

Saturday, February 20, 2010

Daily Program Summary

All rooms in the Moscone Center unless noted otherwise.

8:00 AM–6:00 PM	Child Care	Marriott, Pacific A-C
8:00 AM–6:30 PM	Registration/Exhibitor Registration/Information	Moscone North
8:00 AM–7:00 PM	Family Room	Room 114
8:30 AM–1:00 PM	Society of General Physiologists	Room 125
8:30 AM–1:00 PM	Joint Council Meeting	Marriott, Club Room
9:00 AM–1:00 PM	Subgroup: Molecular Biophysics	Room 306
9:00 AM–5:30 PM	Subgroup: Bioenergetics	Room 303
12:00 PM–7:00 PM	Career Center	Room 130-131
12:00 PM–9:00 PM	Subgroup: Motility	Room 304
1:00 PM–5:30 PM	Subgroup: Membrane Biophysics	Room 305
1:00 PM–5:30 PM	Subgroup: Membrane Structure & Assembly	Room 133
1:00 PM–5:30 PM	Subgroup: Biological Fluorescence	Room 134
1:00 PM–6:15 PM	Subgroup: Intrinsically Disordered Proteins	Room 307
1:20 PM–5:05 PM	Subgroup: Exocytosis & Endocytosis	Room 308
1:30 PM–4:00 PM	Subgroup: Permeation and Transport	Room 132
5:00 PM–7:00 PM	Opening Mixer	Concourse
5:00 PM–7:00 PM	Early Careers Committee Meet & Greet	Concourse
6:00 PM–10:00 PM	Poster Viewing	Hall D
6:30 PM–7:30 PM	Student & Minority Biophysicists Travel Awardee Reception	Room 300

Saturday, February 20

8:00 AM–6:00 PM, Marriott, Pacific A-C
CHILD CARE

8:00 AM–6:30 PM, Moscone North
**REGISTRATION/EXHIBITOR
REGISTRATION/INFORMATION**

8:00 AM–7:00 PM, Room 114
FAMILY ROOM

8:30 AM–1:00 PM, Room 125
SOCIETY OF GENERAL PHYSIOLOGISTS

8:30 AM–1:00 PM, Marriott, Club Room
JOINT COUNCIL MEETING

9:00 AM–1:00 PM, Room 306
**SUBGROUP
Molecular Biophysics**

Subgroup Chair

David F. Green, Stony Brook University

**POST-TRANSLATIONAL MODIFICATIONS OF
PROTEINS: STRUCTURE AND FUNCTION FROM
EXPERIMENT AND THEORY**

9:00 AM
TOWARD COMPREHENSIVE ANALYSIS OF PROTEIN POST-
TRANSLATIONAL MODIFICATIONS. **Yingming Zhao.**

9:30 AM
A PHOSPHORYLATION-INDUCED STRUCTURAL CASCADE IN
DEMATEIN, A KEY COMPONENT OF THE RED BLOOD CELL
CYTOSKELETON. **C. James Mcknight.**

10:00 AM
MOLECULAR SYSTEMS BIOLOGY THROUGH MULTISCALE
MODELING AND HIGH-PERFORMANCE COMPUTING.
Ravi Radhakrishnan.

10:30 AM COFFEE BREAK

10:45 AM SUBGROUP BUSINESS MEETING

11:00 AM
BIOCHEMICAL UNDERSTANDING OF O-GLCNAc
PROCESSING ENZYMES AND THE DESIGN OF BIOCHEMICAL
PROBES FOR INVESTIGATING THE BIOLOGICAL ROLE OF
O-GLCNAc. **David J. Vocadlo.**

