



# LINDAU NOBEL LAUREATE MEETINGS

## Topics #LINO18

### The Inner Clock

Our body functions differently during the day than it does during the night – as do those of many organisms. This phenomenon, referred to as the circadian rhythm, is an adaptation to the drastic changes in the environment over the course of the 24-hour cycle in which the Earth rotates about its own axis. The circadian rhythm affects our sleep patterns, our metabolism, hormone levels and blood pressure. For elucidating how this biological clock works on a molecular level, Jeffrey C. Hall, **Michael Rosbash** and **Michael W. Young** were awarded the Nobel Prize in Physiology or Medicine 2017. How can these insights facilitate medical advances?

- Lectures by Rosbash und Young: Monday, 25 June, 9.00-10.00 hrs
- Press conference Rosbash und Young: Tuesday, 26 June, 14.00-14.45 hrs

### Science in a Post-Factual Era

The word 'post-truth', which has been declared the Oxford Dictionaries Word of the Year 2016, reflects a political development that has gained momentum world-wide: Personal beliefs and emotions seem to have a larger influence on public opinion than objective facts. Politicians spread "alternative facts" and place them on the same level as evidence-based knowledge. To counteract this development, last year, more than one million people in more than 600 cities all over the world took to the streets in the March for Science to raise awareness of the importance of science in society. Science communication and public outreach have become more important than ever. What role does empirical science play in current affairs? How can research-based evidence shape politics and society? Why are people skeptical of scientific facts?

- Panel Discussion 'Science in a Post-Factual World', Friday, 29 June, 11.00-13.00 hrs

### Publish or Perish?

Authorships and journal impact factors serve as currency for academic careers. Nobel Laureate **Randy Schekman** has described the current system of publishing science as 'broken', not only because the pressure to publish may foster corruptive motivations but also due to a lack of transparency in the peer review process, a delay in publication caused by extensive revisions and limited accessibility. Nobel Laureates **Martin Chalfie** and **Harold Varmus**

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promote the use of open-access, pre-print archives in the life sciences to make scientific results quickly accessible for everyone, acknowledge research contributions earlier and to foster discussions that improve the quality of research. Does the current publication system stall scientific progress? How well does it reflect individual contribution and qualification? Is the life science community ready to change its conventions? What can be learned from other disciplines?

- Panel Discussion 'Publish or Perish', Wednesday, 27 June, 15.00-16.30 hrs

### Genetic Engineering

Making precise genomic changes to various organisms to better understand gene function or to design experimental models, is a standard experimental technique. Beyond this laboratory use, changing the genome of an organism has powerful applications in industry, agriculture and medicine alike. Especially since the development of the CRISPR-Cas9 method, genetic engineering has become increasingly efficient. However, there are concerns related to safety as well as the ethical implications of permanently editing the germline of organisms – including humans. Which potentials does the method bear for the treatment of disease? What are the risks and concerns of applying CRISPR-Cas9 in medicine? How strictly do clinical applications need to be regulated?

- Science Breakfast 'Gene Modification', Wednesday, 27 June, 7.00-8.30 hrs

### Innovations in Health Care for Developing Countries

Nobel Laureate Peter Agre investigates the molecular basis of malaria and is actively involved in disease prevention and treatment in Zambia and Zimbabwe. At a press talk, he may highlight some of the challenges that need to be overcome to provide good health care in these regions and approaches that may facilitate this endeavour. Several of the young scientists who participate in #LINO18 are actively involved in projects to improve health care and education in developing countries. What are the biggest challenges? Which innovations are most promising?

- Press Talk 'Innovations for Health Care in Developing Countries' with Nobel Laureate Peter Agre and young scientists, Monday, 25 June, 14.30-15.30 hrs



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## Citizen Science

Citizen science projects aim to encourage anyone to contribute to scientific advancement. Lay people are invited to report their observations, carry out measurements and analyse data, and the computing power of thousands of people is combined. This way, crowd sourcing projects can utilise the potential of thousands of lay people to solve complicated scientific problems. A successful example is the computer game Foldit, in which protein folding is simulated, generating biochemical insights. This has already led to important findings for the development of new therapeutic compounds. Currently, the game is employed to find an antidote for the fungal poison aflatoxin.

- Partner Breakfast hosted by Mars, Inc. 'Crowdsourcing to Drive Medical Advancements' with Nobel Laureate Michael Levitt, Tuesday, 26 June, 7.00-8.30 hrs
- Mars Science Dinner 'Leveraging the Power of Gamification to Eradicate Aflatox in Around the World', Wednesday, 27 June, 20.00-22.00 hrs