USING MOLECULAR ROTORS AND FLIM. **Jacek T. Mika**, Alexander J. Thompson, Johan Hofkens, Marina K. Kuimova

**2747-Pos BOARD B177 EDUCATION TRAVEL AWARDEE**

POLYDOPAMINE AS AN EFFICIENT POLYMER TO PREPARE BIOLOGICALLY RELEVANT SUPPORTED LIPID BILAYERS. **Souryvanh Nirasay**, Antonella Badia, Jerome P. Claverie, Isabelle Marcotte

**2748-Pos BOARD B178**

POLYMER AND SILICA SUPPORTED BILAYER FORMATION STUDIED THROUGH TIME RESOLVED SPATIAL POINT PATTERN ANALYSIS OF VESICLE DEPOSITION. **Stephen Cross**, Oliver Birkholz, Jacob Piehler, Matthew Peel, Suman Peel

**2749-Pos BOARD B179**

CONTROLLED MODULATION OF LIPID BILAYER STATE BY A PHOTSENSITIVE MEMBRANE EFFECTOR. Chen Shen, Lars Jørgensen, Dordaneh Zargarani, Benjamin Runge, Bridget Murphy, Olaf Magnussen, **Beate Klösgen**

**2750-Pos BOARD B180**

CREATING FLUID SUPPORTED LIPID BILAYERS WITH HIGH AMOUNTS OF PHOSPHATIDYLETHANOLAMINE. **Anne Sendeck**, Matthew F. Poyton, Tinglu Yang, Paul S. Cremer

**2751-Pos BOARD B181**

BIOPHYSICAL ANALYSIS OF A SUCCESSFUL PROTOCOL TO RECONSTITUTE TETRAMERS OF THE M2 MUSCARINIC RECEPTOR. **Helen Y. Fan**, Dar'ya S. Redka, Heiko Heerklotz

**2752-Pos BOARD B182**

ION-MOBILITY MASS SPECTROMETRY ASSAY FOR INCORPORATION OF PHYTANIC ACID INTO MUSCLE PHOSPHOLIPIDS. Glen Humphrey, Peter S. Backlund, **Paul S. Blank**, Joshua Zimmerberg

**2753-Pos BOARD B183**

FLUCTUATION-INDUCED INTERACTIONS BETWEEN MEMBRANE-BOUND PROTEINS. Kayla Sapp, **Lutz Maibaum**

**2754-Pos BOARD B184**

EFFECT OF PHOSPHATIDYLINOSITOL-BISPHOSPHATE (PIP<sub>2</sub>) LIPIDS ON MEMBRANE STRUCTURE AND FORCES. **Sourav Haldar**, Paul S. Blank, Joshua Zimmerberg, Donald C. Rau

**2755-Pos BOARD B185**

PHOSPHOLIPID GIANT UNILAMELLAR VESICLES (GUVS) MELT LIKE LARGE (LUVS), NOT MULTILAMELLAR (MLVS), VESICLES. **Mark A. Kreuzberger**, Paulo F. Almeida

**2756-Pos BOARD B186**

BIOMOLECULES ALTERING THE LIPID MOLECULAR SHAPE IN MODEL NON-LAMELLAR MEMBRANES. **Chandrashekhar V. Kulkarni**, Yogita Patil-Sen, Mukta Kulkarni, Ales Iglíc

**2757-Pos BOARD B187**

DOES THE MEYER-OVERTON CORRELATION NEED TO BE MODIFIED. **Henrike Sasse-Middelhoff**, Thomas Heimburg

**2758-Pos BOARD B188**

ASSOCIATION OF MODEL NEUROTRANSMITTERS WITH LIPID BILAYER MEMBRANES. **Brian Josey**, Frank Heinrich, Mathias Lösche, Robert Cantor

**2759-Pos BOARD B189**

EFFECTS OF ARCHAEAL TETRAETHER LIPIDS ON MEMBRANE PARTITIONING OF THE ANTIFUNGAL DRUG NYSTATIN. **Melvin Hudson**, Parkson Chong, Umme Ayesa

**2760-Pos BOARD B190**

POLYSTYRENE NANOPARTICLES ALTER THE STABILITY OF MODEL CELL MEMBRANES. David Van Doren, Luke Cuculis, **Shelli L. Frey**

**2761-Pos BOARD B191**

HOW NSAIDS AFFECT LIPID MONOLAYER AND BILAYER PROPERTIES. **Jaime Larsen**, Melanie Grooms, Brendan G. Ashton, David D. Busath

**2762-Pos BOARD B192**

STUDIES OF ZWITTERIONIC LIPOPLEXES - NANOSYSTEM BASED ON PHOSPHOLIPIDS AND SURFACTANTS AS INNOVATIVE DELIVERY SYSTEMS FOR GENE THERAPY. **Joanna Wolak**, Michalina Skupin, Zuzanna Pietralik, Weronika Andrzejewska, Maciej Kozak

**2763-Pos BOARD B193**

PHOTOTHERMAL MANIPULATION OF MEMBRANES. **Scott K. Shaw**, Bradley D. Smith

**2764-Pos BOARD B194**

THEORETICAL AND EXPERIMENTAL INSIGHTS INTO LIPOPOLYSACCHARIDES-POLYMYXIN B INTERACTIONS USING GENETICALLY MODIFIED ENTEROBACTERIAL STRAINS. **Daniel R. Aguayo**, Javier Salazar, Jaime Huerta, Mackarennna Alarcón, Belén Navarro, Nicolás Pacheco, Hegaly Mendoza

**2765-Pos BOARD B195**

INTERACTION OF THYMOL WITH CELL MEMBRANES MODELS STUDIED WITH TENSOMETRY, VIBRATIONAL SPECTROSCOPY AND MOLECULAR SIMULATION. João Victor N. Ferreira, Tabata M. Capello, Leonardo J. Amaral de Siqueira, João Henrique G. Lago, **Luciano Caseli**

**2766-Pos BOARD B196**

EFFECTS OF CATIONS ON THE MATERIAL PROPERTIES OF MODEL CELL MEMBRANES. **Michael J. Counihan**, Carly R. Strelitz, Shelli L. Frey

**2767-Pos BOARD B197**

A STUDY OF HOW CHELATING AGENTS INTERACT WITH NEUTRAL LIPID MEMBRANES. **James L. Wallis**, Merrell A. Johnson, Bruce D. Ray, Horia I. Petrache

**2768-Pos BOARD B198**

SPECIFICITY AND COMPETITIVE CATION ASSOCIATION TO PHOSPHATIDYLINOSITOL-4,5-BISPHOSPHATE MODEL MEMBRANES. **Edgar E. Kooijman**, Zachary T. Graber, Wenji Wang, Ivan Kuzmenko, David Vaknin

**2769-Pos BOARD B199**

CHARGE DEPENDENCE OF POPG:POPC-LIPOSOME REPULSIONS IN DEIONIZED WATER. **Joel A. Cohen**, Ming-Tzo Wei, H. Daniel Ou-Yang

**2770-Pos BOARD B200**

THE EFFECT OF COMPARTMENTALIZATION ON THE KINETICS OF TRANSITION METAL ION-INDUCED LDL PEROXIDATION. **Dov A. Lichtenberg**, Ilya Pinchuk

## Membrane Active Peptides and Toxins II (Boards B201-B227)

### 2771-Pos BOARD B201

THE PRESENCE OF ANTIPARALLEL BETA-SHEETS IN TOXIC FIBRILS FORMED BY ABETA ON GM1 CLUSTERS. Yuki Okada, Hiroshi Ueno, Yoshiaki Yano, Masaru Hoshino, Hikari Itoh-Watanabe, Akira Naito, **Katsumi Matsuzaki**

### 2772-Pos BOARD B202

STRUCTURAL TRANSFORMATION OF AMYLOID PEPTIDES INTERACTING WITH LIPID MEMBRANES. Yen Sun, **Huey W. Huang**

### 2773-Pos BOARD B203

ALPHA-SYNUCLEIN STABILIZES SMALL UNILAMELLAR VESICLES BY REDUCING BOTH MEMBRANE SURFACE TENSION AND RIGIDITY. **Anthony R. Braun**, Jonathan N. Sachs

### 2774-Pos BOARD B204

MEMBRANES CAN FINELY TUNE PEPTIDE-INDUCED LIPID EXTRACTION BY MODULATING THEIR LIPID COMPOSITION. Alexandre Therrien, **Michel Lafleur**

### 2775-Pos BOARD B205

MECHANISM OF ACTION OF  $\beta$ -HAIRPIN ANTIMICROBIAL PEPTIDES. **Richard B. Lipkin**, Themis Lazaridis

### 2776-Pos BOARD B206

ATTACK ON SINGLE ESCHERICHIA COLI SPHEROPLASTS BY ANTIMICROBIAL PEPTIDES. **Tzu-Lin Sun**, Yen Sun, Huey W. Huang

### 2777-Pos BOARD B207

INSIGHTS INTO THE EFFECTS OF ANTIMICROBIAL PEPTIDES ON LIVE E. COLI CELLS USING TIME-LAPSE FLUORESCENCE MICROSCOPY. **Ranga Rajan**, James C. Weisshaar

### 2778-Pos BOARD B208

HISTIDINE-RICH DESIGNER PEPTIDES WITH PH-DEPENDENT MEMBRANE TOPOLOGY, ANTIMICROBIAL, NUCLEIC ACID TRANSFECTION AND VIRAL TRANSDUCTION CAPABILITIES. Christopher Aisenbrey, Philippe Bertani, Andrea Farrotti, David Fenard, Anne Galy, Elise Glattard, Arnaud Marquette, Jesus Raya, Evgeniy S. Salnikov, Joachim Seelig, Lorenzo Stella, Louic Vermeer, Nathalia Voievoda, **Burkhard Bechinger**

### 2779-Pos BOARD B209

EFFECT OF HISTIDINE RICH ANTIMICROBIAL PEPTIDES, GAD-1 AND GAD-2, ON MODEL MEMBRANES AT DIFFERENT PH VALUES. **Gagandeep K. Sandhu**, Michael R. Morrow, Valerie Booth

### 2780-Pos BOARD B210

THE TRANSMEMBRANE STATE OF ANTIMICROBIAL PISCIDIN IN BACTERIAL CELL MEMBRANE MIMICS DRAMATICALLY ALTERS THE POLAR-NONPOLAR SEGREGATION OF THE BILAYER. **Myriam Cotten**, Jorge I. Hernandez, Kimberly Bogardus, Mihaela Mihailescu

### 2781-Pos BOARD B211

ANTIMICROBIAL PEPTIDE PISCIDIN PERMEABILIZES BACTERIAL MEMBRANES AND BINDS INTRACELLULAR TARGETS AT SUB-LETHAL CONCENTRATIONS. **Mason Schoeneck**, Robert Hayden, Gina Goldberg, Bryan Ferguson, Michael McCormick, Herman Lehman, Myriam Cotten

### 2782-Pos BOARD B212

MOLECULAR DYNAMICS SIMULATIONS REVEAL MECHANISTIC DETAILS OF POLYMYXIN PENETRATION INTO BOTH MEMBRANES OF E.COLI. **Syma Khalid**, Nils A. Berglund, Peter J. Bond, Thomas J. Piggot

### 2783-Pos BOARD B213

THERMODYNAMICS GOVERN THE MECHANISM OF ANTIMICROBIAL LIPOPEPTIDES: INSIGHTS FROM COARSE-GRAINED MOLECULAR DYNAMICS SIMULATIONS. **Dejun Lin**, Alan Crossfield

### 2784-Pos BOARD B214

THE NATURE OF DAPTOMYCIN AGGREGATES. **Ming-Tao Lee**, Wei-Chin Hung, Yen-Fei Chen, Huey W. Huang

### 2785-Pos BOARD B215

LIPID SELECTIVITY OF FUNGICIDAL LIPOPEPTIDES. **Sebastian Fiedler**, Quang Huynh, Hiren Patel, Heiko Heerklotz

### 2786-Pos BOARD B216

STRUCTURE AND MEMBRANE TOPOLOGY OF THE PORE-FORMING PEPTIDE MACULATIN 1.1. **Marc-Antoine Sani**, Terry P. Lybrand, Frances Separovic

### 2787-Pos BOARD B217

STRUCTURE OF TRANSMEMBRANE PORES STABILIZED BY ANTIMICROBIAL PEPTIDES MAGAININ AND PGLA. **Almudena Pino Angeles**, John M. Leveritt III, Themis Lazaridis

### 2788-Pos BOARD B218

MODULATION OF THE INTERACTION BETWEEN DETERGENT MICELLES AND MODEL PEPTIDE ANTIBIOTICS BY VARYING THE PEPTIDE CHARGE DISTRIBUTION. **John Weirich**, Brianna Haight, Olivier Lequin, Lucie Khemtémourian, Ludovic Carlier, Adrienne Loh

### 2789-Pos BOARD B219

ISOMERIC MODEL ANTIBIOTIC PEPTIDES DIFFERING ONLY IN CHARGE PLACEMENT ADOPT DIFFERENT HELICAL CONFORMATIONS. Jayna Sharma, Riley Larson, Olivier Lequin, Lucie Khemtémourian, Ludovic Carlier, Kevin Larsen, Theodore Savage, **Adrienne Loh**

### 2790-Pos BOARD B220

ANISOTROPIC MEMBRANE CURVATURE SENSING BY ANTIBACTERIAL PEPTIDES. Jordi Gómez-Llobregat, **Martin Lindén**

### 2791-Pos BOARD B221

MEMBRANE INTERACTION OF AN ANTI-BACTERIAL AAPEPTIDE DEFINED BY EPR SPECTROSCOPY. **Pavanjeet Kaur**, Yaqiong Li, Jianfeng Cai, Likai Song

### 2792-Pos BOARD B222

ACTIVITY OF ANTIMICROBIAL PEPTIDE PROTEGRIN-1 IS TUNED BY MEMBRANE CHOLESTEROL CONTENT. **J. Michael Henderson**, Kathleen D. Cao, Zhiliang L. Gong, Gregory T. Tietjen, Charles T. R. Heffern, Daniel Kerr, Nishanth Iyengar, Indroneil Roy, Alan J. Waring, Mati Meron, Binhua Lin, Sushil Satija, Jaroslav Majewski, Ka Yee C. Lee

### 2793-Pos BOARD B223

WHAT VESICLE LEAKAGE REVEALS ABOUT ANTIMICROBIAL ACTIVITY (AND WHAT IT DOESN'T). Sara Hovakeemian, Runhui Liu, Samuel H. Gellman, **Heiko Heerklotz**

**2794-Pos BOARD B224**  
VIRUS-MIMICKING POLYMER MOLECULAR BRUSHES ARE POTENT ANTIBIOTICS WITH DOUBLE SELECTIVITY. Yunjiang Jiang, Wan Zheng, Hairong Ma, **Hongjun Liang**

**2795-Pos BOARD B225**  
ANALYSIS OF PISCIDIN AND LIPOPOLYSACCHARIDE INTERACTIONS: A STEP TOWARDS CHARACTERIZING IMMUNOMODULATION. **Laura McCormick**, Myriam Cotten

**2796-Pos BOARD B226**  
STUDYING THE MECHANISMS OF HYBRID PEPTIDES CONTAINING PERMEABILIZING AND CELL PENETRATING DOMAINS. **Maria A. LaBouyer**, Donald E. Elmore

**2797-Pos BOARD B227**  
BINDING OF DAPTOMYCIN TO LIPID BILAYERS IS NOT SIGNIFICANTLY ALTERED BY THE INCLUSION OF LYSYL-PHOSPHATIDYLGLYCEROL. Tala Khatib, Hannah Lineberry, Heather Stevenson, Bayer S. Arnold, Michael R. Yeaman, **Antje Pokorny**

### Proteins, Lipids, and Small Molecules (Boards B228-B243)

**2798-Pos BOARD B228**  
PHOSPHATIDYLSERINE, A LIPID PRESENT AT THE OUTER MEMBRANE LEAFLET OF CANCER CELLS, HINDERS THE INSERTION OF PHLIP, A POTENTIAL CANCER CELL MARKER. **Haden Scott**

**2799-Pos BOARD B229**  
UNDERSTANDING MOLECULAR COMPLEXITY IN PROTEIN AND PEPTIDE-LIPID SYSTEMS. Hannah M. Britt, Vian S. Ismail, Aruna S. Prakash, Jackie A. Mosely, **John M. Sanderson**

**2800-Pos BOARD B230**  
PHLIP® TARGETING AND DELIVERY OF PNA TO SILENCE MICRORNA IN TUMOR CELLS. **Donald M. Engelman**, Christopher J. Cheng, Raman Bahal, Imran A. Babar, Zachary Pincus, Francisco N. Barrera, Connie Liu, Alexander Svoronos, Demetrios T. Braddock, Peter M. Glazer, W Mark Saltzman, Frank J. Slack

**2801-Pos BOARD B231**  
MEMBRANE CHOLESTEROL ASSOCIATION AND STRUCTURE OF TWO LEUKOTOXIN PEPTIDES. **Cayla M. Miller**, Angela C. Brown, Jeetain Mittal

**2802-Pos BOARD B232**  
CHOLESTEROL ACCESSIBILITY SENSING BY PERFRINGOLYSIN O DERIVATIVES IS LINKED TO CHANGES IN THE SIZE OF THE OLIGOMER. Benjamin B. Jonhson, Robert J.C. Gilbert, **Alejandro P. Heuck**

**2803-Pos BOARD B233**  
FREE ENERGIES FOR TRANS-MEMBRANE PORE FORMATION IN THE PRESENCE OF ARGININE-RICH PEPTIDES FROM MOLECULAR DYNAMICS SIMULATIONS. **Neha Awasthi**, Jochen S. Hub

**2804-Pos BOARD B234**  
RESPONSE OF GWALP TRANSMEMBRANE PEPTIDES TO INCORPORATION OF BURIED HISTIDINE RESIDUES. **Ashley N. Martfeld**, Denise V. Greathouse, Roger E. Koeppe

**2805-Pos BOARD B235**  
INFLUENCE OF CHOLESTEROL ON SINGLE ARGININE-CONTAINING TRANSMEMBRANE HELICAL PEPTIDES. **Jordana K. Thibado**, Ashley N. Martfeld, Denise V. Greathouse, Roger E. Koeppe

**2806-Pos BOARD B236**  
INFLUENCE OF A POTENTIALLY DESTABILIZING CENTRAL TRYPTOPHAN ON TRANSMEMBRANE HELIX DOMAINS. **Vasu Suresh Kumar**, Ashley N. Martfeld, Denise V. Greathouse, Roger E. Koeppe

**2807-Pos BOARD B237**  
IONIZATION-DEPENDENT BEHAVIOR OF TRANSMEMBRANE HELICES THAT INCORPORATE GLU OR TYR RESIDUES. **Venkatesan Rajagopalan**, Denise V. Greathouse, Roger E. Koeppe

**2808-Pos BOARD B238**  
DETECTION OF HELIX FRAYING IN DESIGNED TRANSMEMBRANE ALPHA HELICES. **Armin Mortazavi**, Venkatesan Rajagopalan, Denise V. Greathouse, Roger E. Koeppe

**2809-Pos BOARD B239**  
COMPARING PEPTIDE-LIPID INTERACTIONS AND ANTIMICROBIAL ACTIVITIES OF PEPTIDES WITH SIMILAR "CORE" LENGTHS BUT VARIABLE ARGININE AND TRYPTOPHAN RESIDUES. **Sara E. Whitlock**, Roger E. Koeppe II, Denise A. Greathouse

**2810-Pos BOARD B240**  
CHARACTERIZATION OF MAXIMIN 3 STRUCTURE AND MEMBRANE LEAKAGE. Brian Herbst, Jillian Glatz, **Elizabeth Middleton**

**2811-Pos BOARD B241**  
CHARACTERIZATION OF MEMBRANE INTERACTIONS OF ANTIMICROBIAL LACTOFERRICIN PEPTIDES WITH CENTRAL RESIDUE SUBSTITUTIONS. **Amanda Lowe**, Denise V. Greathouse

**2812-Pos BOARD B242**  
PROMOTION OF COALESCENCE IN BICELLAR MIXTURES BY AN SP-B FRAGMENT. **Chris Miranda**, Valerie Booth, Michael R. Morrow

**2813-Pos BOARD B243**  
LIPID COMPOSITION INFLUENCES THE INSERTION AND FOLDING OF PHLIP PEPTIDES. **Alexander G. Karabadzhak**, Dhammika Weerakkody, Oleg A. Andreev, Yana K. Reshetnyak, Donald M. Engelman

### Protein-Lipid Interactions III (Boards B244-B269)

**2814-Pos BOARD B244 INTERNATIONAL TRAVEL AWARDEE**  
ENHANCED HIV FUSION INHIBITORS EFFICACY REQUIRES MEMBRANE AFFINITY AND EXPOSURE OF THE POCKET BINDING DOMAIN OF C34 DERIVATIVES. **Marcelo T. Augusto**, Axel Hollmann, Miguel A. R. B. Castanho, Matteo Porotto, Antonello Pessi, Nuno C. Santos

**2815-Pos BOARD B245 EDUCATION TRAVEL AWARDEE**  
STRENGTH, NOT DEPTH: AN EXPLORATION OF DIFFERENTIAL MEMBRANE BINDING KINETICS OF SYNAPTOTAGMIN-1 AND SYNAPTOTAGMIN-7 C2 DOMAINS. **Joshua V. Vermaas**, Emad Tajkhorshid



- 2816-Pos BOARD B246**  
HOW SYNAPTOTAGMIN I, N-BAR AND F-BAR DOMAINS GENERATE MEMBRANE CURVATURE. **Zhe Wu**, Hang Yu, Anton Arkhipov, Ying Yin, Klaus Schulten
- 2817-Pos BOARD B247**  
RECONSTITUTION AND CHARACTERIZATION OF NA/K-ATPASE IN MODEL LIPID MEMBRANES. **Tripta Bhatia**
- 2818-Pos BOARD B248**  
DETERGENT-FREE EXTRACTION OF THE REACTION CENTER FROM *RHODOBACTER SPHAEROIDES* INTO NATIVE NANODISCS. NANODISC SIZE MATTERS! **Stefan Scheidelaar**, David Swainsbury, Martijn Koorengel, Hans Meeldijk, Eefjan Breukink, Rienk van Grondelle, Michael Jones, J. Antoinette Killian
- 2819-Pos BOARD B249 EDUCATION TRAVEL AWARDEE**  
MEMBRANE-LIPID MEDIATED RHODOPSIN SIGNALING INVOLVES AN ENSEMBLE OF CONFORMATIONAL SUBSTATES. **Udeep Chawla**, Blake Mertz, Eglolf Ritter, Franz Bartl, Michael F. Brown
- 2820-Pos BOARD B250**  
INSIDE THE CELL UNDER OXIDATIVE STRESS: PROTEIN ASSEMBLY AT MITOCHONDRIAL MEMBRANES AND ITS CONSEQUENCES. **Martin Lidman**, Artur Dingeldein, Ilona Dudka, Farhana Nasrin, **Gerhard Gröbner**
- 2821-Pos BOARD B251**  
ELUCIDATION OF A RAFT-PARTITIONING MOTIF IN TRANSMEMBRANE PROTEINS. **Joseph H. Lorent**, Blanca B. Diaz-Rohrer, Kevin J. Spring, Ilya Levental
- 2822-Pos BOARD B252**  
THE MECHANISM OF THE DISINTEGRATION OF PHOSPHOLIPID MEMBRANES WITH HUMAN MONOACYLGLYCEROL LIPASE (HMGL). **Vitalii I. Silin**, Ioannis Karageorgos, David J. Vanderah, Nikolai Zvonok, John Marino, Alexandros Makriyannis
- 2823-Pos BOARD B253**  
EFFECT OF LIPID COMPOSITION ON THE AFFINITY AND BINDING OF DIMERIC TUBULIN TO MEMBRANES STUDIED USING SURFACE PLASMON RESONANCE, NEUTRON REFLECTIVITY, ELECTROPHYSIOLOGY, AND AC ELECTRICAL METHODS. **David P. Hoogerheide**, Oscar Tejjido Hermida, Tatiana K. Rostovtseva, Sergey M. Bezrukov, Hirsh Nanda
- 2824-Pos BOARD B254**  
MEMBRANE INTERACTIONS WITH NA-CATH. **Robin Samuel**, Haijuad Du, Michael Massiah, Barney Bishop, Susan Gillmor
- 2825-Pos BOARD B255**  
A COMBINED EFFECT OF PROTEINS SP-B AND SP-C AND MEMBRANE CURVATURE ON CHOLESTEROL PARTITION IN LUNG SURFACTANT MEMBRANES: ANSWERS FROM FLUORESCENCE. **Nuria Roldan**, Thomas K.M. Nyholm, Peter Slotte, Jesus Perez-Gil, **Begoña Garcia Alvarez**
- 2826-Pos BOARD B256**  
PH-INDUCED REORGANIZATION AND MEMBRANE INSERTION OF THE DIPHTHERIA TOXIN T-DOMAIN STUDIED BY SPR AND NEUTRON REFLECTOMETRY. **Rebecca Eells**, Frank Heinrich, Mathias Lösche, Mykola V. Rodnin, Alexey S. Ladokhin
- 2827-Pos BOARD B257**  
RECONSTITUTION OF THE COAT PROTEIN COMPLEX II INDUCES MORPHOLOGICAL CHANGES ON ARTIFICIAL MEMBRANES. **Sebastian Daum**, Daniela Krüger, Lea Dietrich, Mona Groß, Annette Meister, Kirsten Bacia
- 2828-Pos BOARD B258**  
SOLUBILIZATION OF MEMBRANES BY STYRENE MALEIC ACID (SMA) RESULTS IN FORMATION OF NANODISCS WITH RETENTION OF NATIVE LIPID COMPOSITION. **Juan J. Dminguez Pardo**
- 2829-Pos BOARD B259**  
THE EFFECT OF OXIDIZED LIPIDS ON THE INTERPLAY OF BCL-2 AND BAX PROTEINS AT MITOCHONDRIAL MEMBRANES. **Martin N. Lidman**, Artur Dingeldein, Marcus Wallgren, Anders Pedersen, Göran Karlsson, Sarka Pokorna, Martin Hof, Gerhard Gröbner
- 2830-Pos BOARD B260**  
THE INTERACTION OF HSP70 WITH PHOSPHATIDYL SERINE MEMBRANES IS MEDIATED BY A HIGHLY POSITIVE REGION OF THE MOLECULE. **Victor Lopez**, David M. Cauvi, Nelson Arispe, **Antonio De Maio**
- 2831-Pos BOARD B261**  
ELUCIDATING THE T CELL RECEPTOR TRANSMEMBRANE ORGANIZATION VIA MULTI-SCALE MOLECULAR DYNAMICS SIMULATIONS. **Antreas C. Kalli**, Andre Cohnen, Oreste Acuto, Mark S. P. Sansom
- 2832-Pos BOARD B262**  
EVOLUTIONARY AVOIDANCE OF TRANSMEMBRANE EMBEDDED ARGININES IS DUE TO SLOWED FOLDING KINETICS. **Ashlee M. Plummer**, Harris D. Bernstein, Karen G. Fleming
- 2833-Pos BOARD B263**  
SITE DIRECTED SPIN LABEL EPR SPECTROSCOPY OF INFLUENZA A M2 PROTEIN. **Kathleen Howard**, Bryan Green, Shenstone Huang, Sang Woo Kim
- 2834-Pos BOARD B264**  
STUDYING THE MEMBRANE-BOUND CONFORMATION OF ALPHA-SYNUCLEIN USING A MODEL TRANSMEMBRANE PEPTIDE SYSTEM IN A LIPID BILAYER. **Graham P. Lobel**, Alice R. Vienneau, Casey H. Londergan
- 2835-Pos BOARD B265**  
STRUCTURAL COMPARISON OF MEMBRANE-BOUND RETROVIRAL GAG PROTEINS. **Maria Barros**, Robert A. Dick, Siddhartha A.K. Datta, Volker M. Vogt, Alan Rein, Mathias Lösche, **Hirsh Nanda**
- 2836-Pos BOARD B266**  
PROBING PROTEIN-LIPID INTERACTIONS AT THE SINGLE MOLECULE LEVEL. **Tina R. Matin**, Krishna P. Sigdel, Linda L. Randall, Gavin M. King
- 2837-Pos BOARD B267**  
SINGLE-MOLECULE DIFFUSION MEASUREMENTS INDICATE INDEPENDENT MEMBRANE INSERTION BY THE TANDEM C2 DOMAINS OF SYNAPTOTAGMIN 7. **Joseph Vasquez**, Kan Chantranuvatana, Daniel Giardina, **Jefferson Knight**
- 2838-Pos BOARD B268**  
SINGLE MOLECULE DIFFUSION STUDIES OF PTEN: INSIGHTS INTO MEMBRANE BINDING. **Rakesh K. Harishchandra**, Anne-Marie M. Bryant, Abigail C. Cornwell, Mathias Lösche, Alonzo H. Ross, Arne Gericke



**2839-Pos BOARD B269**

A SINGLE-MOLECULE IMAGING BASED METHOD FOR ESTIMATING SUBUNIT STOICHIOMETRY OF PURIFIED MEMBRANE PROTEIN COMPLEXES IN LIPOSOMES.

