



Barcelona BioMed Conference

Transporters and other molecular machines

November 17-19, 2014

Programme

Monday, November 17, 2014

8.30 Registration

9.00 Welcome by Miquel Coll

9.10 Introduction by Manuel Palacín

Session I: Secondary transporters

Chair: Christine Ziegler/ Manuel Palacín

9:15 **Structure, ion binding and transport mechanism in the archaeal Na⁺/H⁺ antiporter NhaP**

Özkan Yildiz, Max Planck Institute of Biophysics (Frankfurt, Germany)

9.50 **Ion-coupled transport in the light of inverted repeats**

Christine Ziegler, Max Planck Institute of Biophysics (Frankfurt, Germany)

10.25-10.55 Coffee break and poster session

10.55 **Insights into the structural basis of ligand recognition by the dopamine transporter**

Aravind Penmatsa, Oregon Health & Science University (Portland, OR, USA)

11.30 **A two-domain elevator mechanism for sodium/proton antiport**

David Drew, Stockholm University (Stockholm, Sweden)

12.05 **Function, Structure and Evolution of the Major Facilitator Superfamily: The LacY Manifesto**

Greg Madej, UCLA Molecular Cellular & Integrative Physiology (Los Angeles, CA, USA)

12.40 **Molecular basis of transport and regulation of mitochondrial carriers**

Edmund R. S. Kunji, MRC Mitochondrial Biology Unit (Cambridge, UK)

13.15 - 15.15 Lunch (FrescCo, C/ Carme, 16)

Session II: New approaches to membrane protein structures

Chair: Markus Zweckstetter/ Manuel Palacín

- 15.15 **AFM can link structure, mechanics and cooperativity of membrane proteins**
Sonia Antoranz-Contera, University of Oxford (Oxford, UK)
- 15.50 **New approaches to study P-type ATPase ligand complexes**
Maike Bublitz, Aarhus University (Aarhus, Denmark)
- 16.25- 16.55 Coffee break and poster session
- 16.55 **Structures of Membrane proteins by Single Particle Electron cryo microscopy**
Vinoth Kumar, MRC Laboratory of Molecular Biology (Cambridge, UK)
- 17.30 **Structure of the 18 kDa translocator protein**
Markus Zweckstetter, Max Planck Institute for Biophysical Chemistry (Göttingen, Germany)
- 18.05 Selected abstract: **Molecular determinants for neutral and acidic amino acid transport by members of the SLC1A family**
Renaë M. Ryan, The University of Sydney (Sydney, Australia)
- 18.20 Selected abstract: **Crystal structure of the Vitamin B₃ PnuC, a full length SWEET homolog**
Michael Jaehme, University of Groningen (Groningen, The Netherlands)
- 18.35 Selected abstract: **Towards the full structure of multidrug efflux pump assembly**
Vassiliy N.Bavro, Institute of Microbiology and Infection (Birmingham, UK)
- 18.50 End of session

Tuesday, November 18, 2014

Session III: Non-rotor pumps

Chair: Poul Nissen/ Chikashi Toyoshima

- 9.00 **Transport of sodium in and out of the cell**
Poul Nissen, Aarhus University (Aarhus, Denmark)
- 9.35 **THE DIFFERENT RELEASE MECHANISMS OF ZN(II) - AND CU(I) -TRANSPORTING P-TYPE ATPASES**
Pontus Gourdon, Aarhus University (Aarhus, Denmark)
- 10.10 **Structural Dynamics of SERCA and Therapeutic Design**
David D. Thomas, University of Minnesota (Minneapolis, MN, USA)
- 10.45-11.25 Coffee break and poster session
- 11.25 **New crystal structures of Ca²⁺-ATPase (SERCA) and Na⁺,K⁺-ATPase**
Chikashi Toyoshima, The University of Tokyo (Tokyo, Japan)
- 12.00 **Selected abstract: Atomic-level characterization of the regulation mechanism of the calcium pump by phospholamban**
L. Michel Espinoza-Fonseca, University of Minnesota (Minneapolis, USA)
- 12.15 **Selected abstract: Innovative tools for the structural and functional investigation of a multidrug efflux pump from Pseudomonas aeruginosa**
Martin Picard, CNRS & Paris Descartes University (Paris, France)
- 12.30 - 15.00 Lunch (FresCo, C/ Carme, 16)

Session IV: Rotors

Chair: Takeshi Murata/ Miquel Coll

- 15.00 **The ATP synthase, a paradigmatic molecular machine and its role as a new drug target against tuberculosis**
Thomas Meier, Max-Planck Institute of Biophysics (Frankfurt, Germany)
- 15.35 **Molecular mechanism of Enterococcus hirae V-ATPase**
Takeshi Murata, Chiba University (Chiba, Japan)
- 16.10- 16.50 Coffee break and poster session
- 16.50 **The bacterial flagellar motor: not a stable nanomachine**
Judith Armitage, University of Oxford (Oxford, UK)
- 17.25 **Selected abstract: Biochemical and structural analysis of FlaH, a component of the crenarchaeal archaellum**
Tomasz Neiner, Max Planck Institute for Terrestrial Microbiology (Marburg, Germany)
- 17.40 End of session
- 20.30 Speakers dinner "Restaurant Attic" (C/Ramblas, 120)

Wednesday, November 19, 2014

Session V: ABC transporters

Chair: Robert Tampé/ Bert Poolman

- 9.00 **Antigen Translocation in Adaptive Immunity and Viral Escape**
Robert Tampé, University of Frankfurt (Frankfurt, Germany)
- 9.35 **Ligand-binding mechanism and substrate delivery in ATP-binding cassette transporter at the single-molecule level**
Bert Poolman, University of Groningen (Groningen, The Netherlands)
- 10.10 **Conformational dynamics of a heterodimeric ABC exporter from a hyperthermophilic organism**
Enrica Bordignon, Freie Universität Berlin (Berlin, Germany)
- 10.45-11:15 Coffee break and poster session
- 11.15 **Selected Abstract: Structural insights into the function of the Mitochondrial inner--membrane ABC transporter ATM1**
Vasundara Srinivasan, Philipps University Marburg (Marburg, Germany)
- 11.30 **Cystic fibrosis, from the patient to the basic defect and back**
John R Riordan, UNC School of Medicine (Chapel Hill, NC, USA)
- 12.05 Concluding remarks