11:30 AM
DEFINING INFLUENZA SPECIES SPECIFICITY: A CASE FOR
COMPUTATIONAL GLYCOSCIENCE. **Robert J. Woods.**

12:00 PM
RECOGNITION OF 5-N-ACETYL-9-O-NEURAMINIC ACID BY
THE HUMAN CORONAVIRUS, HCoV-OC43. **James M. Rini.**

12:30 PM
VIRUCIDAL LECTINS TARGETING HIV: FROM SIMULATION TO
DESIGN. **David F. Green.**

1:00 PM CONCLUDING REMARKS

9:00 AM–5:30 PM Room 303
**SUBGROUP
Bioenergetics**

Subgroup Chair

Lawrence Prochaska, Wright State University School of Medicine

**MORNING SYMPOSIUM: PHOTOSYNTHESIS AND
SOLAR ENERGY CONSERVATION**

Session Co-Chairs

Petra Fromme, Arizona State University

Gary Brudvig, Yale University

9:00 AM
INTRODUCTION. **Petra Fromme and Gary Brudvig.**

9:05 AM 0.1-SUBG
CYCLIC ELECTRON TRANSFER AND PHOTOSYNTHETIC ENERGY
BALANCE. **Dave Kramer.**

9:35 AM 0.2-SUBG
PHOTOSYNTHETIC ANTENNA SYSTEMS: THE PLACE WHERE
LIGHT INTERFACES WITH BIOLOGY. **Robert Blankenship.**

10:05 AM
WHY IN THE WORLD IS THERE AN H-BOND TO THE QUINONES
IN PHOTOSYSTEM I? **John Golbeck.**

10:35 AM COFFEE BREAK

10:50 AM
TITLE TO BE ANNOUNCED. **Tom Moore.**

11:20 AM
FROM NATURAL TO ARTIFICIAL PHOTOSYNTHESIS -
BIOMIMETIC CHEMISTRY FOR THE PRODUCTION OF
HYDROGEN FROM SOLAR ENERGY AND WATER.
Stenbjorn Styring.

11:50 AM
DESIGN AND SYNTHESIS OF ARTIFICIAL HYDROGENASES.
Ann Jones.

12:20 PM GENERAL DISCUSSION

**AFTERNOON SYMPOSIUM:
MITOCHONDRIA IN DISEASE**

Session Co-Chairs

Jan B. Hoek, Thomas Jefferson University

Paolo Bernardi, University of Padova, Italy

1:15 PM YOUNG BIOENERGETICIST AWARD

1:30 PM
INTRODUCTION. **Paolo Bernardi and Jan B. Hoek.**

2:00 PM
SYSTEMATIC IDENTIFICATION OF MITOCHONDRIAL DISEASE
GENES THROUGH INTEGRATIVE GENOMICS. **Sarah Calvo.**

2:30 PM
NEW MITOCHONDRIAL DISEASE MECHANISMS UNRAVELED BY
NEW MITOCHONDRIAL DISEASE GENES. **Massimo Zeviani.**

3:00 PM COFFEE BREAK

3:15 PM
FROM MODEL ORGANISM TO WOLF-HIRSCHHORN SYNDROME PATIENTS: CHARACTERIZATION AND ROLE OF THE MITOCHONDRIAL KHE. **Karin Nowikovsky.**

3:45 PM
PATHOPHYSIOLOGICAL SIGNIFICANCE OF MITOCHONDRIA TARGETED CYTOCHROMES P450 AND RELATED PROTEINS. **Narayan Avadhani.**

4:15 PM
MITOCHONDRIAL ALDEHYDE DEHYDROGENASE AND EPSILON PKC – THE BATTLEFRONT PROTECTION FROM OXIDATIVE STRESS. **Daria Mochly-Rosen.**

4:45 PM GENERAL DISCUSSION

5:30 PM SUBGROUP BUSINESS MEETING

7:00 PM SUBGROUP DINNER

12:00 PM–7:00 PM, Room 130-131
CAREER CENTER

12:00 PM–9:00 PM, Room 304
**SUBGROUP
Motility**

Subgroup Co-Chairs

*Susan Gilbert, Rensselaer Polytechnic Institute
Kenneth Taylor, Florida State University*

12:00 PM INTRODUCTION

12:05 PM
IN VITRO ASSAYS TO STUDY THE MICROTUBULE-ORGANIZING FUNCTION OF MITOTIC MOTORS. **Thomas Surrey.**

12:40 PM
MOTOR COORDINATION DURING BIDIRECTIONAL VESICLE TRANSPORT. **Erika L. F. Holzbaur.**

1:15 PM
THE MECHANISMS OF REGULATION OF TRANSPORT AND MOTILITY: LESSONS FROM KINESIN SUPERFAMILY PROTEINS KIF1A/KIF1B BETA AND KIF17. **Nobutaka Hirokawa.**

