

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

G Protein-Coupled Receptors: Structural Dynamics and Functional Implications (Z1)

Scientific Organizers: Christopher G. Tate and Fiona H. Marshall

Supported by the Directors' Fund

Frontiers of Structural Biology (Z2)

Scientific Organizers: Andrew B. Ward and Wayne A. Hendrickson

March 30-April 4, 2014 • Snowbird Resort • Snowbird, Utah, USA

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Abstract & Scholarship Deadline: December 4, 2013 / Abstract Deadline: January 8, 2014 / Discounted Registration Deadline: January 30, 2014

SUNDAY, MARCH 30

MONDAY, MARCH 31

Keynote Address (Joint)

Robert J. Lefkowitz, HHMI/Duke University Medical Center, USA

Cutting-Edge Biophysics to Study Membrane Protein Conformational Changes (Joint)

Petra Fromme, Arizona State University, USA
Femtosecond Nanocrystallography of Membrane Proteins

Martin J. Lohse, Universität Würzburg, Germany
Studying GPCR Conformational Changes Using Fluorescence-Based Assays in Living Cells

Ron O. Dror, D. E. Shaw Research, USA
Revealing Structural Dynamics of GPCR Signalling through Atomic-Level Simulation

Wayne L. Hubbell, University of California, Los Angeles, USA
Conformational Dynamics of GPCRs Studied by Site-Directed Spin Labeling

Workshop 1: Advances in Methodologies and Tools for Structural Biology (Z2)

Short Talks Chosen from Abstracts

Family C and Frizzled GPCRs (Z1)

Jean-Philippe Pin, Institute of Functional Genomics, Montpellier University, France
Metabotropic Glutamate Receptors

Robert Lütjens, Addex Therapeutics, Switzerland
Discovery of Allosteric Modulators of Metabotropic Glutamate Receptors

Gunnar Schulte, Karolinska Institutet, Sweden
New Insights into Frizzled Signaling through Heterotrimeric G Proteins

Short Talk Chosen from Abstracts

Utilizing Next Generation Technologies for Structural Biology (Z2)

Wayne A. Hendrickson, Columbia University, USA
Utilization of Advanced Synchrotron Technologies

Aled M. Edwards, University of Toronto, Canada
Structural Genomics of Drug Discovery

Ian A. Wilson, The Scripps Research Institute, USA
Adapting Structural Genomics Machinery to Solve Eukaryotic Complexes

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, APRIL 1

Family B GPCRs (Z1)

Speaker to be Announced

Family B Structure

Patrick M. Sexton, Monash University, Australia
GLP1 Receptor Signaling in Response to Peptides and Allosteric Modulators

Kathleen M. Caron, University of North Carolina, Chapel Hill, USA
Role of RAMPs in Disease

Jean-Pierre Vilardaga, University of Pittsburgh, USA
Non-Canonical GPCR Signaling

Short Talk(s) Chosen from Abstracts

Structural and Functional Insights through the Use of Hybrid Methods (Z2)

Eva Nogales, University of California Berkeley, USA
Hybrid Studies of Transcriptional Machinery

Susan S. Taylor, University of California, San Diego, USA
PKA: Assembly and Localization of Large and Dynamic Macromolecular Signaling Complexes

Andrew B. Ward, The Scripps Research Institute, USA
Structural Studies of Viral Envelope Proteins

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

New Insights into GPCR Signaling (Z1)

Arthur Christopoulos, Monash University, Australia
Orthosteric and Allosteric Ligand Biased Signaling

Vsevolod V. Gurevich, Vanderbilt University, USA
Arrestin Shape-Shifting and Design of Signaling-Biased Mutants

John J.G. Tesmer, University of Michigan, USA
Role of GRKs in Receptor Signaling and Disease

Short Talk Chosen from Abstracts

Structural Biology of Cellular Processes and Complexes (Z2)

John Rubinstein, University of Toronto, Canada
Electron Cryomicroscopy of Rotary ATPases

