ecs Newsletter

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Calcium in Spain
by
Carlos Villalobos

Annoucements

May 2015

The next ECS meeting
Valladolid (Spain)
25-29 September 2016

european Calcium society

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Contents

Editorial

This issue continues the articles dedicated to the hotspots of calcium in Europe. In this issue Carlos Villalobos presents the calcium in Spain. It is the first time that Spain participates intensively to the newsletter. You will learn a lot of things about the labs in Spain, and specially the unexpected influence of Napoleon on Ca^{2+} hotspots in Spain.

Many thanks to Carlos for this excellent contribution which is very well documented. In September 2016 we are sure that you will participate to the next ECS meeting in Valladolid and it will be a great opportunity to discover the Ca^{2+} in Spain and continue the discussion about the different aspects presented in this article. Don't forget to write on your agenda the dates of 25-29 September 2016.

For the next issue, it will be fine if one or two ECS member can present their lab to the community. Send us your article. The number of pages is not limited.

Catherine and Marc

Editorial staff: catherine Leclerc & marc Moreau

Calcium hotspots in Spain

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A pubmed search using the terms *intracellular calcium* yields presently more than 100,000 publications. More than a third comes from European countries; another third has been produced in the USA and Canada; and the remaining come from Japan, China and South America along with lesser contributions from many other countries. Within Europe, the largest contribution comes from Germany and the UK with 5657 and 4529 publications, followed closely by France and Italy with 3899 and 3629, respectively. Spain is the fifth country in Europe by number of *intracellular calcium* publications with 1981 reports, followed by Sweden (1468), Switzerland (1278), The Netherlands (1138) and Belgium (1024). Contribution of other European countries is also significant as it reaches, in total, more than 4.000 publications. In summary, Europe remains as the world leading region regarding *intracellular* Ca^{2+} research with Spain struggling to keep going within the world´s top ten.

Who have been the main contributors to intracellular Ca^{2+} research in Spain? It could be stated that research on this topic in Spain has been like a Ca^{2+} hotspot starting in a few particular places and later spreading like a Ca^{2+} wave to give rise to elementary or even regenerative waves elsewhere across the country. No doubt that several locations host strong "Ca^{2+} research" hotspots but I think it is fair to say that the most enduring one occurred at the University of Valladolid, in the old city that will host the next European Calcium Society Meeting in 2016. How this happened? This is the story:

The University of Valladolid was founded around 1241, being therefore one the oldest in the world. Likewise, the Medical School is dated back to 1406. In 1807, due to the law of university reform, all the Medical Schools in Spain were abolished, with the exception of Salamanca and Valencia. That law was never implemented because, in 1808, the same year that Ca^{2+} was discovered in Britain, Spain was invaded by Napoleonic troops. After the end of the independence war in 1814, the University of Valladolid was conceded to award Medical Degrees, and in 1827 the new field of Surgery was added.

Colegio de Santa Cruz, University of Valladolid. First Renaissance building in Spain (1486-1492).

During all those centuries, the most salient figures in medicine in Spain were Miguel Servet (1509-1553), the early discoverer of pulmonary circulation, later arrested and burn at the stake in Geneva by the Calvinist governing council, and Luis de Mercado (1525-1611) from the University of Valladolid, later famous XVI century pathologist, first genetist and also royal physician of Philip second of Spain. After those early times, the most significant contribution of Valladolid to biomedical research was the figure of Pío del Río Hortega (1882-1945), histologist and coworker of Nobel prize Santiago Ramón y Ca-

jal. He worked later in Madrid, Paris (Hôpital de la Pitié) and Oxford University. His most important contribution was the discovery of microglia.

The 40´s and 50´s were difficult in Spain, but in the 60´s, the Valladolid University Medical School started to recover. Thanks to fellowship programs, several young doctors (Benito Herreros and others) visited research units in Britain and France and returned to start a research program on "The Physiology of transport throughout biological membranes" implemented at the Department of Physiology. This program was bolstered further by temporary stays in Valladolid of young scholars that later become important researchers including Antonio Sillero, Antonio G. García, Roberto Gallego and, most particularly, Carlos Belmonte.

