

Program

Day 1 – Monday, July 24, 2017

Opening Plenary Session

8:30 - 9:10 a.m. | Montreal Ballroom

8:30 - 8:35 a.m. *Intro & Welcome From The Protein Society President*
Carol B. Post, Purdue University

8:35 - 8:40 a.m. *Presentation of the Hans Neurath Award* to Kazuhiro Nagata*

8:40 - 9:10 a.m. *Protein Quality Control in the Endoplasmic Reticulum*
Kazuhiro Nagata, Institute for Protein Dynamics,
Kyoto Sango University; Kyoto, Japan
**Sponsored by the Hans Neurath Foundation*

Coffee Break | 9:10 - 9:40 a.m. | Foyer

CONCURRENT MORNING SESSION 1

Synthetic Biology

9:40 - 11:30 a.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc

9:40 - 9:45 a.m. *Introduction From Chair*
David Kwan, Concordia University; Montreal, Canada

9:45 - 10:15 a.m. *Defining a Mechanistic Framework for the Role of Scaffold Proteins in Cell Signaling Networks*
Jesse Zalatan, University of Washington; Seattle, Washington, United States

10:15 - 10:45 a.m. *Perceiving and Recording Signals in Mammalian Cells*
Michael Elowitz, California Institute of Technology; Pasadena, California, United States

10:45 - 11 a.m. *Protein Science Best Paper Award Winner*
A Polar Ring Endows Improved Specificity to an Antibody Fragment
Zachary Schaefer, University of Chicago; Chicago, Illinois, United States

11 - 11:30 a.m. *Understanding Cellular Heterogeneity*
Sarah Teichmann, Wellcome Trust Sanger Institute; Cambridge, United Kingdom

Day 1, Monday, July 24, 2017 (cont.)**CONCURRENT MORNING SESSION 2****Protein Dynamics & Allostery****9:40 - 11:30 a.m. | Outremont/Verdun/Lachine/LaSalle**

- 9:40 - 9:45 a.m. *Introduction From Chair*
Duy P. Hua, Oberlin College; Ohio, United States
- 9:45 - 10:15 a.m. *Protein Mechanics: The Link Between Structure, Function, and Evolution*
Rama Ranganathan, University of Texas Southwestern Medical Center; Dallas, Texas, United States
- 10:15 - 10:45 a.m. *Allostery in a Monomeric Enzyme Uncovered by Saturating Mutagenesis*
C. Robert Matthews, University of Massachusetts Medical School; Worcester, Massachusetts, United States
- 10:45 - 11 a.m. *Conservation of Conformational Motions Impacting Function in an Enzyme Superfamily*
Chitra Narayanan, INRS - University of Quebec, Laval, Canada
- 11 - 11:30 a.m. *Birth of the Cool: Multi-Temperature Crystallography Predicts Allosteric Response*
James Fraser, University of California, San Francisco; California, United States

LUNCH**11:30 a.m. - 1:30 p.m.****Networking Lunch (RSVP-ONLY EVENT) | Salon Ville Marie****Boxed Lunch Pick Up Station | Fontaine****Poster Displays & Exhibits Open | Salons Fontaine - Lower Level**

CONCURRENT AFTERNOON SESSION 1**Protein Folding****1:30 - 4:30 p.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc**

