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Editorial

In November 2008 I took over the Editorship of the ECS Newsletter from Steve Moss. To follow on the wishes of Steve that the Newsletter continues with renewed vigour, I propose with this issue a new presentation. The idea is to have a photo on the front page illustrating ECS activities in different European cities. The Palace of Culture and Science in Warsaw initiates the number one of this new issue dedicated to the 11th symposium of the ECS. Thanks to Jan Parys for this bright and sunny photo of the Palace.

This is also the time to announce that the ECS has entered determinedly the 21st century with the creation of the ECS Facebook site. Thanks to Norbert Weiss for that. However, for those who prefer, ECS website and ECS Newsletter are still active for the spreading of the information and scientific ideas over the calcium community.

We have introduced a new topic in the newsletter, a scientific debate. I hope that you will feed this topic and of course controversy is accepted.

I hope you enjoy this issue of the Newsletter.

Marc Moreau
- the Best Poster Award in the sessions: Calcium imaging, Calcium and neuronal function, Calcium toolkit, Calcium and diseases was to Magali Savignac from France for the poster entitled: ER stress response is up-regulated in Darier keratinocytes and impairs trafficking of E-cadherin, a key component of adherens junctions. Magali Savignac, Anissa Edir, Alain Hovnanian Toulouse/Paris France.

- the Best Poster Award in the sessions: Calcium signaling, Calcium and gene expression in differentiation, Calcium transport was to Ilse Vandecaetsbeek from Belgium for the poster entitled: The unique carboxy-terminus of SERCA2b is responsible for the higher apparent Ca\(^{2+}\)-affinity of the pump Ilse Vandecaetsbeek, Luc Raeymaekers, Frank Wuytack, Peter Vangheluwe Department of Molecular Cell Biology, Laboratory of Ca\(^{2+}\)-Transport ATPases, Leuven, Belgium

- the Drabikowski Award for the best short oral presentation selected from submitted abstracts was obtained by Joanna Jung from Dr. Marek Michalak’s lab for the oral presentation entitled: The role of endoplasmic reticulum quality control system in the biology of the major peripheral myelin glycoproteins. Joanna Jung, Helen Coe, Allison Kraus and Marek Michala Department of Biochemistry, School of Molecular and System Medicine, University of Alberta, Canada

Dr. Marek Michalak was a member of Drabikowski School, thus, this Award was given to the grand-student of Drabikowski. The movie about Drabikowski and some additional pictures are available on the Conference website. We hope that after this meeting some of you will consider joining our Society.

Thank you very much for being with us in Warsaw as well as for your compliments about the Meeting.
The 11th Meeting of the European Calcium Society of last September was the first of its kind to be organized in Eastern Europe. Prof. Dr. Jacek Kuznicki took on himself, with the help of his colleagues and staff, the organization of this meeting in Warsaw, Poland. Warsaw is a very hospitable end enjoyable city and several research groups in Poland, including Jacek Kuznicki’s own group in Warsaw, are involved in the Ca²⁺ field. For all these reasons, it was a very good idea to organize the meeting there, and more precisely in the Biology building of the Ochota campus. Despite the airport problems due to reconstruction of the runway that led to postponing the meeting by one day, which obviously made a lot of rescheduling necessary, it was clear that the organizers were up to the task, and a flawless meeting, to which 238 researchers from all over the world participated, was the result.

The meeting was held in honour of the late professor Witold Drabikowski, one of the pioneers in the field of Ca²⁺-binding proteins, and the organiser of the first meeting devoted to them (1973). Appropriately, the meeting started therefore with an in memoriam session in his honour, including a short movie (still accessible via [http://www.ecs2010.eu/](http://www.ecs2010.eu/)), and lectures by former colleagues (professors Carafoli and MacLennan) and students (professors Grabarek and Michalak).

The subsequent days were well filled, with no fewer than 7 different sessions (Calcium imaging, Calcium and neuronal function, Calcium toolkit, Calcium signalling, Calcium transport, and Calcium and diseases). The final lecture, the Sir Michael Berridge lecture, was given by professor Katsuhiko Mikoshiba, the world leading expert on the inositol 1,4,5-trisphosphate receptors. Those various sessions totaled 21 lectures, 19 short oral presentations and 112 posters. In these presentations the participants heard the newest developments in various aspects of the Ca²⁺ field including, but not limited to, Ca²⁺-binding chaperones as calnexin, the structure and function of the various intracellular Ca²⁺-release channels, including the two-pore channel, the role of PMCA pumps and IP₃ receptors in heart, the role of Stim and store-operated Ca²⁺ entry, the interaction of S100 proteins with RAGE, the role of calmodulin in cancer, the role of Ca²⁺ and DREAM in neurogenesis and neuronal function and the construction of new Ca²⁺ indicators, to name only a few topics.

