

## **Scientists explore the interplay of evolution and medicine in Barcelona (Spain)**

- **On 6<sup>th</sup> and 7<sup>th</sup> October, the Centre for Genomic Regulation organizes the 15<sup>th</sup> CRG Annual Symposium. Its focus is on evolution and medicine, two disciplines that interact more than commonly assumed.**
- **The symposium will bring together world-leading researchers who will present and discuss the latest results on topics such as cancer evolution, origin and evolution of pathogens, the contribution of human evolution to disease predisposition, the evolution of infectious diseases and the emergence of resistance to antibiotics.**

Since the early days of biology, evolution has been the basis to understand many biological phenomena. More recently, advances in medicine and technology have made evolutionary biology relevant for many medical topics.

On 6<sup>th</sup> and 7<sup>th</sup> October the Centre for Genomic Regulation celebrates its 15<sup>th</sup> Annual Symposium, which will be focused in the relationship between evolutionary biology and medicine. Evolutionary theory forms the basis for our understanding of the natural world. The development, behaviour and physiology of our own species has been shaped by millions of years of evolution. Furthermore, the interaction of humans with species that directly affect our health and survival is constantly being modified by evolutionary forces through natural or artificial selection. Under the title “Evolution and Medicine”, the conference aims to explore the interplay of these two fields, acting either in our own species or on species directly affecting our wellbeing. Scientists attending this event will explore topics in cancer evolution, the emergence of resistance to antibiotics and other drugs, the origin and evolution of pathogens, and the evolutionary influence on our own construction and predisposition to various diseases.

The conference will merge these two fields and will foster their interaction by presenting innovative approaches to medical questions through the evolutionary biology. The scientific talks are organized around three main topics: Cancer evolution, Genetic Bases of Disease, and Host-pathogen Evolution in Infectious Disease. They will cover research from tumour evolution and dynamics to evolution of infectious diseases. They will also focus on human genetics evolution and its relation and adaptation to disease.

In conclusion, this meeting will be an example of how risky and innovative fundamental research can lead into new approaches for medical application. In this case, it will show how evolutionary biology sheds light to medical topics and contributes to better understand human disease.

## **NOTES TO THE EDITORS**

### **Information about the 15<sup>th</sup> CRG Annual Symposium:**

<http://www.crg.eu/content/events/15th-crg-symposium-evolution-and-medicine>

### **Organiser:**

- Centre for Genomic Regulation (CRG)

### **Scientific organising committee:**

- Toni Gabaldón - [www.crg.eu/toni\\_gabaldon](http://www.crg.eu/toni_gabaldon)
- Fyodor Kondrashov – [www.crg.eu/fyodor\\_kondrashov](http://www.crg.eu/fyodor_kondrashov)
- Stephan Ossowski – [www.crg.eu/stephan\\_ossowski](http://www.crg.eu/stephan_ossowski)
- Bioinformatics and Genomics Programme  
(<http://www.crg.eu/en/programmes/programmes-groupes/bioinformatics-and-genomics>)

### **15<sup>th</sup> CRG Annual Symposium Speakers:**

Please, find [here](#) the complete list of speakers at the 15<sup>th</sup> CRG Annual Symposium “Evolution and Medicine”. You will find below a selection of the invited speakers that may be of your interest for interviews:

- **ARTURO CASADEVALL**

W. Harry Feinstone Department of Molecular Microbiology and Immunology, Johns Hopkins Bloomberg School of Public Health, Baltimore USA.

Dr. Arturo Casadevall is a microbiologist and immunologist. His laboratory studies two fundamental questions: First, how do microbes cause disease? Second, how do hosts, such as humans, protect themselves against microbes? To address these large questions, the laboratory has a multidisciplinary research program spanning several areas of basic immunology and microbiology.

<http://www.jhsph.edu/faculty/directory/profile/3126/arturo-casadevall>

[https://en.wikipedia.org/wiki/Arturo\\_Casadevall](https://en.wikipedia.org/wiki/Arturo_Casadevall)

- **RANDOLF NESSE**

Dr. Randolph M. Nesse is a physician who has dedicated his career to establishing evolutionary biology as a basic science for medicine. His research on the neuro-endocrinology of anxiety evolved into studies on evolution and aging. This led to a series of publications that established the field of evolutionary medicine.

Dr. Nesse investigates how selection shapes mechanisms that regulate defenses such as pain, fever, and anxiety. Other work investigates the origins and functions of emotions and why emotional disorders are prevalent.

Nesse is also co-author of the popular book *"Why We Get Sick"* (1995).

<https://sols.asu.edu/people/randolph-nesse>

[https://en.wikipedia.org/wiki/Randolph\\_M.\\_Nesse](https://en.wikipedia.org/wiki/Randolph_M._Nesse)

- **SHAMIL SUNYAEV**

Shamil Sunyaev is Professor and Distinguished Chair of Computational Genomics, Division of Genetics, Brigham & Women's Hospital, Harvard Medical School. Department of Biomedical Informatics, Harvard Medical School.

His laboratory is focused on genetic variation, including the biology and evolution



of mutation, the effect of variation on molecular function and structure, population genetics as a lens on evolution, and the maintenance and allelic architecture of complex traits. They develop computational and statistical methods for sequencing studies. They also have projects in cancer genomics and applied human genetics. The lab encompasses a wide range of skills, backgrounds, and interests spanning these topics.

<http://genetics.bwh.harvard.edu/wiki/sunyaevlab/members>

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