In the early 70´s, two young medical students named Javier García-Sancho and Ana Sánchez, joined the Department and started to study solute transport under the guidance of Herreros and Belmonte. Other scholars joined Herreros and Belmonte including Constancio González and Fernando Giráldez. In 1982, García-Sancho and Sánchez moved to Physiological laboratory in Cambridge (UK) for a sabbatical leave in the labs of Virgilio Lew and Tim J. Rink, respectively. García-Sancho and Lew studied Ca^{2+} and K^+ transport in red blood ghosts. Sánchez, in turn, joined Tim Rink and Trevor Hallam. She was fortunate to encounter all the recent breakthroughs just made in Rink´s lab by the young Roger Y. Tsien (later Nobel Prize, Chemistry, 2008) and Tullio Pozzan, who had just planted the seeds for monitoring intracellular free Ca^{2+} concentration. García-Sancho and Sánchez published more than 10 papers in that one year stay in top journals including *Nature* (Rink et al., *Nature* 1983) and, most importantly, returned to Spain with the idea of setting up their own research group focused on the emerging topic of intracellular Ca^{2+} transport and signaling in blood cells.

Back in Valladolid, a number of young students joined soon García-Sancho and Sánchez´s lab including Miguel Valdeolmillos and Javier Alvarez followed later by María Teresa Alonso, Rosalba Fonteriz and Maite Montero in the late 80´s, Carlos Villalobos, Lucía Núñez and Sara Alonso in the early 90´s and Laura Senovilla, Pablo Chamero, Isabel M. Manjarrés and Francisco Aulestia, already in the 2000´s. During these years, they have addressed a large number of issues related to intracellular Ca^{2+} including the characterization of Ca^{2+}-dependent K^+ channels, Ca^{2+} signaling in platelets, neutrophils, chromaffin cells, pituitary cells, pancreatic cells, peripheral and central neurons and the modulation of agonist-induced, and store-operated Ca^{2+} entry in excitable and non-excitable cells among others.

Hallam, Sánchez and Rink in Cambridge, UK in 1982.

García-Sancho also implemented the first Ca^{2+} imaging set up in Spain in the late 80´s and used it to report, for example, the occurrence of synchronous Ca^{2+} oscillations in islets of Langerhangs challenged with glucose (*Santos et al., Pflugers Arch, 1991*), or the spontaneous Ca^{2+} oscillations due to Ca^{2+} action potentials or specific Ca^{2+} signals within the five identified anterior pituitary cell types (Villalobos et al., *PNAS* 1997). While being a PhD candidate at García-Sancho´s lab, I was very impressed when he explained that the Ca^{2+} imaging camera was the kind used only by satellites orbiting the earth. I never knew for sure if it was true but I always repeated that proudly when showing the set up to others.

During those times, García-Sancho´s team benefited enormously thanks to stays abroad of most lab members. For instance, Sánchez and García-Sancho moved shortly to San Diego (CA, USA) in 1997 to the labs of Mauricio Montal and Roger Y. Tsien, respectively. This allowed them to meet Juan Llopis and gaze to development of novel, protein-based Ca^{2+} probes. In turn, Alvarez and Montero moved to Tullio Pozzan´s lab in Padova (Italy) to develop, together with Rosario Rizzuto, the first aequorin-based probe for monitoring free Ca^{2+} concentrations inside the endoplasmic reticulum (Montero et al., *EMBO J*, 1995). Fonteriz and Alonso moved also to

Oxford (UK) and Heidelberg (Germany) and learnt patch clamp electrophysiology and the development of herpes virus based vectors, respectively. A few years later, Villalobos and Núñez moved to Charleston (SC, USA) to monitor Ca^{2+}-dependent gene expression dynamics in living cells using bioluminescence imaging.