An original system of voting by the complete audience was used to select the 2 best posters (by Dr. Magalie Savignac from Toulouse and Dr. Ilse Vandecaetsbeek from Leuven). The same voting system was also used to confer the Drabikowski award, a nice hand-made wooden statuette of the famous EF-hand, to the best short oral communication. The latter award was won by Dr. Joanna Jung from Edmonton, a “grand-student” of the late Drabikowski.

It is a long-standing tradition that the ECS offers fellowships to young researchers who participate to the ECS Meeting. This time, however, the 9 ECS Fellowships...
were nicely supplemented by 13 Fellowships of the School of Molecular Medicine of Warsaw, and 10 Fellowships offered by the Organizers, totaling a never achieved number of 32 fellowships!

Also, a new element in the organisation of the meeting was that the abstracts could all be submitted by a web site application, and subsequently were not published in an abstract book, but in a recognized journal, the Acta Biochimica Polonica.

As is traditional, the Organizers hosted the last evening for all participants. The meeting party was held in Villa Foksal, a large restaurant annex terrace and garden, including a very nice buffet, music and dance will be remembered by all. It was also the site of a small ceremony to acknowledge the contribution and help of Paulette Miroir to the ECS. Paulette, as long-time associate of Roland Pochet, was responsible for most of the administration of our society, and retires at the end of this year. Jacques Haiech, who is retiring from the Board of the ECS, took also the opportunity to deliver a –humoristic- farewell address.

Finally, it was decided that the next ECS meeting to be scheduled will take place in Toulouse, France. Marc Moreau, the organizer of this meeting, demonstrated with a power-point presentation all the assets of Toulouse, including a strong research involvement in the Ca²⁺ field, and an equally strong sense of hospitality, which already guarantee a next excellent meeting. Therefore, see you all in Toulouse, in 2012!

Facebook

This was an excellent idea of Norbert Weiss, The ECS is now on Facebook!
This is an excellent way to complement the web site and the forum. By using Facebook we will indeed allow for more visibility, more contact with the younger generation and (hopefully) more communication between the members of the Ca²⁺ community.

To reach this aim:

- please become a fan from the “European Calcium Society” on Facebook
- please try to convince all your co-workers to become a fan
- please add information that may be interesting to a wider audience (ECS affairs, European or national science policy, interesting meetings, interesting articles you have read or interesting scientific findings, …)

Board members should have administrator rights, allowing them to post messages in name of the Society. To become an administrator, please also become a (Facebook) friend of Jan Parys (personal page), and he can then give you these rights.
General impressions on the 11th symposium
by Magali Savignac (one laureate of the poster award)

The 11th Symposium of the ECS was organized in Warsaw September 5th-8th, 2010. It was an important event, the first meeting on Calcium Binding Proteins organized by Witold Drabikowski was held in 1973 in Warsaw. The meeting has started with an in memoriam session in which Jacek Kuznicki has presented a movie about Witold Drabikowski entitled A Man who Made a Difference. You can find the movie on the website http://www.ecs2010.eu. Ernesto Carafoli illustrated his collaboration with Witold Drabikowski. The Drabikowski Award (a sculpture representing the EF hand) has been attributed to the best speaker whose the abstracts were selected by the scientific committee.

The Scientific program, divided into seven sessions, covered all of the important fields of the calcium world (imaging, neuronal function, toolkit, signalling, gene expression in differentiation, transport and diseases). The sessions were animated both by invited and selected speakers. This formula was important since PhD students or post-doctoral researchers had the opportunity to present and discuss their work with the eminent specialists in the field. The two poster sessions were very successful: almost two hours for each session before the lunch. A lot of discussions were engaged and two prices (one of each session) were attributed.