**Rahul Chadda**, Larry Friedman, Ankita Chadda, Mike Rigney, Lucie Kolmakova Partensky, Jeff Gelles, Janice L. Robertson

**Mechanosensation (Boards B270-B292)**

**2840-Pos BOARD B270**

NANOBIOMECHANICS AND MECHANOTRANSDUCTION OF SENSORY NEURONS. **Laura Andolfi**, Marco Lazzarino, Valentina Masciotti, Yanmei Qi, Jing Hu

**2841-Pos BOARD B271**

CROSS-LINKED MATRIX RIGIDITY AND SOLUBLE FACTORS INDUCE DIFFERENTIATION VIA DISTINCT BUT OVERLAPPING PATHWAYS. Irena L. Ivanovska, Joe Swift, Kyle Spinler, P. C. Dave P. Dingal, **Dennis E. Discher**

**2842-Pos BOARD B272**

ALTERED CONTRACTILE MACHINERY IN AIRWAY EPITHELIAL CELLS IN RESPONSE TO CIGARETTE SMOKE. Corrine Kliment, Vasudha Srivastava, Douglas Robinson, **Ramana Sidhaye**

**2843-Pos BOARD B273**

PRIMARY CILIA LENGTH IS CRITICAL TO CELLULAR MECHANOTRANSDUCTION. **Milos Spasic**, Christopher Jacobs

**2844-Pos BOARD B274**

STRUCTURE OF AN INNER-EAR PROTOCADHERIN-15 FRAGMENT WITH AN ATYPICAL CALCIUM-FREE LINKER. **Raul Araya-Secchi**, Marcos Sotomayor

**2845-Pos BOARD B275**

FORCE-FREE TRANSITION FROM CLOSED TO OPEN MSCL: A MOLECULAR DYNAMICS STUDY. **Natalie E. Smith**, Ben Corry

**2846-Pos BOARD B276**

PATCH CLAMP CHARACTERISATION OF THE EFFECT OF CARDIOLIPIN ON THE BACTERIAL MECHANOSENSITIVE CHANNELS OF SMALL (MSCS) AND LARGE (MSCL) CONDUCTANCE. Pietro Ridone, Yoshitaka Nakayama, Boris Martinac, **Andrew R. Battle**

**2847-Pos BOARD B277 CPOW TRAVEL AWARDEE**

STRUCTURAL AND BIOPHYSICAL CHARACTERIZATION OF INNER EAR TIP LINK VARIANTS. **Yoshie Narui**, Marcos Sotomayor

**2848-Pos BOARD B278 INTERNATIONAL TRAVEL AWARDEE**

PROBING THE MECHANOSENSITIVITY OF PIEZO1 CHANNELS. **Charles D. Cox**, Boris Martinac

**2849-Pos BOARD B279**

SENSING FORCE BY TRIGEMINAL NEURONS OF ACUTELY MECHANOSENSITIVE BIRDS. Eve R. Schneider, Marco Mastrotto, Willem J. Laursen, Vincent P. Schulz, Jena B. Goodman, Owen H. Funk, Patrick G. Gallagher, Elena O. Gracheva, **Sviatoslav N. Bagriantsev**

**2850-Pos BOARD B280**

IS CRYPTOCHROME A PRIMARY SENSOR OF EXTREMELY LOW FREQUENCY MAGNETIC FIELDS IN CHILDHOOD LEUKEMIA? **Patricia L. Bounds**, Niels Kuster

**2851-Pos BOARD B281**

A STRUCTURE-FUNCTION APPROACH TO UNDERSTANDING THE DUAL FUNCTIONS OF THE PLANT MECHANOSENSITIVE ION CHANNEL MSL10. **Grigory Makshev**, Kira Veley, Elizabeth Haswell

**2852-Pos BOARD B282**

FLUID SHEAR INDUCES PROARRHYTHMIC CA<sup>2+</sup> WAVE AND ALTERS ATRIAL CA<sup>2+</sup> SIGNALING: A ROLE OF AUTOCRINE ACTIVATIONS OF P2-PURINERGIC/TYPE 2 INOSITOL TRISPHOSPHATE RECEPTOR SIGNALING. Joon-Chul Kim, Ju Chen, **Sun-Hee Woo**

**2853-Pos BOARD B283**

THE DYNAMIC INTERPLAY BETWEEN CLEAVAGE FURROW PROTEINS IN CELLULAR MECHANORESPONSIVENESS. **Vasudha Srivastava**, Irina Tchernyshyov, Jennifer Van Eyk, Douglas N. Robinson

**2854-Pos BOARD B284**

EFFECTS OF PHYSICAL LOADING ON ADIPOGENIC DIFFERENTIATION IN 3T3-L1 PREADIPOCYTES. Jongyun Choi, **Jeongkun Lee**, Yeong-Min Yoo, Chi Hyun Kim

**2855-Pos BOARD B285**

CHARACTERIZATION OF BIOMECHANICAL PROPERTIES OF PRIMARY ENDOTHELIAL CELLS EXPOSED TO SHEAR STRESS. **Nickolas Boroda**, Andrew K. Wong, Pierre Llanos, Shahin Rafii, Sina Y. Rabbany

**2856-Pos BOARD B286**

REMODELING OF CAVEOLAE MEDIATES STRETCH-INDUCED INCREASE OF L-TYPE CALCIUM CURRENT IN RAT MESENTERIC ARTERY. **Kyung-Chul Shin**, Sang Woong Park, Hyunji Park, Jin-Yeon Park, Young-Sun Kang, Dong Jun Sung, Hyung-Sik Kim, Soon-Cheol Chung, Jae Gon Kim, Hana Cho, Young Min Bae

**2857-Pos BOARD B287**

MECHANOSENSITIVITY OF TRPC6 ION CHANNELS. **Yury A. Nikolaev**, Paul R. Rohde, Charles D. Cox, Derek R. Laver, Boris Martinac

**2858-Pos BOARD B288**

THE N-TERMINAL DOMAIN ACTS AS AN ANCHOR DURING THE GATING CYCLE OF MSCL. Navid Bavi, Takeshi Nomura, Qinghua Qin, **Boris Martinac**

**2859-Pos BOARD B289**

THE TENSION-ACTIVATED CHANNELS IN THE CYTOPLASMIC MEMBRANE OF VIBRIO CHOLERAEE. **Ian Rowe**, Simona Patange, Vladislav Belyy, Anthony Yasmann, Sergei Sukharev

**2860-Pos BOARD B290**

THE ELECTROPHYSIOLOGY OF MECHANOSENSITIVE CHANNELS IN PSEUDOMONAS AERUGINOSA. **Ugur Cetiner**, Sergei Sukharev, Ian Donald Rowe, Christina Mayhew, Andriy Anishkin

**2861-Pos BOARD B291**

THE N-TERMINAL DOMAIN OF BACTERIAL MECHANOSENSITIVE MSCL ACTS AS A MECHANOSENSOR: MOLECULAR DYNAMICS STUDY. **Yasuyuki Sawada**, Masahiro Sokabe

**2862-Pos BOARD B292**

SINGLE-MOLECULE FORCE-SPECTROSCOPY OF INNER EAR PROTEINS. **Mounir A. Koussa**, Wesley P. Wong, David P. Corey

**Calcium Signaling II (Boards B293-B299)**

**2863-Pos BOARD B293**

PROBING THE FUNCTIONAL COUPLING INTERFACE BETWEEN STIM1 AND ORAI1. **Xizhuo Wang**, Eunan Hendron, Yandong Zhou, Jun-Ichi Goto, Katsuhiko Mikoshiba, Yoshihiro Baba, Tomohiro Kurosaki, Youjun Wang, Donald L. Gill

**2864-Pos BOARD B294**

STIM1 AND STIM2 PROTEINS REGULATION OF ENDOGENOUS STORE-OPERATED CALCIUM CHANNELS IN HEK293 CELLS. **Alexey Shalygin**, Olga Zimina, Vera Kamaletdinova, Anton Skopin, Lyuba Glushankova, Galina N. Mozhayeva, Elena Kaznacheyeva

**2865-Pos BOARD B295**

STIM1-STIM2 INTERACTIONS MODULATE STORE-OPERATED CALCIUM ENTRY. **Krishna Subedi**, Hwei Ling Ong, Indu Ambudkar

**2866-Pos BOARD B296**

REMODELING OF THE CYTOSKELETON AND REGULATION OF STORE-OPERATED CALCIUM ENTRY. **Lorena de Souza**, Timothy Lockwich, Hwei Ling Ong, Kwong Tai Cheng, Indu S. Ambudkar

**2867-Pos BOARD B297**

A NOVEL STIM2 SPLICE VARIANT FUNCTIONS AS A BREAK FOR STIM MEDIATED ACTIVATION OF ORAI CALCIUM CHANNELS. **Anna-Maria Miederer**, Dalia Alansary, Gertrud Schwaer, Martin Jung, Barbara A. Niemeyer

**2868-Pos BOARD B298**

ROLES OF THE ORAI1 C-TERMINUS AND N-TERMINUS IN 2-APB-INDUCED STIM1 COUPLING. **Yandong Zhou**, Youjun Wang, Xizhuo Wang, Natalia A. Loktionova, Xianming Wang, Donald L. Gill

**2869-Pos BOARD B299 INTERNATIONAL TRAVEL AWARDEE**  
MENTHOL-INDUCED CHANGES IN MESENCHYMAL STEM CELL DIFFERENTIATION. Juan C. Henao, Adriana Grismaldo, **Yolima P. Torres**

## Intracellular Calcium Channels and Calcium Sparks and Waves II (Boards B300-B316)

**2870-Pos BOARD B300**

MICU1 AND MICU2 OPERATE TOGETHER TO REGULATE THE UNIPORTER. **Kimberli J. Kamer**, Vamsi K. Mootha

**2871-Pos BOARD B301**

ACTIVATION OF MITOCHONDRIAL SK CHANNELS IN CARDIOMYOCYTES DERIVED FROM HYPERTROPHIC HEARTS ATTENUATES CCA<sup>2+</sup>-DEPENDENT ARRHYTHMIA BY REDUCING MITOCHONDRIAL ROS PRODUCTION THEREBY STABILIZING RYRS. TaeYun Kim, Weiyan Li, Karim Roder, Radmila Terentyeva, Gideon Koren, Bum-Rak Choi, **Dmitry Terentyev**

**2872-Pos BOARD B302**

ALTERED RYANODINE RECEPTOR FUNCTION IN ISCHEMIC HEART DISEASE: IS THERE A ROLE FOR MITOCHONDRIA? **Demetrio J. Santiago**, Eef Dries, Ilse Lenaerts, Karin R. Sipido

**2873-Pos BOARD B303**

STATIN INDUCED MYOPATHY: A ROLE FOR MITOCHONDRIAL CA<sup>2+</sup> AND NO IN ENHANCED SARCOPLASMIC RETICULUM CA<sup>2+</sup> LEAK. **Sabine Lotteau**, David MacDougall, Derek Steele, Sarah Calaghan

**2874-Pos BOARD B304**

RIESKE IRON-SULFUR PROTEIN-DEPENDENT MITOCHONDRIAL ROS-MEDIATED DISSOCIATION OF FKBP12.6/RYR2 COMPLEX PLAYS AN ESSENTIAL ROLE IN PULMONARY HYPERTENSION. **Yong-Xiao Wang**, Yun-Min Zheng

**2875-Pos BOARD B305**

CALCIUM SIGNALING AMONG RYR2S WITHIN A CALCIUM RELEASE UNIT DURING A CALCIUM SPARK. **Didier X.P. Brochet**, Gang Wang, W. Jonathan Lederer, Heping Cheng

**2876-Pos BOARD B306**

BIOORTHOGONAL CALCIUM MODULATION BY DIRECT INTRACELLULAR ACCESS USING NANOSTRAWs. **Alexander Xu**, Amin Aalipour, Sally Kim, Nicholas Melosh

**2877-Pos BOARD B307**

EFFECTS OF ARRHYTHMOGENIC MUTATIONS ON CA<sup>2+</sup>-INDUCED CA<sup>2+</sup> RELEASE ACTIVITIES OF TYPE 2 RYANODINE RECEPTORS. **Nagomi Kurebayashi**, Takashi Murayama, Junji Suzuki, Kazunori Kanemaru, Masamitsu Iino, Takashi Sakurai

**2878-Pos BOARD B308**

DHBP BLOCK OF RYANODINE RECEPTOR CHANNELS. **Yuanzhao Lv**, Julio A. Copello

**2879-Pos BOARD B309**

FILLING THE GAP BETWEEN CALCIUM SPARKS AND WAVES: AUTOMATIC DETECTION AND CLASSIFICATION OF LOCAL CALCIUM RELEASES IN CARDIAC PACEMAKER CELLS. **Alexander V. Maltsev**, Michael D. Stern

**2880-Pos BOARD B310**

BASAL ACTIVITY OF EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) AND PHOSPHOLIPASE C (PLC) ARE REQUIRED TO SUSTAIN SPONTANEOUS BEATING OF CARDIAC PACEMAKER CELLS. **Tatiana M. Vinogradova**, Kirill V. Tarasov, Edward G. Lakatta

**2881-Pos BOARD B311**

A NEW SIMPLIFIED 3D MODEL OF CARDIAC PACEMAKER CELL BASED ON SUPERRESOLUTION STRUCTURED ILLUMINATION MICROSCOPY (SIM). **Victor A. Maltsev**, Oliver Monfredi, Hari Shroff, Andrew G. York, Anna V. Maltsev, Edward G. Lakatta, Michael D. Stern

**2882-Pos BOARD B312**

GLYCOSIDE-INDUCED COLLAPSE OF THE SODIUM AND CALCIUM GRADIENTS LEADS TO A BIPHASIC EFFECT ON CARDIAC CELL PACEMAKER FUNCTION. **Rostislav Bychkov**, Syevda Sirenko, Yael Yaniv, Victor A. Maltsev, Edward G. Lakatta

**2883-Pos BOARD B313**

AUTONOMIC STIMULATION MODULATES ACTION POTENTIAL FIRING RATE IN CARDIAC PACEMAKER CELLS VIA SYNCHRONIZATION OF LOCAL CALCIUM PUMPING AND RELEASE. **Oliver J. Monfredi**, Edward G. Lakatta, Victor A. Maltsev

**2884-Pos BOARD B314**

EXCITATION-METABOLISM COUPLING IN MOUSE HEART. **Andrew P. Wescott**, W. J. Lederer, George S. B. Williams

**2885-Pos BOARD B315**

SIMILARITIES AND DIFFERENCES IN GATING OF THE TWO-PORE CHANNELS TPC1 AND TPC2. **Archana Jha**, Malini Ahuja, Shmuel Muallem

**2886-Pos BOARD B316**

MITOCHONDRIAL CALCIUM AND BIOENERGETICS CONTROLLED BY TIGHT COORDINATION OF MCU AND NCLX. **Ming-Feng Tsai**, Chuck Phillips, Christopher Miller

## Nucleo-Cytoplasmic Transport (Boards B317-B322)

### 2887-Pos BOARD B317

OBSERVING SIGNAL TRANSDUCTION DIRECTLY AT THE SINGLE-MOLECULE LEVEL IN LIVE EUKARYOTIC CELLS.

**Adam JM Wollman**, Sviatlana Shashkova, Erik Hedlund, Stefan Hohmann, Mark C. Leake

### 2888-Pos BOARD B318

IN VIVO ANALYSIS OF PROTEIN CROWDING IN THE NUCLEAR PORE COMPLEX DURING INTERPHASE AND MITOSIS. **Hide A Konishi**, Suguru Asai, Tomonobu M Watanabe, Shige H Yoshimura

### 2889-Pos BOARD B319

MICROINJECTION OF FL-TRNA FOR THE STUDY OF TRNA SUBCELLULAR DYNAMICS. **Sean E. Anderson**, Anna Kashina, Haim H. Bau, Barry S. Cooperman

### 2890-Pos BOARD B320

INVOLVEMENT OF WATER MOLECULES IN THE FORMATION OF HYDROPHOBIC BARRIER IN THE NUCLEAR PORE COMPLEX. **Suguru Asai**, Hide A. Konishi, Shige H. Yoshimura

### 2891-Pos BOARD B321

MONITORING AND MODELING EFFECTS OF IGF1, INSULIN AND GREEN TEA COMPOUND EGCG ON NUCLEAR-CYTOPLASMIC DISTRIBUTION OF FOXO1-GFP IN SKELETAL MUSCLE FIBERS. Robert Wimmer, **Sarah Russell**, Bradford Peercy, Martin Schneider

### 2892-Pos BOARD B322

THE AUTOPHAGOSOME MARKER LC3 UNDERGOES REGULATED TARGETING TO THE NUCLEUS AND NUCLEOLUS. **Lewis J. Kraft**, Jacob Dowler, Anne K. Kenworthy

## Voltage-gated Na Channels (Boards B323-B350)

### 2893-Pos BOARD B323

RESTING STATE OF S4 IDENTIFIED FOR EACH DOMAIN OF NAV1.2 USING OMEGA CURRENT TECHNIQUE.

**Claudia Lehmann**, Hansjakob Heldstab, Nikolaus G. Greeff

### 2894-Pos BOARD B324

SELECTIVE IMMOBILIZATION OF S4 IN DOMAIN III AND IV OF RAT BRAIN NAV1.2 SHOWN BY OMEGA CURRENTS. **Nikolaus Greeff**, Hansjakob Heldstab, Claudia Lehmann

### 2895-Pos BOARD B325

VOLTAGE SENSOR DOMAINS AND CLOSED-STATE INACTIVATION IN SODIUM CHANNELS. **James R. Groome**

### 2896-Pos BOARD B326

GATING PORE CURRENTS ARE COMMON DEFECTS OF TWO NAV1.5 MUTATIONS IN PATIENTS WITH MIXED ARRHYTHMIAS AND DILATED CARDIOMYOPATHY.

**Adrien Moreau**, Pascal Gosselin-Badaroudine, Lucie Delemotte, Michael L. Klein, Mohamed Chahine

### 2897-Pos BOARD B327

INTERACTION OF THE CARDIAC SODIUM CHANNEL ALPHA-SUBUNITS LEADS TO COUPLED GATING PROPERTIES.

**Jérôme Clatot**, Haiyan Liu, Eckard Ficker, Isabelle Deschênes

### 2898-Pos BOARD B328

SUPERRESOLUTION MICROSCOPY REVEALS SODIUM CHANNEL LOCALIZATION WITHIN INTERCALATED DISK MICRODOMAINS: IMPLICATIONS FOR EPAPATIC COUPLING. **Rengasayee Veeraraghavan**, Joyce Lin, James P. Keener, Steven Poelzing, Robert G. Gourdie

### 2899-Pos BOARD B329

LOSS OF CALMODULIN-MEDIATED REGULATION OF NA<sup>+</sup> CHANNEL CAUSES REMODELING OF ELECTRICAL AND JUNCTIONAL PROTEINS; AND INDUCES DILATED CARDIOMYOPATHY IN IQ/AA<sup>+/+</sup> MICE. **Rosy Joshi-Mukherjee**, Hana Cho, Takeshi Aiba, Deborah DiSilvestre, Gordon F. Tomaselli

### 2900-Pos BOARD B330

MUTATION SPECIFIC DRUG RESPONSE AND CARDIAC RISK IN LONG QT TYPE 3. **Elsa Ronzier**, Yitschak Biton, Alessandra Matavel, Arthur Moss, Wojciech Zareba, Coeli Lopes

### 2901-Pos BOARD B331

ROTATIONAL SYMMETRY OF TWO PYRETHROID RECEPTOR SITES IN THE MOSQUITO SODIUM CHANNEL. Yuzhe Du, Yoshiko Nomura, Ke Dong, **Boris S. Zhorov**

### 2902-Pos BOARD B332

NAV1.7 INHIBITOR, PF-05089771, INHIBITS FAST- AND SLOW-INACTIVATED CHANNELS WITH SIMILAR AFFINITIES. **Jonathan Theile**, Matthew Fuller, Mark Chapman

### 2903-Pos BOARD B333

STRUCTURAL MODELING OF LOCAL ANESTHETIC BINDING TO THE PORE-DOMAIN OF HUMAN NAV1.5 IN OPEN AND CLOSED STATES USING ROSETTA. **Kevin DeMarco**

### 2904-Pos BOARD B334

UNDERSTANDING THE STATE DEPENDENCE OF VOLTAGE SENSOR TOXIN ACTION ON VOLTAGE GATED SODIUM CHANNELS. **Phuong T. Nguyen**, Ian H. Kimball, Kenneth S. Eum, Bruce E. Cohen, Jon T. Sack, Vladimir Yarov-Yarovoy

### 2905-Pos BOARD B335

TARGETING PROTEIN:PROTEIN INTERACTION SITES FOR DRUG DEVELOPMENT AGAINST VOLTAGE-GATED SODIUM CHANNELS. **Syed R. Ali**, Zhiqing Liu, Miroslav N. Nenov, Neli I. Panova-Elektro, Jia Zhou, Svetla Stoilova-McPhie, Fernanda Laezza

### 2906-Pos BOARD B336

SODIUM SELECTIVE CONDUCTION, INACTIVATION AND INHIBITION MECHANISMS USING THE BACTERIAL NAVAB CHANNEL. Céline Boiteux, Igor Vorobyov, Robert J. French, Christopher French, Vladimir Yarov-Yarovoy, **Toby W. Allen**

### 2907-Pos BOARD B337

MOLECULAR DYNAMICS SIMULATIONS DESCRIBE THE MECHANISM OF K BLOCK IN BACTERIAL NAV CHANNELS. Van Ngo, Yibo Wang, Sergei Noskov, Stephan Haas, **Robert A. Farley**

### 2908-Pos BOARD B338

MOLECULAR DYNAMICS STUDY OF ION CONDUCTION AND SELECTIVITY IN A PROKARYOTIC ION CHANNEL. **Karen M. Callahan**, Benoît Roux

### 2909-Pos BOARD B339

COUPLING OF CHANNEL FLUCTUATIONS IN ION PERMEATION AND SELECTIVITY IN BACTERIAL SODIUM CHANNEL NAVAB. **Christopher Ing**, Nilmadhab Chakrabarti, Ning Zheng, William A. Catterall, Régis Pomès



**2910-Pos BOARD B340**  
EXPRESSION, PURIFICATION, AND PRELIMINARY CHARACTERIZATION OF A HUMAN CARDIAC SODIUM CHANNEL VOLTAGE SENSING DOMAIN. **Mohammed H. Bhuiyan**, Sebastien F. Poget

**2911-Pos BOARD B341**  
A THERMODYNAMIC ANALYSIS OF DISEASE-CAUSING MUTATIONS IN THE NAV1.5 C-TERMINUS. Ching-Chieh Tung, Ricardo E. Rivera-Acevedo, **Bernd R. Gardill**, Filip Van Petegem

**2912-Pos BOARD B342**  
FUNCTIONAL CONSEQUENCES OF A NOVEL NAV1.9 MUTATION (L1302F) CAUSING CONGENITAL INSENSITIVITY TO PAIN. **Carlos G. Vanoye**, Tatiana V. Abranova, Chris C. Ramdoski, Paul Goldberg, Charles J. Cohen, Alfred L. George

**2913-Pos BOARD B343**  
INFANT SUDDEN DEATH: NOVEL MUTATIONS RESPONSIBLE FOR IMPAIRED NAV1.5 CHANNEL FUNCTION. Jace Morganstein, Kundan Jana, Monique N. Foster, Tomoe Y. Nakamura, Thomas V. McDonald, Yingying Tang, **William A. Coetzee**

**2914-Pos BOARD B344**  
BIOPHYSICAL AND MOLECULAR ANALYSIS OF THE SODIUM CURRENT IN HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES. Brian K. Panama, Robert J. Goodrow, Serge Sicouri, Charles Antzelevitch, Jacqueline A. Treat, **Jonathan M. Cordeiro**

**2915-Pos BOARD B345**  
NAV1.5 C-TERMINAL DOMAINS INFLUENCE CALCIUM REGULATION OF FAST INACTIVATION SEPARATELY FROM CALMODULIN INTERACTION. **Franck Potet**, Svetlana Stepanovic, Sabina Kupersmidt, Alfred L. George, Jr

**2916-Pos BOARD B346**  
CAMKII-DEPENDENT REGULATION OF CARDIAC SODIUM CHANNEL. **Federica Farinelli**, Deborah DiSilvestre, Peihong Dong, Yanli Tian, Gordon Tomaselli

**2917-Pos BOARD B347**  
RECRUITMENT OF CALMODULIN TO THE TAIL OF THE VOLTAGE-GATED SODIUM CHANNEL NAV1.2. **Liam Hovey**, Corinne Andresen, Dagan Marx, Madeline Shea

**2918-Pos BOARD B348**  
COUPLING COMPARTMENTAL MODELS TO LIVE NEURONS TO INVESTIGATE ACTION POTENTIAL MECHANISMS. **Marco A. Navarro**, Sarah L. Debs, Lorin S. Milesu

**2919-Pos BOARD B349**  
OPTIMIZING A NAV1.5 MARKOV-MODEL WITH A GENETIC ALGORITHM. **Zach R. Teed**, Arie Krumholtz, Jonathon R. Silva

**2920-Pos BOARD B350**  
RATE CONSTANT MODELS CANNOT DESCRIBE MOVEMENT OF CHARGED ATOMS OR MOLECULES. **Bob Eisenberg**

## Voltage-gated Ca Channels (Boards B351-B370)

**2921-Pos BOARD B351**  
TARGETING T-TYPE CHANNELS WITH PROTXII-LIKE TOXINS. **Autoosa Salari**, Mirela Milesu

**2922-Pos BOARD B352**  
ENGINEERING SELECTIVITY IN RGK PROTEIN INHIBITION OF CAV1/CAV2 CHANNELS. **Akil Puckerin**

**2923-Pos BOARD B353 INTERNATIONAL TRAVEL AWARDEE**  
VENTRICULAR L-TYPE  $Ca^{2+}$  CHANNELS AND EXPRESSION OF RGK PROTEINS IN MOUSE MODELS ASSOCIATED WITH DIABETES. **Jessica Köth**, Christian Fabisch, Stefan Herzig, Jan Matthes

**2924-Pos BOARD B354**  
INHIBITION OF HUMAN  $Ca_v2.3$  CHANNELS VIA  $\mu$ -,  $\delta$ - AND  $\kappa$ -OPIOID RECEPTOR ACTIVATION. Geza Berecki, Leonid Motin, **David J. Adams**

**2925-Pos BOARD B355**  
CONTROL OF FUNCTIONAL TARGETING OF CAV1.2 CHANNELS BY THE T6. **Roman Shirokov**, Thomas Comollo, Rose Rendon

**2926-Pos BOARD B356**  
L-TYPE  $Ca^{2+}$  CHANNEL CAVB SUBUNITS ASSOCIATE WITH AND DIFFERENTIALLY REGULATE THE CARDIAC CAV3.2 T-TYPE  $Ca^{2+}$  CHANNEL CURRENTS. **Marites T. Woon**, Ravi C. Balijepalli

**2927-Pos BOARD B357**  
HOMOLOGOUS SERINE/THREONINE IN THE  $Ca_v2.2\alpha_1$  AND  $2.3\alpha_1$  SUBUNITS BEHAVE SIMILARLY, AS STIMULATORY AND INHIBITORY PKC SITES. **Ganesan L. Kamatchi**

**2928-Pos BOARD B358**  
NOREPINEPHRINE UPREGULATES T-TYPE CALCIUM CHANNELS IN RAT PINEALOCYTES. **Haijie Yu**, Jong Bae Seo, Seung-Ryoung Jung, Duk-Su Koh, Bertil Hille

**2929-Pos BOARD B359**  
SINGLE-CHANNEL ANALYSIS OF THE INHIBITION OF THE CALCIUM DEPENDENT INACTIVATION BY THE C-TERMINAL MODULATOR DOMAIN OF CAV1.3 CHANNELS. **Elza Kuzmenkina**, Elena Novikova, Wanchana Jangsangthong, Stefan Herzig

**2930-Pos BOARD B360**  
SERUM FACTOR ALTERS T-TYPE CAV3.2 GATING KINETICS AND CURRENT DENSITY. **Gray Evans**, Slobodan M. Todorovic

**2931-Pos BOARD B361**  
CONVERGENT MODULATIONS BY CARBOXYL-TERMINI ACROSS L-TYPE CALCIUM CHANNEL SUBTYPES. **Yaxiong Yang**, Min Liu, Nan Liu, Xiaodong Liu

**2932-Pos BOARD B362**  
MODAL BIFURCATION OF CAV1.3 SIGNALING IN CORTICAL NEURONS. **Min Liu**, Yaxiong Yang, Nan Liu, Ji Tang, Xuyang Sun, Xiaodong Liu

**2933-Pos BOARD B363**  
THE EFFECT OF AUTISM CANDIDATE-GENE MUTATIONS IN THE VOLTAGE-GATED CALCIUM CHANNEL  $\beta 2$  SUBUNIT ON SINGLE CHANNEL KINETICS. **Alexandra F. Breitenkamp**, Ajay K. Singh, Vincent Mortier, Patrick Despang, Marion Brill, Elza Kuzmenkina, Stefan Herzig