In the 2000´s, the multiple expertise of mentors and mentees blended when everybody was back in Valladolid enabling the set up of one the first system for bioluminescence imaging of subcellular Ca^{2+} in living cells. This combined effort resulted in a large series of relevant contributions to the understanding of subcellular Ca^{2+} homeostasis in excitable (García et al., *Physiol Rev*, 2006) and non excitable cells (García-Sancho, *J Physiol*, 2014). Perhaps, the most salient one was the realization that mitochondria undergo large Ca^{2+} transients that may reach the mM level (Montero et al., *Nature Cell Biol*, 2000). Those findings contributed to put back mitochondria at center stage of Ca^{2+} research in the new millennium. The team has continued the development of new, more sophisticated Ca^{2+} probes based in GFP and aequorin now for *in vivo* Ca^{2+} imaging (Rodríguez-García et al., PNAS, 2014). Years ago, García-Sancho´s team split into several ones. Three groups including García-Sancho´s own are working at the Institute of Molecular Biology and Genetics (IBGM), a joint venture center between University of Valladolid and Spanish National Research Council (CSIC). Other researchers moved away holding presently research positions elsewhere in Spain, France and Germany.

Prof. Javier García-Sancho around 2010.

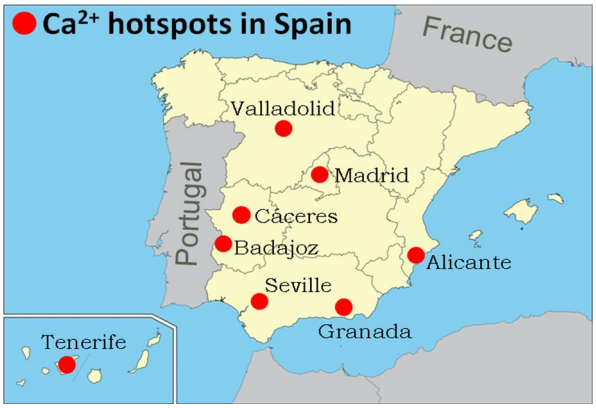
During the late 80´s, the setting and expertise developed by García-Sancho´s lab attracted many researchers that stopped by Valladolid to learn the monitoring of intracellular Ca^{2+}, Ca^{2+} imaging and/or starting new collaborations. Among them, the most important groups were those of Antonio G. García (Autonomous University of Madrid, Spain), Bernat Soria and Angel Nadal (Miguel Hernández University, Alicante, Spain) and Agatángelo Soler (University of Granada, Spain). García and his collaborators including Manuela G. López and Luis Gandía are well recognized by their contributions to the pharmacology of ion channels and exocytosis, particularly Ca^{2+} channels in chromaffin cells. For example, they reported for the first time that dihydropyridine BayK8644 activates chromaffin cell calcium channels (García et al., *Nature*, 1984).

Other experts in this field in Spain are Ricardo Borges (University of La Laguna, Tenerife, Spain) who organized not so long ago a lovely *Calcium binding protein meeting* in La Palma (Canary Islands, Spain, 2007). In parallel at the University of Seville the laboratory of José López Barneo and co-workers, were introducing patch-clamp electrophysiology in Spain. Collaborations with Bernat Soria, Angel Nadal and co-workers from the Miguel Hernández University in Alicante, Spain were also very frequent. They have made and continue to do important contributions in the field of Ca^{2+} signaling in the endocrine pancreas including early responses to estrogens and to endocrine disruptors, some of them started actually in Valladolid (Valdeolmillos et al., *Diabetes*, 1993).

Other important "Ca^{2+} hotspots" in Spain are not so related to Valladolid. Perhaps, one of the most relevant ones is the laboratory of Jorgina Satrústegui at the Center of Molecular Biology Severo Ochoa (CBMSO, CSIC) in Madrid. She attempted for many years the isolation of the mitochondrial Ca^{2+} uniporter, a milestone achieved later and simultaneously by Rizzuto et al. in Italy and Mootha et al. in the US. During her search, Satrústegui isolated and characterized Ca^{2+}-binding mitochondrial carriers like Aralar that are involved in Ca^{2+} signaling in mitochondria among other important contributions (Satrústegui et al., *Physiol Rev*, 2007).

