



The origins  
of structural  
biology

→ Kenneth Holmes' special lecture on *Fifty years of protein structure* on the inaugural day of the meeting was a thrilling journey into the past half-century of protein structural studies. His contributions illuminated many aspects of biology: he discovered for example the structure of tobacco mosaic virus and was the first to present the atomic model of actin filament. In 1970, Holmes virtually revolutionized the field of structural biology by pioneering the use of synchrotron radiation as a source for X-ray diffraction.

The time trip started with the work of Max Perutz on hemoglobin and his cooperation with John Kendrew to solve

the first protein structures of hemo- and myoglobin. The structural changes imposed by the hemoglobin Glu6Val mutation are at the core of the disease sickle cell anemia. Many consider the structural and genetic studies carried out during that period as the foundation of what we now call molecular medicine. Ken Holmes also paid due credit to the work of many other remarkable structural biologists, whose work revealed the beauty of biological machines such as the ATP synthase and Pol II. The journey ended with a movie from this year's Nobel Prize laureate Venki Ramakrishnan's lab showing the ribosome in action. At least by that time, the audience must have entirely surrendered to the power of structural biology. (sc)



Looking  
into  
the cosmic  
world

→ The search for extraterrestrial intelligence has come a long way, but the questions remain the same: Is our planet the most important in the Galaxy? How big is our Universe? And is there any life out there in the solar system? Astronomer royal Lord Martin Rees delivered in his special lecture *From 'Big Bang' to biosphere: a cosmic perspective* an update on modern astronomy and enterprises such as the Nasa Kepler Mission, released in March this year to find new solar systems and planets. The lecture was accompanied by fascinating pictures of dying stars, slow-motion movies of colliding galaxies and images of remote parts of the Milky Way.

Modern astronomy aims to understand the origin of planets, stars and atoms way before Darwin's "simple" beginning, explained the Astronomer Royal. We now know that the Universe is about 14 billion years old, contains innumerable stars and galaxies and that we live in a corner of the Milky Way galaxy, orbiting a rather ordinary star. The speaker was far from regarding our civilization as unique. It hardly seems credible that we are the culmination of evolution, according to Lord Rees.



Infections  
often act as  
tumor  
promoter

→ After the release of a cancer vaccine against Human Papillomavirus (HPV) three years ago, the role of infectious agents in the development of cancer made headlines around the world. No one seemed more appropriate to illuminate this topic than the 2008 Nobel-prize winner Harald zur Hausen who discovered the dangerous link between the virus and cervical cancer. But the Nobelist's special lecture on Saturday evening made clear that this is not just a peculiarity of some HPV types. He estimates that more than twenty percent of tumors worldwide are actually related to infections; agents such as HPV can express oncogenes and directly promote cancer while others as

HIV or *Helicobacter pylori* act by tempering the immune system or promoting inflammation, respectively. This number may even be a low estimate, as epidemiological observations point to the existence of additional links between other viruses or bacteria and cancer. Zur Hausen suspects that an infectious agent such as polyomavirus may be associated with the higher incidence of colorectal, lung and breast cancer in red meat consumers. Investigating and establishing the existence of such links would have enormous implications to how we view, and most importantly how we prevent cancer. (sc)



A mouse  
with  
Neanderthal  
genes

→ A biologist working on genes is not a rarity. But Svante Pääbo analyses genes that have been dead for more than 30,000 years. In his special lecture on Sunday, the Swedish scientist told the story of his quest for good-quality Neanderthal fossils. His group has managed to decode 60 percent of the Neanderthal genome so far, based on findings from 16 different sites. Now they are comparing the results to the genome of modern humans, hoping to find answers to some fundamental questions: How closely was the Neanderthal species related to modern humans, *Homo sapiens*? And what is it that makes us, human beings, human? In his fascinating lecture the paleo-

geneticist presented to the Amsterdam audience his mouse model with FOXP2 gene associated with speech in humans as well as in Neanderthals. He thinks that this approach might lend better clues into the features of our missing relative and the evolution of *Homo sapiens*. But building a "mouse model" with Neanderthal genes is the farthest that scientists can go at present, he admitted: "It's futile to re-create a full-fledged Neanderthal". And building a "neanderthalized" human model is simply out of the question.