**2934-Pos BOARD B364**  
DIVERGENT REGULATION OF CARDIOMYOCYTE CAV1.2 CURRENTS BY CALMODULIN MUTANTS ASSOCIATED WITH HUMAN SUDDEN DEATH SYNDROMES. **Dmytro O. Kryshnal**, Hyun S. Hwang, Christopher N. Johnson, Walter J. Chazin, Alfred L. George Jr., Bjorn C. Knollmann



**2935-Pos BOARD B365**

A PQ-CHANNEL MUTATION ASSOCIATED WITH EPILEPSY ALTERS THE VOLTAGE DEPENDENCE OF CHANNEL INACTIVATION. Ellie Dubrovina, Gabrielle Suppa, Keith Thomas, **Zafir Buraci**

**2936-Pos BOARD B366 CPOW TRAVEL AWARDEE**

$\beta 2A$  AND  $\beta 3$  DIFFERENTIALLY MODULATE TIME- AND VOLTAGE-DEPENDENT PROPERTIES OF INDIVIDUAL VOLTAGE SENSORS IN THE HUMAN CAV1.2 CHANNEL. **Nicoletta Savalli**, Daniel Sigg, Alan Neely, Riccardo Olcese

**2937-Pos BOARD B367**

THE  $\alpha 2\delta$  SUBUNIT EFFICIENTLY COUPLES VSIDS ACTIVATION TO PORE OPENING IN HUMAN CAV1.2 CHANNELS. **Nicoletta Savalli**, Antonios Pantazis, Daniel Sigg, Alan Neely, Riccardo Olcese

**2938-Pos BOARD B368 CPOW TRAVEL AWARDEE**

GENETIC ABLATION OF KLHL1 ALTERS CAV3.2 EXPRESSION IN DRG NEURONS AND MECHANICAL PAIN TRANSMISSION. **Elizabeth Martinez-Hernandez**, Yungui He, Paula P. Perissinotti, Erik Almazan, Michael D. Koobb, Erika S. Piedras-Renteria

**2939-Pos BOARD B369**

MORPHOLINO OLIGOMER PEPTIDE THERAPY IMPROVES MITOCHONDRIAL FUNCTION IN *MDX* CARDIOMYOPATHY. Victoria P. Johnstone, Abbie M. Adams, Steve D. Wilton, Sue Fletcher, **Livia C. Hool**

**2940-Pos BOARD B370**

HIGH SUSCEPTIBILITY TO NON-ALCOHOLIC FATTY LIVER DISEASE IN TWO-PORE CHANNEL 2-DEFICIENT MICE. Christian Grimm, Cheng-Chang Chen, Elisabeth Butz, Martin Biel, **Christian Wahl-Schott**

## Ion Channels, Pharmacology, and Disease (Boards B371-B400)

**2941-Pos BOARD B371**

RELEVANCE OF SARS-COV E PROTEIN ION CHANNEL ACTIVITY IN VIRUS PATHOGENESIS. **Carmina Verdiá Báguena**, José L. Nieto-Torres, Marta L. De Diego, Jose M. Jimenez-Guardeño, Jose A. Regla-Nava, Raul Fernandez-Delgado, Carlos Castaño-Rodríguez, Jaime Torres, Antonio Alcaraz, Vicente M. Aguilera, Luis Enjuanes

**2942-Pos BOARD B372**

DIVALENT COPPER COMPOUND AS INHIBITORY AGENT OF INFLUENZA A. **Kelly L. McGuire**, Nathan A. Gordon, Roger G. Harrison, David D. Busath

**2943-Pos BOARD B373**

INSIGHTS ON MOLECULAR DETERMINANTS OF HERG K<sup>+</sup> CHANNEL INHIBITION: DESIGN, SYNTHESIS, AND BIOLOGICAL EVALUATION OF LUBELUZOLE DERIVATIVES. **Roberta Gualdani**, Maria Maddalena Cavalluzzi, Francesco Tadini-Buoninsegni, Maria Rosa Moncelli, Giovanni Lentini

**2944-Pos BOARD B374**

VALIDATION OF KCA3.1 CHANNEL NIFEDIPINE INTERACTION SITE PREDICTED BY ROSETTA MODELING METHOD. **Hai M. Nguyen**, Heike Wulff, Vladimir Yarov-Yarovoy

**2945-Pos BOARD B375**

GBR-12909: POTENT BLOCKER OF PEAK AND LATE NAV1.5 CURRENTS. **Carlos Obejero-Paz**, James Kramer, Andrew Bruening-Wright, Antonio Lacerda, Arthur Brown

**2946-Pos BOARD B376**

VX-770 AND NPPB MODULATE CFTR GATING VIA DIFFERENT BUT DEPENDENT MECHANISMS. **Wen Ying Lin**, Kangyang Jih, Tzyh-chang Hwang

**2947-Pos BOARD B377**

"USE DEPENDENCE" WITHOUT A BALL AND CHAIN - INHIBITION OF BACTERIAL SODIUM CHANNELS BY  $\mu$ -CONTOXINS. Rocio K. Finol-Urdaneta, Denys McMaster, **Robert J. French**

**2948-Pos BOARD B378**

W493R GAIN OF FUNCTION MUTATION IN ATYPICAL CYSTIC FIBROSIS REWIRES THE EPITHELIAL SODIUM CHANNEL DYNAMICS. **Mahmoud Shobair**, Yan H. Dang, Hong He, Jack M. Stutts, Nikolay V. Dokholyan

**2949-Pos BOARD B379**

ROLE OF THREONINE 338 IN CFTR GATING. **Hsuan-Ting Kuo**, Tzyh-Chang Hwang

**2950-Pos BOARD B380**

PP1 ANCHORING ONTO NCX1 FACILITATES DEPHOSPHORYLATION OF P-SER68-PLM. **Tandekile Lubelwana Hafver**, Pimthanya Wanichawan, Kjetil Hodne, Jan Magnus Aronsen, Bjørn Dalhus, Marianne Lunde, Ulla Enger, Marita Mathisen, William Fuller, Ivar Sjaastad, Ole Sejersted, Cathrine Carlson

**2951-Pos BOARD B381**

THE PORE-DOMAIN OF TRPA1 MEDIATES THE INHIBITORY EFFECT OF THE ANTAGONIST 6-METHYL-5-(2-(TRIFLUOROMETHYL)PHENYL)-1H-INDAZOLE. **Hans Moldenhauer**, Ramon Latorre, Jorg Grandl

**2952-Pos BOARD B382**

PLANAR PATCH CLAMP SYSTEM CAPABLE OF RECORDING MECHANOSENSITIVE ACTIVITY OF ION CHANNELS. **Ken Takahashi**, Keiji Naruse

**2953-Pos BOARD B383**

SINGLE-CHANNEL ANALYSIS OF THE MOLECULAR PHARMACOLOGY OF THE LONG QT SYNDROME VARIANT 3. **Seth H. Robey**, Kevin J. Sampson, Robert S. Kass

**2954-Pos BOARD B384**

AUTOMATED PATCH-CLAMP PHARMACOLOGY ASSAYS USING HUMAN INDUCED PLURIPOTENT STEM CELL-DERIVED CARDIOMYOCYTES. Olaf Scheel, Stefanie Frech, **Bogdan P. Amuzescu**, Jörg Eisfeld, Kun-Han Lin, Thomas Knott

**2955-Pos BOARD B385**

PHARMACOLOGICAL CHARACTERIZATION OF NR1/NR2A AND NR1/NR2B GLUTAMATE RECEPTORS USING AN ELECTROPHYSIOLOGY BASED HTS ASSAY. **Nikolai Fedorov**, Yuri Kuryshv, Amy Wright, Zhiqi Liu, Luke Armstrong, Glenn E. Kirsch, Arthur M. Brown

**2956-Pos BOARD B386**

CHARACTERIZATION OF SMALL MOLECULE MODULATORS OF THE CYSTIC FIBROSIS TRANSMEMBRANE CONDUCTANCE REGULATOR USING BACKSCATTERING INTERFEROMETRY. **Ashley Lockwood**, David Heidary, Christopher Richards, Michael Baksh, M.G. Finn

**2957-Pos BOARD B387**

DANTROLENE INHIBITION OF RYR2 REQUIRES CALMODULIN. **Ye W. Oo**, N Gomez-Hurtado, D.F. vanHelden, M. S. Imtiaj, B.C Knollmann, D.R Laver

**2958-Pos BOARD B388**

M1 AND M2 MICROGLIA EXHIBIT SIGNIFICANT DIFFERENCES IN THEIR K<sup>+</sup> CHANNEL EXPRESSION. **Eva Melanie Grossinger**, Hai Minh Nguyen, Yi-Je Chen, Izumi Maezawa, Heike Wulff

**2959-Pos BOARD B389**

ATHEROGENIC VERY-LOW-DENSITY LIPOPROTEIN SHORTENS ATRIAL ACTION POTENTIAL DURATION BY INCREASING POTASSIUM CURRENTS AND CALCIUM TRANSIENT. **Hsiang-Chun Lee**, Chi Wei, Liang-Yin Ke, Pei-Shang Tsai, Hsin-Ting Lin, Yi-Lin Shiao, Bin-Nan Wu, Chu-Huang Chen, Sheng-Hsiung Sheu

**2960-Pos BOARD B390**

NEW INSIGHT INTO THE INVOLVEMENT OF LARGE-CONDUCTANCE CALCIUM-ACTIVATED-POTASSIUM-CHANNEL(BK) IN CELL VIABILITY: PATHOPHYSIOLOGICAL IMPLICATIONS IN NEUROMUSCULAR DISORDERS. **Angela Curci**, Antonietta Mele, Giulia Maria Camerino, Diana Conte, Domenico Tricarico

**2961-Pos BOARD B391**

LONG-TERM MODULATION OF ION CHANNELS BY ALDOSTERONE IN ADULT RAT ATRIAL MYOCYTES. **Erick B. Rios-Perez**, Maricela García-Castañeda, Guillermo Avila

**2962-Pos BOARD B392**

THE ANTI-PROLIFERATIVE EFFECT OF CATION CHANNEL BLOCKERS ON T LYMPHOCYTES STIMULATED BY ANTI-CD3 AND ANTI-CD28. **Zoltan Varga**, Zoltan Petho, Andras Balajthy, Adam Bartok, Sandor Somodi, Orsolya Szilagyi, Gyorgy Panyi

**2963-Pos BOARD B393**

PROTON CHANNELS ARE PRESENT IN CELL MEMBRANES OF THE BREAST CANCER CELL LINE MDA MB 231 AND AFFECT RECOVERY FROM AN ACID LOAD. **Deri Morgan**, Patrick McIntire, Vladimir Cherny, Susan Smith, Boris Musset, Thomas DeCoursey

**2964-Pos BOARD B394**

TOK1 POTASSIUM CHANNELS IN PHYTOPATHOGENIC FUNGI. **William R. Manville**, Andrew Corran, Anthony Lewis

**2965-Pos BOARD B395**

KCA1.1 (BK) CHANNELS ON FIBROBLAST-LIKE SYNOVIOCYTES: A NOVEL THERAPEUTIC TARGET FOR RHEUMATOID ARTHRITIS. Mark R. Tanner, **Zoltan Petho**, Rajeev B. Tajhya, Redwan Huq, Frank T. Horrigan, Percio S. Gulco, Christine Beeton

**2966-Pos BOARD B396**

KIDNEY CLC-K CHLORIDE CHANNELS INHIBITORS: DEFINITION OF NOVEL STRUCTURAL REQUIREMENTS AND EFFICACY IN CLC-K POLYMORPHISM ASSOCIATED WITH HYPERTENSION. **Paola Imbrici**, Antonella Liantonio, Giuseppe Fracchiolla, Giuseppe Carbonara, Maria Maddalena Dinardo, Michael Pusch, Diana Conte

**2967-Pos BOARD B397**

COMPUTATIONAL STUDIES ON BLADDER SMOOTH MUSCLE: MODELING ION CHANNELS AND THEIR ROLE IN GENERATING ELECTRICAL ACTIVITY. **Chitaranjan Mahapatra**, Rohit Manchanda

**2968-Pos BOARD B398**

MODELING NEUROLOGICAL DISEASE WITH HUMAN IPS CELL-DERIVED NEURONS CONTAINING A KCNT1 MUTATION. **Kile P. Mangan**, Michael McLachlan, Tom Burke, Benjamin Meline, Nathan Meyer, Lucas Chase, Brad Swanson, Coby B. Carlson, Susan DeLaura, Eugenia Jones

**2969-Pos BOARD B399**

NOVEL MUTATION OF SCN1A IN A GERMAN FAMILY PRESENTING WITH BOTH HEMIPLEGIC MIGRAINE AND EPILEPSY. **Chunxiang Fan**, Frank Lehmann-Horn, Karin Jurkat-Rott

**2970-Pos BOARD B400 INTERNATIONAL TRAVEL AWARDEE**

POSSIBLE ROLE OF STIM1 SENSOR SIGNAL IN MEMORY LOSS CONNECTED WITH FAMILIAL ALZHEIMER'S DISEASE. **Maria Ryazantseva**, Ksenia Skobeleva, Anna Goncharova, Nikolai Kamyshev, Elena Kaznachejeva

## Skeletal Muscle Mechanics, Structure, and Regulation (Boards B401-B428)

**2971-Pos BOARD B401**

DIRECT ASSESSMENT OF SKELETAL MUSCLE CONTRACTILE STRENGTH IN LIVE WILDTYPE AND R6FOX MORPHANT ZEBRAFISH LARVAE. **Brit L. Martin**, Tom L. Gallagher, Neha Rastogi, Christine E. Beattie, Sharon L. Amacher, Paul M. L. Janssen

**2972-Pos BOARD B402**

ZEBRAFISH MYOFILAMENTS AND THEIR ASSEMBLIES ARE GOOD STRUCTURAL MODELS FOR STUDYING DISEASE MUTATIONS. Fa-Qing Zhao, John L. Woodhead, **Roger Craig**

**2973-Pos BOARD B403**

IMPROVED IMAGING, 3D RECONSTRUCTION AND HOMOLOGUE MODELING OF TARANTULA THICK FILAMENTS. **Shixin Yang**, Fa-Qing Zhao, Guidenn Sulbarán, John L. Woodhead, Lorenzo Alamo, Antonio Pinto, Raúl Padrón, Roger Craig

**2974-Pos BOARD B404**

SPECTROSCOPIC STUDIES OF THE SUPER-RELAXED STATE OF SKELETAL MUSCLE. Leonardo Nogara, Nariman Naber, Edward Pate, Marcella Canton, Carlo Reggiani, **Roger Cooke**

**2975-Pos BOARD B405**

X-RAY DIFFRACTION FROM INSECT FLIGHT MUSCLE FIBERS WITH EXCHANGED CONTRACTILE PROTEINS. **Hiroyuki Iwamoto**, Naoto Yagi

**2976-Pos BOARD B406**

THE M-LINE PROTEIN OBSCURIN IN THE DEVELOPMENT OF INSECT FLIGHT MUSCLE. Anja Katzemich, Kevin Leonard, Sean Sweeney, John Sparrow, **Belinda Bullard**

**2977-Pos BOARD B407**

SARCOLEMMAL BIOMECHANICS AND EXCITABILITY IN MALFORMED MUSCLE FIBERS OF DYSTROPHIC MICE. Karla P. Garcia-Pelagio, Erick O. Hernández-Ochoa, Stephen J.P. Pratt, Kathleen Twomey, **Richard M. Lovering**

**2978-Pos BOARD B408 CPOW TRAVEL AWARDEE**

MIR181A TARGETS THE 3'UTR OF MG29, A MUSCLE-SPECIFIC SYNAPTOPHYSIN FAMILY GENE, FOR DOWN-REGULATION OF MG29 EXPRESSION IN DYSTROPHIC SKELETAL MUSCLE. **Feng Jin**, Kyoung-Han Choi, Jae-Kyun Ko, Ki-Ho Park, Chao Cheng, Xiaoli Yao, Zhenguo Liu, Jianjie Ma, Hua Zhu

**2979-Pos BOARD B409**

CALCIUM SENSITIVITY AFTER ACTIVE SHORTENING IN RABBIT PSOAS FIBRES. **Venus Joumaa**, Walter Herzog

**2980-Pos BOARD B410**

FORCE TRANSIENTS DURING STRETCH OF MYOFIBRILS ACTIVATED WITH MGADP. **Fabio C. Minozzo**, Dilson E. Rassier

**2981-Pos BOARD B411**

PASSIVE FORCE ANALYSIS OF SINGLE SARCOMERES FROM MUSCLES LACKING ARGINYL-TRNA-PROTEIN TRANSFERASE (ATE1). **Felipe de Souza Leite**, Fabio C. Minozzo, Neal Trecarten, Xuemei Han, John R. Yates, Anna Kashina, Dilson E. Rassier

**2982-Pos BOARD B412**

DIRECT EVIDENCE FOR THE EFFECT OF TITIN STIFFNESS ON THICK-FILAMENT MECHANICAL PROPERTIES IN STRETCHED MUSCLE SARCOMERES. Yong Li, **Wolfgang A. Linke**

**2983-Pos BOARD B413**

RESIDUAL FORCE ENHANCEMENT IN CARDIAC MYOFIBRILS. **Kevin R. Boldt**, Venus Joumaa, Walter Herzog

**2984-Pos BOARD B414**

THE EFFECTS OF TITIN DEGRADATION ON PASSIVE STIFFNESS PROPERTIES OF SKINNED RABBIT PSOAS FIBERS DURING OSMOTIC COMPRESSION. **Ian C. Smith**, Walter Herzog

**2985-Pos BOARD B415**

ELEVATED IONIC STRENGTH DIMINISHES FORCE/CROSS-BRIDGE AND THE NUMBER OF FORCE-GENERATING CROSS-BRIDGES. Li Wang, Anzel Bahadir, **Masataka Kawai**

**2986-Pos BOARD B416**

FORMATION OF THE MOTOR PROTEIN-PHOTOCHROMIC ADP ANALOGUE-FLUOROMETAL TERNARY COMPLEX AND PHOTO-REVERSIBLE TRANSITION ALONG THE STEPS IN ATPASE CYCLE. **Akihisa Iwata**, Takeshi Itaba, Mitsuo Ohmori, Shinya Mitsuhashi, Shinsaku Maruta

**2987-Pos BOARD B417**

BACKBONE ORIENTATION AND DISTANCE MEASUREMENTS IN MYOSIN II: APPLICATIONS OF HIGH-RESOLUTION EPR USING A BIFUNCTIONAL SPIN LABEL. **Benjamin P. Binder**, Andrew R. Thompson, Sinziana Cornea, Rebecca J. Moen, David D. Thomas

**2988-Pos BOARD B418**

POST-TRANSLATIONAL MODIFICATION OF TUBULIN AMPLIFIES X-RS SIGNALING IN STRIATED MUSCLE. **Jaclyn P. Kerr**, Benjamin L. Prosser, Guoli Shi, Patrick Robison, Aaron M. Kempema, Joseph K. Hexum, Daniel A. Harki, Stuart S. Martin, Roberto Raiteri, Christopher W. Ward

**2989-Pos BOARD B419**

RELOADING INJURY, CHRONIC RECOVERY, AND FIBER TYPE ADAPTION OF MOUSE SOLEUS MUSCLE AFTER FOUR WEEKS OF HIND LIMB SUSPENSION. **Hanzhong Feng**, Moh H. Malek, Xue-Qun Chen, Jian-Ping Jin

**2990-Pos BOARD B420**

MINIMUM AND MAXIMUM LIMIT TO NUMBER OF MYOSIN II MOTORS PARTICIPATING IN AN ENSEMBLE MOTILITY. **Khushboo Rastogi**, Shabeel Hamnaf, Vikas Pandey, Sunil Nath, Ravikrishnan Elangovan

**2991-Pos BOARD B421**

MUSCLE SHORTENING VELOCITY IS MODULATED BY ALTERNATIVE MYOSIN CONVERTERS. **Christopher S. Newhard**, Bernadette M. Glasheen, Debra Sheppard, Lauren Riley, Douglas M. Swank

**2992-Pos BOARD B422**

ACTOMYOSIN REGULATION BY CONSERVED SITES OF TM5NM1 (TPM3.1), A NONMUSCLE TROPOMYOSIN. **Bipasha Barua**, Sarah E. Hitchcock-DeGregori

**2993-Pos BOARD B423**

THE BINDING OF S1A1-ADP TO SKELETAL THIN FILAMENTS IS INSENSITIVE TO THE PRESENCE OF COVALENTLY BOUND PHOSPHATE IN TROPOMYOSIN. **David H. Heeley**, Charitha L. Goonasekara, White D. Howard

**2994-Pos BOARD B424**

THE FUNCTIONAL CONSEQUENCES OF HYPERTROPHIC CARDIOMYOPATHY TROPONIN C MUTATIONS IN THE REGULATION OF SLOW SKELETAL MUSCLE CONTRACTION: THE PROTECTIVE ROLE OF SLOW SKELETAL TROPONIN I. Tiago Veltri, Clara A. Michell, Maicon Landim, David Dweck, **Jose R. Pinto**

**2995-Pos BOARD B425**

STRUCTURAL AND FUNCTIONAL CHANGES IN SKELETAL MUSCLES IN AN A8V-TROPONIN C HYPERTROPHIC CARDIOMYOPATHY KNOCK-IN MOUSE MODEL. Milica Vukmirovic, Marcos Angel Sanchez-Gonzalez, Gregory S. Frye, Andrew Koutnik, **David A. Gonzalez**, Edda Ruiz, Eric Krivensky, David Dweck, Leonardo F. Ferreira, Jose Renato Pinto

**2996-Pos BOARD B426**

MODELLING THE CALCIUM DEPENDENT ACTIN-MYOSIN ATP-ASE CYCLE IN SOLUTION. Srbojub M. Mijailovich, Djordje Nedic, Marina Svicevic, Boban Stojanovic, **Michael Geeves**

**2997-Pos BOARD B427**

EFFECT OF ACTIN AND NUCLEOTIDE ON THE MOVEMENT OF A1-TYPE MYOSIN ESSENTIAL LIGHT CHAIN, DETECTED BY TIME-RESOLVED FRET. **Piyali Guhathakurta**, Ewa Prochniewicz, David D. Thomas

**2998-Pos BOARD B428**

SYSTEMATIC VARIATIONS IN FAST-TYPE MYOSIN LIGHT CHAIN 1 SEQUENCE CORRELATE WITH SPECIES BODY MASS. **Peter J. Reiser**, Sabahattin Bicer

## Cardiac Muscle Regulation II (Boards B429-B444)

**2999-Pos BOARD B429**

CARDIAC OVER-EXPRESSION OF CREATINE KINASE IMPROVES FUNCTION IN FAILING MYOCYTES. **Carlo G. Tocchetti**, Michelle Leppo, Yibin Wang, Robert G. Weiss, Nazareno Paolucci

**3000-Pos BOARD B430**

ACUTE ABLATION OF CARDIAC MYOSIN LIGHT CHAIN KINASE DECREASES CARDIAC PERFORMANCE. **Audrey N. Chang**, Pavan Battiprolu, Joseph A. Hill, Kristine E. Kamm, James T. Stull

**3001-Pos BOARD B431**

CARDIAC REMODELING IN THE MOUSE MODEL OF MARFAN SYNDROME DEVELOPS INDEPENDENTLY FROM AORTIC AND VALVULAR ABNORMALITIES. **Natalia Petrashevskaya**, Hyun-Jin Tae, Shanon Marshall, Melissa Krawczyk, Mark Talan

**3002-Pos BOARD B432**

TRANSGENIC OVER-EXPRESSION OF CARBONIC ANHYDRASE III IN CARDIAC MUSCLE DEMONSTRATES A MECHANISM TO RESIST ACIDOSIS. **Hanzhong Feng**, Jian-Ping Jin



**3003-Pos BOARD B433**

MYOCARDIAL INTERSTITIAL SEROTONIN AND ITS MAJOR METABOLITE, 5-HYDROXYINDOLE ACETIC ACID LEVELS DETERMINED BY MICRODIALYSIS TECHNIQUE IN IN VIVO RAT HEART. **Cheng-Kun Du**, Dong-Yun Zhan, Tsuyoshi Akiyama, Takashi Sonobe, Tadakatsu Inagaki, Mikiyasu Shirai

**3004-Pos BOARD B434**

THE TREATMENT BENEFIT OF GHRELIN ON A MOUSE MODEL OF INHERITED DILATED CARDIOMYOPATHY CAUSED BY TROPONIN MUTATION. **DongYun Zhan**, ChengKun Du, Sachio Morimoto, Tsuyoshi Akiyama, Daryl O Schwenke, Hiroshi Hosoda, Kenji Kangawa, Mikiyasu Shirai

**3005-Pos BOARD B435**

THE CARDIAC TROPONIN T MUTANT MISSING THE N-TERMINAL EXTENSION CAUSES DOSE-DEPENDENT EFFECTS ON CARDIAC FUNCTION AND REMODELING IN TRANSGENIC MICE. Sampath K. Gollapudi, Joseph Maricelli, **John J. Michael**, O. Lynne Nelson, Dan B. Rodgers, Murali Chandra

**3006-Pos BOARD B436 EDUCATION TRAVEL AWARDEE**

FUNCTIONAL EFFECTS OF THE H1-HELIX OF RAT CARDIAC TROPONIN T ON CROSSBRIDGE DETACHMENT RATE IS DIFFERENTLY MODULATED BY  $\alpha$ - AND  $\beta$ -MYOSIN HEAVY CHAIN ISOFORMS. **John J. Michael**, Murali Chandra

**3007-Pos BOARD B437**

ENGINEERING CARDIAC TROPONIN C: POTENTIAL THERAPEUTIC FOR HEART FAILURE. **Vikram Shettigar**, Sean C. Little, Bo Zhang, Jianchao Zhang, Steve Roof, Zhaobin Xu, Elizabeth A. Brundage, Brandon J. Biesiadecki, Noah Weisleder, Paul Janssen, Mark T. Ziolo, Jonathan P. Davis

**3008-Pos BOARD B438**

MODELING THE RESPONSE OF CARDIAC TROPONIN C TO CALCIUM ON THE THIN FILAMENT: EFFECTS OF DISEASE-RELATED AND POST-TRANSLATIONAL MODIFICATIONS. **Jalal K. Siddiqui**, Bin Liu, Shane D. Walton, Vikram K. Shettigar, Andrew J. O'Neil, Grace A. Davis, Peeyush Shrivastava, Jonathan P. Davis

**3009-Pos BOARD B439**

THE CONTRIBUTION OF MYOSIN BINDING PROTEIN-C AND TROPONIN I PHOSPHORYLATION TO THE  $\beta$ -ADRENERGIC ACCELERATION OF LEFT VENTRICULAR CONTRACTION AND RELAXATION. **Kenneth S. Gresham**, Julian E. Stelzer

**3010-Pos BOARD B440**

MOLECULE SPECIFIC EFFECTS OF PKA-MEDIATED PHOSPHORYLATION ON MYOFIBRILLAR FUNCTION. **Laurin M. Hanft**, Brandon J. Biesiadecki, Craig A. Emter, Kerry S. McDonald

**3011-Pos BOARD B441**

LENGTH-DEPENDENT CONTRACTILE DYNAMICS ARE BLUNTED UPON ABLATION OF CARDIAC MYOSIN BINDING PROTEIN-C. **Ranganath Mamidi**, Kenneth S. Gresham, Julian E. Stelzer

**3012-Pos BOARD B442**

CARDIAC TROPONIN I SER-23/24 AND TYR-26 PHOSPHORYLATION CROSSTALK. **Hussam E. Salhi**, Shane D. Walton, Nathan C. Hassel, Elizabeth A. Brundage, Pieter P. de Tombe, Paul M.L. Janssen, Jonathan P. Davis, Brandon J. Biesiadecki

**3013-Pos BOARD B443**

CARDIAC MYOSIN ESSENTIAL LIGHT CHAIN N-TERMINUS REGULATES MOTOR STEP-SIZE. Yihua Wang, Katalin Ajtai, Katarzyna Kazmierczak, Danuta Szczesna-Cordary, **Thomas P. Burghardt**

**3014-Pos BOARD B444**

HUMAN IPS CELL-DERIVED CARDIOMYOCYTES CARRYING MHC-R403Q EXHIBIT ASPECTS OF HYPERTROPHIC CARDIOMYOPATHY IN VITRO. **Eugenia Jones**, Coby B. Carlson, Chad Koonce, Natsuyo Aoyama, Jun Wang, Benjamin Meline, Steven J. Kattman, Blake Anson

**Cytoskeletal-based Intracellular Transport (Boards B445-B449)****3015-Pos BOARD B445**

CONTROL OF THE INITIATION AND TERMINATION OF KINESIN-1-DRIVEN TRANSPORT BY MYOSIN-IC AND NON-MUSCLE TROPOMYOSIN. **Betsy B. McIntosh**, Erika L.F. Holzbaur, E. Michael Ostap

