



UNIVERSIDADE
DE LISBOA



3rd Italian-Hispano-Portuguese Workshop On The Molecular Biology And Biophysics Of Ion Channels And Transporters



(1) Title of Proposed

3rd Italian-Hispano-Portuguese Workshop On The Molecular Biology And Biophysics Of Ion Channels And Transporters

(2) Venue or Location of the

University of Bologna, Campus of Imola, Plesso Vespignani, Palazzo Vespignani, Via Garibaldi 24, 40026 Imola (Bologna), Italy

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(3) Duration of the FEBS Workshop

Exact Dates of Workshop: July 7-10th, 2011

Number of working days (nights): 3

Proposed deadline for applications: May 1st, 2011

(4) Names & Addresses & e-mails of all Members of the Organizing Committee

-Organizing Committee:

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-Scientific Committee:

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(5) Justification of the Proposed

Ion channels and transporters are membrane proteins specialized in regulating the movement of ions across and solutes through cell membranes. Each animal or vegetal cell holds in its membrane an outstanding variety of ion channels and transporters with different properties. They play an essential role in many biological processes due to their ubiquity and diversity, such as metabolism, the control of the neural and muscular excitability, the hormonal secretion, the osmotic balance and the cellular proliferation. In the last years, spectacular advances have taken place in the field of the structure, genetics and function of the ion channels and transporters with the publication of several high resolution structures. Their dysfunction is associated to an increasing number of pathologies, both hereditary and punctual. Indeed, it is currently accepted that these molecular devices are pivotal therapeutic targets for drug intervention. In addition, they are also the side target of many drugs, thus often mediating their unwanted side effects. Therefore, research in this field is a hot topic that requires the use of distinct, but complementary, methodologies including biochemistry, molecular biology, biophysics, genetics, histology, pharmacology, behaviour, and structural biology.

The III Hispanic/Italian/Portuguese Workshop on the Biophysics and molecular biology of ion channels and transporters is a focused meeting that aims to discuss the most relevant advances in this field performed by laboratories of the three European countries, and to review the breakthroughs of outstanding, internationally recognized scientists in this exciting field. This is a biannual initiative proposed in 2006 by a group of Italian and Spanish researchers that led to the organization of the I Workshop in September 2007 in Bertinoro, Italy that was attended by 26 European researchers, mostly students. The 2nd Workshop organized in 2009 in the place known as the Xorret de Catí, in the mountains of Alicante, was a complete success with an increase in attendees up to 50 that actively participated in the discussions of the topics. Akin to the 1st workshop, the meeting had a significant participation of postdoctoral fellows and students from laboratories all over Europe. With the III edition to be held in 2011 in Italy, we aim to strengthen this initiative and to expand it further into Europe. In support of this goal, we have attracted the Interest of Portuguese biochemists and biophysicist. In addition to training young scientists in the field of ion channels, we aim at seeding an internationalization framework for youngster working in European groups, by stimulating them to collaborate. Therefore, this initiative will promote the creation of new European partners. Last but not least, the training of young researchers in this exciting field which will warrant the research excellence of Europe in this arena.

(6) Lecturers & Speakers Invited

- ✓ **Di Marzo Vincenzo (Università di Napoli)**, Institute of Biomolecular Chemistry Consiglio Nazionale delle Ricerche, Via Campi Flegrei 34 Comprensorio Olivetti 80078 Pozzuoli (NA), Italy. Field of interest: Endocannabinoid Research Group, Office Phone : +39-081-867-5093, Lab: +39-081-867-5193, Fax: +39-081-8041770, E-mail: vincenzo.dimarzo@icb.cnr.it

Talk: “Transient receptor potential (TRP) channels and their interactions with endocannabinoids and plant cannabinoids”

- ✓ **Pietro Baldelli (Università di Genova)**, Department of Experimental Medicine, Section of Human Physiology, University of Genova, Viale Benedetto XV, 3, 16132 Genova (Italia). Field of interest: molecular mechanisms underlying both physiological and pathological processes of the neurotransmission, Phone: +39 010 353 8186 (7492 - 38252), fax: +39 010 353 8194, E-mail: C0627@unige.it.

Talk: “NRSF/REST: a silencing transcription factor for silencing neuronal hyperexcitability”

- ✓ **Francesca Grassi (Università di Roma)**, Dipartimento di Fisiologia e Farmacologia, Università di Roma La Sapienza, Piazzale Aldo Moro5, 00185, Roma (Italy). Field of interest: modulation of voltage-gated channels and unctional properties of nicotinic acetylcholine receptors. Tel: +3906 4991 0060, Fax: +3906 4991 0851, E-mail: francesca.grassi@uniroma1.it.