1:50 PM
RESISTANCE IS FUTILE: LOADING RESPONSE OF ACTIN FILAMENT NETWORKS. **Daniel A. Fletcher.**

2:25 PM SUBGROUP BUSINESS MEETING AND COFFEE BREAK

3:00 PM
AN UNCONVENTIONAL MYOSIN WITH A ROLE IN CELL POLARIZATION AND CHEMOTAXIS. **Margaret A. Titus.**

3:35 PM
FUNCTIONAL INFLUENCE OF THE RELAY AND CONVERTER DOMAINS REVEALED BY DROSOPHILA MYOSIN. **Douglas M. Swank.**

4:10 PM
EVIDENCE FROM X-RAY AND EM SUPPORTING A MYOSIN-TO-TROPONIN LINKAGE AS TRIGGER FOR STRETCH ACTIVATION IN INSECT FLIGHT MUSCLE. **Michael K. Reedy.**

8:00 PM EVENING TALK
MOTORS, MOVEMENT, MALIGNANCY, AND METASTASIS. **Steven S. Rosenfeld.**

1:00 PM–5:30 PM, Room 305

**SUBGROUP
Membrane Biophysics**

Subgroup Chair

Daniel Minor, University of California, San Francisco

ION CHANNEL CHEMICAL BIOLOGY

1:00 PM
INTRODUCTORY REMARKS. **Daniel Minor.**

1:05 PM
MODULATION OF KV1 CHANNELS BY SMALL MOLECULES. **Ming Zhou.**

1:35 PM
SELECTION APPROACHES TO PROBE ION CHANNEL MODULATION AND FUNCTION. **Daniel Minor.**

2:00 PM 1-SUBG
FLAVONOIDS REGULATE EAG1 CHANNELS. **Anne E. Carlson,**
Tinatin I. Brelidze, Douglas R. Davies, William N. Zagotta.

2:15 PM 2-SUBG
THE KVLN POTASSIUM CHANNEL IN ASYMMETRIC BILAYER. **Ruhma Syeda,** Jose S. Santos, Mauricio Montal, Hagan Bayley.

2:30 PM
CHEMICAL REGULATION OF VOLTAGE-GATED POTASSIUM CHANNELS: WHEN VAST CHEMICAL DIVERSITY MEETS ION CHANNEL TARGETS. **Min Li.**

3:00 PM BREAK

3:30 PM
DEVELOPING RNA APTAMERS AGAINST AMPA RECEPTOR CHANNELS. **Li Niu.**

4:00 PM
LRET INVESTIGATIONS OF THE GLUTAMATE RECEPTOR: FROM MECHANISM TO RNA BASED DRUGS. **Vasanthi Jayaraman.**

4:30 PM
A NOVEL BLOCKER IDENTIFIES RESIDUES IMPORTANT FOR THE IN VIVO ACTIVITY OF THE CAV1 CHANNEL. **Peter Roy.**

5:00 PM
EXPLOITING NATURAL PRODUCTS TO PROBE TRP CHANNEL FUNCTION. **David Julius.**

5:30 PM
CLOSING REMARKS. **Daniel Minor.**

5:35 PM SUBGROUP BUSINESS MEETING

6:00 PM COLE AWARD DINNER

1:00 PM–5:30 PM, Room 133

**SUBGROUP
Membrane Structure & Assembly**

Subgroup Chair

William C. Wimley, Tulane University

**MEMBRANE BIOPHYSICS:
FROM MODEL SYSTEMS TO LIVING CELLS**

1:00 PM
OPENING REMARKS. **William C. Wimley.**

1:05 PM 3-SUBG
MEMBRANE-ACTIVE PEPTIDES DERIVED FROM HIV-1 GP41:
COULD THEY BECOME USEFUL THERAPEUTIC TOOLS?
Jose L. Nieva.