- 1:30 - 1:35 p.m. *Introduction From Chair*
Michael Woodside, University of Alberta; Alberta, Canada
- 1:35 - 2:05 p.m. *Engineering the Folding and Function of Tandem-Repeat Proteins*
Laura Itzhaki, University of Cambridge; Cambridge, United Kingdom
- 2:05 - 2:35 p.m. *Consensus Stabilization, Folding Cooperativity, and Function in Repeat and Globular Proteins*
Doug Barrick, Johns Hopkins University; Baltimore, Maryland, United States
- 2:35 - 2:50 p.m. *Organoselenium Compounds: A New Class of Oxidative Folding Reagent*
Kenta Arai, Tokai University; Hiratsuka-shi, Japan
- Coffee Break | 2:50 - 3:15 p.m. | Foyer and Fontaine**
- 3:15 - 3:45 p.m. *Mapping the Folding Energy Landscape of a Single Membrane Protein*
Tae-Young Yoon, Korea Advanced Institute of Science and Technology; Seoul, South Korea
- 3:45 - 4 p.m. *Entropically-Challenged Tandem-Repeat Proteins: Breakdown of Nearest-Neighbor Cooperativity*
Albert Perez-Riba; University of Cambridge; Cambridge, England, United Kingdom
- 4 - 4:30 p.m. *Latin American Protein Society Exchange Speaker*
Breaking Down Protein Metamorphosis: Primary Drivers Behind the Structural Transformation of the Bacterial Virulence Factor RfaH
Cesar Ramirez-Sarmiento, Pontificia Universidad Catolica de Chile; Santiago, Chile

CONCURRENT AFTERNOON SESSION 2**Ubiquitin-Proteasome System****1:30 - 4:30 p.m. | Outremont/Verdun/Lachine/LaSalle**

- 1:30 - 1:35 p.m. *Introduction From Chair*
Juliette Lecomte, Johns Hopkins University; Baltimore, Maryland
- 1:35 - 2:05 p.m. *Selectively Modulating Conformational States of USP7 Catalytic Domain*
Erin Dueber, Genentech; San Francisco, California, United States

Day 1, Monday, July 24, 2017 (cont.)

- 2:05 - 2:35 p.m. *A Small Protein, Big Impact - The Story of CSNAP*
Michal Sharon, Weizmann Institute of Science; Rehovot, Israel
- 2:35 - 2:50 p.m. *Intrinsically Disordered Segments Regulate Cellular Protein Abundance by Encoding a Multilayer Degron Architecture*
Mainak Guharoy, VIB-VUB Center for Structural Biology, Brussels, Belgium
- Coffee Break I 2:50 - 3:15 p.m. | Foyer and Fontaine**
- 3:15 - 3:45 p.m. *Structural Basis for the Regulation of the Anaphase Promoting Complex*
David Barford, MRC Laboratory of Molecular Biology;
Cambridge, United Kingdom
- 3:45 - 4 p.m. *Ubiquitin Receptors Mediate Proteasomal Processivity*
Daniel Kraut, Villanova University, Villanova, Pennsylvania, United States
- 4 - 4:30 p.m. *Protein Chemical Synthesis for Biochemical Studies of Ubiquinated Proteins*
Changlin Tian, University of Science and Technology of China,
Hefei, China

POSTERS OPEN, EXHIBITS, MIX & MINGLE**4:30 - 6:30 p.m. | Salons Fontaine - Lower Level****EDUCATION & MENTORING MIXER (RSVP-ONLY EVENT)****8:00 – 10:00 p.m. | St. Paul Hotel***

* This event is held off-site.

Day 2 – Tuesday, July 25, 2017

NEW MEMBER WELCOME BREAKFAST/MEMBER BUSINESS MEETING
7:30 - 8:15 a.m. | Pointe-Aux-Trembles

CONCURRENT MORNING SESSION 1
Amyloids & Chaperones
8:30 - 11:30 a.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc

- 8:30 - 8:35 a.m. *Introduction From Chair*
Sanela Martic, Oakland University; Michigan, United States
- 8:35 - 9:05 a.m. *Folding & Misfolding of Immature Superoxide Dismutase Associated with ALS*
Elizabeth Meiering, University of Waterloo; Waterloo, Canada
- 9:05 - 9:35 a.m. *Characterizing Chaperone/Client Interactions with Functional Proteomics*
Mikko Taipale, University of Toronto; Toronto, Canada
- 9:35 - 9:50 a.m. *Understanding the Structure and Function of UDP-Glucose: Glycoprotein Glucosyltransferase (UGGT), A Unique Sensor of Misfolded Glycoproteins in ER*
Meng Yang, McGill University; Montreal, Canada