Another relevant hotspot is at the National Center of Biotechnology (CNB, CSIC) where José Ramón Naranjo and co-workers have made important contributions in the field

and hold a very particular achievement: the discovery of the downstream regulatory element antagonist modulator, DREAM, the one and only Ca^{2+} regulated transcription repressor (Carrión et al., *Nature*, 1999). Since then, Naranjo has become an active member of the calcium community, particularly in the emerging field of regulation of gene expression by Ca^{2+} signals.



Intracellular Ca^{2+} research hotspots in Spain.

Two final Ca^{2+} hotspots are both at the University of Extremadura in the Spanish region close to Portugal where the holy roman emperor Charles V (1500-1558) retired to die. In Cáceres, Ginés M. Salido study store-operated Ca^{2+} entry, the nice mechanism envisioned by James W. Putney in 1986. Interestingly, Rosado, one of the initial members of the Cáceres team, spend a long stay with Stewart O. Sage in Cambridge (UK) who was also trained in Tim Rink´s lab years before. In Badajoz, Carlos Gutierrez and Ana Mata are leading experts in plasma membrane Ca^{2+} ATPases.

Many other Spaniards have contributed as well to the development of intracellular Ca^{2+} research in Spain and abroad. I apologize to all those that have not been mentioned in this short and partial view from Valladolid. Hopefully they will be mentioned in the long history of intracellular Ca^{2+} research yet to be completed.

I have enjoyed writing this manuscript and learning about so many details I was not aware of, particularly the unexpected influence of Napoleon on Ca^{2+} hotspots in Spain.

Valladolid, an old city meant to be the capital of Spain before Philip the second moved it to Madrid, is now internationally known when talking about wine, (cured) cheese and (roasted) lamb. We hope to add calcium to the list. To do it, let´s enjoy red wine, cured cheese and roasted lamb while talking about calcium at the European Calcium Society (ECS) meeting 2016 to be celebrated in Valladolid.

I appreciate the comments and corrections made by Profs. J. García-Sancho and A. Sánchez.

NEWS FROM THE LABS

Intracellular Ca^{2+} research for Chemoprevention and Neuroprotection

By Carlos Villalobos

National Research Council (CSIC)
Valladolid, Spain

Members of the Villalobos Nunez Lab in 2014. From left to right, María Calvo, Lucía Núñez, Carlos Villalobos, Diego Sobradillo and Miriam Hernández-Morales (Valladolid, Spain 2014).

The next meeting of the European Calcium Society (ECS) will hopefully be hosted in Valladolid, Spain, where I will have the honor of acting as local organizer together with the chair, Prof. Jan B. Parys, the co-chairs A. Draeger and J. García-Sancho as well as the local and scientific committees. There is a large tradition of intracellular Ca^{2+} research in Valladolid (*see Ca^{2+} hotspots in Spain in this issue*), but let me introduce my research group and interests with some insights as to why and how we arrived to them.

After gaining the PhD at the laboratory of Prof. García-Sancho working on Ca^{2+} signaling in pituitary cells and neurons, respectively, Lucía Núñez and myself moved to a post-doctoral stay (1996-1999) at the laboratory of late Prof. L. Stephen Frawley, Medical University of South Carolina (MUSC), Charleston, SC. There, we made some contributions on the role of intracellular Ca^{2+} in control of hormone secretion and gene expression dynamics taking advantage of a novel and lovely methodology of bioluminescence imaging of (reporter) gene expression in living cells (1-6).

