Programme

8:45 - 9:20  Registration and coffee

9:20 – 9:30  Welcome
Liz Carpenter, SGC, Oxford, UK

Membrane Protein Expression/Purification
Chair: Liz Carpenter, SGC, Oxford, UK

09:30 – 10:00  James Love, Einstein, NY, USA
Production of Human Membrane Proteins for Structural and Functional Studies

10:00 – 10:30  Nicola Burgess-Brown, SGC, Oxford, UK
Expressing Human Integral Membrane Proteins

10:30– 11:00  Imre Berger, Bristol, UK
ACEMBLing a Multiprotein Transmembrane Complex: The Functional SecYEG-DecDF-YajC-YidC Holotranslocon Protein Secretase/Insertase

11:00 – 11:30  Coffee
Chair: Vadim Cherezov, USC, USA

11:30 – 12:00  Chris Tate, Cambridge, UK
Optimising functional expression of membrane proteins in mammalian cells

Free electron laser crystallography

12:00 – 12:30  Petra Fromme, Arizona State, USA
Femtosecond Crystallography opens a new era in Membrane Protein Structural Biology

12:30 – 13:00  Jim Naismith, St. Andrews, UK
SFX @ EU XFEL and MscS

13:00 – 14:00  Lunch and Posters

Electron Microscopy
Chair: Juha Huiskonen, OPIC, WTCHG, Oxford

14.00 - 14.30  Sjors Scheres, LMB, Cambridge, UK
How cryo-EM is revolutionizing structural biology
14.30 - 15.00  K. Vinothkumar, LMB, Cambridge, UK  
Arrangement of supernumerary subunits in mammalian mitochondrial complex I

15.00 - 15.30  Werner Kühlbrandt, Frankfurt, Germany  
High-resolution electron cryo-microscopy of membrane protein complexes

15.30 - 16.00  Tea

Simulations and ion channel function  
Chair: Jim Naismith, St Andrews, UK

16.00 - 16.30  Mark Sansom, Biochemistry, Oxford, UK  
Membrane Proteins in Membranes: Using Simulations to Transplant Structures Back to their Cellular Environment

16.30 - 17.00  Bert de Groot, Goettingen, Germany  
The molecular dynamics of channel permeation, inhibition and gating

17.00 - 17.30  Stephen Tucker, Physics, Oxford, UK  
Functional validation of a model for hydrophobic gating in a K+ channel

Talks selected from poster abstracts  
Chair: Nicola Burgess-Brown, SGC, Oxford, UK

17.30 – 17.45  Juni Andréll, LMB, Cambridge, UK  
Using flow cytometry to optimise overproduction of integral membrane proteins in inducible mammalian cell lines

17.45 – 18.00  Veronika Heinz, Regensburg, Germany  
Structural characterization of stressosome complexes by Single-particle cryo-electron microscopy

18.00 – 18.15  Pikyee Ma, Trinity College Dublin, Republic of Ireland  
The Cubicon Method for Concentrating Membrane Proteins in the Cubic Mesophase

18.15 – 18.30  Dirk Slotboom, Groningen, Netherlands  
The structural basis of toppling in ECF-type ABC transporters

End of day 1
Ion Channels
Chair: Bonnie Wallace, Birkbeck College, London

9.00 – 9.30  Raimund Dutzler, Zurich, Switzerland
The structure and function of calcium activated TMEM16 channels and scramblases

09.30 – 10.00  Liz Carpenter, SGC, Oxford, UK
From the SGC pipeline to an understanding of TREK channel mechanosensitivity and inhibition

10.00 – 10.30  Radu Aricescu, STRUBI, Oxford, UK
Crystal structure of a human GABAA receptor

10.30 – 11.00  Katharina Dürr, Vollum Institute, Oregon, USA
Structural insights into activation and desensitization of AMPA receptors

11.00 – 11.30  Coffee

Ion Channels
Chair: Poul Nissen, Aarhus, Denmark

11.30 – 12.00  Bonnie Wallace, Birkbeck, London, UK
Sodium Channels: Structure, Function, Ion Selectivity, and Drug Binding

12.00 – 12.30  Christopher Koth, Genentech, USA
Engineering Membrane Proteins for Structure and Drug Discovery: The Painful Route to Painless Views of Nav1.7

12.30 – 13.00  Eduardo Perozo, Chicago, USA
Asymmetric Conformational Transition Underlies Mg\(^{2+}\)-Driven Gating in CorA

13.00 – 14.00  Lunch

Solute carriers
Chair: Eduardo Perozo, Chicago, USA

14.00 - 14.30  Bob Stroud, UCSF, USA
What can we learn from the structures of membrane secondary transporters?
14.30 - 15.00  Simon Newstead, Biochemistry, Oxford, UK
Crystal structures of a dual-topology, double-barrelled fluoride ion channel

15.00 - 15.30  Bjørn Pedersen, Aarhus, Denmark
Example of Symport in the Major Facilitator Superfamily from a Structural Perspective

15.30 - 16.00  Christine Ziegler, Regensburg, Germany
Transport regulation mechanism in BetP

16.00 - 16.30  Tea

**GPCRs**
Chair: Bob Stroud, UCSF, USA

16.30 - 17.00  Ray Stevens, USC, USA
Structural Coverage of the Complete GPCR Superfamily

17.00 - 17.30  Gebhard Schertler, PSI, Switzerland
The impact of Free Electron Lasers on membrane protein structural biology

17.30 - 18.00  Vadim Cherezov, USC, USA
Serial Crystallography of GPCRs

**Talks selected from poster abstracts**
Chair: Ray Stevens, USC, USA

18.00 – 18.15  Phil Stansfeld, Biochemistry, Oxford, UK
MemProtMD: Restoring Membrane Protein Structures to Lipid Bilayers

18.15 – 18.30  Chitra Shintre, SGC, Oxford, UK
Structural studies of a human ABC transporter, ABCB10, reveal an occluded conformation, as well as open-inwards states.

18.30 – 18.45  Patricia Dijkman, Biochemistry, Oxford, UK
Dynamic GPCR dimerisation probed by ensemble and single-molecule FRET, DEER, and simulations

18.45 – 19.00  Andreas Blees, Frankfurt, Germany
Function and Structure of the MHC I Peptide-Loading Complex

End of day 2
Pumps and ATPases  
Chair: Christine Ziegler, Regensburg, Germany

9.00 – 9.30  
Poul Nissen, Aarhus, Denmark
*P-type ATPases on the move – structure, mechanism and dynamics*

9.30 – 10.00  
Thomas Meier, Imperial, London, UK
*Structure of complete rotary ATP synthase and its role as new drug target against tuberculosis*

10.00 – 10.30  
Adrian Goldman, Leeds, UK
*From pyrophosphate-primed proton pumps*

10.30 – 11.00  
Coffee

ABC transporters  
Chair: Fran Ashcroft, DPAG, Oxford, UK

11.00 – 11.30  
Kaspar Locher, ETH Zurich, Switzerland
*Structure and mechanism of an ATP-driven flippase of lipid-linked oligosaccharides*

11.30 – 12.00  
Robert Tampé, Frankfurt, Germany
*New insights into heterodimeric ABC transporters via integrative structural biology*

12.00 – 12.30  
Carol Robinson, Chemistry, Oxford, UK
*Mass spectrometry of membrane proteins - the lipid connection*

12.30 – 12.45  
Poster prizes and wrap up session

12.50  
End of meeting