Talk: “Functional properties of acetylcholine receptor-channels bearing mutations associated with human pathologies”

- ✓ **Anna Moroni (Università di Milano)** Dipartimento di Biologia, Via Celoria 26, 20133 Milano (Italy). Field of interest: structure-function of membrane proteins, viral ion channels, HCN potassium channels. Phone: +39 02 503 14826, Fax: +39 02 50314 938, E-mail: anna.moroni@unimi.it.

Talk: “The molecular basis of the differential response of HCN channels to cAMP ”

- ✓ **Luís Pardo (EMBL)** Max-Planck-Institute of Experimental Medicine Molecular Biology of Neuronal Signals Hermann-Rein-Str. 3 D37075 Göttingen Germany. Field of interest: voltage gated ion channels in cell proliferations. Phone: +49 551 3899 643, Fax: +49 551 3899 644, Pardo@em.mpg.de

Talk: “Oncogenic ion channels ”

Universitat Jaume I

Departamento de Física

- ✓ **Vicente Aguilera (Universidad Jaime I)** Departamento de Ciencias Experimentales, Universidad Jaime I, 12080 Castellon, Spain. Field of interest: biophysical properties of ion channels. Phone: +34-964-728045. Fax: +34-964-728066. E-mail: aguilell@uji.es.

Talk: “Physics of ion permeation through wide protein channels”

- ✓ **Francisco Ciruela (Universidad BCN)** Department of Pathology and Experimental, Therapeutics, Medical School. Av. Feixa Llarga, s/n. Pavelló de Govern. 08907 L'Hospitalet del Llobregat Barcelona, Spain. Phone: +34-934024280/+34-934035820 Fax: +34-934029082. Field of interest: is focused on the oligomerization of plasma membrane proteins involved in the molecular recognition of neurotransmitters. fciruela@ub.edu

Talk: “New fluorescence-based approaches for the study of multiprotein complexes in live cells: lessons from G protein-coupled receptor oligomerization”

- ✓ **Teresa Giráldez (Universidad de La Laguna)**, Unidad de Investigacion HUNSC Ctra del Rosario 145
38010 Sta Cruz de Tenerife-Spain. Field of interest: molecular and structural basis of epithelial sodium channel (ENaC) and voltage- and calcium-activated potassium channels (BK) function. Phone: +34-922600661, Fax+34-922600562, tgiraldez@mac.com

Talk: “A deeper look into protein function: studying ion channels in motion”

- ✓ **Graça Soveral (Universidade de Lisboa)**, Faculdade de Farmácia de Lisboa Av.Prof. Gama Pinto 1649-003 Lisboa (Portugal). Field of interest: aquaporins and their physiological role in micro-organisms. Phone +351 217946400 Fax +351 217946470 E-mail: gsoveral@ff.ul.pt

Talk: “Aquaporin water channels: function and regulation by membrane stress”

- ✓ **Boris Safronov (Universidade de Porto)**, University of Porto, IBMC, Rua do Campo Alegre 823, 4150-180 Porto (Portugal). Phone: + 351 226074972. Field of interest: signal processing in spinal neurons and networks. E-mail: safronov@ibmc.up.pt

Talk: “Functional distribution of Na⁺ and K⁺ channels in spinal neurons ”

- ✓ **Inaugural Keynote: Bernd Nilius**, Department of Physiology, Gasthuisberg Campus, Leuven, Belgium O&N I Herestraat 49 - bus 00802 B-3000 Leuven, Phone: + 32 16 34 59 37 Fax: + 32 16 34 59 91, E-mail: bernd.nilius@med.kuleuven.be

Talk: “TRP channels: sensory devices”

- ✓ **Closing Keynote: Bert de Groot** Computational biomolecular dynamics group at the Max Planck Institute for Biophysical Chemistry, Am Fassberg 11, D-37077 Göttingen Germany phone: ++49-551-2012308 fax: ++49-551-2012302 Email: bgroot@gwdg.de

Talk: “Permeation mechanisms across biological membranes”

(7) Detailed DAILY Scientific Programme

The planned format of this workshop will combine lectures of invited speakers with short presentations of young investigators and poster session.