Poster award : from the left : Steve Moss (Président of ECS) Ilse Vandecaetsbeek (Belgium) Magali Savignac (France) (Photo Michal Modlinger)

In addition, more than 30 fellowships awarded young investigators. These fellowships were sponsored by the ECS, the School of Molecular Medicine of Warsaw, by Warsaw organizers and by the Calcium GDR (Groupement de Recherche du CNRS, a French network on calcium signalling).

To conclude, I think that the symposium was a great moment with a scientific program of excellent quality. I appreciate the important number of fellowships that offer the opportunity to young investigators to attain the meeting and to participate actively with fruitful exchanges. I regret that the lunchboxes were so light and that during the banquet we did not have the opportunity to taste Polish “cuisine”, but Zubrowka was so fine!
During the meeting the general assembly took place and the new board was elected. Some modifications were required since Paulette Miroir who was helping Roland Pochet has now retired. Roland Pochet has multiple and efficient functions, but now he is overbooked! Jan Parys therefore accepted taking on the administrative side of the ECS secretariat while Roland is keeping with the financial side. Jacques Haiech and Rosario Donato both retired from the Board of the ECS.

Catherine Leclerc, newly elected on the board will be looking after the ECS Newsletter with Marc Moreau. Catherine is a specialist in the role of calcium in gene expression during early development.

THE BOARD

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Rosario writes

by Rosario Donato

When Roland Pochet organised the 1st European Symposium on Calcium Binding Proteins in Normal and Transformed Cells, in April (20-22) 1989 in Brussels, Belgium, few expected that it would be the first of many more meetings to come, the last of which was held last September in Warsaw, Poland. But some time after the symposium in Belgium, Claus W. Heizmann, Jacques Haiech, Roland Pochet and I decided that, considering the growing interest in the biology and physiology of calcium-binding proteins, a follow up there would have to be. So it was that a second symposium took place in Marseilles, France, in March (1-6) 1992, organised by Jacques Haiech, a third in Zurich, Switzerland, in March (6-9) 1994, organised by Claus W. Heizmann, and the fourth symposium in Perugia, Italy, in May (2-5), 1996, which I organised myself. During the Perugia symposium, Claus W. Heizmann, an unending font of ideas and man of great initiative, proposed that we...
found a scientific society, the European Calcium Society. We accepted immediately, and I had the honour of announcing this decision at dinner. The news was received enthusiastically by all those present, to judge by the warm applause which followed. Claus, Jacques, Roland and I were all aware of the task we were taking on and the difficulties it would incur, considering the number of scientific associations already in existence and the scepticism among certain fellow workers in the field with regard to the possibility of founding such a society and keeping it afloat. But we were buoyed up by our enthusiasm, we believed passionately in our work, and we wanted the Society and its biennial meetings to focus on the more strictly biological and functional aspects of calcium-binding proteins. Moreover, having decided that the Society would give particular attention to young researchers in the field, we were sure that we would be successful in our undertaking. And we proved to be right. Despite its name, the Society immediately gained member researchers from all over the world, not just European, and the great turnout at each of the meetings was and is the yardstick of its success, and validates our original idea to found the Society.

If I may just outline my own personal relations with the ECS, I served as a member of the board from the beginning, as Vice-President from 1996-2000 (under Claus W. Heizmann as President), and as President myself from 2000-2004. It has been an uplifting experience - a close relationship developed between Claus, Jacques, Roland and me (we have become like old friends) -, I had the opportunity to meet many young people, and I got to appreciate even more, first Volker Gerke and subsequently Steve Moss, who succeeded me as President. After all these years, I am now leaving the board of the ECS: it’s time for renewal, for it to be injected with new life. I hope that the ECS will preserve the spirit in which it was originally founded, as a scientific association dedicated to the biology and physiology of calcium-binding proteins, and I wish the board the greatest success.
Five years ago, STIM1 (Stromal Interaction Molecule 1) was identified as an essential component of store-operated calcium channels and in less than one year teamed up with its first partner Orai1 in immune cells to reconstitute CRAC (Calcium-Release Activated Current) channel function. Since then, STIM has developed an ever increasing social network and to date is now linked to several members of the TRPC (Transient Receptor Potential Canonical) family, microtubule-plus-end tracking protein EB1, SERCA, calmodulin, CRACR2A and CRACR2B (CRAC Regulator 2A and 2B), probably Orai3, perhaps STIM2, and more recently to the voltage-dependent calcium channels Ca\textsubscript{1.2}. InsP3 and ryanodine receptors are so far excluded from that selective club but the growing rate of STIM's friends suggests that this may not longer the case next year.