1:45 PM 4-SUBG
MECHANISMS OF THE INTERACTIONS BETWEEN
ANTIMICROBIAL PEPTIDES AND MODEL MEMBRANES: A
THERMODYNAMIC HYPOTHESIS. **Paulo F. Almeida.**

2:25 PM 5-SUBG
MIXING AND MATCHING DETERGENTS FOR MEMBRANE
PROTEIN NMR STRUCTURE DETERMINATION. **Linda Columbus,**
William M. Peairs, Daniel A. Fox.

3:05 PM COFFEE BREAK

3:30 PM 6-SUBG
WHAT DRIVES MEMBRANE PROTEIN FOLDING? **James U. Bowie.**

4:10 PM 7-SUBG
DIFFERENT ACYLATION MOTIFS DIRECT MULTIPLY
ORTHOGONAL CO-LOCALIZATION OF LIPID ANCHORED
PROTEINS IN LIVE CELL MEMBRANES. **Jay T. Groves.**

4:50 PM 8-SUBG
PLASMA MEMBRANE HETEROGENEITY AND RECEPTOR
MEDIATED SIGNALING. **Barbara Baird.**

5:30 PM CLOSING REMARKS

5:35 PM SUBGROUP BUSINESS MEETING

1:00 PM–5:30 PM, Room 134
SUBGROUP
Biological Fluorescence

Subgroup Chair
Suzanne Scarlata, Stony Brook University

FOCUS ON NUCLEIC ACIDS

1:00 PM
DISMANTLING THE KINESIN MOTOR CYCLE USING LIGHT-
BASED TOOLS. **Steven Block.**

1:30 PM
MECHANISMS OF REGULATION OF GENE EXPRESSION
PROBED BY FLUORESCENCE FLUCTUATION TECHNIQUES.
Catherine Royer.

2:00 PM 8.1-SUBG
VISUAL BIOCHEMISTRY: HIGH-THROUGHPUT SINGLE-
MOLECULE IMAGING OF PROTEIN-DNA INTERACTIONS.
Eric Greene.

2:30 PM BREAK

2:45 PM SUBGROUP BUSINESS MEETING

3:00 PM STUDENT TALK

3:15 PM STUDENT TALK

3:30 PM
COLD LIGHT, DELAYED LUMINESCENCE, AND THE INVENTION
OF THE TRIPLET STATE. **Richard Ludescher.**

4:00 PM YOUNG FLUORESCENCE INVESTIGATOR AWARD

4:30 PM THE GREGORIO WEBER AWARD

1:00 PM–6:15 PM, Room 307

SUBGROUP

Intrinsically Disordered Proteins

Subgroup Chair
Rohit Pappu, Washington University, St. Louis

REGULATION AND UTILIZATION OF DISORDER IN VIVO

Session Co-Chairs
Elisar Barbar, Oregon State University
Huang-Xiang Zhou, Florida State University

1:00 PM
WELCOME. **Rohit Pappu.**

1:05 PM PRESENTATION OF POSTDOCTORAL AWARDS

Session 1

Session Chair
Elisar Barbar, Oregon State University

1:15 PM
Keynote Lecture
ON THE ROLE OF NATIVELY UNFOLDED PROTEINS IN
NUCLEOCYTOPLASMIC TRANSPORT. **Brian Chait.**

2:05 PM
BINDING KINETICS OF INTRINSICALLY DISORDERED PROTEINS
WITH THEIR TARGETS. **Huan-Xiang Zhou.**

2:30 PM
THE ROLE OF UNSTRUCTURED REGIONS IN PROTEINS AS
PART OF THE PROTEASOME DEGRADATION SIGNAL.
Andreas Matouschek.

2:55 PM IDP SUBGROUP POSTDOCTORAL SPEAKER AWARD RECIPIENT

3:10 PM
ACTIVATION OF A REDOX-REGULATED CHAPERONE BY
OXIDATIVE PROTEIN UNFOLDING. **Ursula Jakob.**

3:35 PM BREAK

Session 2

Session Chair
Huan-Xiang Zhou, Florida State University

4:00 PM
INTRINSICALLY UNSTRUCTURED PROTEINS: REGULATION AND
DISEASE. **M. Madan Babu.**

4:25 PM
MISFOLDING AND MEMBRANE INTERACTION OF
AMYLOIDOGENIC PROTEINS. **Ralf Langen.**

4:50 PM
SEARCHING DNA: THE SIGNIFICANCE OF DISORDERED TAILS.
Yakov Levy.

