

# 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 Ubiquitinated 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**

**Day 2, Tuesday, July 25, 2017 (cont.)****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 | 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 | 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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\*\*\*\*Sponsored by the Hans Neurath Foundation

**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