Due to its location in both the plasma membrane and the endoplasmic reticulum membrane, it was fairly unlikely to end up with only one function for this protein: Multiple locations for multiple functions? STIM1 is indeed, a transmembrane protein with the N-terminus in the lumen of the ER or exposed to the extracellular space and the C-terminus in the cytosol. In Ca\textsuperscript{2+} store-replete cells, STIM1 is distributed diffusely throughout the ER membrane. Studies from many groups have resulted in the current models that emphasize the role of STIM1 located in the endoplasmic reticulum membrane as the sensor of the status of the intracellular Ca\textsuperscript{2+} stores via its luminal N-terminal Ca\textsuperscript{2+}-binding EF-hand domain. Following store depletion, STIM1 assembles in tetramers and clusters as puncta near the plasma cell membrane also containing Orai1 channels. This redistribution observed in both immune and non-immune cells probably involves cytoskeleton microtubules and possibly a linker such as CRACR2 to mate the two proteins STIM1 and Orai1. Regarding the increasing number of published data on this mechanism, the idea rapidly developed that the action of STIM1 on Ca\textsuperscript{2+} entry was
specifically, and exclusively, associated with the store-operated mode of entry. However, STIM1 also regulates other modes of receptor-activated Ca\(^{2+}\) entries like the ARC channels that are activated entirely independently of any store-depletion. In marked contrast to the role in regulating CRAC channels of STIM1 located in the endoplasmic reticulum membrane, regulation of the ARC channels by STIM1 exclusively involves the pool of STIM1 that constitutively resides in the PM, and is entirely independent of store depletion and of the Ca\(^{2+}\)-binding ability of the EF-hand domain.

Other puzzling findings concern the possible interactions of STIM1 with other mediators of calcium influx such as Ca\(_{1.2}\) channels. Ca\(_{1.2}\) channels belong to the family of type 1 high voltage operated calcium channels. They are also defined as L-type calcium channels or dihydropyridine receptors. They are classically described in neurons, cardiomyocytes and neurons, the membranes of which may depolarize. However an increasing line of evidence shows the presence of Ca\(_{1}\) including Ca\(_{1.2}\) or Ca\(_{1}\)-related channels in non-excitable cells. In the October issue of Science, two groups showed that STIM1 interacts with Cav1.2 at a site different from Orai1 and inhibits Cav1.2 currents. They proposed STIM1 as a switch promoting Ca\(^{2+}\) entry through Orai and inhibiting Ca\(^{2+}\) influx through Ca\(_{1.2}\). Their data showed that this inhibition occurs even in the absence of Orai1, with a major difference being the requirement for store-depletion. Depletion of ER Ca\(^{2+}\) would lead to STIM1 redistribution in ER-plasma membrane zone together with Orai. In this zone, STIM1 would trap Ca\(_{1.2}\) (for the scheme see Cahalan MD in the same issue of Science). The story is even more complicated in immune cells. Both groups admit the presence of Ca\(_{1.2}\) channels in some T-lymphocytes (such as Jurkat) and claim that STIM1 inhibits Ca\(_{1.2}\)-depending Ca\(^{2+}\) entry even in Jurkat T cells over-expressing Ca\(_{1.2}\) channels, except if STIM1 is knocked-down, raising the question of the relative roles of Ca\(_{1.2}\) and CRAC in T lymphocytes, other immune cells, and all cell types expressing both calcium channels.

Finally, STIM1 was first described as a tumor suppressor and cell growth inhibitor. Now that it is associated to Orai1, several papers, but not all of them, have claimed that knocking-down STIM1 blocks cell proliferation. If calcium influx is indeed for cell proliferation, it might be now necessary to clearly establish the molecular nature of the complex involved in this physiological process. Orai1 and Orai3, the plasma membrane calcium channels, and also TRP channels, are clear candidates but STIM1 still remains controversial.

As the list of STIM1 partners and functions is definitely far from being closed, we can expect more confusion, but also more unexpected results to come and everyone will have to pay attention to the interpretation and conclusions from data dealing about STIM1.

