

Report on the 22nd IUBMB & 37th FEBS Congress 2012

This report, written by Phillip Nagley and Sheena McGowan, was published in the December 2012 issue of the *Australian Biochemist* and is reproduced with their permission.

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General Aspects of the Congress

The 22nd IUBMB & 37th FEBS Congress was held in Sevilla, 4-9 September 2012. The meeting was held in the very well appointed FIBES, Palacio de Congresos de Sevilla, a few kilometres from the Seville city centre. The convention centre has a modern central building with very striking architecture and three extensive exhibition pavilions. Its beautiful outside plaza has extensive waterfalls that flow over the front of the central building. The opening reception was held in this welcome plaza in the relative cool of the evening (only 33°C!).

The theme of the Congress was "From Single Molecules to Systems Biology" and attracted more than 2,500 registrants. With more than 150 invited speakers (of which the majority were from European countries, followed by the USA, with strong representations also from the UK), the Congress was organised into five broad themes (Single Molecules, Trends in Biochemistry, Beyond Biochemistry, Molecular Basis of Disease and Environmental Biochemistry). Each morning started with plenary talks from outstanding speakers and, presumably to motivate participants to stay all day, there were more plenary talks late in each afternoon.

There were about 40 booths at the Trade Exhibition from some familiar companies; however, many displays were actually from various international professional societies rather than commercial organizations. This is a vast difference from the previous triennial Congress in Shanghai in 2009 where there were about 120 trade representatives. The language spoken in the Exhibition hall was predominantly English with the exception of the public announcements that were almost always made in Spanish. Luckily most delegates found their way to lunch each day without needing to understand the announcements! The exhibition areas were very lively and the booths, together with the wide range of products, were professionally and attractively displayed. Some of the busiest booths were the well-known publishing houses, surprising in this day and age considering the strong movement toward open access publishing via the internet. The Trade Exhibition was located together with the Poster Area in a separate pavilion away from the main lecture rooms. Unfortunately few of the Exhibitors provided any food, coffee or snacks – an opportunity sorely missed as there was no provision of free water or coffee during the Congress itself (except for lunch). Catering in the breaks was also done in the Exhibition/Poster Pavilion with "authentic Spanish" food occasionally on offer. This included jamon (ham) sliced off the bone, gazpacho (cold vegetable soup – speciality of Andalusia) and local Sevilla white wine.



FIBES (Palacio de Congresos de Sevilla)



A toast with vino blanco de Sevilla. From left: Phillip Nagley, local waitress, Sheena McGowan and Denis Crane.

Plenary Speakers

The plenary speakers in Sevilla maintained the exceptional standards that one expects to find at an International Congress of Biochemistry and Molecular Biology. The quality of the speakers, including five Nobel laureates (Tim Hunt, Ferid Murad, Ada Yonath, Robert Huber, Venki Ramakrishnan), and the breadth of the topic areas that they covered in biology and biomedicine at molecular levels, can be seen in the list below.

Plenary lectures at IUBMB Congress 2009 in Shanghai

IUBMB Life Lecture: Tim Hunt (UK) – *Nobel Prize in Physiology or Medicine 2001*
Switches and latches: the control of entry into mitosis

FEBS Lecture: Mathias Mann (Germany)
Towards a comprehensive description of the proteome by high resolution mass spectrometry

Osamu Hayaishi Lecture: Ferid Murad (USA) – *Nobel Prize in Physiology or Medicine 1998*
Discovery of nitric oxide and cyclic GMP in cell signaling and their role in drug development

Theodor Bucher Lecture: Christian Griesinger (Germany)
 Fuzziness of globular and aggregating proteins in neurodegeneration: an NMR spectroscopic view

Chester Beatty Lecture: Kazutoshi Mori (Japan)
 Protein quality control by the unfolded protein response

Prakash S. Datta Lecture: Ada Yonath (Israel) – *Nobel Prize in Chemistry 2009*
 Life: Expectancies & origins

IUBMB Life Lecture: Sai-Juan Chen (China)
 Targeted therapy: the new lease on life for leukemia

FEBS Letters Award: Megumi Funakoshi-Tago (Japan)
 Oncogenic signaling pathway induced by myeloproliferative neoplasm-associated JAK2 V617F mutant

FEBS Journal Award: Rosemarie M. Carew (Ireland)
 Insulin receptor substrate 2 and FoxO3a signalling are involved in E-cadherin expression and transforming growth factor- β -induced repression in kidney epithelial cells