Childcare @ The EMBO Meeting

Helga Duzcek's team with Helga, Sophia, Eva, and Dominik was excellent. Through their full-day program, our kids discovered Amsterdam and made new friends. Childcare should definitely be available during The EMBO Meetings. For the first time, it allowed my wife and myself to register to and enjoy an excellent meeting and our kids to have a great time.

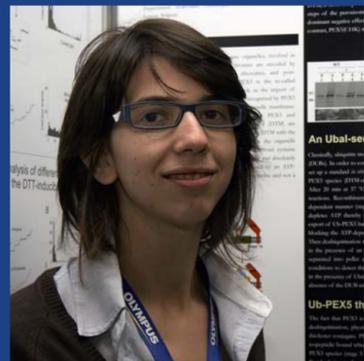
JEAN-BAPTISTE MANNEVILLE  
CNRS INSTITUTE CURIE

→ Visiting museums, exploring parks, collecting insects – the youngest participants of *The EMBO Meeting* found fun and new friendships, while their parents were immersed in science. The New Scholars' Grant received from the Elsevier Foundation allowed EMBO to provide childcare services for participants. Four licensed educators accompanied the international posse and they did their best to entertain the kids and keep them on their toes.

The ice was broken quickly and language barriers were overcome at least after the first

expedition into the city. "I liked the giant soap bubbles in the Nemo museum the best," reports the six-year-old Chiara. Inside the RAI, the childcare facilities were bright, spacious and well equipped with all kinds of toys. The most popular activity seemed to be painting on t-shirts – something the little ones are obviously not allowed to do every day. "The kids had a good time and got the chance to see their parents at work," says Chiara's mum. "Most children believe their parents go on holidays when they say they are away at meetings."

"I was one of  
the lucky ones"



→ Four PhD students from European countries with less developed scientific infrastructures received travel grants to come to Amsterdam and be part of *The EMBO Meeting*. The young Portuguese scientist Cláudia Grou (photo left) was one of them. She received the support for her successful poster entitled *Ubiquitin-PEXS: Why a thiolester conjugate?*

"I was very lucky" said Cláudia, who had already spent her annual travel funds on the FEBS conference in Prague earlier this year, but desperately wanted to attend *The EMBO Meeting* – also because her supervisor Jorge Azevedo was one of the speakers here.

Cláudia's poster convinced the abstract reviewers by its clearly defined goals and well arranged information. "My research field is not exactly a hot topic, so I was quite surprised with this award," said Cláudia "but I think that a well-presented poster is not only about outstanding results." For her PhD studies at the Institute of Molecular and Cellular Biology in Porto, she is

working on the unconventional ubiquitination of the protein PEX5, the peroxisomal protein cycling receptor. The malfunction of these little organelles can have severe consequences and cause diseases like Zellweger spectrum disorders.

During the poster sessions in Amsterdam, Cláudia actually had the opportunity to meet other people working on the same field, but with completely different approaches. Questions from other scientists and discussions with fellow students also gave new impetus to her own project. "I'm really enjoying the meeting" reported Cláudia. "For me, it's time to make future decisions, so the networking aspect of such conferences is simply invaluable."