**3016-Pos BOARD B446**

VISUALIZING MELANOSOME TRANSFER IN VIVO. **John A. Hammer**, Xufeng S. Wu

**3017-Pos BOARD B447**

THE EFFECTS OF WILD-TYPE AND DISEASE-LINKED TAU MUTANTS ON CARGO TRANSPORT IN CELLS. Dezhi Yu, Stuart Feinstein, **Megan T. Valentine**

**3018-Pos BOARD B448**

ENVIRONMENTAL INFLUENCE ON MICROTUBULE-BASED BIDIRECTIONAL CARGO TRANSPORT. **Sarah Klein**, Cecile Appert-Rolland, Ludger Santen

**3019-Pos BOARD B449**

A SINGLE-MOLECULE VIEW ON KINESIN MOTOR-PROTEIN COOPERATION IN INTRAFAGELLAR TRANSPORT IN LIVING C. ELEGANS. Bram Prevo, Pierre J.J. Mangeol, Felix Oswald, Jonathan M. Scholey, **Erwin J.G. Peterman**

**Bacterial Mechanics, Cytoskeleton, and Motility (Boards B450-B467)****3020-Pos BOARD B450**

COLONIZATION, COMPETITION, AND DISPERSAL OF PATHOGENS IN FLUID FLOW NETWORKS. **MinYoung Kevin Kim**, Albert Siryaporn, Yi Shen, Zemer Gitai, Howard A. Stone

**3021-Pos BOARD B451**

SPATIAL REGULATORS FOR BACTERIAL CELL DIVISION SELF-ORGANIZE INTO AN OSCILLATOR ON A FLAT BILAYER. **Anthony Vecchiarelli**, Ling Chin Hwang, Min Li, Yeonee Seol, Michiyo Mizuuchi, Keir Neuman, Kiyoshi Mizuuchi

**3022-Pos BOARD B452**

POSITIVE REGULATION MECHANISM IN LOCALIZING CELL DIVISION PROTEINS IN ESCHERICHIA COLI. Matthew W. Bailey, **Jaan Männik**

**3023-Pos BOARD B453**

CELL DIVISION REGULATORS MINC AND MIND FORM POLYMERS IN THE PRESENCE OF NUCLEOTIDE. **Joseph Conti**, Marissa Viola, Jodi Camberg

**3024-Pos BOARD B454**

SUPERRESOLUTION INVESTIGATION OF THE E. COLI CELL DIVISION RING DURING CONSTRICTION. **Carla Coltharp**, Jie Xiao



**3025-Pos BOARD B455**  
BACTERIAL GROWTH AND SHAPE REGULATION BY EXTERNAL COMPRESSION. **Fangwei Si**, Bo Li, Sean X. Sun

**3026-Pos BOARD B456**  
DISSECTING THE MECHANISM OF TYPE VI SECRETION SYSTEM EFFECTOR DELIVERY BY FLUORESCENCE CROSS-CORRELATION MICROSCOPY. **Jacqueline Corbitt**, Michele LeRoux, Robin Kirkpatrick, Joseph Mougous, Paul A. Wiggins

**3027-Pos BOARD B457**  
ROLE OF FUMARATE IN THE OPERATION OF THE BACTERIAL FLAGELLAR MOTOR. Jyoti Sharma, Vidhu Soman, Ravikrishnan Elangovan, **Sunil Nath**

**3028-Pos BOARD B458**  
A GTPASE DEFICIENT FTSZ MUTANT ASSEMBLES INEFFICIENTLY AND IMPAIRS CYTOKINESIS IN BACILLUS SUBTILIS CELLS. Hemendra PS Dhaked, Anusri Bhattacharya, Saroj Yadav, **Dulal Panda**

**3029-Pos BOARD B459**  
BACTERIAL MOTILITY MEASURED BY A MINIATURE CHAMBER FOR HIGH-PRESSURE MICROSCOPY. **Masayoshi Nishiyama**, Seiji Kojima

**3030-Pos BOARD B460**  
BACTERIAL FLAGELLAR SWITCHING: HIDDEN MARKOV STEPS REVEALED. **Henry G. Zot**, Javier E. Hasbun, Nguyen Van Minh

**3031-Pos BOARD B461**  
MECHANICAL STRESS CHANGES THE MOVEMENTS AND ORGANIZATION OF BIOFILM-ASSOCIATED BACTERIA. **David J. Lemon**, Xingbo Yang, Pragya Srivastava, M. Cristina Marchetti, Anthony Garza

**3032-Pos BOARD B462**  
ATOMIC FORCE MICROSCOPE SPECTROSCOPY: PROGRESS TOWARD ANTIBIOTIC RESISTANCE AND BIOFILM STUDIES. **Mehrdad M. Tajkarimi**, Albert M. Hung, Scott H. Harrison, Joseph L. Graves

**3033-Pos BOARD B463**  
DEPLETION-MEDIATED PATTERN FORMATION IN A GROWING BACTERIAL COLONY. **Pushpita Ghosh**, Jagannath Mondal, Eshel Ben-Jacob, Herbert Levine

**3034-Pos BOARD B464**  
BACTERIAL CHEMOTACTIC TUMBLE ANGLES REDUCE BACKTRACKING AND MAXIMIZE INFORMATION GATHERING. **Jan H. Hoh**, William F. Heinz

**3035-Pos BOARD B465**  
ANTIBODIES CHANGE THE MECHANICS OF ADHESION FIMBRIAE - A CASE STUDY OF CS20 FIMBRIAE EXPRESSED BY ENTEROTOXIGENIC ESCHERICHIA COLI. **Narges Mortezaei**, Bhupender Singh, Bernt Eric Uhlin, Stephen J. Savarino, Esther Bullitt, Magnus Andersson

**3036-Pos BOARD B466**  
SINGLE CELL DYNAMICS DRIVE TURBULENT FLOW IN THE COLLECTIVE MOTION OF BACTERIA. **Alex Hamby**, Charles Wolgemuth

**3037-Pos BOARD B467**  
COUPLING SCHEME OF THE ROTARY MOTOR THERMOPHILIC F1. **Kengo Adachi**, Kazuhiro Oiwa, Masasuke Yoshida, Kazuhiko Kinoshita, Jr.

## Energy Transduction, Electron and Proton Transfer, and Light Harvesting (Boards B468-B485)

**3038-Pos BOARD B468**  
EXPLORING THE STAPHYLOCOCCUS EPIDERMIDIS RESPIRATORY CHAIN. **Cristina Uribe Alvarez**, Natalia Chiquete-Félix, Salvador Uribe-Carvajal, Antonio Peña

**3039-Pos BOARD B469**  
NEW PERSPECTIVES ON QUINOL BINDING MOTIFS AT THE BC1 COMPLEX BASED ON MD SIMULATIONS. **Angela M. Barragan**, Abhishek Singharoy, Anthony R. Crofts, Klaus Schulten, Ilia A. Solov'yov

**3040-Pos BOARD B470**  
GLUTATHIONE S-TRANSFERASE KAPPA 1 KNOCKDOWN EXACERBATES COMPLEX-III-MEDIATED ROS PRODUCTION IN H9C2 CARDIAC CELLS. **Kyriakos N. Papanicolaou**, Agnieszka Sidor, Jasma Rucker, Brian O'Rourke, D.Brian Foster

**3041-Pos BOARD B471**  
EVALUATION OF HEME PERIPHERAL GROUPS INTERACTIONS IN LOW-DIELECTRIC CONSTANT MEDIA. Jose F. Cerda, **Alaina T. Stockhausen**, Nicolette D. Wilkes, Kathleen R. Silva, Allyson R. Langley, Mary C. Malloy, Brady O. Werkheiser

**3042-Pos BOARD B472**  
THEORETICAL INVESTIGATION OF THE PRIMARY EVENT IN PROTEORHODOPSIN ACTIVATION. **Choongkeun Lee**, Blake Mertz

**3043-Pos BOARD B473**  
THE ELECTRON TRANSFER IN FERREDOXINS. **Kelly N. Tran**, Toshiko Ichiye

**3044-Pos BOARD B474**  
INTERNAL SWITCHES MODULATING ELECTRON FLOW IN BC1 COMPLEX. **Muhammad A. Hagra**, Alexei A. Stuchebrukhov

**3045-Pos BOARD B475**  
ENERGETICS OF LATERAL MEMBRANE PROTON DIFFUSION. **Ewald Weichselbaum**, Denis Knyazev, Peter Pohl

**3046-Pos BOARD B476**  
ASSESSING THE PROTONATION STATE AND DYNAMICS OF HIS37 IN THE INFLUENZA M2 PROTON CHANNEL USING RAMAN SPECTROSCOPY. **Michael D. Tentilucci**, Matthew G. Romei, Casey H. Londergan

**3047-Pos BOARD B477**  
EFFECTS OF LASER SPOT SIZES IN LASER DRIVEN PROTON THERAPY. Tung-Chang Liu, Xi Shao, Chuan-Sheng Liu, **Catherine Zhuang**, Bengt Eliasson, Jyhpyng Wang, Shih-Hung Chen

**3048-Pos BOARD B478**  
CHARACTERIZATION OF EXCITED STATE ETHENO-FAD: A PROBE OF THE ROLE OF ADENINE IN DNA PHOTOLYASE. **Kimberly Jacoby**, Vijay R. Singh, Madhavan Narayanan, Robert J. Stanley

**3049-Pos BOARD B479**  
HIGH-RESOLUTION ELECTRONIC STRUCTURE OF THE PRIMARY ELECTRON ACCEPTOR A0 OF PHOTOSYSTEM I. **Stuart Smith**, Jaya Tripathi, Sergey Milikisiyants, Sijie Hao, John H. Golbeck, K.V. Lakshmi

**3050-Pos BOARD B480**

ENVIRONMENTAL COUPLING AND POPULATION DYNAMICS IN THE PE545 LIGHT-HARVESTING COMPLEX. Mortaza Aghar, Johan Strümpfer, Klaus Schulten, **Ulrich Kleinekathöfer**

**3051-Pos BOARD B481**

THE CO-ASSEMBLY OF COLLAGEN-MIMETIC PEPTIDES AND NATURAL PROTEINS. **Kenneth N. McGuinness**, Kathryn E. Drzewiecki, Michael J. Kopka, Arpita A. Patel, Robert A. Niederman, David I. Shreiber, Vikas Nanda

**3052-Pos BOARD B482**

STUDYING THE STRUCTURAL AND ELECTRONIC CONFIGURATIONS DURING PHOTOCATALYTIC ACTIVATION OF O<sub>2</sub> AT A DIIRON(II) COMPLEX. **Dooshaye Moonshiram**, Ally Aukauloo, Frederic Avenier, Steve Southworth, Carl Lehmann, Antonio Picon

**3053-Pos BOARD B483**

PROGRAMMING NANOPHOTONIC MATERIALS WITH DNA. **Étienne Boulais**, Wei Sun, Nicolas Sawaya, Yera Hakobyan, Weili Wang, Amy Guan, Keyao Pan, Alan Aspuru-Guzik, Peng Yin, Mark Bathe

**3054-Pos BOARD B484**

EPR AND X-RAY SPECTROSCOPY CHARACTERIZATION OF REPORTED MONO-RUTHENIUM WATER SPLITTING CATALYSTS. **Vatsal Purohit**, Dooshaye Moonshiram, Lifan Yan, Igor Alperovich, Yulia Pushkar

**3055-Pos BOARD B485**

PHOTOSYNTHESIS IN A SINGLE PROTEIN. **Eskil M. Andersen**, Ronald L. Koder, Andrew C. Mutter

## Mitochondria in Cell Life and Death (Boards B486-B514)

**3056-Pos BOARD B486**

NEW FLUORESCENCE PROBES FOR VISUALIZING CELL STRUCTURES AND FUNCTION. **Yuning Hong**

**3057-Pos BOARD B487**

MONITORING MITOCHONDRIAL MEMBRANE POTENTIAL WITH MITOVIEW 633: A NEW MOLECULAR PROBE. Jarod Benowitz, Qince Li, KahYong Goh, Chih-Chang Wei, **Lufang Zhou**

**3058-Pos BOARD B488**

BIOPHYSICAL AND BIOCHEMICAL PROPERTIES OF THE LARGE CONDUCTANCE POTASSIUM CHANNEL IN FIBROBLAST MITOCHONDRIA. **Piotr Bednarczyk**, Anna Kicińska, Wiesława Jarmuskiewicz, Adam Szewczyk

**3059-Pos BOARD B489**

IDENTIFICATION OF THE ATP REGULATED POTASSIUM CHANNEL IN MITOCHONDRIA OF FIBROBLAST CELLS. **Adam Szewczyk**, Piotr Bednarczyk, Anna Kicińska, Wiesława Jarmuskiewicz

**3060-Pos BOARD B490**

SUPPRESSION OF DYNAMIN-RELATED PROTEIN 1 BY EICOSAPENTAENOIC ACID AMELIORATES PALMITATE-INDUCED LIPOTOXICITY IN DIFFERENTIATED H9C2 MYOCYTES. **Atsushi Sakamoto**, Masao Saotome, Terumori Satoh, Daishi Nonaka, Tsuyoshi Urushida, Hideki Katoh, Hiroshi Satoh, Hideharu Hayashi

**3061-Pos BOARD B491**

CARDIOLIPIN REORGANIZATION AND PHASE TRANSITION INDUCED BY DYNAMIN-RELATED PROTEIN 1 FACILITATES MITOCHONDRIAL MEMBRANE FISSION. Natalia Stepanyants, Patrick Macdonald, **Rajesh Ramachandran**

**3062-Pos BOARD B492**

VDAC3 FORMS TYPICAL VOLTAGE-GATED, ANION-SELECTIVE, AND TUBULIN-SENSITIVE CHANNELS. **Oscar Tejjido Hermida**, Adam J. Kuszak, Susan K. Buchanan, Sergey M. Bezrukov, Tatiana K. Rostovtseva

**3063-Pos BOARD B493**

CHANNELING OF MITOCHONDRIAL ENERGY IN CARDIAC AND CANCER CELLS BY THE METABOLICALLY-DEPENDENT OUTER MEMBRANE POTENTIAL. **Victor V. Lemeshko**

**3064-Pos BOARD B494**

ALPHA-SYNUCLEIN BLOCKS VDAC SUGGESTING MECHANISM OF MITOCHONDRIAL REGULATION AND TOXICITY IN PARKINSON DISEASE. **Philip A. Gurnev**, Tatiana K. Rostovtseva, David P. Hoogerheide, Olga Protchenko, Thai Leong Yap, Jennifer C. Lee, Sergey M. Bezrukov

**3065-Pos BOARD B495**

MITOCHONDRIAL DNA: THE HEART OF THE MATTER. **Meagan McManus**, Martin Picard, Alessia Angelin, Prasanth Potluri, Jagat Narula, Douglas Wallace

**3066-Pos BOARD B496**

ACTIVATION OF THE MITOCHONDRIAL PERMEABILITY TRANSITION PORE LEADS TO THE INCREASE IN AMOUNT OF C-SUBUNIT OF ATP SYNTHASE ASSOCIATED WITH CHANNEL-FORMING COMPLEX OF POLYHYDROXYBUTYRATE AND INORGANIC POLYPHOSPHATE. **Pia A. Elustondo**, Alexander Negoda, Alejandro M. Cohen, Evgeny Pavlov

**3067-Pos BOARD B497**

SMALL-MOLECULE PKD INHIBITOR PREVENTS MITOCHONDRIAL FRAGMENTATION AND DYSFUNCTION DURING GQ-PROTEIN COUPLED RECEPTOR STIMULATION IN CARDIAC CELLS. **Bong Sook Jhun**, Xiaole Xu, Jyotsna Mishra, Stephen Hurst, Jin O-Uchi, Shey-Shing Sheu

**3068-Pos BOARD B498**

EPR DATA SUPPORT THE EXISTENCE OF A SYMMETRIC BH<sub>3</sub>-IN-GROOVE HOMODIMER IN OLIGOMERIC BAK. **Tirtha Mandal**, Kyoung Joon Oh

**3069-Pos BOARD B499**

MODULATION OF MEMBRANE INTERACTIONS OF ANTI-APOPTOTIC REGULATOR BCL-XL BY LIPIDS. Mauricio Vargas-Urbe, Mykola V. Rodnin, **Alexey S. Ladokhin**

**3070-Pos BOARD B500**

BINDING OF PRO-APOPTOTIC PROTEIN BAX TO CYTOPROTECTIVE UDCA AND TUDCA. Tânia Sousa, Ana Coutinho, Soojay Banerjee, Rui Castro, Richard Youle, Cecília Rodrigues, Manuel Prieto, **Fábio Fernandes**

**3071-Pos BOARD B501**

MAC INHIBITORS NEUTRALIZE THE PRO-APOPTOTIC EFFECTS OF TBID. **Pablo M. Peixoto**, Oscar H. Tejjido, Laurent M. Dejean, Evgeny Pavlov, Bruno Antonsson, Kathleen W. Kinnally

**3072-Pos BOARD B502**

TYROSINE PHOSPHORYLATION OF MITOCHONDRIAL CA<sup>2+</sup> UNIPORTER REGULATES MITOCHONDRIAL CA<sup>2+</sup> UPTAKE. **Jin O-Uchi**, Stephen Hurst, Jyotsna Mishra, Xiaole Xu, Bong Sook Jhun, Shey-Shing Sheu

**3073-Pos BOARD B503**

CARDIOPROTECTIVE ROLES OF NEURONAL  $Ca^{2+}$  SENSOR-1 DURING STRESS. **Tomoe Y. Nakamura-Nishitani**, Shu Nakao, Shigeo Wakabayashi

**3074-Pos BOARD B504**

INITIATION OF ELECTRON TRANSPORT ACTIVITY AND A DECREASE OF OXIDATIVE STRESS OCCUR SIMULTANEOUSLY DURING EMBRYONIC HEART DEVELOPMENT. Gisela Beutner, **George A. Porter, Jr.**

**3075-Pos BOARD B505 CPOW TRAVEL AWARDEE**

THE STOICHIOMETRY BETWEEN MICU1 AND MCU DETERMINES THE DIFFERENT MITOCHONDRIAL  $Ca^{2+}$  UPTAKE PHENOTYPES IN HEART AND LIVER. **Melanie Paillard**, György Csordás, Tünde Golenár, Cynthia Moffat, Erin Seifert, György Hajnóczky

**3076-Pos BOARD B506**

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

**3077-Pos BOARD B507**

REACTIVE OXYGEN SPECIES (ROS) SUPPRESS MITOCHONDRIAL MOTILITY. **Valentina Debattisti**, Masao Saotome, Sudipto Das, György Hajnóczky

**3078-Pos BOARD B508**

MIRO1 IS DISPENSABLE FOR CALCIUM-MEDIATED INHIBITION OF MITOCHONDRIAL MOVEMENT. **David B. Weaver**, Agnieszka Lewandowska, Tammy T. Nguyen, Valentina Debattisti, Janet M. Shaw, György Hajnóczky

**3079-Pos BOARD B509**

MITOCHONDRIAL FUSION DYNAMICS IN THE HEART. **Veronica Eisner**, Ryan Cupo, Erhe Gao, György Csordás, Lan Cheng, Jessica Ibeti, J. Kurt Chuprun, Walter J. Koch, György Hajnóczky

**3080-Pos BOARD B510**

MECHANISTIC CHARACTERIZATION OF THE THIOREDOXIN SYSTEM IN THE REMOVAL OF HYDROGEN PEROXIDE. **Venkat R. Pannala**, Ranjan K. Dash

**3081-Pos BOARD B511**

HIGHER MITOCHONDRIAL MEMBRANE POTENTIAL INDUCES ROS PRODUCTION IN THE FAMILIAR FORM OF FRONTOTEMPORAL DEMENTIA WITH MAPT MUTATIONS. **Noemi Esteras Gallego**, Selina Wray, Elisavet Preza, Andrey Y. Abramov

**3082-Pos BOARD B512 INTERNATIONAL TRAVEL AWARDEE**

THE OVEREXPRESSION OF SUPEROXIDE DISMUTASE 1 RESTORES GROWTH DEFECT IN A PORIN1-LESS YEAST STRAIN AND IMPROVES MITOCHONDRIAL METABOLISM. **Andrea Magri**, Simona Reina, Flora M. Tomasello, Maria C. Di Rosa, Angela Messina, Vito De Pinto

**3083-Pos BOARD B513**

THE ROLE OF COMPLEX I IN MITOCHONDRIAL REACTIVE OXYGEN SPECIES FORMATION IN COCHLEAR SENSORY AND SUPPORTING CELLS DURING OTOTOXIC AMINOGLYCOSIDE EXPOSURE. **Danielle Desa**, Michael G. Nichols, Heather Jensen Smith

**3084-Pos BOARD B514**

MITOCHONDRIAL IRON AND SPHINGOSINE SYNERGIZE INITIATION OF HEPATOCYTE DEATH BY AUGMENTING OXIDATIVE STRESS. **Sergei A. Novgorodov**, Tatyana I. Gudzh, Andaleb Kholmukhamedov, Raymond Deepe, John J. Lemasters

**Cellular Signaling and Metabolic Networks (Boards B515-B530)****3085-Pos BOARD B515**

GUARDIAN FUNCTION OF MITSUGUMIN 53 IN CELL MEMBRANE REPAIR AND METABOLIC SYNDROME. **Hanley Ma**, Jason Liu, Zehua Bian, Yuqi Cui, Xinyu Zhou, Xuefeng Zhou, Bo Zhang, Timothy M. Adesanya, Ki Ho Park, Hua Zhu

**3086-Pos BOARD B516**

NON-INVASIVE INTEROGATION OF SIGNALING ACTIVATED GENE REGULATION. **Gregor Neuert**

**3087-Pos BOARD B517**

MONTE CARLO SIMULATION OF WNT PROPAGATION BY A NOVEL TRANSPORT MECHANISM COMPLEMENTING A JOINT EXPERIMENTAL STUDY. **Claude Sinner**, Eliana Stanganello, Anja I.H. Hagemann, Benjamin Mattes, Dana Meyen, Sabrina Weber, Erez Raz, Steffen Scholpp, Alexander Schug

**3088-Pos BOARD B518**

A GENETICALLY-ENCODED FRET SENSOR BASED ON AMP-ACTIVATED PROTEIN KINASE REPORTS ALLOSTERIC KINASE ACTIVATION. **Uwe Schlattner**, Martin Pelosse, Imre Berger

**3089-Pos BOARD B519**

INTEGRATED OMIC ANALYSIS OF A GUINEA PIG MODEL OF HEART FAILURE AND SUDDEN CARDIAC DEATH. **D. Brian Foster**, Ting Liu, Robert N. O'Meally, C. Conover Talbot Jr., Robert N. Cole, Brian O'Rourke

**3090-Pos BOARD B520**

CELLULAR SIGNALING NETWORKS FUNCTION AS GENERALIZED WIENER-KOLMOGOROV FILTERS TO SUPPRESS NOISE. **Michael Hinczewski**, Devarajan Thirumalai

**3091-Pos BOARD B521**

TO GROW IS NOT ENOUGH: THE IMPACT OF CELL RESPONSE TIME ON FITNESS. **Nash Rochman**, Fangwei Si, Sean Sun

**3092-Pos BOARD B522**

BCL-2 OVEREXPRESSION STIMULATES GLYCOLYSIS AND LACTIC FERMENTATION IN A BAX-DEPENDENT FASHION. Bushra Mahmood, Jessica Wilson, Miriam Ahmad, Patricia Olino, Justin King, **Laurent Dejean**

**3093-Pos BOARD B523**

HUMAN ADIPOSE CELL RESPONSE TO INSULIN: ANALYSIS OF CELLULAR SWITCH-LIKE TRANSFORMATIONS AND DISTRIBUTIONS. Vladimir A. Lizunov, **Paul S. Blank**, Karin G. Stenkula, Monica Skarulis, Samuel Cushman, Joshua Zimmerberg

**3094-Pos BOARD B524**

ACCELERATING SYSTEMS BIOLOGY COMPUTATION: ENHANCED SAMPLING OF SPATIALLY REALISTIC STOCHASTIC MODELS USING THE WEIGHTED ENSEMBLE APPROACH. **Rory Donovan**

**3095-Pos BOARD B525**

ACCUMULATIONS AND ENERGY RECYCLING PATHWAY IN *P. FALCIPARUM* GAMETOCYTE-INFECTED HUMAN ERYTHROCYTES. **Fuyuki Tokumasu**, Takeshi Q. Tanaka, Suzumi Tokuoka, Daichi Nakatani, Shin-ichiro Kawazu, Kiyoshi Kita

**3096-Pos BOARD B526**

PHOTO-REGULATION OF THE INTERACTION BETWEEN RAS AND RALGDS USING GTP ANALOGUES COMPOSED OF PHOTOCHROMIC MOLECULES. Kaori Masuhara, Seigo Iwata, Nobuhisa Umeki, **Shinsaku Maruta**



**3097-Pos BOARD B527**  
PHENOTYPIC PROPERTIES OF SCAFFOLD-BASED SIGNALING PARADIGMS. **Ryan Suderman**, Addison Schauer, Eric J. Deeds

**3098-Pos BOARD B528**  
GLUCOSE-INDUCED CYCLIC-AMP OSCILLATIONS: MODELING INCRETIN IMPACT ON PANCREATIC BETA CELL SECRETION. **Bradford E. Peercy**, Richard Bertram, Arthur Sherman

**3099-Pos BOARD B529**  
MODELING HER2 INHIBITION IN BREAST CANCER CELLS. **Marc Y. Fink**, Danni Zhou

**3100-Pos BOARD B530**  
NONCANONICAL NEUROTRANSMISSION AT THE NEUROMUSCULAR JUNCTION. **Huinan Li**, Mark Lee Harlow

## Magnetic Resonance Spectroscopy, Imaging, and EPR Spectroscopy (Boards B531-B542)

**3101-Pos BOARD B531**  
MULTI-COMPONENT WATER DYNAMICS AND EXCHANGE IN BRAIN CORTICAL TISSUE PROBED VIA IN-VITRO D-T2 2D CORRELATION NMR. **Ruiliang Bai**, Peter J. Basser

**3102-Pos BOARD B532 EDUCATION TRAVEL AWARDEE**  
PROBING THE SECONDARY STRUCTURE OF MEMBRANE PROTEINS WITH THE PULSED EPR TECHNIQUE: ELECTRON SPIN ECHO ENVELOPE MODULATION (ESEEM). **Lishan Liu**, Gary Lorigan

**3103-Pos BOARD B533**  
SPIN-LABELED UNI-LAMELLAR VESICLES AS AN OXYGEN SENSITIVE ANALYTE FOR MEASUREMENT OF CELLULAR RESPIRATION USING RAT DOPAMINERGIC NEURONAL CELLS. **Laxman Mainali**, Jason W. Sidabras, Theodore Camenisch, Jeannette Vasquez-Vivar, James Hyde, Witold K. Subczynski

**3104-Pos BOARD B534**  
PROBING THE PROTEIN-PROTEIN INTERACTIONS BETWEEN KCNQ1 AND KCNE1 USING ELECTRON PARAMAGNETIC RESONANCE (EPR) SPECTROSCOPY. **Andrew F. Craig**, Indra D. Sahu, Rongfy Zhang, Megan M. Dunagan, Kunkun Wang, Robert M. McCarrick, Gary A. Lorigan

**3105-Pos BOARD B535**  
CHARACTERIZATION OF A BIFUNCTIONAL SPIN LABEL FOR THE STRUCTURE AND DYNAMICS OF A MEMBRANE PROTEIN USING CW-EPR SPECTROSCOPY. **Lauren M. Bottorf**, Indra D. Sahu, Lishan Liu, Gary A. Lorigan

**3106-Pos BOARD B536**  
EPR SPECTROSCOPIC STUDY OF THE VOLTAGE-SENSOR DOMAIN (VSD) OF THE HUMAN KCNQ1 POTASSIUM ION CHANNEL. **Indra D. Sahu**, Brett M. Kroncke, Megan M. Dunagan, Rongfu Zhang, Andrew Craig, Kunkun Wang, Avnika Bali, Robert M. McCarrick, Charles R. Sanders, Gary A. Lorigan

**3107-Pos BOARD B537**  
COMBINING SINGLE CRYSTAL ELECTRON PARAMAGNETIC RESONANCE AND X-RAY CRYSTALLOGRAPHY TO STUDY THE ORIENTATION AND DYNAMICS OF MTSSL SPIN LABELS IN T4 LYSOZYME. **Phillipp Consentius**, Bernhard Loll, Ulrich Gohlke, Thomas Risse

**3108-Pos BOARD B538**  
UNCERTAINTY QUANTIFICATION IN DEER SPECTROSCOPY USING BAYESIAN STATISTICAL INVERSION METHODS. **Thomas H. Edwards**, Stefan Stoll

**3109-Pos BOARD B539**  
CHARACTERIZATION OF CALMODULIN BINDING TO THE RYANODINE RECEPTOR BY SOLUTION AND SOLID-STATE NMR. **Sarah E. Nelson**, Tata Gopinath, David D. Thomas, Gianluigi Veglia

