Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr Gero Miesenböck

Image: Centre for Neural Circuits and Behaviour, Oxford

Name: **Gero Miesenböck**
Date of Birth: **15 July 1965**

Research Priorities: Optogenetics, light stimulation of nerve cells, circuits in the brain, neuronal bases of behaviour

Gero Miesenböck is an Austrian neuroscientist. He is considered one of the founders of optogenetics, which combines optical technology and genetics to switch individual cell types in the brain on and off. This allows the arrangement and function of neural circuits to be explored.

Academic and Professional Career

2011	Founding Director, Centre for Neural Circuits and Behaviour, University of Oxford, Oxford, UK
2007	Waynflete Professor of Physiology, University of Oxford, Oxford, UK
2004	Associate Professor of Cell Biology, Cellular and Molecular Physiology, Yale University School of Medicine, New Haven, USA
1999	Assistant Professor of Cell Biology and Neuroscience, Cornell University, New York City, USA
1992 - 1998	Postdoctorate Fellow, Memorial Sloan Kettering Cancer Center, New York City, USA
1991	MD in Medicine, Leopold-Franzens University Innsbruck, Innsbruck, Austria

Honours and Awarded Memberships

2023	Japan Prize, The Japan Prize Foundation, Tokyo, Japan
2022	Louisa Gross Horwitz Prize, Columbia University, New York, USA
2020	Shaw Prize in Life Science and Medicine, Shaw Prize Foundation, Hong Kong

2019	Warren Alpert Foundation Prize, Warren Alpert Foundation, Providence, USA
2019	Clarivate Citation Laureates, Clarivate, London, UK
2018	Rumford Prize, American Academy of Arts and Sciences, USA
2016	Wilhelm Exner Medal, Wilhelm Exner Foundation, Vienna, Austria
2016	Massry Prize, Meira and Shaul Massry Foundation, University of Southern California, Los Angeles, USA
since 2016	Member, German National Academy of Sciences Leopoldina, Germany
2015	Heinrich Wieland Prize, Boehringer Ingelheim Foundation, Mainz, Germany
since 2015	Fellow, Royal Society, UK
2015	Frontiers of Knowledge Award in Biomedicine, BBVA Foundation, Madrid, Spain
since 2014	Corresponding Member, Austrian Academy of Sciences, Austria
2013	Jacob Heskel Gabbay Award in Biotechnology and Medicine, Jacob and Louise Gabbay Foundation, Brandeis University, Waltham, USA
2013	Brain Prize, Lundbeck Foundation, Copenhagen, Denmark
2012	InBev-Baillet Latour Health Prize, InBev Baillet-Latour Foundation, Leuven, Belgium
2009	Bayliss-Starling Prize Lecture, The Physiology Society, London, UK
since 2008	Member, European Molecular Biology Organization (EMBO)

Research priorities

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Gero Miesenböck has engineered light-controlled molecular switches into brain cells which allow their electrical activity to be controlled remotely. To achieve this, he genetically modified nerve cells so that they produce proteins that react to light. He thereby succeeded in controlling the behaviour of animals for the first time. The great advantage of the method is that only certain types of cells produce the light-sensitive proteins. This allows the roles of different cell types in sensory perception, movement, cognition, or emotion to be disentangled.

Research groups around the world are working with this method and analysing mechanisms in the brain. They research how decisions are made, how sleep and appetite are regulated, why people fall ill with psychoses and which factors influence behaviour and memory. The method could be used in future to improve the treatment of diseases such as Parkinson’s, epilepsy or anxiety disorders.