Programme:

Thursday 7th

- 16:00 Welcome to students and professors
- 18:00 Registration
- 19:00 Workshop Opening-Organizing Committee
- 19:15 *Inaugural Keynote* **Bernd Nilius**
“Amazing TRPs: novel drug targets ”
- 20:30 Reception and Free Dinner

Friday 8th

- 8:00 Breakfast
- 9:00 **Di Marzo Vincenzo (University of Naples)**
“Transient receptor potential (TRP) channels and their interactions with endocannabinoids and plant cannabinoids”
- 10:00 **Luís Pardo (EMBL)**
“Oncogenic ion channels ”
- 11:00 Coffee break
- 11:30 **Pietro Baldelli (University of Genoa)**
“NRSF/REST: a silencing transcription factor for silencing neuronal hyperexcitability”
- 12:30 **Vicente Aguilera (University of Jaime I)** Universitat Jaume I or University Jaume I
“Physics of ion permeation through wide protein channels”
- 13:30 Short Presentations by Participants
- 14:15 Lunch
- 15:30 **Anna Moroni (University of Milan)**
“The molecular basis of the differential response of HCN channels to cAMP ”
- 16:30 **Boris Safronov (Universidade de Porto)**
“Functional distribution of Na⁺ and K⁺ channels in spinal neurons ”
- 17:30 Coffee Break

18:00 Short Presentations by Participants

19:00 Free time

Saturday, 9th

8:00 Breakfast

9:00 **Graça Soveral (Universidade de Lisboa)**

“Aquaporin water channels: function and regulation by membrane stress”

10:00 **Francisco Ciruela (Universidad BCN)**

“New fluorescence-based approaches for the study of multiprotein complexes in live cells: lessons from G protein-coupled receptor oligomerization”

11:00 Coffee break

11:30 **Francesca Grassi (University of Rome)**

“Functional properties of acetylcholine receptor-channels bearing mutations associated with human pathologies”

12:30 Short presentations by participants

13:30 Poster session

14:30 Lunch

15:30 Poster session

16:30 **Teresa Giráldez (University de La Laguna)**

“A deeper look into protein function: studying ion channels in motion”

17:30 Coffee break

18:00 Closing Keynote **Bert de Groet**

“Permeation mechanisms across biological membranes “

19:00 Workshop Closing-Organizing Committee

19:30 Free time

20:30 Social Dinner

Sunday, 10th

9:00 Breakfast

12:00 Departure

(8) Particular Reasons for the Choice of Location

As we already pointed out, the main purpose is to create a forum for the training of young scientists in this exciting arena by providing a discussion forum of the latest advances in the field of Ion channels and transporters. The workshop also aims at becoming an international reference in training young scientists in the biochemistry and biophysics of this exciting field. To foster both objectives, the meeting has been organized as a Gordon conference-like event, where attendees and speakers will be hosted in the workshop venue and will interact throughout the entire meeting, including meals and social acts. The purpose is to provide a relaxing, encouraging atmosphere where youngsters are comfortable to talk and discuss science with senior scientists. For this reason, an old-style building from the University of Bologna, Palazzo Vespignani, situated in the Centre of Imola, close to Bologna, has been chosen as a venue. The Palazzo will create the warm environment pursued, allowing an intense and fluent interaction among all the participants.

(9) Type & Distribution of Expected Participants

Based on previous workshops, this edition foresees an attendance of 60 participants and several guest speakers, altogether about 80 people. Among the participants, balanced gender will be considered and implemented. Should the number of registrations largely surpass the attendance limit, we will consider increasing it up to 80 attendees or even more conditioned to the lodging capacities.

The announcement of this meeting will be addressed to all European research groups that may be interested in the field of ion channels and transporters in any of its aspects, especially biochemistry, molecular biology and biophysics. The workshop will encourage the participation of young researchers, both PhD students and postdocs, creating a discussion forum for their research topics and results.

The selection criteria will consider the CV of the applicant and the willingness to present results from his/her research either by poster or oral. A balanced distribution between PhD students and postdocs will be considered. Similarly, applications from all European countries will be eligible and a balanced geographical distribution of attendees will be implemented to ensure broad international distribution.

(10) Cost of Participation for Young Scientists versus Senior Scientists

A - Total all-inclusive registration fee for young scientists is (in €uro): 220€

This all-inclusive registration fee **breaks down** into costs for:

1. Meals (breakfast and lunch) per day
2. Accommodation per night (double / triple occupancy)
3. Administrative part of registration fee

B - Total Registration Fee for Senior / Corporate Scientists : 250€