EMBO Lecture: Elizabeth Robertson (UK)
 An expanding job description for the master transcriptional regulator Blimp1/Prdm1 during mammalian development

FEBS/EMBO Women in Science Award: Susan M. Gasser (Switzerland)
 The dance of DNA: chromatin dynamics during DNA repair

Alberto Sols-Fundacion BBVA Lecture: Carlos Lopez-Otin (Spain)
 Exploring the cancer and aging hallmarks: from genes to genomes

Severo Ochoa Lecture: Carlos Bustamante (USA)
 Mechanisms of cellular proteostasis: insights from single molecule approaches

PAPMB-Fundacion Ramon Areces Lecture: Joan Massague (USA)
 TGF- β signaling in stem cells and cancer

Edward C Slater Lecture: Robert Huber (Germany) – *Nobel Prize in Chemistry 1988*
 Intracellular protease machines, structures, mechanisms and drug development

Workshops and Satellite Activities

The Congress featured parallel “Biochemical Education Events” as well as options for specific interest groups. These included public lectures, initiatives to involve local high school students, a women’s career lunch, corporate seminars and a speakers corner. The main Congress hall also featured a portrait gallery aimed to honour 25 outstanding female scientists who played crucial roles in the development of Biochemistry worldwide. This included Elizabeth Blackburn who was born in Australia and won the Nobel Prize for Medicine in 2009.

There were 12 separate workshops that focussed on current clinical perspectives, teaching and education, various ‘omics’ and career development. These sessions were well attended despite the allure of the afternoons in Seville’s beautiful sunshine. A focus of the entire congress was the need to support and nurture young scientists and also the position of women in Biochemistry. Many of the workshops aimed to address issues in these areas and included a ‘Science in School’, ‘Forum for Bioentrepreneurs’ and a ‘Women in Biochemistry: from Past to Future’ where Australian Prof. Jenny Martin discussed strategies for coping and succeeding as a female biochemist. One of the female plenary speakers, Susan Gasser, made particular reference to the Women in Science theme.

Posters and Poster Discussion Sessions

Poster sessions, timetabled on each of the main days of the congress, were also very active, successful events. There were approximately 1,000 posters presented in the busy Exhibition Hall. The posters were organised under a grand total of 27 themes and to help showcase the wide breadth of science being presented, each poster theme had a time-tabled ‘Discussion Session’. These sessions were held in the various smaller meeting rooms and consisted of 4-6 pre-selected communications from poster presenters. With an average of 8-10 themes per poster session, there was a lot of movement of people and re-arranging of lunch times to accommodate the sessions. However in such a large field of posters, it was a terrific way to showcase the research in each topic.

Young Scientist Program

The main Congress was preceded by the Young Scientist Program (now held together with each FEBS Congress and almost all IUBMB Conferences and Congresses) this year held at the Hotel Elba Costa Ballena near Cádiz. This YSP was jointly organised by the SEBBM (Spanish Society of Biochemistry and Molecular Biology) and SPB (Portuguese Biochemical Society). The delegates comprised 125 selected young scientists from many different countries; there were about 100 FEBS YSP Fellows plus another 25 IUBMB YSP Fellows (including 3 from Australia, all from Victoria). The overseas participants in this Program all received assistance to attend in the form of Travel Fellowships (after review of their competitive applications). Over 600 applications were received and 91 PhD students and 34 post-docs were selected to attend the meeting. The intensive program during the 3-day meeting consisted of talks by selected YSP Fellows, three guest lectures, a career session



Australian IUBMB-YSP Fellows From Left:
 David Ascher, Richard Berry, Gavin Higgins

and poster presentations, capped by a concerted set of 1-minute presentations (!!)

from each of the YSP participants who were not selected for a longer talk. Phillip was privileged to attend the YSP this year, having organised the corresponding event two years ago at OzBio2010, in the Yarra Valley, near Melbourne.



Glorious venue for YSP at Hotel Elba Costa Ballena, near Cádiz

Reflections by Bruce Alberts on Biochemistry in Particular, and Science in General

On the last morning of the Congress, in the presence of an almost full plenary hall, Bruce Alberts (of Molecular Biology of the Cell textbook fame, and currently editor-in-chief of Science magazine) gave a remarkable lecture on the future of biochemistry and the place of science in society, focussing on what we must do to keep the scientific culture vibrant and relevant. This was one of the best received lectures at the Congress, and some of the points he made are worth mentioning here.