5:15 PM
INTRINSICALLY DISORDERED HISTONE TAILS: INTEGRATORS
OF MULTIPLE SIGNALING PATHWAYS IN CHROMATIN AND
GENE REGULATION. **Cheryl Arrowsmith.**

5:40 PM IDP SUBGROUP POSTDOCTORAL SPEAKER AWARD RECIPIENT

5:55 PM
STRUCTURE AND EVOLUTION OF INTRINSICALLY
DISORDERED PROTEINS. **Gary Daughdrill.**

1:20 PM–5:05 PM, Room 308

SUBGROUP

Exocytosis & Endocytosis

Subgroup Chair

Ronald Holz, *University of Michigan*

1:20 PM

WELCOME. **Ronald W. Holz.**

1:30 PM 9-SUBG

MOTION AND CAPTURE OF GRANULES IN SYNAPTIC BOUTONS. **Edwin S. Levitan.**

2:05 PM 10-SUBG

PRIMING SNARES FOR Ca^{2+} -TRIGGERED VESICLE EXOCYTOSIS. **Thomas F. J. Martin.**

2:40 PM 11-SUBG

LUMENAL VESICLE FORMATION IN THE ENDOCYTIC PATHWAY. **Phyllis Hanson.**

3:15 PM REFRESHMENT BREAK

3:30 PM 12-SUBG

MEMBRANE CURVATURE AND FISSION BY DYNAMIN: MECHANICS, DYNAMICS AND PARTNERS. **Vadim A. Frolov,** Pavel V. Bashkurov, Sergei A. Akimov, Joshua Zimmerberg.

4:05 PM 13-SUBG

Sir Bernard Katz Award for Excellence in Exocytosis and Endocytosis Research: Presentation and Award Lecture
MEASURING EXOCYTOSIS AT SINGLE CELLS AND IN INTACT TISSUE. **R. Mark Wightman.**

5:20 PM SUBGROUP BUSINESS MEETING

1:30 PM–4:00 PM, Room 132

SUBGROUP

Permeation & Transport

Subgroup Chair

Svetlana Lutsenko, *Oregon Health Science University*

1:30 PM 13.1-SUBG

STRUCTURE OF P-GLYCOPROTEIN, BINDING OF DRUGS AND A TWIST. **Stephen Aller.**

2:05 PM 13.2-SUBG

THE ORIGIN OF NUCLEOTIDE DEPENDENCE OF CONFORMATIONAL CHANGES IN ABC TRANSPORTERS. **Po-Chao Wen.**

2:25 PM 13.3-SUBG

CALCIUM GATING BY THE DHPR-RYR1 PAIR. **Montserrat Samso.**

3:00 PM 13.4-SUBG

MULTI-ION MECHANISM OF POTASSIUM CHANNEL REJECTION OF Na^{+} AND Li^{+} IONS. **Toby Allen.**

3:35 PM 13.5-SUBG

THE STRUCTURE AND TRANSPORT MECHANISM OF ADIC – AN ARGININE/AGMATINE ANTIporter. **Yiling Fang.**

5:00 PM–7:00 PM, Concourse

OPENING MIXER

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

5:00 PM–7:00 PM, Concourse

EARLY CAREERS COMMITTEE MEET & GREET

Members of the Early Careers Committee will be on hand to welcome first-time attendees, provide introductions to other newcomers, and help interested attendees arrange self-organized dinners at nearby restaurants.

6:00 PM–10:00 PM, Hall D

POSTER VIEWING

6:30 PM–7:30 PM, Room 300

STUDENT & MINORITY BIOPHYSICISTS TRAVEL AWARDEE RECEPTION

During this reception, students and mentors who have exhibited involvement in exceptional research will be honored and presented with their travel award by the Chairs of the Education and Minority Affairs Committees.

Guest Speaker

My Summer with the Physics of Life

Stephani Page, University of North Carolina, Chapel Hill