COFFEE BREAK | 9:50 - 10:15 a.m. | Foyer and Fontaine

- 10:15 - 10:45 a.m. *How Does the Prion Protein Begin to Misfold?*
Jayant Udgaonkar, National Center Biological Sciences; Bangalore, India
- 10:45 - 11:15 a.m. *Chaperone-Client Interactions: From Basic Principles to Roles In Health and Disease*
Sebastian Hiller, University of Basel; Basel, Switzerland
- 11:15 - 11:45 a.m. *Disorder-to-Order Transitions in the Regulation of Synaptic Vesicle Release*
David Eliezer, Weill Cornell Medicine; New York, New York United States

Day 2, Tuesday, July 25, 2017 (cont.)**CONCURRENT MORNING SESSION 2****Approaches to Therapeutics****8:30 - 11:30 a.m. | Outremont/Verdun/Lachine/LaSalle**

- 8:30 - 8:35 a.m. *Introduction From Chair*
Jean-Francois Trempe, McGill University; Quebec, Canada+
- 8:35 - 9:05 a.m. *Germline-Targeting Vaccine Design for HIV*
William Schief, Scripps Research Institute; La Jolla, California; United States
- 9:05 - 9:35 a.m. *If In Doubt, Compute: A Computational Approach to Biomedicine*
Gianni De Fabritiis, Universitat Pompeu Fabra; Barcelona, Spain
- 9:35 - 9:50 a.m. *Generation of Allosteric Chaperones to Treat G6PD (Glucose-6-Phosphate Dehydrogenase) Deficiency*
Sunhee Hwang, Stanford University; Stanford, California, United States

COFFEE BREAK | 9:50 - 10:15 a.m. | Foyer and Fontaine

- 10:15 - 10:45 a.m. *Role of Short Linear Motifs in Selective Autophagy*
Vladimir Kirkin, The Institute of Cancer Research; London, United Kingdom
- 10:45 - 11:15 a.m. *Polycomb Repressive Complex 2 Structure With Inhibitor Reveals a Mechanism of Activation & Drug Resistance*
Alexei Brooun, Pfizer; San Diego, California, United States
- 11:15 - 11:45 a.m. *A Fast, Open Source Implementation of Adaptive Biasing Potentials; Applications to Drugging the Human Chromatic Regulator BRD4 and Plant Hormone Reception PYL2*
Brad Dickson, Van Andel Research Institute; Grand Rapids, Michigan, United States

LUNCH | 11:30 a.m. - 1:30 p.m.**Boxed Lunch Pick Up Station | Fontaine****12:00 - 1:30 p.m. | Educators' Luncheon (RSVP-ONLY EVENT) | Fundy****11:30 a.m. - 1:00 p.m. | Exhibitor Workshop: Pall ForteBio LLC | Salon Bonaventure****Poster Displays & Exhibits Open | Salons Fontaine - Lower Level**

CONCURRENT AFTERNOON SESSION 1**Analysis of Large Complexes****1:30 - 4:30 p.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc**

- 1:30 - 1:35 p.m. *Introduction From Chair*
Kalle Gehring, McGill University; Montreal, Canada
- 1:35 - 2:05 p.m. *Kinetochore Structure(s)*
Stephen Harrison, Harvard Medical School; Boston, Massachusetts,
United States
- 2:05 - 2:35 p.m. *Cryo-EM at Atomic Resolution*
Sriram Subramanian, National Institutes of Health; Bethesda, Maryland,
United States
- 2:35 - 2:50 p.m. *CaMKII Biophysics and Its Role In Long-Term Potentiation*
Margaret Stratton, University of Massachusetts, Amherst;
Amherst, Massachusetts, United States
- Coffee Break | 2:50 - 3:15 p.m. | Foyer and Fontaine**
- 3:15 - 3:45 p.m. *Supramolecular Complexes In Immunity*
Hao Wu, Harvard Medical School; Boston, Massachusetts, United States
- 3:45 - 4 p.m. *Structural and Functional Insight Into the Epigenetic Regulator SMCHD1*
Kelan Chen, The Walter and Eliza Hall Institute of Medical Research;
Parkville, Australia
- 4 - 4:30 p.m. *The Mechanisms for Counting and Handoff By Human DNA Primase:
A Role for the 4Fe-4s Cluster?*
Walter Chazin, Vanderbilt University; Nashville, Tennessee, United States