Concerning students undertaking biochemical studies and research, he advocated wide reading (rather than narrow specialisation), going after mysteries, using model organisms where possible and recognising that most cellular processes will be based on elegant mechanisms too hard to predict (and thus will need clever experimentation to elucidate). Moreover, while all the “omics” can provide the pieces, the art of reconstitution of biochemically active systems from components will be needed in order to understand the machinery that is the basis of life. Two recent broad insights are first, that positive and negative feedback loops underlie nearly all cell chemistry and second, that extensive scaffolding networks in cells produce compartments without requiring a biological membrane. That said, there is no way to understand such detailed pathways and networks without mathematics. Applying computational biology to model systems, in parallel to experimentation involving novel quantitative methods, will certainly help us understand how positional codes in cells play their role in the dynamic signalling networks that affect the function of our various molecular machines. The enormous complexity of life’s chemistry can thus be revealed not only for the beautiful insights to be achieved but also for application in many areas of biology and medicine.

Education was highlighted by Bruce as key to ensuring the place of science in today’s and tomorrow’s world culture. Scientific education should not be just learning about the world but should be based on active enquiry. He called on scientists to energise these developments continuously and to work towards extending the culture of rationality, openness and tolerance that pervades the scientific discourse to the wider community. Scientists have a responsibility to bring such approaches to the wider world and thus contribute to the furtherance of a better future for everyone on this planet.

Educational resources based in Science magazine and details of the Science prizes in education were noted at:www.sciencemag.org/site/extra/education

Social Events and Official Functions

Highlights of the meeting were the Opening Ceremony and Congress Reception. The latter was a great opportunity to meet old friends and new colleagues in a relaxed atmosphere. These events provided excellent networking opportunities with people with strong professional engagement from all over the world. The city of Sevilla also offered opportunities for socialising and learning more about the culture of the region. Walking tours were offered to see the local sights as well as enjoy authentic tapas and flamenco shows. The Conference Dinner was held in the Pabellón de la Navegación, on the banks of the Guadalquivir River in Sevilla. Highlights were the performances by the traditional Andalusian dancers accompanied by guitar playing. The Closing Ceremony included presentations on the following upcoming IUBMB Conferences and Congresses: the 14th IUBMB Conference to be held in Marrakech, Morocco, 17-20 November 2013; the 15th IUBMB-24th FAOBMB Conference to be held in Taipei, Taiwan, 21-26 October 2014; and the 23rd IUBMB Congress to be held in Foz do Iguaçu, Brazil, 24-28 August 2015.



Traditional Andalusian dancers at Congress Dinner

OzBio2010 Booth

The Organising Committee of the OzBio2010 Conference arranged a display booth in Shanghai to promote this next Conference in the IUBMB series (12th IUBMB Conference-21st FAOBMB Conference-ComBio2010). The OzBio2010 booth was generously sponsored by the Melbourne Convention and Visitors Bureau and included posters, literature and handouts of clip-on koalas to attract people to come to Melbourne next year. A highlight was the Lucky Draw for ten large koalas wearing OzBio2010 jackets of

various colours. These were keenly sought after and a huge crowd gathered for the final draw of these prizes just before the end of the congress. Thanks go to Heling Ng and Gavin Higgins who helped Phillip organise the booth, display and circulate the various offerings, and run the Lucky Draw (for which we were ably assisted by a Mandarin-speaking interpreter).

IUBMB General Assembly

The 21st Ordinary General Assembly of IUBMB took place on 7 September 2012. Phillip and Sheena were appointed by the Australian Academy of Science as Adhering Body to IUBMB, on the recommendation of ASBMB Council, to represent Australia at this formal triennial business meeting of IUBMB.



Retiring IUBMB Executive Committee members Susan Hamilton and Willy Stalmans flanking Angelo Azzi (now Past-President)



Gregory Petsko (President, IUBMB)



Joan Guinovart (President Elect, IUBMB)



IUBMB colleagues: From left: Iqbal Parker (South Africa), Joan Guinovart (Spain), Efsthios Gonos (Greece), Angelo Azzi (USA), Michael Walsh (Canada), Phillip Nagley (Australia), Fernando López-Casillas (Mexico)