**3110-Pos BOARD B540**  
CONFINED SPACE, STRUCTURAL BIOLOGY, BIOPHYSICS AND DRUG DISCOVERY. **Brian Fuglestad**, Christine Jorge, Bryan Marques, Nathaniel V. Nucci, Evan O'Brien, Kathleen G. Valentine, A. Joshua Wand

**3111-Pos BOARD B541**  
SARA: A SOFTWARE ENVIRONMENT SUPPORTING RAPID ACQUISITION AND ANALYSIS OF NMR RELAXATION RATES WITH ACCORDION SPECTROSCOPY. **Bradley J. Harden**, Dominique P. Frueh

**3112-Pos BOARD B542**  
THE STRUCTURE AND FUNCTION OF SUPRAMOLECULAR SELF-ASSEMBLING BINARY GUANOSINE GELS. **Alexander Bruening**, Stuart Smith, Linda B. McGown, K. V. Lakshmi

## Electron Microscopy, Diffraction, and Scattering Techniques (Boards B543-B559)

**3113-Pos BOARD B543**  
CRYO-ELECTRON TOMOGRAPHY AND SUB-TOMOGRAM AVERAGING OF ISOLATED Z-DISCS FROM HONEYBEE FLIGHT MUSCLE. Mara Rusu, Dianne Taylor, Kenneth Taylor, **John Trinick**

**3114-Pos BOARD B544**  
LABEL-FREE MOLECULAR OBSERVATIONS OF MEMBRANE-ASSOCIATED SPECIES USING BACKSCATTERING INTERFEROMETRY. **Michael M. Baksh**, Ashley Lockwood, Christopher Richards, M.G. Finn, David Heidary

**3115-Pos BOARD B545**  
STABILIZED, NON-FOULING TRANSMISSION ELECTRON MICROSCOPY GRID COATINGS FOR THE SELECTIVE CAPTURE OF HIS-TAG T7 VIRUS AND HIS-TAG GRO EL FROM CELL LYSATES. **Christopher J. Benjamin**, Kyle J. Wright, Seok-Hee Hyun, David H. Thompson

**3116-Pos BOARD B546**  
SCANNING TRANSMISSION ELECTRON TOMOGRAPHY OF BLOOD PLATELETS IN THICK SECTIONS. **Jake D. Hoyne**, Gina N. Calco, Bryan C. Kuo, Maria A. Aronova, Alioscka A. Sousa, Qianping He, Guofeng Zhang, Irina D. Pokrovskaya, Laura MacDonald, Andrew A. Prince, Brian Storrie, Richard D. Leapman

**3117-Pos BOARD B547**  
THREE-DIMENSIONAL MICROSTRUCTURAL VISUALIZATION OF MITOSIS USING FOCUSED ION BEAM-SCANNING ELECTRON MICROSCOPE (FIB-SEM) AND 3MV ULTRA-HIGH VOLTAGE ELECTRON MICROSCOPE (UHVEM) TOMOGRAPHY WITH NANOSCALE RESOLUTION AT WHOLE CELL LEVEL. **Atsuko H. Iwane**, Keisuke Ohta



## Optical Spectroscopy: CD, UV-VIS, Vibrational, Fluorescence (Boards B560-B588)

### 3118-Pos BOARD B548

REGULATION OF MYOSIN VI STUDIED BY ELECTRON MICROSCOPY. **Dario Saczko-Brack**, Heike Ellrich, Christine Werner, Christopher Batters, Claudia Veigel

### 3119-Pos BOARD B549

THE STERIC FINE STRUCTURE OF MAURER'S CLEFT IN "UNROOFED" PLASMIDIUM FALCIPARUM-INFECTED ERYTHROCYTES. **Eri H. Hayakawa**, Fuyuki Tokumasu, Jiro Usukura, Hiroyuki Matsuoka, Takafumi Tsuboi, Thomas E. Wellem

### 3120-Pos BOARD B550

TOWARDS FEMTOSECOND ELECTRON DIFFRACTION OF PROTEINS - TECHNICAL CHALLENGES AND SAMPLE PREPARATION STRATEGIES. **Henrike M. Mueller-Werkmeister**, Daniel Badali, Oliver P. Ernst, R. J. Dwayne Miller

### 3121-Pos BOARD B551

DEVELOPMENT OF CRYO-ELECTRON MICROSCOPY SAMPLE PREPARATION FOR THE EXAMINATION OF NANOBUBBLE. Xi Zhan, **Lige Tonggu**, Mo Li, Ligu Wang

### 3122-Pos BOARD B552

TIME-RESOLVED CRYO-EM STUDY OF RIBOSOME SUBUNIT ASSOCIATION BY MIXING-SPRAYING. Bo Chen, **Sandip Kaledhonkar**, Ming Sun, Bingxing Shen, Ruben L. Gonzalez, Joachim Frank

### 3123-Pos BOARD B553

A COMPUTATIONAL MODELING OF MACROMOLECULAR ENSEMBLE CONFORMATION AND BLURRING IN CRYO EM. Bijan Afsari, **Jin Seob Kim**, Gregory Chirikjian

### 3124-Pos BOARD B554

A COMPUTATIONAL MODELING OF MACROMOLECULAR ASSEMBLIES IN SAXS. **Jin Seob Kim**, Bijan Afsari, Gregory S. Chirikjian

### 3125-Pos BOARD B555

SUB-SURFACE SERIAL BLOCK FACE SCANNING ELECTRON MICROSCOPY. Qianping He, Maria A. Aronova, David C. Joy, Guofeng Zhang, **Richard D. Leapman**

### 3126-Pos BOARD B556

FIXED PATH LENGTH SAMPLE HOLDERS ENABLE ROBUST CRYOSAXS MEASUREMENTS FROM SUB-MICROLITER SAMPLE VOLUMES. **Andrea M. Katz**, Jesse B. Hopkins, Steve P. Meisburger, Matthew A. Warkentin, Robert E. Thorne, Lois Pollack

### 3127-Pos BOARD B557

3D DYNAMICAL OBSERVATIONS OF SINGLE MOLECULE MOTIONS BY X-RAYS, ELECTRON AND NEUTRON. **Yuji C. Sasaki**, Keigo Ikezaki, Kouhei Ichianagi, Hiroshi Sekiguchi, Naoto Yagi

### 3128-Pos BOARD B558

ACCURATE DETERMINATION OF TAUTOMERIC/ PROTONATION STATES IN QUANTUM-MECHANIC DRIVEN MACROMOLECULAR CRYSTALLOGRAPHIC REFINEMENT. **Oleg Y. Borbulevych**, Lance M. Westerhoff

### 3129-Pos BOARD B559

TRANSMISSION X-RAY IMAGING DETECTOR CAPTURES THE LAST LIGHT AT NSLS. **Jen Bohon**, Erik M. Muller, Wenxiang Ding, Mengjia Gaowei, Tianyi Zhou, John Smedley

### 3130-Pos BOARD B560

MOLECULAR MOBILITY IN AMORPHOUS SUCROSE FILMS MONITORED BY RIBOFLAVIN PHOSPHORESCENCE - POTENTIAL APPLICATIONS IN EDIBLE/BIODEGRADABLE FILMS. **Yan L. Wang**, Maria G. Corradini, Richard D. Ludescher

### 3131-Pos BOARD B561

IMPROVING FAR UV CIRCULAR DICHROISM CALCULATIONS OF PEPTIDES AND PROTEINS WITH THE DIPOLE INTERACTION MODEL. **Akongnwi C. Jungong**, Jenna Soukup, Tsvetan Aleksandrov, Rahul Nori, Emma Miller, Igor Uporov, Kathryn A. Thomasson

### 3132-Pos BOARD B562

DETECTION AND IDENTIFICATION OF AMINO ACIDS IN FICOLL SOLUTIONS WITH FEMTOSECOND LASER-INDUCED BREAKDOWN SPECTROSCOPY. Poopalasingam Sivakumar, Yury Markushin, Elton Jhamba, Zakaria MRah, Leon A. Taleh, Angel Fernandez, Nouredine Melikechi, **Hacene Boukari**

**3133-Pos BOARD B563** MINORITY AFFAIRS TRAVEL AWARDEE  
FLUORESCENCE ANISOTROPY MEASUREMENTS OF FLUOROSCEIN MIXED WITH FICOLL SOLUTIONS.

**Elton Jhamba**, Zakaria M'Rah, Yuriy Markushin, Nouredine Melikechi, Hacene Boukari

### 3134-Pos BOARD B564

DEVELOPMENT OF A QUANTUM-MECHANICAL ANALYSIS OF STARK EFFECTS OF PORPHYRINS EMPLOYED AS SENSORS OF INTERNAL ELECTRIC FIELDS IN BIOLOGICAL SYSTEMS. **Hannah E. Wagie**, Jorg C. Woehl, Peter Geissinger

### 3135-Pos BOARD B565

MD+QM INVESTIGATIONS OF THE LENGTH SCALE AND FORCEFIELD DEPENDENCE OF THE TIME DEPENDENT FLUORESCENT STOKES SHIFT OF WILD TYPE STAPHYLOCOCCAL NUCLEASE AND CHARGE MUTANTS. **J. Nathan Scott**, Patrik R. Callis

### 3136-Pos BOARD B566

DETECTING COUNTERFEIT PHARMACEUTICALS THROUGH UV SPECTROPHOTOMETRY. **Gabriela Figueroa**, Luis A. Palacio, Bruce D. Ray, Horia I. Petrache, Alfredo Lopez-Yunez

### 3137-Pos BOARD B567

HYPERSPECTRAL ANALYSIS OF LAURDAN EMISSION SPECTRA IN RED BLOOD CELLS AND GIANT UNILAMELLAR VESICLES. **Catherine Leonard**, Abdelmounaim Errachid, Julie Daubie, Didier Beghuin, Pierre-Jacques Courtois, Marie-Paule Mingeot-Leclercq, Donatienne Tyteca

### 3138-Pos BOARD B568

DETECTION OF INTERACTIONS OF INOSITOL PHOSPHOLIPIDS WITH ION CHANNELS. **Felix Chin**, Anoop Saxena, Feng Qin, Ping-Chin Cheng

### 3139-Pos BOARD B569

FOOD COLORS AS INTRINSIC LUMINESCENT SENSORS IN EDIBLE PRODUCTS. **Sarah M. Waxman**, Ariella Kashi, Adam Karami, Meera Patel, Maria G. Corradini, Richard Ludescher

**3140-Pos BOARD B570**  
 PROBING THE INTERNAL AND EXTERNAL STRUCTURE OF CARBON NANODOTS THROUGH FLUORESCENCE QUENCHING. **Rachel Taylor**, Jan Karolin, Chris Geddes

**3141-Pos BOARD B571**  
 FLUORESCENCE STUDIES OF A LONG LIFETIME FLUOROPHORE, ADOTA IN SILICA AND PVA THIN FILMS. **Rahul Chib**, Sangram Raut, Sunil Shah, Beata Grobelna, Irina Akopova, Ryan Rich, Thomas Just Sørensen, Bo W. . Laursen, Zygmunt Gryczynski, Ignacy Gryczynski

**3142-Pos BOARD B572**  
 A COMPARISON OF PHOTOPHYSICAL CHARACTERISTICS OF RHDL ENCAPSULATED ANTI-CANCER DRUG VALRUBICIN AND FREE VALRUBICIN. **Sunil Ajit Shah**, Rahul Chib, Sangram Raut, Jaclyn Bermudez, Nirupama Sabnis, Divya Duggal, Andras Lacko, Zygmunt Gryczynski, Ignacy Gryczynski

**3143-Pos BOARD B573**  
 SPECTRAL DISTORTIONS IN METAL-ENHANCED FLUORESCENCE. **Jan O. Karolin**, Hilla Ben Hamo, Chris D. Geddes

**3144-Pos BOARD B574**  
 ULTRASENSITIVE DETECTION ALLOWS FOR SINGLET OXYGEN PHOSPHORESCENCE DETECTION, AN IMPORTANT PREREQUISITE FOR PHOTODYNAMIC THERAPY. **Marcelle Koening**, Manoel Veiga, Sebastian Tannert, Felix Koberling, Volker Buschmann, Matthias Patting, Marcus Sackrow, Michael Wahl, Rainer Erdmann, Peter Kapusta, Christian Wolf, Christian Kaufmann, Humberto Rodriguez

**3145-Pos BOARD B575**  
 ACCOUNTING FOR PHOTOPHYSICAL PROCESSES AND SPECIFIC SIGNAL INTENSITY CHANGE IN FLUORESCENCE-DETECTED SEDIMENTATION VELOCITY ANALYTICAL ULTRACENTRIFUGATION. **Huaying Zhao**, Jia Ma, Maria Ingaramo, Eric Andrade, Jeff MacDonald, Glen Ramsay, Grzegorz Piszczek, George Patterson, Peter Schuck

**3146-Pos BOARD B576**  
 SEDIMENTATION VELOCITY ANALYSIS OF THE EGFPs IN E.COLI WHOLE CELL EXTRACTS USING FLUORESCENCE DETECTION SYSTEM. **Jia Ma**, Huaying Zhao, Peter Schuck

**3147-Pos BOARD B577**  
 TWO-COLOR IMAGING USING SPECTRAL VARIANTS OF IRFP670 AND IRFP682 NEAR-INFRARED FLUORESCENT PROTEINS. **Mikhail Baloban**, Daria M. Shcherbakova, Vladislav V. Verkhusha

**3148-Pos BOARD B578**  
 TUNING THE PHOTOPHYSICAL PROPERTIES OF THE GREEN FLUORESCENT PROTEIN WITH UNNATURAL AMINO ACIDS. **Gregory M. Olenginski**, Christine M. Phillips-Piro, Scott H. Brewer

**3149-Pos BOARD B579**  
 USE OF THE METHYL ESTER OF A FLUORESCENT UNNATURAL AMINO ACID TO FACILITATE SITE-SPECIFIC INCORPORATION OF FLUORESCENT PROBES IN PROTEINS. **Joshua R. Berlin**, William Lopez, Mohit R. Jain, Jorge E. Contreras

**3150-Pos BOARD B580**  
 DITHIOAMIDE PEPTIDES AND PROTEINS: SYNTHESIS AND APPLICATION TO TRACKING PROTEIN CONFORMATIONAL CHANGES BY FLUORESCENCE SPECTROSCOPY. **Yun Huang**

**3151-Pos BOARD B581**  
 PARALLELS BETWEEN ENZYME ACTION AND TRYPTOPHAN FLUORESCENCE BRIGHTNESS IN PROTEINS. **Pedro L. Muíño**, Patrik R. Callis

**3152-Pos BOARD B582**  
 INVESTIGATION OF E. COLI HEPTOSYLTRANSFERASE I DYNAMICS. **Joy M. Cote**

**3153-Pos BOARD B583**  
 THE ROLE OF CHAPERONE PROTEINS IN CATARACT AGGREGATION: A TWO-DIMENSIONAL INFRARED STUDY. **Tianqi O. Zhang**, Martin T. Zanni

**3154-Pos BOARD B584**  
 DEVELOPMENT OF A VIBRATIONAL HYDRATION RULER. **Elise Tookmanian**, Edward Fenlon, Scott Brewer

**3155-Pos BOARD B585**  
 THE EFFECT OF SELENIUM TREATMENT ON-DIABETIC-INDUCED STRUCTURAL VARIATIONS IN THE MOLECULES OF RAT KIDNEY PLASMA MEMBRANE. **Rafiq Gurbanov**, Sherif Abbas, Mehmet Bilgin, Feride Severcan

**3156-Pos BOARD B586 INTERNATIONAL TRAVEL AWARDEE**  
 A NOVEL METHOD FOR EARLY DIAGNOSIS OF MALIGNANT PLEURAL MESOTHELIOMA FROM HUMAN SERUM SAMPLES: ATR-FTIR SPECTROSCOPY. **Dilek Yonar**, Abdulsamet Sandal, Salih Emri, Feride Severcan

**3157-Pos BOARD B587**  
 INVESTIGATION OF GENDER EFFECT ON OBESITY USING A MODEL OF INBREED OBESE MOUSE LINES BY FOURIER TRANSFORM INFRARED IMAGING. **Fatma Kucuk Baloglu**, Gudrun Brockmann, Sebastian Heise, Sebnem Garip, Feride Severcan

**3158-Pos BOARD B588**  
 MEASURING THE DISTRIBUTION OF TAURINE MOLECULE INSIDE BIOLOGICAL TISSUE VIA INTRINSIC MOLECULAR VIBRATIONS USING NONLINEAR RAMAN SPECTROSCOPY. **Masahiko Kawagishi**, Yuki Obara, Takayuki Suzuki, Masumi Hayashi, Kazuhiko Misawa, Sumio Terada

## Bioengineering (Boards B589-B611)

**3159-Pos BOARD B589**  
 THE ALPHA BETA REARRANGEMENT OF THE ASP-GLY SEQUENCE. Kazuki Koda, **Kazuki Koda**

**3160-Pos BOARD B590**  
 PHOTO-REGULATION OF SMALL G PROTEIN NORMAL AND ONCOGENIC K-RAS USING PHOTOCROMIC MOLECULES. **Seigo Iwata**, Kaori Masuhara, Nobuhisa Umeki, Kazunori Kondo, Shinsaku Maruta

**3161-Pos BOARD B591**  
 HARNESSING THE DYNAMICAL MOVEMENT OF OMPG LOOPS FOR PROTEIN SENSING. Monifa Fahie, Christina Chisholm, **Min Chen**

**3162-Pos BOARD B592**  
 MULTICOLOR MONOMERIC NEAR-INFRARED FLUORESCENT PROTEINS. **Daria M. Shcherbakova**, Mikhail Baloban, Vladislav V. Verkhusha

**3163-Pos BOARD B593**  
DESIGN AND CHARACTERIZATION OF FORCE-SENSITIVE DNA ORIGAMI COMPONENTS. **Yi Luo**, Michael W. Hoduba, Michael G. Poirier, Carlos E. Castro

**3164-Pos BOARD B594**  
REMODELING PROTEIN INTERFACES TO REGULATE RECOGNITION. **James R. Horn**, Megan L. Murtaugh, Sean W. Fanning, Christopher A. Smith, Dionne H. Griffin

**3165-Pos BOARD B595**  
A CONTINUOUS-FLOW C. ELEGANS SORTING SYSTEM WITH INTEGRATED OPTICAL FIBER DETECTION AND LAMINAR FLOW SWITCHING. **Nitish Thakor**, Yuanjun Yan, Li Fang Ng, Li Theng Ng, Kwan Bum Choi, Jan Gruber, Andrew Bettiol

**3166-Pos BOARD B596**  
DISCOVERING EMERGENT BEHAVIOR OF HOST-MICROBIOME INTERACTIONS WITH BIOMIMETIC ROBOTICS. **Keith C. Heyde**, Warren C. Ruder

**3167-Pos BOARD B597**  
REGULATION OF CELL FUNCTION VIA EXTRACELLULAR BIOPHYSICAL ENVIRONMENT: A THEORETICAL-EXPERIMENTAL APPROACH. **Toloo Taghian**, Abdul Sheikh, Daria Narmoneva, Andrei Kogan

**3168-Pos BOARD B598**  
MECHANOBIOLOGY OF MRNA LOCALIZATION IN BREAST CANCER CELLS. **Susan M. Hamilla**, Stavroula Mili, Helim Aranda-Espinoza

**3169-Pos BOARD B599**  
MECHANICS OF OPTIC VESICLE MORPHOGENESIS IN THE CHICK EMBRYO. **Seyedhadi Hosseini**, Larry Taber

**3170-Pos BOARD B600**  
CELL-FREE EXPRESSION SYSTEMS: FROM GENE CIRCUITS TO SELF-ASSEMBLY PROCESSES IN A TEST TUBE. Ryan Marshall, Mark Rustad, Jonathan Garamella, **Vincent Noireaux**

**3171-Pos BOARD B601**  
INCREASING TARGETING AND EFFICACY OF ANTI-TUMOR ANTIBODY. **Justin McKetney**, Rebecca Kerr, Edward J. Collins

**3172-Pos BOARD B602**  
EXPLORING BIOLOGICALLY BASED MALNOURISHMENT THROUGH A GUT-ON-A-CHIP APPROACH. **Eric S. Parigoris**, Kyle B. Justus

**3173-Pos BOARD B603**  
DEVELOPING A MICROFLUIDIC DEVICE FOR ADENOVIRAL TRANSFECTION OF PANCREATIC ISLETS. Pamuditha N. Silva, Zaid Atto, Uilki Tufa, Dawn M. Kilkenny, **Jonathan V. Rocheleau**

**3174-Pos BOARD B604**  
POLYPEPTIDES FOR BIO-TETHERING AND SELF-ASSEMBLY OF LITHIUM ION BATTERY ELECTRODES. **Alex Winton**

**3175-Pos BOARD B605**  
SHOCKING THE WORLD OF BATTERIES: A BIO-INSPIRED APPROACH TO ELECTRODE CONSTRUCTION. **Scott J. Riley**

**3176-Pos BOARD B606**  
MICRO- AND NANO-CHAMBER ARRAY CHIPS FOR A SINGLE MOLECULE ANALYSIS. **Noritada Kaji**

**3177-Pos BOARD B607**  
DECODING LONG NANOPORE READS OF BACTERIOPHAGE PHI X 174. **Andrew H. Laszlo**, Ian M. Derrington, Brian C. Ross, Henry Brinkerhoff, Andrew C. Adey, Ian C. Nova, Jon M. Craig, Kyle W. Langford, Jenny Mae Samson, Riza Daza, Kenji Doering, Jay Shendure, Jens H. Gundlach

**3178-Pos BOARD B608**  
A SYSTEMATIC METHOD FOR DESIGNING DNA NANOSTRUCTURE ASSEMBLY PROCESSES. **John Zenk**, Chanon Tuntivate, Rebecca Schulman

**3179-Pos BOARD B609**  
MICROFLUIDICS FOR RARE CELL CAPTURE. **Chwee Teck Lim**

**3180-Pos BOARD B610**  
EFFECT OF MAGNETIC NANOPARTICLES ON IMPROVING DOXORUBICIN TREATMENT OF T47D BREAST CANCER CELLS. Sarah A. Alobaid, Yuan You, Hasanain D. Al-Saadi, Michael J. Rossi, **Saion K. Sinha**

**3181-Pos BOARD B611**  
NOVEL 'THERANOSTIC' MAGNETIC NANOPARTICLES FOR THERAPY AND IMAGING. Farah Benyettou, Rachid Rezgui, Ali Trabolsi, **Mazin Magzoub**

### Engineered Biosurfaces (Boards B612-B617)

**3182-Pos BOARD B612**  
PUSHING MICROPATTERNING TO THE NANOSCALE. **Martin Fölser**, Marco Lindner, Eva Sevcsik, Iris Bergmair, Gerhard Schütz

**3183-Pos BOARD B613**  
STRUCTURAL AND FUNCTIONAL STUDY OF MIDBODY DURING CYTOKINESIS. **Rongqin Li**, Weiwei Zhang, Q. Peter Su, Boxin Xue, Yujie Sun

**3184-Pos BOARD B614**  
PROBING THE MINIMUM GEOMETRIC REQUIREMENTS FOR T-CELL STIMULATION. **Haogang Cai**, David Depoil, Michael P. Sheetz, Michael L. Dustin, Shalom J. Wind

**3185-Pos BOARD B615**  
VOLTAGE GATING IN NANOPORES CONTAINING ANTHRAQUINONE MIMICS BIOLOGICAL MEMBRANE PROTEINS. **Matthew Pevarnik**, Weibin Cui, Luke Theogarajan

**3186-Pos BOARD B616**  
MODELING OF THE LIQUID CRYSTAL/LIPID INTERFACE FOR BIO-SENSING APPLICATIONS. **Donya Ohadi**, Mark Uline

**3187-Pos BOARD B617**  
SURFACE MODIFICATION OF SOLID-STATE NANOPORES FOR STICKY-FREE TRANSLOCATION OF SINGLE-STRANDED DNA. **Zhipeng Tang**

### Biosurface Interactions (Boards B618-B629)

**3188-Pos BOARD B618**  
PREDICTING ADHESION OF FUNCTIONALIZED NANOCARRIERS FOR SPECIFIC PEPTIDE SEQUENCES USING ATOMISTIC POTENTIALS OF MEAN FORCE. **Matt McKenzie**, Aravind Rammohan, Jacob Miner, Natesan Ramakrishnan, Ravi Radhakrishnan

**3189-Pos BOARD B619**

ACTIVATED MEMBRANE SURFACES BY FUNCTIONALIZED PEPTIDES. **Daniel R. Scott**, Vitalii Silin, David Vanderah, John P. Marino, Susan Krueger, Hirsh Nanda

**3190-Pos BOARD B620**

CHARACTERIZATION OF PEPTIDES DESIGNED TO CONTROL CRYSTAL NUCLEATION AND GROWTH. **Shourya Sonkar Roy Burman**, Michael S. Pacella, James J. De Yoreo, Jeffrey J. Gray

**3191-Pos BOARD B621**

EXAMINING BACTERIAL CELL INTERACTIONS USING ATOMIC FORCE MICROSCOPY. **Ronald Aucapina**, Nadia Ouedraogo, Megan A. Ferguson

**3192-Pos BOARD B622**

A SELF-CONSISTENT MULTISCALE METHODOLOGY FOR PREDICTING ADHESION OF MAMMALIAN CELLS ONTO FUNCTIONALIZED SURFACES. **Aravind R. Rammohan**, matthew mckenzie, Jacob Miner, Natesan ramakrishnan, Ravi Radhakrishnan

**3193-Pos BOARD B623**

MAPPING INTERACTIONS BETWEEN SILVER NANOPARTICLES AND BIOMOLECULES AT THE ATOMIC LEVEL. **Jeffrey Comer**, Horacio Poblete, Emilio I. Alarcon

**3194-Pos BOARD B624**

PROTEIN CORONA AND SECONDARY STRUCTURE IN RESPONSE TO NANOPARTICLE PEGYLATION. **Sabiha Runa**, Alexandra Hill, Victoria Cochran, Christine Payne

**3195-Pos BOARD B625**

A THEORETICAL STUDY OF POLYMER-BASED DRUG DELIVERY SYSTEMS. **Ebtisam A. Aldaais**, Mark J. Uline

**3196-Pos BOARD B626**

RED BLOOD CELL BEHAVIOR WITHIN THE EXCLUSION ZONE. István Huszár, András Laki, Kristóf Iván, **Miklós S. Kellermayer**

**3197-Pos BOARD B627**

SOLID-BINDING PEPTIDES AS A BIOTEMPLATE FOR LI-ION BATTERY ELECTRODES. **Evgenia Barannikova**, Mark Allen

**3198-Pos BOARD B628**

CURRENT FLUCTUATION ANALYSIS IN A PROTEIN NANOPORE. **María Queralt-Martín**, M. Lidón López, Vicente M. Aguilera, Antonio Alcaraz

**3199-Pos BOARD B629**

NATURALLY SYNTHETIC: USING BIOLOGY TO IMPROVE TECHNOLOGY. **Mark A. Allen**, Evgenia Barannikova, Scott Riley, Alexander Winton



## Notes

## Notes

## Notes





## Exhibit Dates and Times

Sunday, February 8 10:00 AM–5:00 PM

Monday, February 9 10:00 AM–5:00 PM

Tuesday, February 10 10:00 AM–4:30 PM

Coffee Served Daily 10:15 AM–11:00 AM

Afternoon Snack Served Daily 1:45 PM–3:00 PM

## Exhibit Raffle

Enter to win an Apple iPad Air in the Exhibit Hall. Visit with exhibitors to pick up raffle tickets for your chance to win. The more booths you visit, the greater your chances of winning. Drop off your raffle tickets at the Society Booth, outside the Exhibit Hall by 3:00 PM on Tuesday, February 10. The drawing will take place on Tuesday, February 10 at 3:00 PM and announced in the Exhibit Hall — you must be present at the Meeting to win!

## Exhibitor Presentations

Exhibitor Presentations will take place in the Exhibit Hall of the Baltimore Convention Center. See pages 214–219 for detailed abstracts.