In 1999, we returned to Spain and joined the recently created Institute of Molecular Biology and Genetics (IBGM), a joint venture between the University of Valladolid and the National Spanish Research Council (CSIC). Together with Javier García-Sancho, our former PhD advisor, we set up a system for bioluminescence imaging with the idea of monitoring Ca^{2+} and gene expression dynamics in the same cells. At that time, García-Sancho and his team including Javier Alvarez, Maite Montero and María Teresa Alonso were doing excellent research on subcellular Ca^{2+} using targeted aequorins. In fact they had challenged the prevalent view showing that mitochondria subpopulations may take up Ca^{2+} from microdomains increasing mitochondrial Ca^{2+} concentration to the mM level (7). It turned out that the system thought for bioluminescence imaging was an excellent tool for monitoring subcellular Ca^{2+} in single cells using targeted aequorin. In those years we were able to report for the first time mitochondrial Ca^{2+} oscillations due to Ca^{2+} action potentials in a subpopulation of mitochondria (8). After analysis of subcellular Ca^{2+} fluxes in chromaffin cells, it became clear that mitochondria was the most important player to take up the entering Ca^{2+} through voltage-gated Ca^{2+} channels, thus potentially modu-

lating multiple Ca^{2+} dependent processes (9).

In 2001, after obtaining a Ramón y Cajal fellowship (a 5 year, tenure track program in Spain), we carried out studies on subcellular Ca^{2+} homeostasis in different cell types including neurons (10-11). At the same time, we worked with our first pre-doctoral student, Laura Senovilla, on characterizing multifunctional anterior pituitary expressing multiple receptors for hypothalamic releasing factors and storing multiple anterior pituitary hormones (12-15). After obtaining an independent position as Associate Professor at the National Research Council (CSIC), we moved to the brand new building inaugurated the very same day I signed my position. We continued for a while our work on pituitary cell plasticity (16-17) but soon became more and more interested in the physiopathology of intracellular Ca^{2+}. That happens after some studies on the effect of mitochondrial uncouplers on Ca^{2+} signals in excitable and non-excitable cells. We realized that if mitochondria are actually taking up so much Ca^{2+} from Ca^{2+} microdomains surrounding Ca^{2+} channels, then mitochondrial uncouplers should influence strongly cytosolic Ca^{2+} and downstream signals. A good example is the role of mitochondria as modulator of the Ca^{2+} release activated channels (Icrac). At the same time, we were trying to study effects of a salicylate derivative on NFAT–dependent gene expression but failed because the cells died. Then we noticed that the compound used resembled mitochondrial uncouplers, thus leaving us wondering whether some of the unexplained pharmacological effects of salicylate, the main aspirin metabolite, could be due to effects on mitochondrial Ca^{2+} uptake and the consequences thereof.

Aspirin and other non-steroideal anti-inflammatory drugs (NSAIDs) inhibit cyclooxygenease (COX) and prevent fever, pain and damage associated to inflammation. However, aspirin and other NSAIDs show also multiple effects that remain unexplained including cancer chemoprevention, neuroprotection against Alzheimer´s disease or stroke and also vascular benefits associated to inhibition of smooth muscle cell proliferation. The mechanisms for such a plethora of benefits are still unknown but evidence has indicated that they are surprisingly independent of their anti-inflammatory activity.

We postulate that at least some of the benefits of aspirin and other NSAIDs on cancer chemoprevention, neurodegeneration and vascular system could be due to modulation of subcellular Ca^{2+} homeostasis. We therefore have investigated the effects of salicylate on cytosolic and mitochondrial Ca^{2+} in colon carcinoma HT29 cells. These cells were selected because aspirin has been repeatedly shown to protect against colon cancer, even in clinical trials. We found that store-operated Ca^{2+} entry (SOCE) was important for cell proliferation in these cells. In addition, we showed that salicylate depolarized partially mitochondria and prevented mitochondrial Ca^{2+} uptake, thus promoting the Ca^{2+}-dependent inactivation of SOCE and cell arrest in HT29 cells and Jurkat cells (18,19).

We also investigated the role of intracellular Ca^{2+} in neuron cell death induced by oligomers of the amyloid β (Aβ) peptide, the most likely neurotoxin in Alzheimer´s disease. We found that Aβ oligomers, but not fibrils, promoted Ca^{2+} entry, mitochondrial Ca^{2+} uptake and mitochondrial-dependent cell death in rat cerebellar granule cells and hippocampal neurons. Interestingly, multiple evidence suggests that aspirin may protect against Alzheimer´s disease. Consistently, we found that salicylate and other NSAIDs depolarized mitochondria at very low concentrations, thus preventing mitochondrial Ca^{2+} uptake and neuron cell death (20). Similarly, we have reported also that salicylate and NSAIDs protect against NMDA induced cell death by a similar mechanism (21).