CONCURRENT AFTERNOON SESSION 2**Transient Protein-Protein Interactions****1:30 - 4:30 p.m. | Outremont/Verdun/Lachine/LaSalle**

- 1:30 - 1:35 p.m. *Introduction From Chair*
Joelle Pelletier, PROTEO, University of Montreal; Montreal, Canada
- 1:35 - 2:05 p.m. *Engineering Bispecific Antibodies to Control the Mechanism-of-Action of
Therapeutic Agents*
Gavin MacBeath, Abpro; Woburn, Massachusetts, United States

Day 2, Tuesday, July 25, 2017 (cont.)

- 2:05 - 2:35 p.m. *Functional Dynamics of Proteins By NMR*
Ichio Shimada, University of Tokyo; Tokyo, Japan
- 2:35 - 2:50 p.m. *Legionella Effectors Interfering With Host Cell Phosphoproteome: Structural Insights Into Host-Pathogen Interactions*
Ksenia Beyrakhova, University of Saskatchewan; Saskatoon, Canada
- Coffee Break I 2:50 - 3:15 p.m. | Foyer and Fontaine**
- 3:15 - 3:45 p.m. *Investigating Chromatin Protein Interactions Using Mass Spectrometry-Based Proteomics*
Petra Beli, Institute of Molecular Biology; Mainz, Germany
- 3:45 - 4 p.m. *De Novo Design of Antivirulence Therapeutics Based On Genetically Encodable, Hyperstable Constrained Peptides*
Christopher Bahl, University of Washington; Seattle, Washington, United States
- 4 - 4:30 p.m. *Rational Design of Proteins That Exchange on Functional Timescales*
Roberto Chica, University of Ottawa; Ottawa, Canada

POSTER PRESENTATIONS, EXHIBITS, MIX & MINGLE**4:30 - 6:30 p.m. | Salons Fontaine - Lower Level****MENTORING PANEL (RSVP-ONLY EVENT)****6:45 - 7:45 p.m. | INRS-Énergie Matériaux et Télécommunications Place Bonaventure***

* This event is held off-site.

Day 3 – Wednesday, July 26, 2017**CONCURRENT MORNING SESSION 1****Protein Evolution****8:30 - 11:30 a.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc**

- 8:30 - 8:35 a.m. *Introduction From Chair*
Nobuhiko Tokuriki, University of British Columbia; Vancouver, Canada
- 8:35 - 9:05 a.m. *Distal Substitutions Alter Conformational Space to Create New Functions Among Paralogous Transcription Factors*
Eric Ortlund, Emory University; Atlanta, Georgia, United States
- 9:05 - 9:35 a.m. *Molecular Ensembles Make Evolution Unpredictable*
Mike Harms, University of Oregon; Eugene, Oregon, United States
- 9:35 - 9:50 a.m. *Protein Science Best Paper Award Winner*
How Mutational Epistasis Impairs Predictability in Protein Evolution and Design
Charlotte Miton, University of British Columbia; Vancouver, Canada

COFFEE BREAK | 9:50 - 10:15 p.m. | Foyer and Fontaine

- 10:15 - 10:45 a.m. *Estimating the Contribution of Selection for Folding Stability to Epistasis in Protein Evolution*
Pouriah Dasmeh, Université de Montréal; Montréal, Canada
- 10:45 - 11:15 a.m. *Domain Family Analysis Reveals Insights Into Structure and Function of Yeast SH3 Domains*
Elliott Stollar, Eastern New Mexico University; Portales, New Mexico, United States
- 11:15 - 11:45 a.m. *Structural Insights on Protein Evolution*
Christine Orengo, University College London; London, United Kingdom