### Exhibit Hall, Room A

#### Sunday, February 8

7:30 AM–9:00 AM: FEI Company  
3:30 PM–5:00 PM: Wyatt Technology Corporation

#### Monday, February 9

9:30 AM–11:00 AM: Pall ForteBio  
11:30 AM–1:00 PM: Asylum Research, an Oxford Instruments Company  
1:30 PM–3:00 PM: World Precision Instruments  
3:30 PM–5:00 PM: Bruker Nano Surfaces  
5:30 PM–7:00 PM: HEKA Elektronik

#### Tuesday, February 10

1:30 PM–3:00 PM: KinTek Corporation

### Exhibit Hall, Room B

#### Sunday, February 8

10:30 AM–12:00 NOON: Carl Zeiss Microscopy LLC  
12:30 PM–2:00 PM: TA Instruments  
2:30 PM–4:00 PM: Bruker Nano Surfaces  
4:30 PM–6:00 PM: OriginLab Corporation

#### Monday, February 9

8:30 AM–10:00 AM: FEI Company  
10:30 AM–12:00 NOON: Molecular Devices LLC  
12:30 PM–2:00 PM: Nanion Technologies GmbH  
2:30 PM–4:00 PM: Sutter Instrument  
4:30 PM–6:00 PM: Molecular Devices

#### Tuesday, February 10

10:30 AM–12:00 NOON: SensiQ Technologies Inc  
12:30 PM–2:00 PM: Nanion Technologies GmbH

## Annual Meeting Sponsors\*

Asylum Research, An Oxford Instruments Company  
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Bruker Nano Surfaces  
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Pall ForteBio LLC

*Science Advances*, a new AAAS/*Science* journal  
SensiQ Technologies, Inc.  
Sutter Instrument  
TA Instruments  
Tray Inc.  
World Precision Instruments  
Wyatt Technology Corporation

\*As of January 9, 2015

## Exhibitor Presentations

Exhibit Hall C, Baltimore Convention Center

### Room A: Sunday, February 8

7:30 AM–9:00 AM

#### **FEI Company**

#### **FEI Cryo-TEM Workflow Solutions: A New Era for 3D Structural Biology**

A new frontier exists in unraveling interactive biological and biochemical processes and pathways at the macromolecular level. Of critical importance is the three-dimensional visualization of macromolecular structures and molecular machines in their native functional state. Three techniques play a major role in orchestrating this.

Nuclear magnetic resonance (NMR) has the capability to study specific protein domains or fragments and their functional role in protein folding and dynamics and in ligand binding whereas X-Ray crystallography (XRD) allows visualizing high-resolution but more static 3D structures of apo and liganded proteins, mainly in a monomeric or dimeric state after crystallization. To unravel more physiologically relevant situations however, it is essential to visualize multimeric complexes in their tertiary and quaternary state and their interaction with other complexes. By performing typical cryo-TEM applications like single particle analysis or tomography, this can be achieved. In this so-called translational methodology, cryo-TEM thus provides complementary information to NMR and XRD that can be crucial for drug discovery, e.g. in terms of a better understanding of the mechanism of action inferred from the EM structure of the physiologically relevant complex. This will eventually contribute to answer real biologically as well as medically relevant questions.

Latest developments in the cryo-TEM workflow have brought the 3 major structural biology technologies closer together. Now, finally, a continuum has been reached on all important aspects with regards to resolution and macromolecular scales which allows for the full deployment of the combination of these technologies.

Here, we will illustrate the historical context of these technologies with respect to one another and show how latest developments have reached the critical requirements to fully unleash the power of structural biology in not just answering fundamental questions, but actually contribute to curing diseases and improving health. Also, we will discuss the future of structural biology based on the latest developments of the FEI workflow and its components with a special focus on the advances in contrast enhancement (phase plates) and (direct electron) detection.

#### **Presenter**

Chris Arthur, Applications Engineer, FEI Company

3:30 PM–5:00 PM

#### **Wyatt Technology Corporation**

#### **The Light Scattering Toolkit for Biophysical Characterization: Lab Essentials for Enhancing Studies of Purification, Crystallization, Formulation, Conjugation, Conformation, and Interactions**

Biophysical techniques based on static and dynamic light scattering address many of the key analytical challenges associated with proteins, oligonucleotides, vesicles and other biomacromolecules. This workshop covers the following topics:

1. Batch DLS—traditional cuvette-based dynamic light scattering (DLS) is a fast, easy means of estimating macromolecular and nanoparticle size distributions to assess protein aggregation or the sizes of virus-like particles or drug delivery nanovehicles. In microwell-plate format, DLS is a high-productivity tool useful for optimizing formulation or crystallization conditions with minimal sample consumption or manual labor.
2. SEC-MALS and SEC-DLS—coupling of multi-angle static light scattering (MALS) and DLS detection to size-exclusion chromatography to assess molar mass, size, conformation and conjugation, in solution, independently of column calibration and non-ideal sample-column interactions. In addition to readily assessing aggregation and fragmentation in line with SEC purification, SEC-MALS analyzes protein conjugates such as glycoproteins or membrane proteins bound to surfactant micelles, determining protein oligomeric state and the mass of glycans, polysaccharides or surfactant modifying the protein.
3. FFF-MALS and FFF-DLS—coupling of MALS and DLS to a field-flow fractionation (FFF) device to achieve accurate characterization of macromolecules and nanoparticles from 1-1000 nm, even when soluble and insoluble components are both present in the solution. It does not employ a stationary phase; FFF separates without shear and with minimal surface interactions. FFF produces high-resolution size distributions thanks to true hydrodynamic separation upstream of the light scattering detectors. It also offers the benefits of post-separation downstream analysis by spectroscopy for additional information on samples.
4. CG-MALS—coupling MALS to a composition-gradient device results in a uniquely powerful system for characterizing complex biomolecular interactions, label-free and immobilization-free. Because MALS measures molar masses it is one of the most useful techniques for analyzing multi-domain, multi-protein interactions that go beyond standard 1:1 interactions including systems exhibiting cooperativity and allostery. CG-MALS determines the affinity and absolute molecular stoichiometry of self and/or heteroassociating systems from pM to mM.

#### **Presenter**

Stephanie Cope, Applications Scientist, Wyatt Technology Corporation

## **Room A: Monday, February 9**

9:30 AM–11:00 AM

### **Pall ForteBio LLC**

#### **Measuring Engineered Changes in Binding Affinity with the BLItz® Label-Free System**

*Combining Organic Synthesis and Directed Evolution to Design Glycocluster HIV Vaccine Candidates*

We will describe a new method for design of carbohydrate HIV vaccines, which combines organic synthesis and directed evolution techniques. This work originates from the observation that some HIV positive individuals produce antibodies which are broadly neutralizing and protective against HIV infection. One such antibody, 2G12, recognizes and binds to a cluster of carbohydrates on the viral envelope protein gp120. Our goal is to develop synthetic carbohydrate clusters which closely mimic the viral carbohydrate cluster, and which might thus elicit a 2G12-like antibody response when used as a vaccine. In order to design carbohydrate clusters which closely mimic gp120, we have developed evolution-based strategies, in which immobilized 2G12 is used to recognize and fish out the best glycocluster mimics of gp120 from amongst large libraries of ~10 trillion different glycosylated peptide- or DNA structures. The glycocluster structures obtained by these methods are recognized by antibody 2G12 as strongly as is the viral protein itself, and are thus of great interest for vaccine studies.

*Tips and Tricks for Developing BLItz Assays*

The BLItz label-free assay system is a simple-to-use benchtop instrument for measuring binding interactions of antibodies and proteins using as little as 4 µl of sample. Additional case studies of how the BLItz system is being used to qualify biophysical models will be presented, along with tips and tricks for developing kinetics assays on the BLItz system.

#### **Presenters**

Isaac Krauss, Assistant Professor of Chemistry, Brandeis University  
Craig Tin, Senior Product Manager, Pall Forte Bio LLC

11:30 AM–1:00 PM

### **Asylum Research, an Oxford Instruments Company**

#### **There's No Other AFM Like Cypher™ — High Resolution Atomic Force Microscopy Made Easier and Faster**

Asylum Research has focused on improving AFM instrumentation to make imaging in liquid easier, faster and more quantitative for life science applications. Please join us for this 'Lunch and Learn' presentation that will focus on the latest technical advances in AFM that enable high resolution imaging of the structure and dynamics of samples including proteins, lipids and nucleic acids. We'll show examples of how the Cypher ES Environmental AFM allows users to control the environment around their sample and perform perfusion experiments easily. You'll learn about Cypher's numerous ease-of-use features such as GetStarted™, GetReal™, and blueDrive™ for easy and stable imaging in liquid. We will introduce you to Fast Force Mapping, our unique technology that measures mechanical properties of your samples faster and more reliably. This is also a great opportunity to ask our scientists any questions you may have about AFM.

#### **Presenter**

Irène Revenko, Applications Scientist, Asylum Research, an Oxford Instruments Company

1:30 PM–3:00 PM

### **World Precision Instruments**

#### **Side-Stepping the Animal Model: Cardiac Work Loops in Human iPSC-derived Myocytes.**

Cardiac pressure-volume loops on a complete organ provide the framework for understanding cardiac mechanics in experimental animal models, most notably in the context of Frank-Starling mechanisms. With the development of more sensitive transducers, this work has been applied to single cardiac cells, using freshly isolated cells from an animal model. With the advent of iPSC-derived myocytes, a whole new range of cell types is now available to the investigator. We introduce a novel mounting application for overcoming the technical difficulties in instrumenting these cells for force measurements. With this technology, it is now possible to conduct experiments on human stem cell-derived myocytes.

We will show preliminary results, the tools required for these types of experiments, mounting methods, and a novel method for direct force measurements on human iPSC-derived myocytes. In addition, two different methods for real-time determination of length changes in isolated iPSC-derived myocytes will be presented. The results are preliminary, however indicate the possibility for not only a reduction in the use of the animal models in cardiac research, but also the direct investigation of human cardiovascular disease.

3:30 PM–5:00 PM

### **Bruker Nano Surfaces**

#### **Recent Advances in Atomic Force Microscopy for Biological Research**

Bruker's latest BioScope AFM is the perfect integration of AFM and inverted light microscopy. It incorporates Bruker's latest Peak Force Tapping innovations including the new nanomechanics package, which significantly expands mechanobiology applications into a lower modulus range covering live cells and tissues. With its open access design, and bio friendly features and accessories, the latest BioScope AFM is the most integrated and easiest to use life science AFM available. The workshop will include examples of the functional integration of light microscopy techniques with AFM in order to conduct optically guided, high-resolution mapping of both the structural and mechanical properties of mammalian cells.

#### **Presenter**

John Thornton, Senior Applications Engineer, Bruker Nano Surfaces

5:30 PM–7:00 PM

### **HEKA Elektronik**

#### **HEKA Electrophysiology Update**

For over 40 years, HEKA has provided innovative products, expert tech support and unmatched service to their customers. HEKA's commitment to technological innovation is reflected by consistent updating of both hardware and software. While yesterday's gold standards try to keep pace with the latest research techniques, HEKA takes the lead.

By popular demand, HEKA is hosting a series of user meetings with tutorial presentations. On one hand, some of the new products will be showcased to the experienced user and, on the other hand, step-by-step guidance is provided to the researcher who is new to the field. Registration is available online through the HEKA Events Page on EventBrite, or by

email to [events@heka.com](mailto:events@heka.com). The number of available spaces, food and drink are limited, and registrations are accepted on a first-come-first-served basis.

Who should attend?

- Scientists with experience in patch clamp electrophysiology and related scientific techniques
- Researchers who want to become more efficient in the use of electrophysiology acquisition and analysis software
- PostDocs and graduate students who want to learn more about electrophysiology techniques

**Presenters**

Hubert Affolter, Senior Software Architect, HEKA Elektronik  
Christian Heinemann, General Manager, HEKA Elektronik  
Telly Galiatsatos, General Manager, HEKA Instruments

## **Room A: Tuesday, February 10**

1:30 PM–3:00 PM

### **KinTek Corporation**

#### **KinTek Explorer Software: New Advances in Fitting Kinetic and Equilibrium Data**

Fitting kinetic data based upon numerical integration of rate equations offers many advantages over conventional fitting of data based upon equations derived from simple models. Fitting by simulation is the most rigorous and eliminates numerous errors in simplifying assumptions needed to derive equations. Every day papers are published that contain errors in kinetic analysis that could have been avoided if the data had been fit using KinTek Explorer software.

In this presentation, Dr. Johnson will show how global fitting of kinetic data can be accomplished with ease using the fast, dynamic simulation in KinTek Explorer software, overcoming the all-too-common errors in conventional fitting. Moreover, data are fit to derive rate constants directly defining steps in a model, not merely observed rates (Eigenvalues). New advances in the software allow fitting kinetic data from single molecule experiments and families of curves can be fit simultaneously to define voltage-dependent rate constants or data from Temperature-jump or Pressure-jump experiments. In addition, equilibrium titration data can be fit using a unique endpoint simulation method, and time-resolved spectra can be fit using singular value decomposition (SVD). All experiments can be fit simultaneously and accurate error estimates are derived using robust confidence contour analysis

**Presenters**

Kenneth A. Johnson, President, KinTek Corporation  
Roger Williams, Professor of Biochemistry, University of Texas at Austin

## **Room B: Sunday, February 8**

10:30 AM–12:00 NOON

### **Carl Zeiss Microscopy LLC**

#### **Technology Innovations from ZEISS, the New ZEISS LSM 880 Confocal with Airyscan and the ZEISS Lightsheet Z.1**

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

The LSM 880 with Airyscan allows you to use multicolor samples with any label and get image quality like you've never seen before. With Airyscan you are always able to select the optimal acquisition strategy for your sample: Simply decide whether you want to gain 1.7x higher resolution in all three dimensions – resulting in a 5x smaller confocal volume. Or push the sensitivity beyond the limits of all conventional confocals. Or use the increase in signal-to-noise ratio to speed up your image acquisition.

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

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

**Presenters**

Joseph Huff, Product Marketing Manager, Laser Scanning and Superresolution Microscopy, Carl Zeiss Microscopy LLC  
Scott Olenych, Product Marketing Manager, Imaging Products, Carl Zeiss Microscopy LLC



12:30 PM–2:00 PM

## TA Instruments

### Technology Advances in Ultrasensitive Isothermal Titration Calorimetry

TA Instruments introduces the Affinity ITC, with all new technology for advanced isothermal titration calorimetry. Isothermal Titration Calorimetry is the most effective analytical tool for simply and accurately measuring A/B interactions, especially protein-protein binding. Isothermal Titration Calorimetry provides complete thermodynamics and kinetics without labeling, fixing, or otherwise altering the sample of interest. All new technology from TA Instruments improves the sample throughput, usability, and data quality of all isothermal titration calorimetry experiments.

All-new advanced stirring technology and an innovative isolated injection system improves baseline stability, and mixing homogeneity while applying minimal perturbation to the material of interest. For large-scale screening and high throughput testing, an all-new unattended sample handling system automates up to 96 full titrations and continuous unattended operation for multiple days. Based around a 96-well plate format and multiple wash/rinse containers, the Affinity ITC Auto will greatly increase laboratory productivity without sacrificing sensitivity or reproducibility. The Affinity ITC is available in both the standard (1.0 mL) and low volume (190  $\mu$ L) cell sizes, extending the range of applications for which automation is available. This presentation will include data examples and tech tips on experimental design using the Affinity ITC Auto.

#### Presenter

Dile Holton, Microcalorimetry Product Manager, TA Instruments

2:30 PM–4:00 PM

## Bruker Nano Surfaces

### Super-Resolution Microscopy and Its Applications in Fast and Complex Biological Systems

Super-resolution microscopy has revolutionized the field of biological imaging by providing new insights into biological processes in fields as diverse as developmental biology, neuroscience, cardiovascular research, genetics, infectious disease, and DNA/chromatin structure. The Vutara 350 super-resolution microscope offers a ten-fold improvement in resolution in comparison to traditional light microscopy techniques and is capable of achieving resolutions of 20 nm laterally and 50 nm axially. The Vutara 350 is based on a patented 3D biplane single molecule localization platform.

We will discuss the basic principles of operation and features of the Vutara 350 super-resolution microscope. The capability to do 3D multicolor imaging, high speed live cell imaging, 3D particle tracking, and z-stacking in various biological systems such as cells, tissue, drosophila, *C. elegans*, bacteria and virus makes the Vutara 350 very versatile.

#### Presenter

Jeff Stuckey, Product Marketing Manager, Bruker Nano Surfaces

4:30 PM–6:00 PM

## OriginLab Corporation

### Data Analysis and Graphing Using Origin 2015

Origin is an easy-to-use software application with data analysis and publication-quality graphing for science and engineering. This workshop will cover key features including importing data from multiple sources including Excel and third-party file formats, LabVIEW connectivity, creating and customizing multi-panel graphs, graphical exploration and analysis, curve fitting, peak analysis, signal processing, and statistics. Time saving features such as templates for graphing and analysis, batch plotting and batch analysis will be presented. Application examples using Origin's programming environment will also be presented.

The workshop will also cover key new features and improvements in the latest version:

Ease-of-use features including graph preview and comment tool tip in Project Explorer, search for string in project, search for functions in dialogs, redesigned axis dialog, enhanced legend, and custom categorical order. New graph types including Heat Map, Kernel Density Plot, Column Scatter Plot. Improvements to profile plot, box plot, contour plot, bubble scale, and color scale. New analysis tools for Distribution Fit, ANOVA of unbalanced data, t-Test on rows. Tool to append worksheets, remove or combine duplicate values, and improved pivot table. Integration of Python as scripting language in Origin.

#### Presenter

Easwar R. Iyer, VP of Technology, OriginLab Corporation

## Room B: Monday, February 9

8:30 AM–10:00 AM

## FEI Company

### Advances in Correlative Light and Electron Microscopy

Correlative light and electron microscopy (CLEM) is a powerful approach that enables combining dynamic information and labelling specificity from fluorescence microscopy with ultra-structural information at nanometer resolution from electron microscopy on the same sample. In recent years technical improvements in fluorescence microscopy have enhanced z-resolution, enabled imaging with high sensitivity using TIRF and, with super-resolution microscopy, improved the resolution of light microscopy to up to 20 nm. Despite all these advances, fluorescence microscopy can only show what was labelled and an EM is needed to provide the full morphological context on the ultra-structure of the cell. However, CLEM experiments still remain challenging and low through-put.

Over the last years, FEI has introduced different solutions to overcome some of the challenges in CLEM experiments and to make CLEM experiments easier and more efficient. But correlative experiments are rapidly evolving – here, we will present updates on latest developments that have pushed the boundaries of correlative experiments.

#### Presenter

Meike Pedersen, Product Application Specialist, FEI Company

10:30 AM–12:00 NOON

## Molecular Devices LLC

### Performing Positive Allosteric Modulator (PAM) Assays and Investigating Use-Dependent Inhibition of Ion Channels on Automated Electrophysiology Systems Including the IonFlux™ Benchtop Reader and the IonWorks Barracuda® Instrument

#### PAM Assays

Nicotinic acetylcholine receptors (nAChRs) have been extensively studied due to their importance in physiological processes as well as involvement in several muscle and neuronal human pathologies, and are major therapeutic targets for pharmaceutical drug discovery. Ensemble recordings on the IonFlux HT System were validated with human hnAChR recombinant cell lines developed by Eurofins Discovery Services. Response properties of the nAChRs to the endogenous ligand acetylcholine (ACh), reference agonists, antagonists and positive allosteric modulators (PAMs) were characterized and will be presented.

#### Ion Channel Use-Dependence

Use-dependent inhibition of ion channels by potential drug candidates is an important aspect to investigate for many drug classes. Data will be presented to demonstrate the ability of automated electrophysiology systems to study the use-dependence block of Na<sup>+</sup> channel targets by peptide toxins and known compounds. We will demonstrate the ability of the IonWorks Barracuda system to deliver complex voltage protocols and generate long assay windows which are required for these studies. Pulse trains delivered at 10Hz are used to measure the blockade of current. These experiments demonstrate stable assay windows with uniform currents for 30 minutes and longer during the delivery of periodic pulse trains.

#### Presenter

James Costantin, Product Marketing Manager, Automated Electrophysiology, Molecular Devices LLC

12:30 PM–2:00 PM

## Nanion Technologies GmbH

### HTS-Compatible Giga-Seal Ion Channel Drug Discovery: Beyond the Bottleneck and Ready for CiPA

Nanion Technologies is one of the leading providers of automated patch clamp systems, offering a diverse product portfolio covering a broad experimental range from single channel recordings to HTS-compatible ion channel screening from up to 768 cells in parallel. Allowing 20,000 data points per day, the SyncroPatch 384/768PE is unrivalled for high throughput and high quality recordings. Diverse ion channel targets and cell types have successfully been tested on the SyncroPatch 384/768PE including challenging targets such as fast desensitizing ligand ion channels (P2X3 und GluA2), ion channels requiring intracellular activation (K<sub>atp</sub>, TMEM16a) and heavily regulated channels such as TRPA1.

Early cardiac arrhythmic risk assessment is a hot topic these days calling for new safety screening strategies. Patchliner, a medium-throughput APC platform, supports automated current clamp recordings, experiments at physiological temperatures, and a minimal cell usage, making it the ideal partner for safety testing on stem cell derived cardiomyocytes. Additionally, the CardioExcyte 96, a unique hybrid system for parallel impedance-based and MEA-like recordings from intact cardiomyocyte networks, has proven

a versatile tool for safety and toxicity screening applications serving as an excellent complement to APC. These three platforms enable you to keep up with the requirements of the CiPA-initiative for early prediction of potential cardiac arrhythmias.

During this workshop, we will show how to push the boundaries of ion channel screening projects to achieve HTS-screening standards, and how to get ready for comprehensive safety screening beyond hERG.

Spaces are limited so reserve yours by sending an email to [info@nanion.de](mailto:info@nanion.de).

#### Presenters

Niels Fertig, CEO, Nanion Technologies GmbH  
Andrea Brüggemann, CSO, Nanion Technologies GmbH

2:30 PM–4:00 PM

## Sutter Instrument

### Scientists Empowering Scientists

For over 40 years, Sutter Instrument has designed and produced electro-mechanical and optical instrumentation that helps scientists push the limits. While Sutter has long been the market leader in products for micropipette fabrication and micromanipulation, we have continued to expand our Lambda imaging product line and XenoWorks microinjection systems. A strong emphasis has always been placed on providing expert tech support to help our customers achieve the best results in their research.

To further this goal, Sutter Instrument is starting a series of user meetings with tutorial presentations. We will be providing step-by-step guidance to the new experimenter as well as advanced tips and tricks for the experienced user. To round it off, newly introduced products will be discussed on a case-by-case basis.

Registration is available online through the Sutter Event Registration Page (<http://sutter.eventbrite.com>), or by email to [info@sutter.com](mailto:info@sutter.com). The number of available spaces is limited, and registrations are accepted on a first-come-first-served basis.

#### Who should attend?

- Electrophysiologists who use micropipettes and micromanipulators for patch clamp, sharp electrode or extracellular recordings.
- Researchers who perform microinjections, including nuclear transfer, sperm injection and application of substances into cell cultures or intact organisms.
- Scientists who want to learn more about optimizing their results with pipette pullers and micromanipulators

#### Presenters

Jan Dolzer, Tech Support and Product Development, Sutter Instrument: Introductory Remarks

Adair Oesterle, Tech Support Micropipette Fabrication and Microinjection, Sutter Instrument: Optimizing Settings on Your Sutter Micropipette Puller  
Ali Mahloudji, Tech Support Micromanipulators and Lambda DG Series, Sutter Instrument: Maximizing the Versatility of Your Dual-manipulator Setup

4:30 PM–6:00 PM

## Molecular Devices LLC

### Eliminating 50-60 Hz Line-frequency Noise with the New HumSilencer and pCLAMP Software Tips & Tricks

We will introduce a new feature of the Axon Digidata™ 1550A digitizer, HumSilencer, which provides a smart and simple method for eliminating 50 or 60 Hz line-frequency noise. In addition, we will present solutions to frequently asked questions on our pCLAMP software, a powerful data acquisition and analysis software that is used widely for a variety of electrophysiological recordings in many academic laboratories.

#### Presenter

Jeffrey Tang, Axon Product Marketing Manager, Molecular Devices LLC

## Room B: Tuesday, February 10

10:30 AM–12:00 NOON

## SensiQ Technologies Inc

### Learn How SensiQ's Dynamic Injection (diSPR®) Techniques Enhance the Biophysical Characterization of Binding Events Using Surface Plasmon Resonance Technology

SensiQ's dynamic injection methods provide complete, one-pass kinetic and equilibrium data from a single injection while reducing statistical error/noise. Simply load one, highest analyte concentration vial and the instrument exposes the surface to either a stepwise (FastStep®) or continuous gradient (OneStep®) of concentrations. These approaches increase the ease/throughput of SPR experiments and provide complete data sets for interactions that are complicated by incomplete surface regeneration.

FastStep® uses a patented onboard micro-mixing technique to create increasing fixed concentrations of analyte in real time without generating partial dissociation responses as the instrument prepares subsequent concentrations. This technique improves throughput by decreasing the time to complete a full run while simplifying data analysis.

OneStep® is the ultimate evolution of FastStep®. Taylor dispersion fluidics establish a continuous gradient of analyte concentrations which is flowed over the surface to generate a sigmoidal binding curve. This technique introduces a time dependent variable that is not possible in traditional injection techniques and allows for the quantitative separation of multiple binding sites with different affinities. OneStep® also increases the dynamic range of allowable concentrations thereby removing the need to perform test injections or accurately guess the affinity of an unknown interaction. Importantly, OneStep® also provides added data content in SPR experiments by providing a measure of the analyte diffusion coefficient to help identify analytes that have a tendency to oligomerize or aggregate.

SensiQ's operational software was developed to simplify assay development and instrument operation. Using a drag and drop icon based programming approach, traditional program "scripting" is eliminated to simplify and speed assay development. Executable protocols for high throughput experiments can be developed in minutes. Programming examples will show how operational actions have been optimized to decrease runtime and increase throughput. Streamlining data analysis of small or large data sets using our Q-Dat software will also be presented.

#### Presenters

Derek Beahm, SensiQ Application Scientist  
Rick Cope, SensiQ Sales Representative

12:30 PM–2:00 PM

## Nanion Technologies GmbH

### Measure More Membrane: Cells, Bilayers and Transporter Activity

The Port-a-Patch turned 10 years old last year, and is going stronger than ever. It's still the smallest patch clamp rig in the world, and makes patch clamp recordings accessible to anyone spending a couple of hours with it. Giga-seal recordings and the excellent voltage-clamp of the cellular membrane ensure high quality data, and the Port-a-Patch add-ons allow unprecedented experimental freedom, including temperature control, internal perfusion, automated action potential recordings, and recordings from primary and stem cell-derived cells.

The Orbit 16 is a parallel device for efficient formation of and recordings from up to 16 artificial bilayers at once, for parallel bilayer-reconstitution of ion channels and nanopores. Using Micro Electrode Cavity Array (MECA, Ionera), a 4 x 4 array of circular micro-cavities in a highly inert polymer, the bilayer is automatically formed by remotely actuated painting (Ionera-SPREAD), which all will be demonstrated during the session.

Ion transporters and pumps play an important role within general metabolism and information processing of organisms. The SURFE2R is a unique platform for direct measurements ion transporters and ion channels in diverse and heterologous membranes. It is easy-to-handle, highly sensitive and a very efficient screening platform. The SURFE2R N1 is a small footprint, fully automated device recording from membrane preparations, with proven success using native tissue, mammalian and insect cell lines, bacteria, organelles, and proteoliposomes.

Join this workshop for hands-on experiments and information about three outstanding platforms: Port-a-Patch, Orbit 16 and SURFE2R N1! We look forward to seeing you!

Spaces are limited so reserve yours by sending an email to [info@nanion.de](mailto:info@nanion.de).