An evident conclusion comes out: it’s now impossible to conclude in a definitive way, from data where STIM1 expression level has been modified (over or decreased expression) that store operated calcium is the exclusive mechanism involved in the considered cellular process.
The 3rd ECS workshop will be held 14th -19th June 2011
In Seix (France)
More details very soon

The 12th meeting of ECS will be held in Toulouse (France)
the 2nd week of September 2012

Calcium 2012
12th European symposium on calcium
Toulouse (France)
A new European calcium network

In January 2010, with Jacques Haiech, we created a European network called the GDRE. What is the GDRE? It is a French acronym for Groupement De Recherche Européen.

It is a tool that depends on CNRS (Centre National de la Recherche Scientifique).

The purpose of the GDRE is to provide support for the coordination of scientific activities in Europe on the following topic: Ca$^{2+}$ toolkit coded proteins as drug targets in animal and plant cells

The goal is to start a systems biology approach to understanding calcium signalling pathways.

The main actions will consist of exchanging information between network members through the organization of conferences, seminars, colloquia, workshops, thematic schools or work meetings on the theme.

The scientific board is composed of Jacques Haiech, (Strasbourg, France), Christian Mazars, (Auzèville, France), Catherine Leclerc, (Toulouse, France), Lucette Pelletier, (Toulouse, France), Jörg Kudla, (Münster, Germany), Roland Pochet, (Brussels, Belgium), Jose Naranjo, (Madrid, Spain) Jacek Kuznicki, (Warsaw, Poland). I am in charge of the coordination of the network.

A joint workshop between the GDRE and ECS is planned for 2011. More details very soon.

Marc Moreau

Last minute

Our Colleagues Rosario Donato and Claus Heizmann are the guest editors for a series of articles on S100 in the open access journal Cardiovascular Psychiatry and Neurology

http://www.hindawi.com/journals/cpn/2010/si.1.html
Meeting Announcement

Welcome to the 6th International Conference on Biochemical Markers for Brain Damage, Lund, Sweden, May 9-11, 2011.

Please visit the conference website for more information:

www.bmbd.org

for more details contact Claus Heizmann

claus.heizmann@bluewin.ch
The President of the ECS writes

Many excellent words have been written and spoken about the ECS meeting in Warsaw, so I will be brief on this topic and focus my own comments on thanking Jacek and his team on a difficult task superbly executed. I am one of several ECS members who has been fortunate enough to attend every meeting since the inaugural event many years ago in Brussels (see Rosario Donato’s personal recollections on p. 7), and it is both remarkable and gratifying to see how the ECS maintains its vigour and support from one meeting to the next.

But one thing that set the Warsaw meeting apart from its predecessors was the substantial level of reorganization we witnessed within the ECS Board. First, with one hand we waved a grateful farewell to two of the founders of the ECS, Jacques Haiech and Rosario Donato. This therefore is a transition time for the ECS, and in the true spirit of Darwinian evolution, we recognize that the Society must adapt in order to survive. So with the other hand we warmly welcome Catherine Leclerc and Jacek Kuznicki to the Board. And before you can say ‘multiple partners for multiple functions’ we have a re-designed Newsletter! I have long wanted to see this and I tip my hat to Catherine and Marc for injecting our biannual publication with a much-needed shot of new life.

While the ECS goes from strength to strength, some of us are facing the prospects of tighter science funding as governments slice up public sector funding to repay the wastefulness of bankers. In the UK, the science budget is to be cut by 10% in real terms over the next four years, and I’d be interested to know of your experiences elsewhere in Europe and beyond. However, things could have been much worse had it not been for the Science is Vital campaign, that organized a huge rally outside government, and the lobbying of parliament. This was the first time scientists had ever taken to the streets in the UK, and I was proud to have been at both events.

Hopefully we will ride out the tough times ahead, perhaps by using slightly fewer Ca²⁺ ions in our experiments, or cutting down on the electrons when doing electron microscopy. Which reminds me to conclude with a calcium joke – and I hope this works for non-English readers. A calcium atom walks into a bar, and is just about to order a drink when he starts frantically checking his pockets. The bartender asks him if everything is OK, to which the calcium atom answers ‘I think I’ve lost an electron’. ‘Are you sure?’ asks the bartender. ‘Yes’ says the calcium atom, ‘I’m positive’.

Wishing you all a restful holiday season and prosperous new year.

Stephen E Moss
seen on the web