CONCURRENT MORNING SESSION 2**Structural Insights Into Ion-Transporting Membrane Proteins****8:30 - 11:30 a.m. | Outremont/Verdun/Lachine/LaSalle**

- 8:30 - 8:35 a.m. *Introduction From Chair*
Joachim Krebs, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany
- 8:35 - 9:05 a.m. *Cryo-EM Studies of IP3R Channel in Different Functional States*
Irina Serysheva, University of Texas Health Science Ctr.: Houston, Texas, United States

Day 3 – Wednesday, July 26, 2017 (cont.)

9:05 - 9:35 a.m. *Structure and Mechanism of Ryanodine Receptor*
Rouslan Efremov, VIB Structural Biology Research Ctr.; Brussels, Belgium

9:35 - 9:50 a.m. *X-ray Crystal Structures of the Influenza A M2 Proton Channel Bound to Amantadine, Rimantadine, and Inhibitors*
Jessica Thomaston, University of California, San Francisco; San Francisco, California, United States

COFFEE BREAK I 9:50 - 10:15 p.m. | Foyer and Fontaine

10:15 - 10:45 a.m. *Conformational Memory in SERCA Regulatory Complexes*
Howard Young, University of Alberta, Edmonton, Canada

10:45 - 11:15 a.m. *Recent Advances in Structural Studies of P-type ATPases*
Haruo Ogawa, University of Tokyo; Tokyo, Japan

11:15 - 11:45 a.m. *Lorne Exchange Speaker*
The Structural Biology of Complex IV Assembly
Megan Maher, La Trobe University, Melbourne, Australia

LUNCH**11:30 a.m. - 1:30 p.m.****Noon – 1:30 p.m. | Undergraduate Research Session | Pointe-Aux-Trembles****Poster Displays & Exhibits Open | Salons Fontaine - Lower Level****PLENARY AWARDS SESSION****1:30 - 5:30 p.m. | Montreal Ballroom**

1:30 - 1:35 p.m. *Introduction from The Protein Society President*
Carol B. Post, Purdue University

1:35 - 1:40 p.m. *Presentation of the Dorothy Crowfoot Hodgkin* Award*

1:40 - 2:10 p.m. *Integrative Structural Biology of Telomerase*
2017 Dorothy Crowfoot Hodgkin Award Winner
Juli Feigon, University of California, Los Angeles;
Los Angeles, California, United States

* Sponsored by Genentech

Day 3 – Wednesday, July 26, 2017 (cont.)

- 2:10 - 2:15 p.m. *Presentation of the Dorothy Crowfoot Hodgkin* Award*
- 2:15 - 2:45 p.m. *Chaperone Machineries in RuBisCO Biogenesis and Metabolic Repair*
2017 Dorothy Crowfoot Hodgkin Award Winner
Manajit Hayer-Hartl, Max Planck Institute of Biochemistry;
Martinsried, Germany
- 2:45 - 2:50 p.m. *Presentation of the Carl Brändén** Award*
- 2:50 - 3:20 p.m. *Building Collagen IV Smart Scaffolds On the Outside of Cells*
2017 Carl Brändén Award Winner
Billy Hudson, Vanderbilt University Medical Center;
Brentwood, Tennessee, United States
- COFFEE BREAK I 3:20 - 3:45 p.m. | Foyer and Fontaine**
- 3:45 - 3:50 p.m. *Presentation of the Protein Science Young Investigator Award****
- 3:50 - 4:20 p.m. *Mitochondrial Proteins, Pathways, and Pathogenesis*
2017 Protein Science Young Investigator Award Winner
David Pagliarini, Morgridge Institute for Research; Madison, Wisconsin,
United States
- 4:20 - 4:25 p.m. *Presentation of the Emil Thomas Kaiser Award*
- 4:25 - 4:55 p.m. *Painting Chromatin With Synthetic Protein Chemistry*
2017 Emil Thomas Kaiser Award Winner
Thomas Muir, Princeton University; Princeton, New Jersey, United States
- 4:55 - 5:05 p.m. *Presentation of the Protein Society Service Awards*
- 5:05 - 5:30 p.m. *Presentation of the Hans Neurath Outstanding Promise Travel Awards*****