We also used RBL cells and vascular smooth muscle cells to demonstrate the im-

portant role of SOC and Icrac in cell proliferation and that inhibition of Icrac by salicylate and NSAIDs depends on mitochondria (22, 23). Our results suggested that mitochondrial Ca^{2+} uptake and SOCE could be very relevant in control of cell proliferation and cell death associated to cancer, neural damage and vascular remodeling. Accordingly, we decided to address these issues by studying the possible remodeling of intracellular Ca^{2+} in phenotypic switches that happen during vascular remodeling, aging, neurodegeneration and cancer. It took us a while to figure out what models to use for investigating Ca^{2+} remodeling in such a divergent diseases.

We have investigated human coronary smooth muscle cells in primary culture and show they undergo a phenotypic switch from a proliferative to a contractile phenotype. This change is associated to a deep remodeling of intracellular Ca^{2+} including a shift from store-operated to voltage-operated channels and changes in Ca^{2+} store content and mitochondrial control of SOCE (24) providing a window of opportunity for targeting SOCE by acting on mitochondria during the proliferative phase.

We have also recently reported the important remodeling of intracellular Ca^{2+} that happens in colon cancer, its molecular basis and the contribution of those changes to cancer hallmarks (25) including excess cell proliferation, invasion and resistance to cell death. Research is ongoing with the hope of providing novel targets for colon cancer chemoprevention and/or therapy.

Finally, we are interested also in the possible remodeling of intracellular Ca^{2+} in aging neurons. For this, we have used the long term culture of hippocampal neurons as model of aging neurons and used to study mechanisms of susceptibility to excitotoxicity and neurodegeneration (21).

Last year we were fortunate to spend a little sabbatical in the laboratory of Prof. James W. Putney (NIEHS/NIH) in North Carolina. One day, I was asking Dr. Putney where should be the next ECS while talking with him about wines in Valladolid. This is when he came up with the idea of organizing the next ECS meeting in Valladolid, Spain. I thought that it was indeed a great idea and I gladly accepted to propose it to the ECS board members. I hope you all may come and enjoy the flavors of historic Spain in the high lands of Castille. We will do our best for it.

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6th European Calcium Society workshop

Calcium and Cell Fate

Domaine de Seillac in the Loire Valley, near Tours, France
June 21-24 2015

Organizing and scientific committees

Thierry Capiod, Aurore Douaud-Lecaille, Jacques Haiech
Catherine Leclerc, Olivier Mignen, Marc Moreau, Marie Potier-Cartereau, Christophe Vandier

Topics will include sessions on calcium channels and cancer, intracellular calcium and cancer, drug design and pharmacology, calcium and physiopathology, calcium and neural stem cells

Opening lecture

Natalia Prevarskaya (France)

Confirmed speakers:

René Bindels (Nederland)
Geert Bultynck (Belgium)
Thierry Capiod (France)
Brogger Christensen (Denmark)
Agnes Enyedi (Hungary)
Markus Hoth (Germany)
Eniko Kallay (Austria)
Catherine Leclerc (France)
Olivier Mignen (France)
Anant Parekh (United Kingdom)
Rajini Rao (USA)
Juan Rosado (Spain)
Meng-Ru Shen (Taiwan)
Ildiko Szabo (Italy)
Erik Smelder (Sweden)
Christophe Vandier (France)

Registration fees (including full accommodation, breakfast, lunch and diner):

	Until Wednesday, April 15 2015	after Wednesday, April 15 2015
Non-ECS member	660 €	690 €
ECS member	585 €	585 €
Student (room sharing)	450 €	500 €
Non academic, non governmental or corporate	750 €	800 €

A poster session will be organized and short oral communications will be selected from abstracts.

information and registration : http://www.ecsworkshop2015.com

Post-doc position available

The Laboratory of Dr. Mohamed Trebak in the Department of Cellular and Molecular Physiology at the Pennsylvania State University College of Medicine is seeking **highly motivated** postdoctoral applicants to join their research team.

