

# Physiology of membrane ion transport

September 16-29  
Montevideo, Uruguay

## Preliminary course program

Day	9 AM – 11:30 AM Lectures and seminars	2 PM – 7PM Laboratory
Wednesday Sept. 16	Presentation by the organizers.	Meeting of foreign students with local students and teachers. Hanging of student posters.
Thursday Sept. 17	Mechanism of ion transport, channels vs. transporters. Active transport (P Artigas)	Electrophysiological measurement of electrogenic transporters in isolated heart cells (P Artigas)
Friday Sept. 18	Energetic of ion transport, gating and conformational changes. (G Pizarro)	Electrophysiological measurement of electrogenic transporters in isolated heart cells (P Artigas)
Saturday Sept. 19	Epithelial ion transport (J. Hernández, S. Chifflet)	(Free)
Sunday Sept. 20	(Free)	
Monday Sept. 21	Cell communication. (V.Abudara, S. Pantano)	Membrane potential and ionic transport in epithelial wound healing (S Chifflet) / Confocal intracellular Ca <sup>2+</sup> measurements (Institut Pasteur)(P.Aguilar, G.Brum)
Tuesday Sept. 22	Ion transport in heart cells. Coupling electrical and chemical signalling: large conductance voltage and calcium gated channels (BK). (G. Ferreira, Teresa Giraldez)	Whole cell Ca <sup>2+</sup> measurements (G Pizarro, G Brum)/ Membrane potential and ionic transport in epithelial wound healing (S Chifflet)
Wednesday Sept. 23	Ca <sup>2+</sup> transport across plasma, nuclear, and sarco/endoplasmic reticulum membranes. (J.C. Benech, H.Adamo, E. Jaimovich)	Confocal intracellular Ca <sup>2+</sup> measurements (Institut Pasteur)(P.Aguilar, G.Brum)/ Whole cell Ca measurements (G Pizarro, G Brum)
Thursday Sept. 24	Sodium-potassium pump: structure, mechanism, diversity and regulation (T Pressley)	Enzymatic assay of Na/K- and Ca-ATPase activity. (T Pressley, JC Benech)
Friday Sept. 25	Voltage dependence of ion transport processes (Daniel Peluffo)	Enzymatic assay of Na/K- and Ca-ATPase activity (T Pressley, JC Benech)
Saturday Sept. 26	Membrane protein folding: Bases and experimental determination. (G Altenberg)	(Free)
Sunday Sept. 27	(Free) City tour or to the coast	
Monday Sept. 28	Mini-symposium (full day)	
Tuesday Sept. 29	Mini-symposium (full day)	

## **Mini-Symposium preliminary program**

### **Physiology of membrane ion transport**

The symposium will be held at the School of Medicine in Montevideo, and organized in four sessions during two days. Talks will be 30 minutes long plus 10 minutes discussion.

#### **Monday Sept. 28**

9:00 Short introduction and presentation.

#### **I. Membrane transporters**

9:10 The Na<sup>+</sup>/I<sup>-</sup> symporter (NIS): from molecule to patient.

Nancy Carrasco. Department of Molecular Pharmacology, Albert Einstein College of Medicine. USA

9:50 Isoform diversity in the Na,K-pump.

Thomas Pressley. Texas Tech University Health Sciences Center. USA

10:30 Café

11:00 Kinetics of transport intermediates in the Na<sup>+</sup>/K<sup>+</sup>-ATPase

Rolando Rossi. Instituto Química y Físicoquímica Biológica. Departamento de Química Biológica. Facultad de Farmacia y Bioquímica. UBA, Argentina.

11:40 Modeling the role of the sodium pump in the dynamics of cellular homeostasis.

Julio Hernández. Sección Biofísica. Facultad de Ciencias. Uruguay

#### **II. Ca transport across membranes**

14:00 The Ca<sup>2+</sup> pump of the nuclear envelope and Ca<sup>2+</sup> signaling in the cell nucleus.

J. Claudio Benech. Instituto de Investigaciones Biológicas Clemente Estable. Uruguay

14:40 Molecular mechanisms for excitation-transcription coupling in muscle cells.

Enrique Jaimovich. Centro de Estudios Moleculares de la Célula Instituto de Ciencias Biomédicas. Facultad de Medicina, Universidad de Chile. Chile

15:40 Café

16:00 Properties of the Ca<sup>2+</sup>-dependent inactivation of SR Ca<sup>2+</sup> release in skeletal muscle.

Gonzalo Pizarro. Departamento de Biofísica. Facultad de Medicina. Uruguay

16:40 Mechanisms implicated in the regulation of the plasma membrane Ca<sup>2+</sup> pump.

Hugo Adamo. Instituto de Química y Físicoquímica Biológicas (IQUIFIB), Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires. Argentina

#### **Tuesday Sept. 29**

#### **III. Intercellular and vesicle mediated transport**

9:00 A model of the gap junction transmembrane pore based on spectroscopic measurements.

Guillermo Altenberg. Department of Neuroscience and Cell Biology, University of Texas Medical Branch, Galveston USA

9:40 Permeability of Gap-Junction channels: Insights from molecular simulations.

Sergio Pantano. Institut Pasteur Montevideo. Uruguay

10:10 Café

- 10:30 Gliotransmission mediated by hemichannels in the nervous system.  
Verónica Abudara. Departamento de Fisiología, Facultad de Medicina, Uruguay.
- 11:10 Eisosomes and plasma membrane organization.  
Pablo Aguilar. Institut Pasteur Montevideo. Uruguay

#### **IV. Modulation of membrane transport**

- 14:00 Modulation of membrane protein functions by bilayer physical properties.  
Pablo Artigas. Department of Cell Physiology and Molecular Biophysics, Texas Tech University Health Science Center. USA
- 14:40 Modulation of membrane transport by intracellular ions.  
Gonzalo Ferreira. Departamento de Biofísica. Facultad de Medicina. Uruguay
- 15:40 Café
- 16:00 Structural dynamics of the C-terminal region of BK channels.  
Teresa Giraldez. Unidad de Investigación, Hospital Universitario Ntra. Sra. De Candelaria. Tenerife, Spain.
- 16:40 Membrane potential-dependent kinetics of cationic amino acid transporters.  
R. Daniel Peluffo. Department of Pharmacology and Physiology, University of Medicine and Dentistry of New Jersey. USA