Plenary lectures  
at The EMBO Meeting 2009

→ At the heart of the scientific program, plenary sessions in the RAI auditorium highlighted three key areas of current research in the focus of this inaugural meeting. Sunday's session on *Chromosomes: dynamics, maintenance & evolution* covered a broad spectrum of the biology of the fundamental carriers of genetic information in both pro- and eukaryotic organisms, accompanied by a keynote lecture from Kim Nasmyth on the mechanisms holding sister chromatids together and regulating their equal segregation during cell division. Transitioning from the molecular to the more cellular, subsequent plenary sessions focused on *Signaling pathways in development & cancer* (Monday) and on *Stem cells* (Tuesday). Not surprisingly, especially the latter attracted numerous conference delegates to attend



the four talks as well as the opening keynote lecture by Rudolf Jaenisch on *Stem cells, pluripotency & nuclear reprogramming*. These themes also featured prominently in the lecture of Shinya Yamanaka, who has pioneered the field of somatic cell reprogramming and induced pluripotency, and now reported on important recent advances towards the therapeutic applicability of these methods. Paying tribute to the speakers and topics of this molecular medicine symposium on stem cells, *EMBO Molecular Medicine* has compiled a special reprint issue *Celebrating Stem Cells*, which was distributed at the conference and is also available online via the general website.

Three award lectures complemented the plenary session. In a stimulating presentation, Olivier Voinnet recapitulated the impressive body of work that won him the 2009 EMBO Gold Medal (see *EMBOencounters* 13) as well as exciting new findings on RNA silencing pathways in plants and beyond. Finally, two more topics of fundamental physiological importance, particularly for mammalian organisms, were reviewed by the two winners of the 2009 Louis-Jeantet Prize: Peter Ratcliffe described the expanding views on cellular sensing and signalling of oxygen levels, through hydroxylation of the master transcription factor HIF and possibly numerous additional target proteins. The role of TOR kinase signalling in growth of cells and organisms was the subject of the prize lecture by Michael Hall,



who reviewed recent genetic evidence on intriguing adipose-specific TOR functions in controlling processes such as obesity or whole body growth – topics that were further discussed in one of the 21 lively concurrent workshops. (hv)



Attendees: **1,371**  
Abstracts: **532**  
Speakers: **151**

Exhibitors: **48**  
Countries represented: **50**

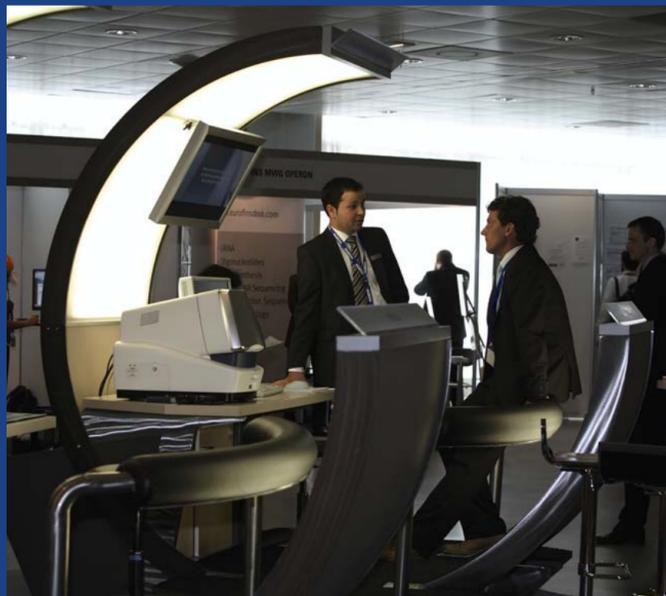
Cups of coffee served during the four-day conference: **3,927**