The overall interest of our laboratory lies in Calcium signaling in primary cells of the vasculature and airways. We are interested in determining the molecular composition, modes of regulation and mechanisms of activation of native calcium entry channels and their contribution to physiological functions such as survival, migration, growth and permeability. We also use tissue-specific knockout mice and animal models of disease to determine the role of these calcium channels in driving disease processes. Our work is centered on STIM/Orai Ca^{2+} channel isoforms with particular interest in the Orai3 isoform. Other projects in the lab are focused on the Transient Receptor Potential (TRP) cation channel family members. We are committed to the discovery of new modes of ion channel regulation, the understanding of the remodeling of ion channel expression and function in disease and the development of new in vivo imaging tools, and strategies for disease therapy. We seek dynamic and highly motivated postdoctoral fellows with no more than 3 years of postdoc experience that possess broadly defined backgrounds in either Molecular cloning/mouse transgenics, biochemistry/protein chemistry, advanced imaging/microscopy, or animal surgery/animal models of disease, including but not limited to cardiovascular, kidney and lung disease and cancer.

The ideal candidate would be motivated, driven, creative, and capable of working independently and would possess outstanding written and oral skills. Experience in ion channel electrophysiology or Calcium signaling research is not necessary.

Qualified applicants must apply online at https://psu.jobs/job/57642.

In addition to submitting materials online, please email a letter of interest with a brief summary of your expertise, accomplishments, and future research interests, a full CV, two representative publications, and a list of three referees that are willing to write a reference on your behalf (merged within a single pdf) to: **Mohamed Trebak, PhD**.

Penn State is committed to affirmative action, equal opportunity and the diversity of its workforce.

Adresse

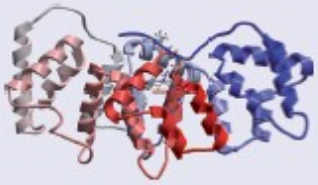
Mohamed Trebak, PhD., Professor

Penn State University College of Medicine; Department of Cellular and Molecular Physiology,

MC H166; 500 University Drive, Hershey, PA 17033-0850;

Email: mtrebak@hmc.psu.edu.

Meeting Announcement



ANNOUNCEMENT ANNEXINS 2015

MAASTRICHT I THE NETHERLANDS
Amrâth Grand Hotel de l'Empereur

8-11 SEPTEMBER
The 8th conference on Annexins

Topics:
- **Annexin evolution, structure and function**
- **Annexins in cell biology and cell communication**
- **Annexins in Immunology, Inflammation, Mineralization and Wound Healing**

Confirmed Keynote Speakers:
Prof. Dr. Jagat Narula
Annexins in Molecular Imaging of Cardiovascular Diseases
Prof. Dr. Oliver Soehnlein
Annexins in regulation of vascular inflammation

Organizing Committee:
Chris Reutelingsperger and Léon Schurgers

www.annexinsconference2015.org

Contact: info@annexinsconference2015.org

TRP 2015 - 3rd Leuven TRP symposium

September 16-18, 2015 - Leuven (Belgium)

Opening Keynote Lecture:

Bernd Nilius (Belgium)

Confirmed Speakers

Maria Belvisi (UK)
Sue Brain (UK)
Markus Delling (US)
Scott Earley (US)
Jorg Grandl (US)
Joost Hoenderop (Netherlands)
Jan Siemens (Germany)
Karel Talavera (Belgium)
Makoto Tominaga (Japan)
Miguel Valverde (Spain)
Felix Viana (Spain)
Haoxing Xu (US)

Abstracts

Registered participants can submit abstracts for poster presentation.
Selected abstracts will be invited for oral presentation.
Awards for the best poster and for the best short oral presentation.