POSTERS OPEN, EXHIBITS, MIX & MINGLE
5:30 - 7:30 p.m. | Salons Fontaine - Lower Level

MEMBERS' RECEPTION (ALL WELCOME)
8:45 - 10:45 p.m. | Montreal Ballroom
Presentation of the Best Poster Competition Winners

*Sponsored by Genentech

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Day 4 – Thursday, July 27, 2017**CONCURRENT MORNING SESSION 1****Intrinsically-Disordered Proteins & Phase Transitions****8:30 - 10:20 a.m. | Westmount/Mt. Royal/Hampstead/Cote-St. Luc**

- 8:30 - 8:35 a.m. *Introduction From Chair*
Regis Pomes, Hospital for Sick Children; Ontario, Canada
- 8:35 - 9:05 a.m. *Autoinhibition by Disordered Linkers: Regulation of Motility, Transcription and Viral Replication*
Elisar Barbar, Oregon State University; Corvallis, Oregon, United States
- 9:05 - 9:35 a.m. *Decoding Molecular Plasticity in the Dark Proteome*
Edward Lemke, European Molecular Biology Laboratory; Heidelberg, Germany
- 9:35 - 9:50 a.m. *Structure and Self-Assembly of Elastin-Like Peptides: A Joint Molecular Dynamics and NMR Study*
Regis Pomes, Hospital for Sick Children; Ontario, Canada
- 9:50 - 10:20 a.m. *Disordered Proteins Populate Diverse Conformational Landscapes; From Disordered Clusters to Phase Separated Scaffolds*
Richard Kriwacki, Saint Jude Children's Research Hospital; Memphis, Tennessee, United States

CONCURRENT MORNING SESSION 2**Advances In Membrane Proteins****8:30 - 10:20 a.m. | Outremont/Verdun/Lachine/LaSalle**

- 8:30 - 8:35 a.m. *Introduction From Chair*
Joshua Levitz, Weill Cornell Medicine; New York, United States
- 8:35 - 9:05 a.m. *Membrane Proteins - The Lipid Connection*
Carol Robinson, Oxford University; Oxford, United Kingdom
- 9:05 - 9:35 a.m. *Structure of the Mitochondrial ATP Synthases and Its Role In Cristae Biogenesis*
Karen Davies, Lawrence Berkeley National Lab; Berkeley, California, United States

Day 4 – Thursday, July 27, 2017 (cont.)

9:35 - 9:50 a.m. *Predicting Deleteriousness of Genetic Variations In Membrane Proteins*
Julia Koehler Leman, New York University; New York, New York,
United States

9:50 - 10:20 a.m. *The Molecular Mechanism of P-type ATPase Ion Pumps*
Benoit Roux, University of Chicago; Chicago, Illinois, United States

COFFEE BREAK | 10:20 - 10:50 a.m. | Foyer

CLOSING PLENARY and 2017 STEIN & MOORE AWARD

10:50 a.m. - 11:45 a.m.

Montreal Ballroom

10:50 - 10:55 a.m. *Introduction from The Protein Society President and Presentation of the
Stein & Moore Award Winner*
Carol B. Post, Purdue University

10:55 - 11:25 a.m. *Deconstructing the Ras Signaling Switch Through Saturation Mutagenesis*
2017 Stein & Moore Award Winner
John Kuriyan, University of California, Berkeley; Berkeley, California,
United States

11:25 - 11:45 a.m. *Closing Remarks from The Protein Society President*
Carol B. Post, Purdue University