Tatyana Polenova, University of Delaware, USA
MAS NMR Studies of Protein Assemblies

Dinshaw J. Patel, Memorial Sloan-Kettering Cancer Center, USA
Protein-Nucleic Acid Complexes

Short Talk Chosen from Abstracts

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Poster Session 2

WEDNESDAY, APRIL 2

Activation of GPCRs and G Proteins (Z1)

Speaker to be Announced

Speaker to be Announced

Structure

Christopher G. Tate, MRC Laboratory of Molecular Biology, UK
Structural Determinants of Ligand Specificity and Efficacy

Roger K. Sunahara, University of Michigan Medical School, USA
The Mechanism of G Protein Activation through Interactions with GPCRs

Short Talk(s) Chosen from Abstracts

Advances in Membrane Protein Structure Solution (Z2)

Liz Carpenter, University of Oxford, UK
Structural Biology of Human Membrane Proteins.

Katherine A. Henzler-Wildman, Washington University, USA
NMR Studies of EmrE in Bicelles

Eric Gouaux, Oregon Health & Science University, USA
Structure and Function of P2X Receptors

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Workshop 2: PSI/HT Structural Biology Resources (Z2)

Short Talks Chosen from Abstracts

Targeting GPCRs in Cancer and Inflammation (Z1)

Xavier J. Leroy, Actelion Pharmaceuticals Ltd, Switzerland
FPR2 Agonists in Inflammatory Disease

Michael Hanson, Receptos Inc., USA
Structure-Based Analysis of S1P1 Receptor Agonists

Suzie Chen, School of Pharmacy, Rutgers University, USA
Metabotropic Glutamate Receptor Signaling in Cancer

Short Talk Chosen from Abstracts

Advances in Imaging Cellular Structure (Z2)

Carolyn A. Larabell, University of California, San Francisco, USA
Correlative X-Ray Tomography

John Briggs, European Molecular Biology Laboratory, Germany
Correlative Light/Electron Microscopy

Speaker to be Announced

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, APRIL 3

Targeting GPCRs Involved in the Treatment of Diseases of the Central Nervous System (Z1)

Brigitte L. Kieffer, Institut de Génétique et de Biologie Moléculaire et Cellulaire, France

In vivo Signaling of Opioid Receptors

Sebastien Granier, Institut de Génétique Fonctionnelle, France
Structural Diversity in Opioid Receptors

Fiona H. Marshall, Heptares Therapeutics Ltd., UK
Structure-Based Drug Discovery Applied to CNS GPCRs

Bryan Roth, University of North Carolina, Chapel Hill, USA
GPCR Chemical and Synthetic Biology: New Approaches for CNS Therapeutics

Short Talk(s) Chosen from Abstracts

Extending Structural Knowledge through Informatics and Modeling (Z2)

Peter D. Kwong, NIAID, National Institutes of Health, USA
Evolution of an Immune Response to HIV

Jens Meiler, Vanderbilt University, USA
Modeling Membrane Proteins from Limited Experimental Data

Andrej Sali, University of California, San Francisco, USA
Modeling Allostery

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Structure and Dynamics of GPCRs (Z1)

Reinhard Grisshammer, NINDS, National Institutes of Health, USA
Structure of the Agonist-Bound Neurotensin Receptor NTS1

Thomas P. Sakmar, Rockefeller University, USA
Probing Chemokine Receptor Activation Using Genetically-Encoded Unnatural Amino Acids

Short Talk Chosen from Abstracts

Applications of Computation and Design (Z2)

William F. DeGrado, UCSF School of Pharmacy, USA
Design of Membrane Proteins

Todd Yeates, University of California, Los Angeles, USA
Engineering Self-Assembling Protein Materials: Design Principles and Applications

Keynote Address (Joint)

Brian K. Kobilka, Stanford University School of Medicine, USA
Beta 2 Receptor Conformational Changes

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FRIDAY, APRIL 4