#### Presenters

Andrea Brüggemann, CSO, Nanion Technologies GmbH  
Maria Barthmes, Application Specialist, Nanion Technologies  
Gerhard Baaken, CEO, Ionera

## Exhibitor List

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
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**89 North** **355**  
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<b>Biolin Scientific Inc</b>	<b>382</b>	<b>BRANDEL Inc</b>	<b>727</b>	<b>Carl Zeiss Microscopy LLC</b>	<b>455</b>
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<b>Bio-Logic USA</b>	<b>438</b>	<b>Bruker Nano Surfaces</b>	<b>744</b>	<b>Cedarlane Corporation</b>	<b>136</b>
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<b>Cell Press</b>	<b>535</b>	<b>Cobolt</b>	<b>366</b>	<b>Electron Microscopy Sciences</b>	<b>279</b>
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<b>Chroma Technology</b>	<b>355</b>	<b>Ecocyte Bioscience US LLC</b>	<b>370</b>	<b>Extrel CMS</b>	<b>646</b>
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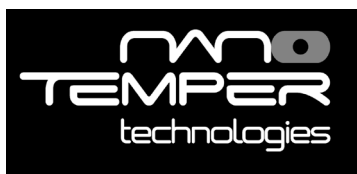
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## Product Categories

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>3-D Visualization</b>		Matreya LLC	270	<b>Cell Biology Products</b>	
Anasys Instruments	743	NanoTemper Technologies Inc	362	AAT Bioquest	266
FEI Company	728	One World Lab	827	American Society for Cell Biology (ASCB)	631
NanoAndMore USA	469	<b>Antibody Microarray Products</b>		Cedarlane Corporation	136
OriginLab Corporation	487	TIRF Labs	268	FEI Company	728
Rigaku Americas Corporation	379	Biochemical Reagents		Fluicell (former Avalance Biotech)	365
<b>AFM/NSOM/Confocal Microscopes</b>		AAT Bioquest	266	GenScript	138
Anasys Instruments	743	Avanti Polar Lipids Inc	327	Ludesc/Accu-Scope	380
Asylum Research, an Oxford Instruments Company	344	Cedarlane Corporation	136	Precision Plastics Inc	287
Bruker Nano Surfaces	744	One World Lab	827	Seahorse Bioscience	732
HORIBA/PTI	128	<b>Assay Kits</b>		<b>Cell Culture Products</b>	
Mad City Labs Inc	244	AAT Bioquest	266	BRANDEL Inc	727
MicroSurfaces Inc	146	Cedarlane Corporation	136	Cedarlane Corporation	136
NanoMagnetics Instruments	435	Molecular Devices	235	IonOptix	260
Park Systems	236	One World Lab	827	<b>Centrifuges</b>	
<b>Amperometry/Voltammetry Instrumentation</b>		Seahorse Bioscience	732	Electron Microscopy Sciences	279
HEKA Elektronik	628	<b>Atomic Force Microscopes</b>		<b>Chromatography</b>	
Neuroscience Tools	148	Anasys Instruments	743	Malvern Instruments	343
npi electronic	443	Keysight Technologies	257	Wyatt Technology Corporation	273
<b>Amphipols</b>		Luigs & Neumann GmbH	737	<b>Circular Dichroism Spectrometer</b>	
Anatrace	350	Mad City Labs Inc	244	JASCO	250
<b>Amplifiers</b>		Park Systems	236	Quantum Northwest Inc	432
AutoMate Scientific	144	<b>Biochemicals</b>		<b>Computational Software</b>	
HEKA Elektronik	628	Matreya LLC	270	FEI Company	728
Multi Channel Systems	444	One World Lab	827	KinTek Corporation	428
NeoBiosystems Inc	347	Renishaw Inc	729	<b>Computers hardware and software</b>	
Neuroscience Tools	148	<b>Biotechnology</b>		Aurora Scientific Inc	461
npi electronic	443	Anton Paar USA	360	KinTek Corporation	428
Pacer Scientific	356	Biolin Scientific	382	SciMeasure	465
Warner Instruments	274	Bruker Nano Surfaces	744	<b>Confocal Microscopes</b>	
World Precision Instruments	336	Cobolt	366	Carl Zeiss Microscopy LLC	455
<b>Analytical/Testing Services</b>		Luigs & Neumann GmbH	737	ISS Inc	374
Anton Paar USA	360	Pall ForteBio LLC	644	LUMICKS BV	467
Avanti Polar Lipids Inc	327	Renishaw Inc	729	Nikon Instruments Inc	280
OriginLab Corporation	487	TA Instruments	373	Olympus	256
Park Systems	236	Wyatt Technology Corporation	273	Thorlabs	328
Peptides International	284	<b>Cameras</b>		<b>Curvettes</b>	
SensiQ Technologies Inc	643	Carl Zeiss Microscopy LLC	455	World Precision Instruments	336
<b>Antibodies</b>		Hamamatsu Corporation	265	<b>Crystallization Utilities</b>	
AAT Bioquest	266	Ludesc/Accu-Scope	380	Anatrace	350
Cedarlane Corporation	136	Mightex Systems	156		
Electron Microscopy Sciences	279	Nikon Instruments Inc	280		
GenScript	138	Olympus	256		
Jackson ImmunoResearch Laboratories Inc	150	PCO-TECH Inc	337		
Malvern Instruments	343	PHASICS	283		
		Photometrics	238		
		SciMeasure	465		
		Stanford Photonics Inc	275		
		Thorlabs	328		

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Crystallography</b>		<b>Electrophoresis Equipment</b>		<b>Filter Wheels</b>	
Anatrace	350	npi electronic	443	89 North	355
Cedarlane Corporation	136	Wyatt Technology Corporation	273	Ludl Electronic Products	359
Rigaku Americas Corporation	379			Olympus	256
				Prior Scientific Inc	368
				Sutter Instrument	228
<b>Data Acquisition</b>		<b>Electrophysiological Data Acquisition</b>		<b>Flash Lamps</b>	
Bio-Logic USA	438	Alembic Instruments Inc	269	89 North	355
Ecocyte Bioscience US LLC	370	ChanTest A Charles River Company	367	Hamamatsu Corporation	265
elements srl	292	Ecocyte Bioscience US LLC	370		
HEKA Elektronik	628	elements srl	292		
IonOptix	260	HEKA Elektronik	628		
Laboratory for Fluorescence Dynamics	436	Molecular Devices LLC	235		
Neuroscience Tools	148	Multi Channel Systems	444		
World Precision Instruments	336	NeoBiosystems Inc	347		
		Neuroscience Tools	148		
				<b>Fluid Flow Chambers</b>	
<b>Data Analysis</b>		<b>Electrophysiology Equipment</b>		<b>Fluorescence Anisotropy</b>	
IonOptix	260	Aurora Scientific Inc	461	Edinburgh Instruments	390
KinTek Corporation	428	AutoMate Scientific	144	HORIBA/PTI	128
Laboratory for Fluorescence Dynamics	436	Cell MicroControls	349	ISS Inc	374
OriginLab Corporation	487	Ecocyte Bioscience US LLC	370	JASCO	250
		elements srl	292	TgK Scientific Ltd	291
		Ionovation	630		
<b>Data Analysis Software</b>		<b>Electrophysiological Instruments</b>		<b>Fluorescence Correlation Spectroscopy</b>	
Aurora Scientific Inc	461	Luigs & Neumann GmbH	737	Ionovation	630
BRANDEL Inc	727	Multi Channel Systems	444	ISS Inc	374
ISS Inc	374	Nanon Technologies GmbH	243	Laboratory for Fluorescence Dynamics	436
KinTek Corporation	428	Narishige International USA Inc	491		
Laboratory for Fluorescence Dynamics	436	Pacer Scientific	356		
NanoTemper Technologies Inc	362	Scientifica Ltd	447		
Olympus	256	Sensapex	627		
OriginLab Corporation	487	Warner Instruments	274		
		World Precision Instruments	336		
				<b>Fluorescence Image Analysis Equipment</b>	
<b>Detergents</b>		<b>Electrophysiological Software</b>		<b>Fluorescence Lifetime Imaging</b>	
Anatrace	350	elements srl	292	Aurora Scientific Inc	461
		HEKA Elektronik	628	FEI Company	728
<b>Digitizers</b>		<b>Environmental Chambers</b>		Ionovation	630
elements srl	292	Cell MicroControls	349	ISS Inc	374
		Precision Plastics Inc	287	Laboratory for Fluorescence Dynamics	436
		Tokai Hit Co Ltd	369	Photometrics	238
		World Precision Instruments	336	Rigaku Americas Corporation	379
				SciMeasure	465
<b>Dissecting Equipment</b>					
Ludesco/AccuScope	380				
<b>Drug Discovery</b>					
BioNavis Ltd.	629				
ChanTest A Charles River Company	367				
GenScript	138				
MicroSurfaces Inc	146				
Nanon Technologies GmbH	243				
NanoTemper Technologies Inc	362				
Pall ForteBio LLC	644				
Seahorse Bioscience	732				
SensiQ Technologies Inc	643				
<b>Electromechanical Instrumentation</b>					
IonOptix	260				

Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Fluorometers</b>		<b>Image Analyzers FISH Applications</b>		<b>Infrared Spectroscopy</b>	
Edinburgh Instruments	390	MicroSurfaces Inc	146	Agilent Technologies	255
HORIBA/PTI	128			Anasys Instruments	743
IonOptix	260			TgK Scientific Ltd	291
ISS Inc	374	<b>Image Analyzers High Resolution</b>		<b>Interferometers</b>	
JASCO	250	Bruker Nano Surfaces	744	PHASICS	283
Quantum Northwest Inc	432	<b>Image Analyzers High Speed</b>		<b>Ion Channels</b>	
TgK Scientific Ltd	291	NanoAndMore USA	469	Alembic Instruments Inc	269
TIRF Labs	268	<b>Image Analyzers Ratiometric Dyes</b>		Anatrace	350
World Precision Instruments	336	AAT Bioquest	266	ChanTest A Charles River Company	367
<b>Glass Capillary Tubing</b>		<b>Image Intensifiers</b>		Fluicell (former Avalance Biotech)	365
Narishige International USA Inc	491	Hamamatsu Corporation	265	Ionovation	630
Sutter Instrument	228	Stanford Photonics Inc	275	Molecular Devices LLC	235
Warner Instruments	274	<b>Image Stabilization</b>		Nanon Technologies GmbH	243
<b>High-Throughput Instrumentation</b>		Mad City Labs Inc	244	Neuroscience Tools	148
Ecocyte Bioscience US LLC	370	<b>Imaging Chambers</b>		Peptides International	284
JASCO	250	ALA Scientific Instruments	445	Scientifica Ltd	447
Ludl Electronic Products	359	Stanford Photonics Inc	275	Sophion	382
Mad City Labs Inc	244	Tokai Hit Co Ltd	369	TIRF Labs	268
Malvern Instruments	343	Warner Instruments	274	<b>Isotope-Labeled Compounds</b>	
Molecular Devices LLC	235	<b>Imaging Spectral</b>		Peptides International	284
Multi Channel Systems	444	Chroma Technology	355	<b>Label Free Sensing</b>	
Nanon Technologies GmbH	243	<b>Imaging Systems</b>		Biolin Scientific	382
SensiQ Technologies Inc	643	89 North	355	BioNavis Ltd.	629
Sophion	381	Carl Zeiss Microscopy LLC	455	NanoTemper Technologies Inc	362
Wyatt Technology Corporation	273	FEI Company	728	PHASICS	283
<b>Image Acquisition Systems</b>		Ludl Electronic Products	359	SensiQ Technologies Inc	643
Aurora Scientific Inc	461	NanoAndMore USA	469	TA Instruments	373
HEKA Elektronik	628	PHASICS	283	<b>Labeling Dyes</b>	
Ionovation	630	Photometrics	238	NanoTemper Technologies Inc	362
Molecular Devices LLC	235	Scientifica Ltd	447	One World Lab	827
Olympus	256	SciMeasure	465	Peptides International	284
PHASICS	283	Stanford Photonics Inc	275	<b>Laboratory Apparatus &amp; Equipment</b>	
Photometrics	238	Thorlabs	328	Bio-Logic USA	438
Stanford Photonics Inc	275	<b>Immunochemicals</b>		BRANDEL Inc	727
<b>Image Analysis</b>		Jackson ImmunoResearch Laboratories Inc	150	Electron Microscopy Sciences	279
Nikon Instruments Inc	280	One World Lab	827	Park Systems	236
Olympus	256	<b>Incubators</b>		PicoQuant Photonics	288
PHASICS	283	Olympus	256	Renishaw Inc	729
<b>Image Analysis Software</b>		Tokai Hit Co Ltd	369	Seahorse Bioscience	732
Aurora Scientific Inc	461	<b>Langmuir Troughs</b>		Siskiyou Corporation	361
Hamamatsu Corporation	265	Biolin Scientific	382	TA Instruments	373
Olympus	256	<b>Image Analysis High Resolution</b>			
PHASICS	283	Olympus			
Stanford Photonics Inc	275	Tokai Hit Co Ltd			



Company Name	Booth Number	Company Name	Booth Number	Company Name	Booth Number
<b>Lasers</b>		<b>Liposome Preparation Equipment</b>		<b>Microinjectors</b>	
Cobolt	366	Avanti Polar Lipids Inc	327	ASI/Applied Scientific Instrumentation Inc	335
Edinburgh Instruments	390	<b>Liquid Chromatography Instruments</b>		Narishige International USA Inc	491
ISS Inc	374	Agilent Technologies	255	npi electronic	443
PicoQuant Photonics	288	Wyatt Technology Corporation	273	Sutter Instrument	228
Renishaw Inc	729	<b>Magnetic Stirrers</b>		Warner Instruments	274
RPMC Lasers Inc	387	Electron Microscopy Sciences	279	World Precision Instruments	336
Thorlabs	328	<b>Mass Spectrometry</b>		<b>Micromanipulators</b>	
<b>Life Sciences</b>		Agilent Technologies	255	ASI/Applied Scientific Instrumentation Inc	335
AAAS Science & Technology Policy Fellowships	158	Bio-Logic USA	438	AutoMate Scientific	144
American Society for Cell Biology (ASCB)	631	Extrel CMS	646	Ecocyte Bioscience US LLC	370
Anasys Instruments	743	Peptides International	284	Fluicell (former Avalance Biotech)	365
Cedarlane Corporation	136	Renishaw Inc	729	Luigs & Neumann GmbH	737
Chroma Technology	355	<b>Micro Environmental Control</b>		LUMICKS BV	467
Cobolt	366	ALA Scientific Instruments	445	Mad City Labs Inc	244
GenScript	138	<b>Microcalorimetry Systems</b>		Narishige International USA Inc	491
MicroSurfaces Inc	146	Malvern Instruments	343	NeoBiosystems Inc	347
Olympus	256	TA Instruments	373	Pacer Scientific	356
One World Lab	827	<b>Microdissecting Instruments</b>		Prior Scientific Inc	368
OriginLab Corporation	487	World Precision Instruments	336	Scientifica Ltd	447
PicoQuant Photonics	288	<b>Microelectrode Holders</b>		Sensapex	627
Rapp OptoElectronic	738	ALA Scientific Instruments	445	Siskiyou Corporation	361
Renishaw Inc	729	Luigs & Neumann GmbH	737	Sutter Instrument	228
Rigaku Americas Corporation	379	Sensapex	627	<b>Micropipettes</b>	
SciMeasure	465	Warner Instruments	274	Fluicell (former Avalance Biotech)	365
SensiQ Technologies Inc	643	<b>Microelectrodes</b>		<b>Micropositioners</b>	
TA Instruments	373	Ecocyte Bioscience US LLC	370	ASI/Applied Scientific Instrumentation Inc	335
<b>Light Sheet Microscopy</b>		<b>Microfluidic Chambers</b>		Mad City Labs Inc	244
ASI/Applied Scientific Instrumentation Inc	335	ALA Scientific Instruments	445	NeoBiosystems Inc	347
Chroma Technology	355	Fluicell (former Avalance Biotech)	365	PI Physik Instrumente L.P. Piezo Nano Positioning	259
Mad City Labs Inc	244	Ionovation	630	Sensapex	627
NanoAndMore USA	469	LUMICKS BV	467	Sutter Instrument	228
Photometrics	238	MicroSurfaces Inc	146	<b>Microforges</b>	
TIRF Labs	268	<b>Microforges</b>		ALA Scientific Instruments	445
<b>Light Sources</b>		<b>Micropipette Pullers</b>		Narishige International USA Inc	491
89 North	355	AutoMate Scientific	144	Pacer Scientific	356
Chroma Technology	355	Narishige International USA Inc	491	Siskiyou Corporation	361
Cobolt	366	Pacer Scientific	356	Sutter Instrument	228
Hamamatsu Corporation	265	Siskiyou Corporation	361	<b>Micropipettes</b>	
HORIBA/PTI	128	Sutter Instrument	228	Fluicell (former Avalance Biotech)	365
ISS Inc	374	<b>Microfluidic Chambers</b>		<b>Micropositioners</b>	
KinTek Corporation	428	ALA Scientific Instruments	445	ASI/Applied Scientific Instrumentation Inc	335
Mightex Systems	156	Fluicell (former Avalance Biotech)	365	Mad City Labs Inc	244
Pacer Scientific	356	Ionovation	630	NeoBiosystems Inc	347
Prior Scientific Inc	368	LUMICKS BV	467	PI Physik Instrumente L.P. Piezo Nano Positioning	259
Rapp OptoElectronic	738	MicroSurfaces Inc	146	Sensapex	627
Siskiyou Corporation	361	<b>Microforges</b>		Sutter Instrument	228
Sutter Instrument	228	ALA Scientific Instruments	445	<b>Micropipettes</b>	
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Anatrace	350	<b>Micropipette Pullers</b>		<b>Micropositioners</b>	
Avanti Polar Lipids Inc	327	AutoMate Scientific	144	ASI/Applied Scientific Instrumentation Inc	335
BioNavis Ltd	629	Narishige International USA Inc	491	Mad City Labs Inc	244
Matreya LLC	270	<b>Micropipette Pullers</b>		NeoBiosystems Inc	347
		AutoMate Scientific	144	PI Physik Instrumente L.P. Piezo Nano Positioning	259
		Narishige International USA Inc	491	Sensapex	627
		Pacer Scientific	356	Sutter Instrument	228
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Carl Zeiss Microscopy LLC	455	Nikon Instruments Inc	280	HEKA Electronik	628
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Chroma Technology	355	Park Systems	236	Multi Channel Systems	444
Cobolt	366	PHASICS	283	Nanion Technologies GmbH	243
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Fluicell (former Avalance Biotech)	365	Rapp OptoElectronic	738	NeoBiosystems Inc	347
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Ludl Electronic Products	359	<b>Nanopositioning Systems</b>		ALA Scientific Instruments	445
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Quantum Northwest Inc	432	Anasys Instruments	743	Photometrics	238
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Edinburgh Instruments	390	NanoAndMore USA	469	Renishaw Inc	729
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 Blick, R., 2382-Pos  
 Blick, R. H., 1637-Pos  
 Blikstein, P., 1681-Pos  
 Blinov, M. L., 2386-Pos  
 Bloch, R., 2132-Pos  
 Blosser, M. C., 1211-Pos,  
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 Blower, M. D., 894-Plat  
 Blumenschein, T. M.,  
 971-Plat  
 Blumenthal, D., 391-Pos  
 Blunck, R., 114-Plat,  
 588-Pos, 2149-Pos,  
 2213-Pos  
 Board, P. G., 1365-Pos  
 Bock, L., 2371-Pos  
 Bock, L. V., 126-Plat,  
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 Böcking, T., 1489-Pos  
 Böckmann, R. A., 2663-Pos  
 Bocksteins, E., 583-Pos,  
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 Boczkowska, M., 948-Symp  
 Bodkin, M. J., 1791-Plat  
 Bodmer, R., 1812-Plat  
 Bodnar, A., 2100-Pos  
 Boedicker, J., 2339-Pos  
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 Boehning, D., 1327-Pos  
 Boehr, D. D., 2670-Pos,  
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 Boersma, A. J., 568-Pos,  
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 Boettcher, B., 2516-Symp  
 Boettcher, M. A., 1099-Pos  
 Bogardus, K., 2780-Pos  
 Bogush, A. I., 2540-Plat  
 Bohlooli Ghashghae, N.,  
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 Bohon, J., 3129-Pos  
 Bohrer, C., 2706-Pos  
 Bohrer, C. H., 1613-Pos  
 Boilot, J., 2438-Pos  
 Boissan, M., 1849-Plat  
 Boiteux, C., 596-Pos,  
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 Bokoch, M. P., 1759-Plat  
 Bolatti, M., 2081-Pos  
 Boldt, K. R., 2983-Pos  
 Bolhuis, P. G., 316-Pos  
 Bölke, N., 1021-Plat  
 Bollen, Y., 1622-Pos  
 Bollensdorff, C., 558-Pos  
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 Bomblies, R., 932-Plat,  
 1591-Pos  
 Bommarito, P., 1728-Plat  
 Bonassar, L. J., 576-Pos  
 Boncompagni, S., 1351-Pos  
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 Bond, P. J., 494-Pos,  
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 Bondon, A., 10-Subg  
 Bonilla, I., 2111-Pos  
 Bonilla, J., 1008-Plat  
 Bonin, K., 699-Pos  
 Bonny, M., 2664-Pos  
 Bonor, J. C., 1609-Pos  
 Bonsignore, F., 1038-Plat  
 Boomsma, W., 1139-Pos  
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 Boonen, B., 1427-Pos  
 Booth, D. M., 3076-Pos  
 Booth, V., 185-Plat,  
 1879-Pos, 2779-Pos,  
 2812-Pos  
 Bora, R., 1963-Pos  
 Bora, V., 912-Plat  
 Boras, B. W., 2697-Pos  
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 3128-Pos  
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 Borgnia, M. J., 2599-Pos  
 Borka, B., 1116-Pos  
 Borleis, J. S., 709-Pos  
 Born, B., 256-Pos  
 Bornhop, D., 1278-Pos  
 Boroda, N., 2855-Pos  
 Borschel, W. F., 1398-Pos  
 Bosch, G., 1683-Pos  
 Bosch, J., 142-Plat,  
 738-Pos, 1095-Pos,  
 1683-Pos, 1790-Plat,  
 2578-Pos, 2592-Pos  
 Bosch, P. J., 481-Pos  
 Boschek, C. B., 1734-Plat  
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 Bosmans, F., 2180-Pos  
 Bot, C. T., 556-Pos  
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 Bottaro, S., 1184-Pos  
 Bottorf, L. M., 3105-Pos  
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 Boucher, L. E., 738-Pos,  
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 Boukari, H., 3132-Pos,  
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 1505-Pos  
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 Bouxsein, N. F., 2269-Pos  
 Bouzat, C. B., 2165-Pos,  
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 Bowen, M. E., 294-Pos  
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 Boyden, E., 2408-Pos  
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 Brangwynne, C., 1159-Pos  
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 Braselmann, E., 2427-Pos,  
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 Brochet, D. X., 542-Pos, 2875-Pos  
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 Brooks, B. R., 233-Pos, 792-Pos, 921-Plat  
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 Brooks, D. H., 1053-Pos  
 Brooks, T. A., 1994-Pos  
 Bronson, S. H., 2541-Plat  
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 Brown, A. C., 2801-Pos  
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 Brown, B. M., 97-Plat  
 Brown, C., 1666-Pos  
 Brown, D., 504-Pos  
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 Brown, L. S., 474-Pos  
 Brown, M., 96-Plat, 1266-Pos  
 Brown, M. A., 2503-Plat  
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 Brun, Y. V., 1860-Wkshp  
 Brundage, E. A., 3007-Pos, 3012-Pos  
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 Cao, W., 118-Plat, 1130-Pos  
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- Foster, D., 3040-Pos,  
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- Foster, D. B., 1520-Pos,  
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- Foster, K. W., 2309-Pos
- Foster, M. N., 2913-Pos
- Foster, S. J., 995-Symp
- Fourkas, J., 1503-Pos,  
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- Fournier, J., 8-Subg
- Fowler, E. D., 1472-Pos
- Fowler, P. W., 150-Plat,  
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- Fox, B. G., 1131-Pos
- Fox, C. S., 1108-Pos
- Fox, D. M., 1873-Pos
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- Fracchiolla, G., 2966-Pos
- Fradin, C., 812-Pos
- França, A. D., 2038-Pos
- Francesca, G., 1467-Pos
- Francesconi, O., 616-Pos
- Franck, C., 2491-Plat
- Francois, J., 2288-Pos
- Francy, C. A., 1864-Pos
- Frank, C., 1370-Pos
- Frank, G. A., 2666-Pos
- Frank, J., 3122-Pos
- Franke, G., 2483-Plat
- Franzini - Armstrong, C.,  
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- Frasca, V., 1309-Pos
- Fraser, K., 1648-Pos
- Frato, K., 1126-Pos,  
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- Fread, K., 1725-Plat
- Frech, S., 2954-Pos
- Fred, L. M., 1952-Pos
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- Freed, J. H., 2538-Plat
- Freed, K. F., 324-Pos
- Freeman, G. S., 367-Pos
- Freese, M. J., 2641-Pos
- Freilinger, T., 758-Pos
- Freissmuth, M., 999-Symp,  
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- Freites, J., 2368-Pos
- French, C., 2906-Pos
- French, R. J., 2906-Pos,  
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- Freund, E., 1369-Pos
- Frey, N., 841-Pos
- Frey, S. L., 1289-Pos,  
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- Freymann, D., 772-Pos
- Fribourg, M., 2095-Pos
- Fricke, N., 88-Plat
- Fridlyand, L. E., 523-Pos
- Fried, M. G., 943-Symp
- Friedman, C., 1065-Pos,  
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- Friedman, L., 2839-Pos
- Friedman, L. J., 822-Pos,  
2561-Plat, 2708-Pos
- Friesner, R., 60-Plat
- Frisk, M., 532-Pos, 650-Pos,  
2232-Pos
- Frisz, J. F., 4-Subg
- Fritzinger, N., 2595-Pos
- Fritzinger, J., 1160-Pos
- Froebel, S., 1190-Pos
- Frohm, B., 1072-Pos,  
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- Frolov, V. A., 2461-Pos
- Frost, A., 1796-Symp
- Frueh, D. P., 237-Pos,  
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- Fry, B. A., 2340-Pos
- Frye, G. S., 2995-Pos
- Fu, R., 452-Pos, 1246-Pos
- Fuchs, P., 10-Subg, 909-Plat
- Fuchs, P. F., 2071-Pos
- Fudala, R., 1469-Pos,  
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- Fuentes, E. J., 300-Pos
- Fuglestad, B., 460-Pos,  
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- Fujii, T., 105-Plat
- Fujimoto, L. M., 1249-Pos
- Fujimoto, T., 153-Plat
- Fujio, H., 684-Pos
- Fujita, H., 711-Pos
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- Fukuda, Y., 2594-Pos
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- Funatsu, T., 2415-Pos
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- Funk, O. H., 2849-Pos
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- Furgeson, S., 2410-Pos
- Furini, S., 179-Plat,  
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- Fushman, D., 2628-Pos
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- Gabelli, S. B., 637-Pos,  
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- Gacoin, T., 2438-Pos
- Gaczynska, M. E., 705-Pos
- Gaetano, C. M., 1192-Pos
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- Gallagher, P. G., 2849-Pos
- Gallagher, T., 2500-Plat
- Gallagher, T. L., 2971-Pos
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- Gamari, B. D., 1187-Pos,  
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- Gamble, T., 867-Pos
- Gambone, C., 2584-Pos
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- Ganesan, S. K., 269-Pos
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- Gao, F., 307-Pos
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- Gao, M., 571-Pos
- Gao, R., 201-Plat
- Gao, W., 1455-Pos
- Gao, X., 1285-Pos
- Gao, Y., 502-Pos, 797-Pos
- Gao, Z., 2463-Pos
- Gaowei, M., 3129-Pos
- Gaponenko, V., 475-Pos,  
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- Garcia-Parajo, M., 2098-Pos
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- Garcia-Pelagio, K., 2132-Pos
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- Garg, S., 1243-Pos
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- Garip, S., 3157-Pos
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- Gartenhaus, R. B., 1100-Pos
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- Gaser, A. N., 1090-Pos
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- Gatto, C., 720-Pos, 735-Pos
- Gaudet, R., 42-Subg,  
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- Gaus, K., 1809-Plat,  
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- Gautel, M., 79-Plat
- Gavaghan, D. G., 558-Pos
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- Gavazzo, P., 758-Pos
- Gavrilljuk, K., 1735-Plat
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- Gaydar, V., 358-Pos
- Gc, J. B., 1880-Pos
- Ge, J., 1504-Pos, 1505-Pos
- Ge, Y., 441-Pos, 1527-Pos
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- Gunning, P., 1489-Pos
- Gunther, L., 2120-Pos
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- Guo, H., 549-Pos
- Guo, J., 607-Pos, 2673-Pos
- Guo, M., 701-Pos
- Guo, P., 359-Pos, 361-Pos, 2430-Pos
- Guo, Q., 2703-Pos
- Guo, R., 466-Pos
- Guo, S., 559-Pos, 882-Pos, 2408-Pos
- Guo, W., 1492-Pos
- Guo, X., 699-Pos
- Guo, Y., 1838-Plat
- Gupta, A., 1022-Plat
- Gupta, C., 1113-Pos
- Gupta, K., 415-Pos
- Gupta, M., 21-Subg
- Gupta, N. R., 1616-Pos
- Gupta, R., 194-Plat
- Gupta, S., 2157-Pos
- Gupte, S. A., 639-Pos
- Gurbanov, R., 3155-Pos
- Gurnev, P. A., 933-Plat, 952-Symp, 3064-Pos
- Gürsoy, G., 2727-Pos
- Guruge, C., 2072-Pos
- Gurung, R., 1487-Pos
- Gururaja Rao, S., 1407-Pos, 1848-Plat
- Gurusaran, M., 1645-Pos
- Gushchina, L. V., 1354-Pos
- Guthold, M., 699-Pos, 848-Pos
- Gutiérrez, I. S., 799-Pos
- Gutiérrez, J., 2180-Pos
- Güvenir, H., 1382-Pos
- Guzik-Lendrum, S., 101-Plat
- Guzman, I., 72-Plat
- Guzzardi, L., 1582-Pos
- Gwathmey, J., 1376-Pos
- Gwozdz, P. V., 1637-Pos
- Gyore, J., 1921-Pos
- Gyorke, S., 284-Pos, 2111-Pos
- Gyurkovics, G., 1390-Pos
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- Halabis, A., 788-Pos
- Ha, J., 512-Pos
- Ha, K. N., 1268-Pos, 2527-Plat
- Ha, S., 1611-Pos, 1696-Plat
- Ha, T., 127-Plat, 1188-Pos, 1564-Pos, 1787-Plat, 2493-Plat, 2497-Plat
- Ha, Y., 2520-Symp
- Haarmann, C., 614-Pos, 1454-Pos
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- Haas, P. A., 2311-Pos
- Haas, S., 2907-Pos
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- Habbout, K., 2478-Plat
- Hachikubo, Y., 105-Plat
- Hackstadt, T., 971-Plat
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- Haddad-Weiser, G., 1278-Pos
- Hadden, J. A., 2633-Pos
- Haedo, R. J., 556-Pos
- Haengel, K. N., 2083-Pos
- Hafi, N., 37-Subg
- Hafver, T. L., 2182-Pos
- Hagan, M. F., 1889-Pos
- Hagar, A., 978-Plat
- Hagemann, A. I., 3087-Pos
- Hagen, B. M., 548-Pos, 1339-Pos
- Hager, R., 500-Pos
- Hagras, M. A., 3044-Pos
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- Haines, T. H., 2079-Pos
- Hajnal, A., 1833-Plat
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- Haldeman, B., 1484-Pos
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- Hales, T. G., 2087-Pos
- Haliloglu, T., 1059-Pos
- Hall, A. R., 1663-Pos, 2426-Pos
- Hall, B. A., 1833-Plat
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- Hall, K. B., 1189-Pos
- Hallatschek, O., 1169-Pos
- Hallock, J. T., 106-Plat
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- Hamilla, S. M., 3168-Pos
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- Han, B., 1772-Plat
- Han, D. T., 865-Pos
- Han, J., 1473-Pos
- Han, R., 2127-Pos, 2128-Pos
- Han, S., 1133-Pos, 1705-Plat, 1881-Pos, 2492-Plat
- Han, S. J., 2299-Pos
- Han, T., 1211-Pos
- Han, W., 1592-Pos, 2502-Plat
- Han, X., 954-Plat, 2981-Pos
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Soga, N., 715-Pos  
Sohail, A., 999-Symp, 2322-Pos  
Sohn, J., 193-Plat, 2015-Pos  
Sokabe, M., 2861-Pos  
Sokolov, A. P., 2457-Pos  
Sokolov, S., 602-Pos  
Solcan, N., 1550-Pos  
Soldovieri, M. V., 1752-Plat  
Solis Ocampo, C., 649-Pos  
Solis, Jr, E., 2327-Pos  
Solis, Jr, E., 2325-Pos  
Solis-Ocampo, C., 648-Pos, 2122-Pos  
Soller, K. J., 1286-Pos, 2527-Plat  
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Sommese, R., 2240-Pos  
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Song, C., 590-Pos, 646-Pos, 935-Plat, 2212-Pos, 2250-Pos  
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Song, W., 1464-Pos, 2287-Pos  
Song, Y., 458-Pos  
Song, Z., 1322-Pos, 1323-Pos, 1335-Pos  
Sonn-Segev, A., 1491-Pos  
Sonobe, T., 3003-Pos  
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Sørensen, R. S., 883-Pos  
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Sorenson, M., 1069-Pos  
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Soto, G., 2662-Pos  
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 Zecchi, K. A., 1213-Pos  
 Zeina, T., 564-Pos,  
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 Zeleznik-Le, N., 25-Subg  
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 Zhang, D., 811-Pos,  
 2480-Plat  
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 1750-Plat  
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 Zimring, M. B., 534-Pos  
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 Zimmerberg-Helms, J.,  
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 Zlotnick, A., 856-Pos  
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 Zocher, F., 916-Plat  
 Zoghbi, M. E., 724-Pos,  
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 Zollinger, A., 1538-Pos  
 Zolman, K. D., 2139-Pos  
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 1600-Pos, 2383-Pos  
 Zuev, Y. F., 238-Pos  
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 Zwolak, M., 885-Pos  
 Zygmunt, P. M., 615-Pos

## Author Disclosures

Authors of submitted abstracts completed a disclosure statement. Disclosures included any relationships that may bias one's presentation or which, if known, could give the perception of bias. These situations include but are not limited to:

1. Stock options or bond holdings in a for-profit corporation or self-directed pension plan
2. Research funded by industry grant
3. Employment (full- or part-time) in funding company
4. Ownership or Partnership in funding organization
5. Consulting fees or other remuneration from industry
6. Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company
7. Receipt of royalties from referenced company products
8. Speaker's bureau
9. Other

Below is the list of authors and disclosures for programmed abstracts.