Guests at the final reception: **463**

Amount of beer consumed at the final reception: **521 liters**

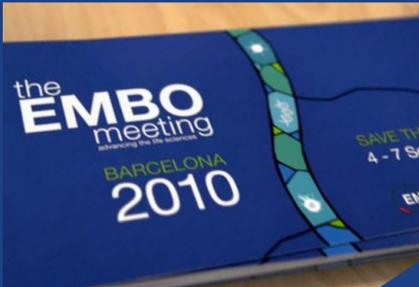
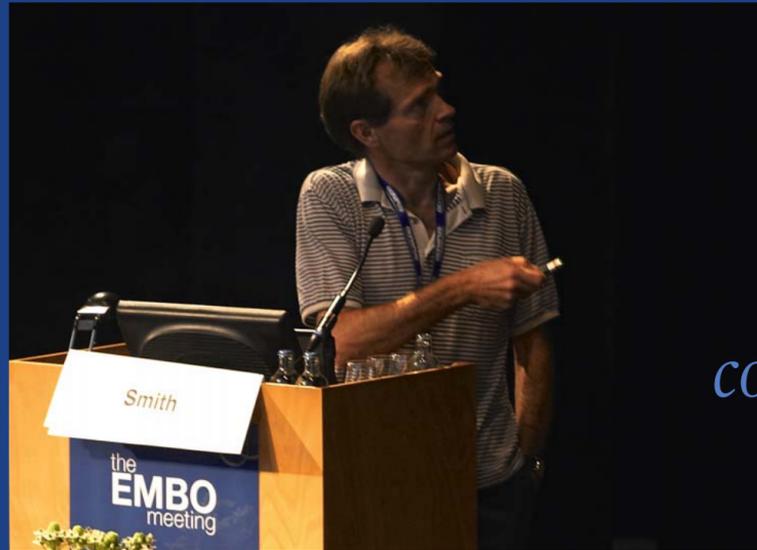
Questions at the EMBO Talking Point: **innumerable!**

## Facts & figures at The EMBO Meeting 2009



## Exhibit hall highlights

→ The booths of 48 companies and organizations filled the spacious RAI hallways, all with eye-catching designs, some of them leading towards futuristic. Exhibitors came from a broad spectrum of industry and research ranging from the life science suppliers to publishing companies, from hospitals to producers of imaging technologies and research instruments. The highlight of the exhibition was the quiz. All attendees received the questions in their conference bags and had to visit the appropriate booths to find the correct answers. Prizes included a Merck-donated PlayStation, a digital camera by Olympus and iPods sponsored by Polypus Transfection. Vendula Pospichalova from Czech Republic was the lucky winner of the PlayStation. Jeroen Vandecasteele from Belgium was overjoyed with his new digital camera, as he had just had his camera stolen on a recent trip. EMBO appreciates all the exhibitor feedback from our first event. Already we have implemented changes for *The EMBO Meeting 2010* in Barcelona.



conference  
collage



## Lunch & learn: career advice for scientists

→ PhD diploma finally in your hand – and what comes next? A job in academia is one way to go. But life scientists will also find themselves competitive beyond their labs. Industry, government and private organizations are often desperately seeking analytical minds and skilled candidates with profound knowledge. One of the obstacles facing scientists looking for an ideal job is lack of information. *The EMBO Meeting* offered a range of interactive, career-related sessions and workshops that helped answer some of the questions that PhD holders might have.

Scientific editing still ranks high on the list of alternative career options for researchers. The talk by Vivian Siegel, former chief editor for *Cell* and *Molecular Cell*, about the different kinds of editorial positions, skills required and a typical day in the editorial office, attracted crowds

during the *Expanding Career Options* Lunch on Tuesday. With 90 attendees, mainly late-stage postdocs, the whole session was fully subscribed well ahead. After the talks, all participants had a chance to ask individual questions about jobs in big pharma, small biotech businesses or intellectual property organizations. “I found the sessions really great. When do you otherwise have the opportunity to meet all the EMBO editors and pester them with questions about their careers and daily working life?” commented EMBL predoc Christian Hoerner after the Monday *Meet the Editor* lunch.

The *Pursuing an Academic Career Session*, organized by the former ELSO Career Development Committee, touched on topics relevant for those who prefer to stay within the halls of research institutes and universities. “Is life science chang-

ing?” and “Should the coming generation of scientists be more multidisciplinary?” were some of the questions discussed at the round tables. “We need absolutely focused scientists,” was one opinion, while others opted for the broad-minded researcher with a knowledge that spans a number of fields.

“*The EMBO Meeting* is a great place to find a postdoc,” concluded one of the mentors Marja Jäättelä, head of the Apoptosis Laboratory at the Danish Cancer Society. Anne Spang, another senior scientist mentoring the session, recommended the conference as a networking platform for PhD students.

