

## 2025 LOUIS-JEANTET FOUNDATION'S PRIZES

The 2025 Louis-Jeantet Foundation's Prizes are awarded to **VEIT HORNUNG**, professor at the Ludwig Maximilian University of Munich, Germany, and to **GILLES LAURENT**, director at the Max Planck Institute for Brain Research in Frankfurt, Germany.



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### 2025 Collen-Jeantet Prize for Translational Medicine

**VEIT HORNUNG**, of German nationality, is awarded the 2025 Collen-Jeantet Prize for Translational Medicine for his important contributions to our understanding of how foreign nucleic acids and other non-self signals trigger the innate immune system.

Veit Hornung has made fundamental discoveries on how viral and bacterial infections are sensed by specific cellular receptors that activate immune responses. His discoveries are paving the way for innovations in vaccines and therapies for infectious and autoimmune diseases and have important implications for cancer immunotherapy.



### 2025 Louis-Jeantet Prize for Medicine

**GILLES LAURENT**, of French nationality, is awarded the 2025 Louis-Jeantet Prize for Medicine for his pioneering work on the operations of neurons and dynamics of neuronal networks.

Gilles Laurent has provided fundamental insights on how large groups of brain cells work together in complex, dynamic and coordinated ways. By combining comparative, evolutionary, functional and molecular neuroscience with computational theory, he has shaped modern neural-population science.

The LOUIS-JEANTET FOUNDATION endows each of the two prizes with CHF 500,000, of which CHF 450,000 is intended to finance the continuation of the of the prize-winners' research and CHF 50,000 is for their personal use.

THE AWARD CEREMONY WILL BE HELD IN GENEVA (SWITZERLAND) ON **WEDNESDAY, APRIL 9<sup>th</sup>, 2025.**

## VEIT HORNING

Veit Horning studied medicine at the University of Munich, Germany, where he obtained his doctoral degree and completed his first postdoctoral training. He then undertook further studies at the University of Massachusetts Medical School in Worcester, USA, before being appointed professor at the University of Bonn in 2008. He moved to Munich in 2015 as Chair of Immunobiochemistry at the Gene Center of the Ludwig Maximilian University of Munich.

### **Innate immunity: deciphering the body's ability to detect non-self**

The innate immune system serves as the body's first line of defence, tasked with distinguishing harmful invaders from the body's own cells. This complex process relies on pattern recognition receptors (PRRs), specialised molecules that identify conserved molecular signatures associated with microbes or signals of cellular damage.

Veit Horning has made seminal contributions to the field of innate immunity, significantly advancing our understanding of how PRRs recognise non-self, with a particular focus on nucleic acid (DNA and RNA) recognition. Nucleic acids from viruses and other pathogens are often interpreted by the body's cells as “foreign”, triggering potent antiviral immune responses. The key question, however, is how nucleic acids, as universal building blocks of life, can still harbour subtle differences or contextual cues that allow cells to distinguish self from non-self. Horning and his team have uncovered novel nucleic acid-sensing PRRs, they have identified molecular patterns that define non-self nucleic acids and elucidated how these patterns are recognised by PRRs. Central to this research, they contributed to our understanding of how DNA, the universal carrier of genetic information found in the nucleus of cells, is interpreted as non-self in the cytoplasm, driving robust immune responses.

Through these efforts, Horning's work has defined key aspects of the molecular basis of innate immunity. His research not only provides critical insights into the molecular mechanisms of these pathways, but also highlights the potential for targeting them in the treatment of infectious and inflammatory diseases. By linking fundamental discoveries to potential therapeutic applications, his contributions have helped shape the future of this important field of immunology.

## GILLES LAURENT

A French national, Gilles Laurent studied veterinary medicine and obtained a doctorate in Neuroethology in Toulouse. After a postdoctoral stay in Cambridge, UK, he became professor of Biology and Computation and Neural Systems at the California Institute of Technology. In 2009, he was recruited to be a founding co-director of the new Max Planck Institute for Brain Research in Frankfurt, where he has since headed the Department of Neural Systems.

### **Understanding the brain through the study of simple neural systems**

The human brain is probably the most complex “machine” in the universe. With over 80 billion neurons and about as many glial cells, over 100 trillion synaptic connections and hundreds of thousands of kilometres of wiring (axons and dendrites), what may be seen as the pinnacle of biological evolution is still very poorly understood. However, precisely because it is the result of evolution, the principles of its organisation and functions — with the exception of a few, such as language, unique to our species — are found in the nervous systems of most animals.

By choosing well-adapted animal model systems and exploiting their singularity and relative simplicity, Gilles Laurent showed that these similarities in neural organisation are the result either of shared phylogenetic relationships or of functional convergence, and sometimes of both. By describing functional principles of small systems and testing them with larger or more complex systems, he provided an understanding of the diversity, or singularity, of the solutions found by evolution to solve common functions such as smelling, seeing, moving, learning, etc., and the possibility of extracting their shared principles. This approach revealed that in certain cases a common function, for example learning, can be achieved in several ways; or on the contrary, that a particular type of neural network can be used for completely different functions, for example to control a motor rhythm, or to control certain fundamental aspects of sleep.

During his career, Gilles Laurent has revealed these mechanisms and types of relationships by studying the brains of insects, cephalopods, fish, reptiles and mammals. As a result, he has touched on very diverse areas of neuroscience, ranging from network dynamics to oscillatory waves in the brain, olfactory encoding, perception of visual textures, and sleep and brain evolution. Thanks to the combination of new molecular, electrophysiological, ethological and computational techniques, his approach also initiated the development of techniques for representing and analysing multi-neuronal data and contributed to a renaissance of comparative and evolutionary functional neuroscience.

## THE LOUIS-JEANTET FOUNDATION'S PRIZES

Every year, the Louis-Jeantet Foundation awards two Prizes distinguishing leading-edge researchers who are active in the member states of the Council of Europe. As one of the best-endowed awards, the Prizes foster scientific excellence. They are not intended solely as the recognition of work that has been completed, but also to encourage the continuation of innovative research projects. The Louis-Jeantet Prize for Medicine rewards work in the field of biomedical research, both in its fundamental and clinical aspects. The Collen-Jeantet Prize for Translational Medicine recognises, with the generous support of the Désiré Collen Stichting, a major advance close to practical applications for combating illnesses affecting humankind.

Established in 1986, the Prizes have thus far been awarded to 107 researchers: 30 in the United Kingdom; 24 in Germany; 17 in Switzerland; 15 in France; 4 each in Sweden, Italy and the Netherlands; 2 each in Austria, Belgium, Finland and Norway; and 1 in Hungary. Among the 107 prize-winning researchers, 16 have subsequently won the Nobel Prize in Physiology or Medicine, or the Nobel Prize in Chemistry.

Since 1986, a total sum of more than CHF 65 million has been awarded by the Foundation to the 107 prize-winners for the continuation of their work.

## THE LOUIS-JEANTET FOUNDATION

Founded in 1983, the Louis-Jeantet Foundation is the legacy of Louis Jeantet, a French businessman and a citizen of Geneva by adoption. The Foundation's aim is to move medicine forward and to defend the role and identity of European biomedical research vs. international competition. Established in Geneva, the Foundation is part of an open Europe and devotes its efforts to recognising and fostering medical progress for the common good.

The Louis-Jeantet Foundation allocates some CHF 2.5 million each year to promoting biomedical research. It invests this sum for European and for local research projects. At the local level, the Foundation encourages teaching and the development of research at the Faculty of Medicine of the University of Geneva.

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