

Peter Hegemann

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Curriculum vitae

- Since 2016 Hertie Professor for Neuroscience, Humboldt-Universität zu Berlin
- 2015 – 2016 Managing director, Institute for Biology, Humboldt-Universität zu Berlin
- Since 2012 Visiting scientist, Howard Hughes Medical Institute, Chevy Chase, US
- Since 2010 Spokesperson, Research Unit (FOR) 1279 ‘Protein-based Photoswitches’, German Research Foundation (DFG)
- 2009 – 2012 Member, Senate Commissions of the German Research Foundation (DFG) on Collaborative Research Centers (SFB)
- 2005 – 2016 Professor, Experimental Biophysics, Humboldt-Universität zu Berlin
- 2004 – 2010 Spokesperson, Research Unit (FOR) 526 ‘Sensory Blue Light Receptors’, German Research Foundation (DFG)
- 1993 – 2004 Professor, Department of Biochemistry, Universität Regensburg
- 1992 Venia legendi (Habilitation), Ludwig-Maximilians-Universität, Munich
- 1986 – 1992 Principal investigator, Photoreceptors of Microalgae, Max Planck Institute of Biochemistry, Martinsried
- 1985 – 1986 Postdoctoral fellow, Physics Department, Syracuse University, US
- 1980 – 1984 PhD Thesis, Max Planck Institute of Biochemistry, Martinsried
- 1975 – 1980 Studies in Chemistry, Universität Münster and Ludwig-Maximilians-Universität, Munich

Research fields

Our research program focuses on photobiology of green algae, unusual rhodopsins, flavin-based photoreceptors, light-activated enzymes, nuclear gene targeting in algae and optogenetics.

Activities in the scientific community, honors, awards

- 2018 Otto Warburg Medal, German Society for Biochemistry and Molecular Biology
- 2017 Mendel Medal, Leopoldina – German National Academy of Sciences
- 2017 Harvey Prize, Technion, IL
- 2016 Massry Prize, US
- 2016 Honorary Bonhoeffer Prize Lecture, Göttingen
- 2016 Advanced Grant, European Research Council (ERC)
- 2016 Hector Science Award and Hector Fellow, Heidelberg
- 2015 Berliner Wissenschaftspreis, presented by the Governing Mayor of Berlin
- Since 2014 Member, Akademie der Technikwissenschaften (acatech)
- Since 2014 Member, European Molecular Biology Organisation (EMBO)
- Since 2014 Member, Berlin-Brandenburg Academy of Sciences and Humanities (BBAW)
- 2013 Brain Prize, Grete Lundbeck European Brain Research Prize Foundation
- 2013 Louis-Jeantet Award, Geneva, CH
- 2013 Gottfried Wilhelm Leibniz Prize, German Research Foundation (DFG)
- Since 2012 Member, Leopoldina – German National Academy of Sciences
- 2012 Zülch Preis for Fundamental Advances in Neurobiology, Cologne
- 2010 Karl Heinz Beckurts Prize for Basic Research, Munich
- 2010 Wiley Prize for Biomedical Innovation, US

Selected publications

- Deisseroth K, Hegemann P. The form and function of channelrhodopsin. *Science* 2017; 357
- Petroutsos D, Tokutsu R, Maruyama S, Flori S, Greiner A, Magneschi L, Cusant L, Kottke T, Mittag M, Hegemann P, Finazzi G, Minagawa J. A blue-light photoreceptor mediates the feedback regulation of photosynthesis. *Nature* 2016; 537:563-566
- Ferenczi EA, Vierock J, Atsuta-Tsunoda K, Tsunoda SP, Ramakrishnan C, Gorini C, Thompson K, Lee SY, Berndt A, Perry C, Minniberger S, Vogt A, Mattis J, Prakash R, Delp S, Deisseroth K, Hegemann P. Optogenetic approaches addressing extracellular modulation of neural excitability. *Sci Rep* 2016; 6:23947
- Schneider F, Grimm C, Hegemann P. Biophysics of Channelrhodopsin. *Annu Rev Biophys* 2015; 44:167-186
- Scheib U, Stehfest K, Gee CE, Korschen HG, Fudim R, Oertner TG, Hegemann P. The rhodopsin-guanlyl cyclase of the aquatic fungus *Blastocladiella emersonii* enables fast optical control of cGMP signaling. *Sci Signal* 2015; 8:rs8
- Rost BR, Schneider F, Grauel MK, Wozny C, Bentz CG, Blessing A, Rosenmund T, Jentsch TJ, Schmitz D, Hegemann P, Rosenmund C. Optogenetic acidification of synaptic vesicles and lysosomes. *Nat Neurosci* 2015; 18:1845-1852
- Wietek J, Wiegert JS, Adeishvili N, Schneider F, Watanabe H, Tsunoda SP, Vogt A, Elstner M, Oertner TG, Hegemann P. Conversion of channelrhodopsin into a light-gated chloride channel. *Science* (New York, NY 2014; 344:409-412
- Kato HE, Zhang F, Yizhar O, Ramakrishnan C, Nishizawa T, Hirata K, Ito J, Aita Y, Tsukazaki T, Hayashi S, Hegemann P, Maturana AD, Ishitani R, Deisseroth K, Nureki O. Crystal structure of the channelrhodopsin light-gated cation channel. *Nature* 2012; 482:369-374
- Zhang F, Vierock J, Yizhar O, Fenno LE, Tsunoda S, Kianianmomeni A, Prigge M, Berndt A, Cushman J, Polle J, Magnuson J, Hegemann P, Deisseroth K. The microbial opsin family of optogenetic tools. *Cell* 2011; 147:1446-1457
- Yizhar O, Fenno LE, Prigge M, Schneider F, Davidson TJ, O'Shea DJ, Sohal VS, Goshen I, Finkelstein J, Paz JT, Stehfest K, Fudim R, Ramakrishnan C, Huguenard JR, Hegemann P, Deisseroth K. Neocortical excitation/inhibition balance in information processing and social dysfunction. *Nature* 2011; 477:171-178