Name	Disclosure Entity	Disclosure Type	Presentation Number
Aldeghi, Matteo	Evotec (U.K.) Ltd.	Research funded by industry grant	1791-Plat
Alvaro, Giuseppe	Autifony Therapeutics Limited	Employment (full or part-time) in funding company	635-Pos
Amuzescu, Bogdan	Cytocentrics Bioscience GmbH	Employment (full or part-time) in funding company	2954-Pos
Anantharaman, Thomas	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Andrzejewska, Weronika	grant (UMO-2011/01/B/ST5/00846) from National Science Centre	Other	1972-Pos
Anson, Blake	CDI	Employment (full or part-time) in funding company	3014-Pos
Aoyama, Natsuyo	CDI	Employment (full or part-time) in funding company	3014-Pos
Armstrong, Luke	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Baddeley, David	Zeiss	Receipt of royalties from referenced company products	2393-Pos
Barker, John	Evotec (U.K.) Ltd.	Employment (full or part-time) in funding company	1791-Plat
Bayley, Hagan	Oxford Nanopore Technologies	Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company	935-Plat
Beattie, Kylie	GlaxoSmithKline	Research funded by industry grant	605-Pos
Belardinelli, Luiz	Gilead Sciences	Employment (full or part-time) in funding company	1395-Pos
Benjamin, Christopher	Pandion Laboratories LLC	Research funded by industry grant	3115-Pos
Benner, Steven	Firebird Molecular Sciences	Receipt of royalties from referenced company products	1985-Pos
Berne, Bruce	Schrodinger Inc	Consulting fees or other remuneration from industry	60-Plat
Bers, Donald	Gilead Sciences	Research funded by industry grant	981-Plat
Bett, Glenna	Cytocybernetics	Ownership or Partnership in funding organization	560-Pos
Bett, Glenna	Cytocybernetics	Ownership or Partnership in funding organization	561-Pos
Bett, Glenna	Cytocybernetics	Ownership or Partnership in funding organization	1366-Pos
Bewersdorf, Joerg	Bruker Corporation	Consulting fees or other remuneration from industry	2398-Pos

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Bodkin, Michael	Evotec (U.K.) Ltd.	Employment (full or part-time) in funding company	1791-Plat
Borbulevych, Oleg	NIH	Research funded by industry grant	3128-Pos
Brown, Arthur	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Brown, Arthur	ChanTest Corp.	Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company	2945-Pos
Bruening-Wright, Andrew	ChanTest Corp.	Employment (full or part-time) in funding company	2945-Pos
Bruggemann, Andrea	Nanion Technologies	Ownership or Partnership in funding organization	614-Pos
Bruggemann, Andrea	Nanion Technologies	Ownership or Partnership in funding organization	1454-Pos
Bruhn, Brandon	Oxford Nanopore	Research funded by industry grant	872-Pos
Bruhn, Brandon	Oxford Nanopores Technologies Ltd	Research funded by industry grant	876-Pos
Burke, Tom	CDI	Employment (full or part-time) in funding company	2968-Pos
Caffaro, Carolina	Keysight Technologies	Employment (full or part-time) in funding company	840-Pos
Candelli, Andrea	LUMICKS	Receipt of royalties from referenced company products	2557-Plat
Cao, Han	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Carlson, Coby	CDI	Employment (full or part-time) in funding company	3014-Pos
Carlson, Coby	CDI	Employment (full or part-time) in funding company	2968-Pos
Casas-Finet, Jose	MedImmune LLC	Employment (full or part-time) in funding company	1893-Pos
Chan, Saki	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Chapman, Mark	Pfizer, Inc.	Employment (full or part-time) in funding company	2902-Pos
Chase, Lucas	CDI	Employment (full or part-time) in funding company	2968-Pos
Chung, Inhee	Genentech, Incorporated, a member of the Roche Group	Employment (full or part-time) in funding company	810-Pos
Cohen, Charles	Xenon Pharmaceuticals	Employment (full or part-time) in funding company	2912-Pos
Corradini, Maria	Pepsi Co.	Research funded by industry grant	3139-Pos
Costantin, James	Molecular Devices, LLC	Employment (full or part-time) in funding company	1434-Pos
Covarrubias, Manuel	Autifony Therapeutics Limited	Research funded by industry grant	635-Pos
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DeLaura, Susan	CDI	Employment (full or part-time) in funding company	2968-Pos
Dergachev, Vladimir	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Dhaval, Sirisha	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Digman, Michelle	NIH P50-GM076516	Research funded by industry grant	369-Pos
Diwu, Zhenjun	AAT Bioquest	Employment (full or part-time) in funding company	549-Pos
Dowbenko, Don	Genentech, Incorporated, a member of the Roche Group	Employment (full or part-time) in funding company	810-Pos
Dzakula, Zeljko	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Eggenberger, Olivia	Oxford Nanopore	Research funded by industry grant	872-Pos
Eisfeld, Jörg	j.eisfeld@cytocentrics.com	Employment (full or part-time) in funding company	2954-Pos
Emter, Craig	Bristol Myer/AstraZenca	Research funded by industry grant	1462-Pos
Fedorov, Nikolai	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Fisher, Jasmin	Microsoft	Employment (full or part-time) in funding company	1833-Plat



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Foquet, Mathieu	Pacific Biosciences	Other	1657-Pos
Ford, Nicole	NanoTemper Technologies	Employment (full or part-time) in funding company	266-Pos
Frech, Stefanie	Cytocentrics Bioscience GmbH	Employment (full or part-time) in funding company	2954-Pos
Friesner, Richard	Schrodinger Inc	Consulting fees or other remuneration from industry	60-Plat
Fuller, Matthew	Pfizer, Inc.	Employment (full or part-time) in funding company	2902-Pos
Gallagher, Thomas	Lonza Biologics	Employment (full or part-time) in funding company	2500-Plat
Garg, Sumit	BERG LLC	Employment (full or part-time) in funding company	1243-Pos
Gesta, Stephane	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Goldberg, Paul	Xenon Pharmaceuticals	Employment (full or part-time) in funding company	2912-Pos
Golovchenko, Jene	Oxford Nanopore Technology	Research funded by industry grant	880-Pos
Gourdie, Robert	R.G.G. is a member of the Scientific Advisory Board of FirstString Research Inc., a company spun off from his lab that is testing aCT1 in clinical trials for skin wound healing.	Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company	2221-Pos
Gratton, Enrico	NIH P50-GM076516	Research funded by industry grant	369-Pos
Guo, Haitao	AAT Bioquest	Employment (full or part-time) in funding company	549-Pos
Hall, Benjamin	Microsoft	Employment (full or part-time) in funding company	1833-Plat
Hall, Kathleen	Agilent	Research funded by industry grant	1189-Pos
Hastie, Alex	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Heerklotz, Heiko	Bayer CropScience	Research funded by industry grant	2785-Pos
Heerklotz, Heiko	Bayer CropScience	Research funded by industry grant	2793-Pos
Heifetz, Alexander	Evotec (U.K.) Ltd.	Employment (full or part-time) in funding company	1791-Plat
Helmes, Michiel	Ionoptix ltd	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	1475-Pos
Hoshika, Shuichi	Firebird Biomolecular Sciences	Employment (full or part-time) in funding company	1985-Pos
Huang, Tao	NIH Grant	Other	874-Pos
Hyun, Changbae	NIH Grant	Other	874-Pos
Hyun, Seok-Hee	Pandion Laboratories LLC	Research funded by industry grant	3115-Pos
Jacobs, Donald	MedImmune Ltd	Research funded by industry grant	1893-Pos
Jones, Eugenia	CDI	Employment (full or part-time) in funding company	3014-Pos
Jones, Eugenia	CDI	Employment (full or part-time) in funding company	2968-Pos
Kass, Robert	Gilead Sciences	Research funded by industry grant	2953-Pos
Kattman, Steven	CDI	Employment (full or part-time) in funding company	3014-Pos
Kaur, Harpreet	NIH Grant	Other	874-Pos
Kiebish, Michael	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Kirsch, Glenn	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Knott, Thomas	Cytocentrics Bioscience GmbH	Employment (full or part-time) in funding company	2954-Pos
Koonce, Chad	CDI	Employment (full or part-time) in funding company	3014-Pos
Korlach, Jonas	Pacific Biosciences	Other	1657-Pos
Kramer, James	ChanTest Corp.	Employment (full or part-time) in funding company	2945-Pos
Krumova, Katerina	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Kuryshev, Yuri	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Lacerda, Antonio	ChanTest Corp.	Employment (full or part-time) in funding company	2945-Pos

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Large, Charles	Autifony Therapeutics Limited	Employment (full or part-time) in funding company	635-Pos
Law, Richard	Evotec (U.K.) Ltd.	Employment (full or part-time) in funding company	1791-Plat
Lazar, Josef	Innovative Bioimaging, LLC	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	1643-Pos
Lee, Jo	UCB Pharma	Research funded by industry grant	1548-Pos
Li, Jiali	NIH Grant	Other	874-Pos
Liang, Qiansheng	Autifony Therapeutics Limited	Research funded by industry grant	635-Pos
Liao, Jinfang	AAT Bioquest	Employment (full or part-time) in funding company	549-Pos
Lin, Kun-Han	Cytocentrics Bioscience GmbH	Employment (full or part-time) in funding company	2954-Pos
Liu, Zhiqi	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Livesay, Dennis	MedImmune Ltd	Research funded by industry grant	1893-Pos
Louttit, James	GlaxoSmithKline	Employment (full or part-time) in funding company	605-Pos
Ludescher, Richard	Pepsi Co.	Research funded by industry grant	3139-Pos
Ma, Jianjie	Founder of Trim-edicine	Other	1346-Pos
Mangan, Kile	CDI	Employment (full or part-time) in funding company	2968-Pos
Mayer, Michael	Oxford Nanopore	Research funded by industry grant	872-Pos
Mayer, Michael	Oxford Nanopores Technologies Ltd	Research funded by industry grant	876-Pos
McKay, Craig	Molecular Devices, LLC	Employment (full or part-time) in funding company	1434-Pos
McLachlan, Michael	CDI	Employment (full or part-time) in funding company	2968-Pos
McNabb, David	NIH Grant	Other	874-Pos
Meline, Benjamin	CDI	Employment (full or part-time) in funding company	3014-Pos
Meline, Benjamin	CDI	Employment (full or part-time) in funding company	2968-Pos
Mellman, Ira	Genentech, Incorporated, a member of the Roche Group	Employment (full or part-time) in funding company	810-Pos
Melosh, Nicholas	Stealth Biosciences	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	743-Pos
Melosh, Nicholas	Stealth Biosciences	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	2876-Pos
Meyer, Nathan	CDI	Ownership or Partnership in funding organization	2968-Pos
Mirams, Gary	GlaxoSmithKline	Research funded by industry grant	605-Pos
Miu, Peter	Molecular Devices, LLC	Employment (full or part-time) in funding company	1434-Pos
Moss, Richard	Consultant for Myokardia, Inc.	Consulting fees or other remuneration from industry	663-Pos
Nandivada, Santoshi	NIH Grant	Other	874-Pos
Narain, Niven	Berg LLC	Ownership or Partnership in funding organization	1243-Pos
Nelson, Philip	WH Freeman and Co.	Receipt of royalties from referenced company products	1673-Pos
Obejero-Paz, Carlos	ChanTest Corporation	Employment (full or part-time) in funding company	2945-Pos
Ozcan, Aydogan	Holomic LLC	Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company	1861-Wkshp
Peterman, Erwin	LUMICKS	Receipt of royalties from referenced company products	2557-Plat
Peterman, Erwin	LUMICKS	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	832-Pos
Peterson, Raymond	Celadon Laboratories	Employment (full or part-time) in funding company	1985-Pos

Name	Disclosure Entity	Disclosure Type	Presentation Number
Pierson, Jason	FEI Company	Employment (full or part-time) in funding company	1441-Pos
Piterman, Nir	Microsoft	Employment (full or part-time) in funding company	1833-Plat
Prummer, Michael	F. Hoffmann-La Roche Ltd.	Employment (full or part-time) in funding company	1626-Pos
Rajamani, Sridharan	Gilead Sciences	Employment (full or part-time) in funding company	1395-Pos
Ramdoski, Chris	Xenon Pharmaceuticals	Employment (full or part-time) in funding company	2912-Pos
Rammohan, Aravind	Corning, Inc.	Employment (full or part-time) in funding company	1533-Pos
Rasmusson, Randall	Cytocybernetics	Ownership or Partnership in funding organization	560-Pos
Rasmusson, Randall	Cytocybernetics	Ownership or Partnership in funding organization	561-Pos
Rasmusson, Randall	Cytocybernetics	Ownership or Partnership in funding organization	1366-Pos
Rau, Michael	Agilent	Research funded by industry grant	1189-Pos
Reichelt, Mike	Genentech, Incorporated, a member of the Roche Group	Employment (full or part-time) in funding company	810-Pos
Reifenberger, Jeff	BioNano Genomics	Employment (full or part-time) in funding company	742-Pos
Robey, Seth	Gilead Sciences	Research funded by industry grant	2953-Pos
Sahin, Ozgur	Bruker-nano, Inc.	Receipt of royalties from referenced company products	1780-Plat
Sarangarajan, Rangaprasad	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Scheel, Olaf	Cytocentrics Bioscience GmbH	Employment (full or part-time) in funding company	2954-Pos
Seeliger, Daniel	Boehringer Ingelheim	Employment (full or part-time) in funding company	2087-Pos
Shorthouse, David	Lonza Biologics	Research funded by industry grant	2500-Plat
Silverberg, Jesse	R.J., M.D., M.S.A., J.B.W. and P.Y. have filed a provisional US patent application regarding the current work	Other	2407-Pos
Sitte, Harald	Torrex-Chiesi Pharma	Consulting fees or other remuneration from industry	999-Symp
Sitters, Gerrit	LUMICKS	Receipt of royalties from referenced company products	2557-Plat
Skupin, Michalina	Acknowledgments: The study was supported by research grant „GENERACJA PR-ZYSZ&#321;O&#346;CI” from Ministry of Science and Higher Education (Poland) – decision: 12/POIG/GP/2013.	Other	1239-Pos
Sliwkowski, Mark	Genentech, Incorporated, a member of the Roche Group	Employment (full or part-time) in funding company	810-Pos
Smith, Godfrey	Shareholder in Clyde Bioscience Ltd (UK)	Other	1380-Pos
Srivastava, Amit	MedImmune Ltd	Research funded by industry grant	1893-Pos
Stolarska, Magdalena	Corning, Inc.	Consulting fees or other remuneration from industry	1533-Pos
Swanson, Brad	CDI	Employment (full or part-time) in funding company	2968-Pos
Tate, Christopher	Heptares Therapeutics	Consulting fees or other remuneration from industry	210-Wkshp
Taylor, J.	Third Rock Ventures	Consulting fees or other remuneration from industry	27-Subg
Theile, Jonathan	Pfizer, Inc.	Employment (full or part-time) in funding company	2902-Pos
Thomas, Dierk	MSD Sharp and Dohme	Research funded by industry grant	552-Pos

Name	Disclosure Entity	Disclosure Type	Presentation Number
Thompson, David	Pandion Laboratories LLC	Ownership or Partnership in funding organization	3115-Pos
Tracka, Malgorzata	MedImmune Ltd	Employment (full or part-time) in funding company	1893-Pos
Trayanova, Natalia	Cardiosolv, LLC	Ownership or Partnership in funding organization	737-Pos
Trick, Jemma	Oxford Nanopore Technologies	Research funded by industry grant	935-Plat
Turner, Stephen	Pacific Biosciences	Other	1657-Pos
Uddin, Shahid	MedImmune Ltd	Employment (full or part-time) in funding company	1893-Pos
Vanegas, Juan	Sandia National Labs is a multi-program laboratory operated by Sandia Corp., a wholly owned subsidiary of Lockheed Martin Corp., for the US DOE's NNSA under contract DE-AC04-94AL85000	Other	2043-Pos
Vanegas, Juan	Sandia National Labs is a multi-program laboratory operated by Sandia Corp., a wholly owned subsidiary of Lockheed Martin Corp., for the US DOE's NNSA under contract DE-AC04-94AL85000	Other	1120-Pos
Vickery, Owen	Boehringer Ingelheim	Research funded by industry grant	2087-Pos
Villatoro, Kathya	CONACYT MEXICO	Other	1382-Pos
Vinnakota, Anirudh	Oxford Nanopores Technologies Ltd	Research funded by industry grant	876-Pos
Vishnudas, Vivek	Berg LLC	Employment (full or part-time) in funding company	1243-Pos
Wallace, Jayne	Oxford Nanopore Technologies	Employment (full or part-time) in funding company	935-Plat
Wand, A. Joshua	Daedalus Innovations, LLC	Receipt of royalties from referenced company products	239-Pos
Wand, A.	Daedalus Innovations LLC	Receipt of royalties from referenced company products	3110-Pos
Wand, A.	Daedalus Innovations, LLC	Receipt of royalties from referenced company products	1741-Plat
Wand, A.	Daedalus Innovations, LLC	Receipt of royalties from referenced company products	460-Pos
Wang, Jun	CDI	Employment (full or part-time) in funding company	3014-Pos
Webber, Jeffrey	Molecular Devices, LLC	Employment (full or part-time) in funding company	1434-Pos
Weiss, Robert	NanoCor Therapeutics Inc.	Receipt of royalties from referenced company products	2999-Pos
Welty, Robb	Agilent	Research funded by industry grant	1189-Pos
Westerhoff, Lance	NIH	Research funded by industry grant	3128-Pos
Williams, John	Meditope Biosciences, Inc.	Non-remunerative positions of influence such as officer, board member, trustee, or public spokesperson in company	2417-Pos
Wolak, Joanna	The study was supported by research grant „GENERACJA PRZYSZŁOŚCI” from Ministry of Science and Higher Education (Poland) – decision: 12/POIG/GP/2013.	Other	2762-Pos



Name	Disclosure Entity	Disclosure Type	Presentation Number
Wong, Wesley	Takeda	Research funded by industry grant	1656-Pos
Wong, Wesley	Takeda New Frontier Science	Research funded by industry grant	35-Subg
Wright, Amy	ChanTest	Employment (full or part-time) in funding company	2955-Pos
Wuite, Gijs	LUMICKS	Receipt of royalties from referenced company products	2557-Plat
Wuite, Gijs	LUMICKS	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	832-Pos
Wulff, Heike	H.W. is an inventor on UC patents claiming PAP-1 for immunosuppression and neuroinflammation. She holds scientific founder stocks in Airmid Inc.	Other	2958-Pos
Xiao, Min	NIH Grant	Other	874-Pos
Xu, Alexander	Stealth Biosciences	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	743-Pos
Xu, Alexander	Stealth Biosciences	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	2876-Pos
Yi, George	Full time employee	Employment (full or part-time) in funding company	549-Pos
Yusko, Erik	Oxford Nanopores Technologies Ltd	Research funded by industry grant	876-Pos
Zachariae, Ulrich	Boehringer Ingelheim	Research funded by industry grant	2087-Pos
Zanni, Martin	PhaseTech Spectroscopy, Inc.	Stock options or bond holdings in a for-profit corporation or self-directed pension plan	3153-Pos
Zhan, Xi	Realesio	Research funded by industry grant	3121-Pos
Zhao, Qin	AAT Bioquest	Employment (full or part-time) in funding company	549-Pos
Zoubi, Ahmad	Summer intern at Corning, Inc.	Employment (full or part-time) in funding company	1533-Pos

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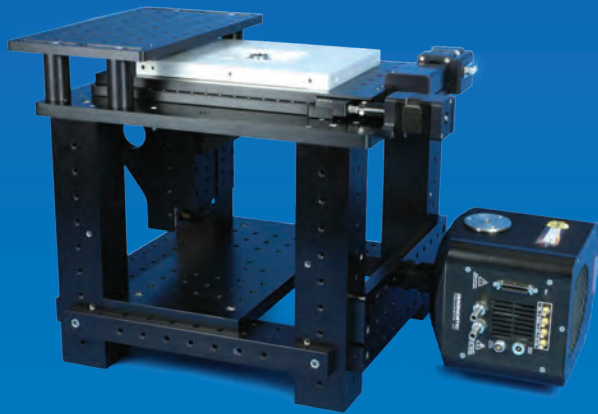


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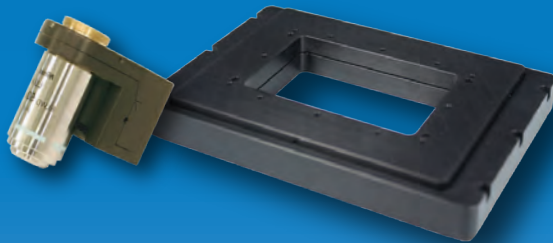
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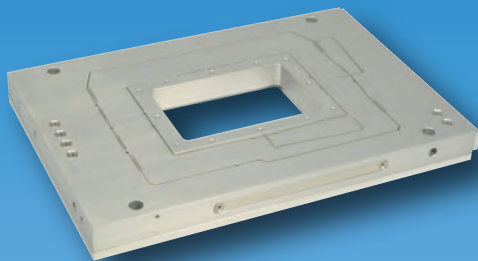


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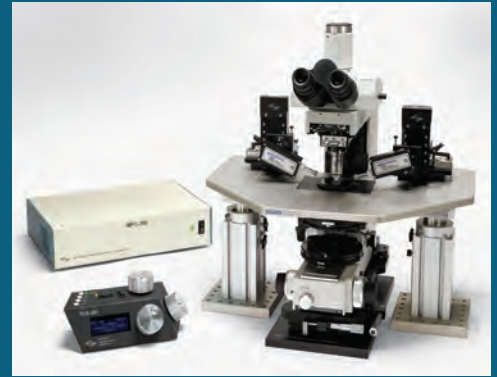
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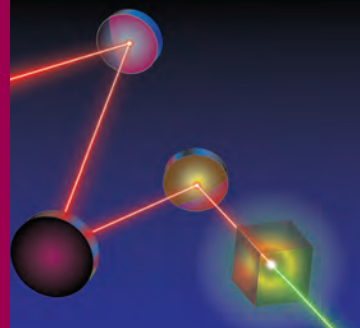
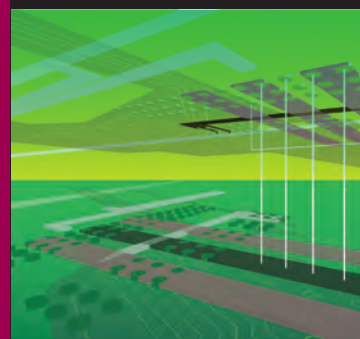
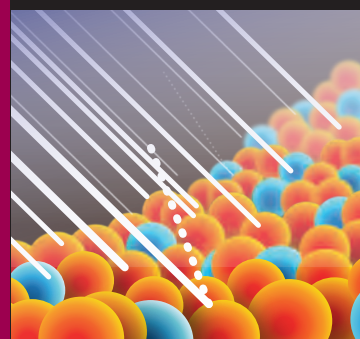
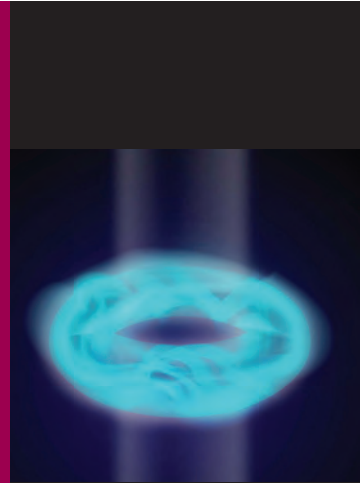
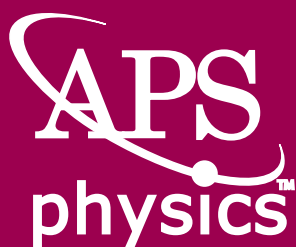
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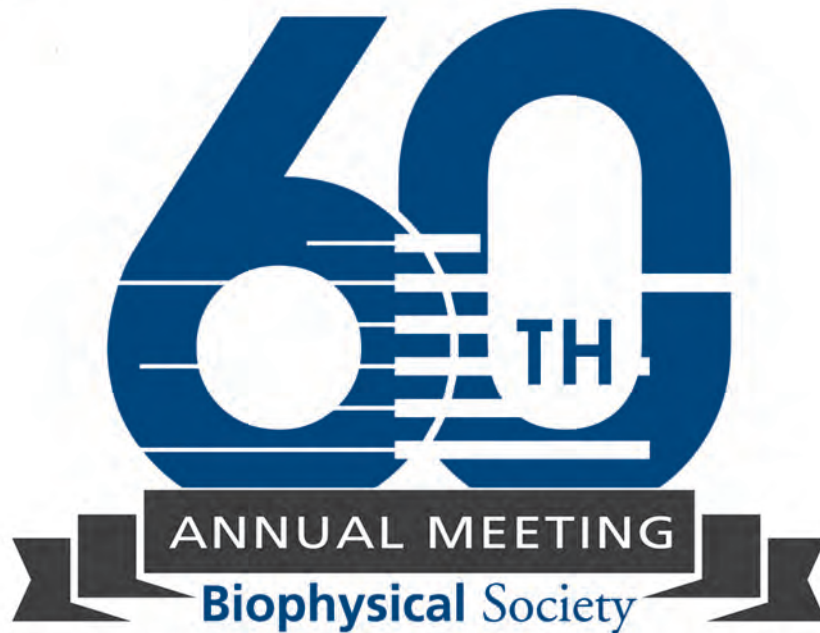
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