

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

2019	Warren Alpert Foundation Prize
2019	Rumford Prize, American Academy of Arts and Sciences
2018	Canada Gairdner Int. Award
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