Registration

Early registration	PhD Student € 200 – Other € 350
After June 15th 2015	PhD Student € 350 – Other € 450

Includes lunches, refreshments, opening reception with Keynote Lecture and Conference Banquet

Venue

Convent of Chièvres, Great Beguinage, Leuven, Belgium

Organisation

Laboratory of Ion Channel Research, University of Leuven
Contact: info@trp2015.org

KU LEUVEN

More information and online registration:
www.TRP2015.org

14th International Meeting of the European Calcium Society

Important announcement: Call for topics

The preparation of the next ECS meeting (Valladolid, Spain, 25-29 September 2016) is progressing well and we are now in the process of drafting the scientific program.
As we previously did, we wish to continue the good tradition to allow each ECS member who wish, to make a proposal that will be evaluated by the Scientific Committee.

Two sessions have already been proposed by the Local Organizing Committee ("New calcium probes and new technologies" and "Ca^{2+} remodeling in cancer"), there will be one session reserved for late-breaking work and a special session for flash presentation of selected posters (more information to follow).

The remaining 7 sessions will be selected by the scientific committee from the suggestions received.

To be taken into account the proposals should be send by June 15th at the very latest to the chair of the Scientific Committee at jan.parys@med.kuleuven.be and conform to the guidelines listed here below:

Each proposal should contain a session title, a short paragraph (about 15 lines) describing the aim of the session, and list a number of potential speakers (max. 4) with for each a brief explanation on his/her expertise. Please keep the proposal on 1 page.

Two important remarks:

1) ***The proposed speakers may in no case yet be contacted.***
2) ***2) Invited speakers at the ECS2012 or ECS2014 meeting should anyway not be proposed again.***

All topics related to Ca^{2+} may be proposed, but the proposal of new topics (i.e. that were not programmed at ECS2012 or ECS 2014) is encouraged.

The proposer of a session will be assumed to chair the session, except if he/she explicitly indicates otherwise. In any case, there may be only one chair proposed per session and the chair cannot be a speaker in his/her own session.

Importantly, the session chairs will be invited to participate in the selection of abstracts for short oral communications in their sessions.

Please note that the scientific committee will also take into account gender balance and international diversity.

Finally, it is good to know that chairs and invited speakers will benefit from free registration at the meeting. At least partial support towards travel/accommodation is envisaged, but this decision will ultimately depend on the level of sponsoring reached.

It is expected that the final selection will be announced about 6 weeks after the closing of the call.

The President writes

Expedition to Valladolid

A delegation of the ECS board, composed of Annette Dreager, Roland Pochet, Steve Moss, Jan Parys and Marc Moreau was received from 19 to 21 May by Carlos Villalobos and Javier Garcia-Sancho the local organizers of the next ECS meeting.

Carlos Villalobos

This meeting will be held in Valladolid, Spain (25 - 29 September, 2016).

The reception by the organizers was great, many tanks to Carlos and Javier and also to Oficina de Turismo for their generous help for the accommodation.

Our visit was split in two. First we have visited (***Palacio de Santa Cruz***) a beautiful renaissance building with a quiet garden were the welcome party will take place and the Palacio de Congresos Conde Ansurez an university building dedicated to meetings. During the meeting we will benefit of the whole Palacio de Congresos, with a lot of space for posters sessions and coffee breaks.

There is a huge conference room which can receive about 400 participants! Don't hesitate to register, we have enough space, the meeting will be a great success if we fill up the conference room.

Palacio de Congresos Conde Ansurez

The conference room

The day after, we had an interesting long discussion concerning the preparation of the meeting. We were very happy to see the progress of the organization. Now we have to think about the scientific program.

Committee members at work

Valladolid is a very nice city of 400 000 inhabitants at about 200 km in the north of Madrid located in the autonomous community of Castilla y León. The university is one of the oldest in Europe. It was founded in 13rd century.

Committee members during the visit

For gastronomy Valladolid present a lot of fine restaurants and the area around Valladolid is covered by vineyards which give several famous wines, including Ribera del Duero.

Javier Garcia-Sancho and Ana Sanchez

The church San Benito

The last thing, you have no reason to miss the next ECS meeting in 2016, Valladolid is dedicated to Ca^{2+} since the most part of historical buildings is **calcareous**.