

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

- 2021 ERC Synergy Grant “Bistable rhodopsins” with G.Schertler, R.Lucas, S.Kleinlogel
- 2020 Shaw Prize in Life Science and Medicine, Hong Kong
- 2019 Warren Alpert Prize Harvard, Medical School, Boston, MA
- 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

- Broser, M., A. Spreen, P. E. Konold, E. Peter, S. Adam, V. Borin, I. Schapiro, R. Seifert, J. T. M. Kennis, Y. A. Bernal Sierra, and P. Hegemann. 2020. 'NeoR, a near-infrared absorbing rhodopsin', *Nat Commun*, 11: 5682.
- Deisseroth, K., and P. Hegemann. 2017. 'The form and function of channelrhodopsin', *Science*, 357.
- Petroutsos, D., R. Tokutsu, S. Maruyama, S. Flori, A. Greiner, L. Magneschi, L. Cusant, T. Kottke, M. Mittag, P. Hegemann, G. Finazzi, and J. Minagawa. 2016. 'A blue-light photoreceptor mediates the feedback regulation of photosynthesis', *Nature*, 537: 563-66.
- Rost, B. R., F. Schneider, M. K. Grauel, C. Wozny, C. G. Bentz, A. Blessing, T. Rosenmund, T. J. Jentsch, D. Schmitz, P. Hegemann, and C. Rosenmund. 2015. 'Optogenetic acidification of synaptic vesicles and lysosomes', *Nat Neurosci*, 18: 1845-52.
- Scheib, U., K. Stehfest, C. E. Gee, H. G. Korschen, R. Fudim, T. G. Oertner, and P. Hegemann. 2015. 'The rhodopsin-guanylyl cyclase of the aquatic fungus *Blastocladiella emersonii* enables fast optical control of cGMP signaling', *Sci Signal*, 8: rs8.
- Schneider, F., C. Grimm, and P. Hegemann. 2015. 'Biophysics of Channelrhodopsin', *Annu Rev Biophys*, 44: 167-86.
- Wietek, J., J. S. Wiegert, N. Adeishvili, F. Schneider, H. Watanabe, S. P. Tsunoda, A. Vogt, M. Elstner, T. G. Oertner, and P. Hegemann. 2014. 'Conversion of channelrhodopsin into a light-gated chloride channel', *Science*, 344: 409-12.
- Kato, H. E., F. Zhang, O. Yizhar, C. Ramakrishnan, T. Nishizawa, K. Hirata, J. Ito, Y. Aita, T. Tsukazaki, S. Hayashi, P. Hegemann, A. D. Maturana, R. Ishitani, K. Deisseroth, and O. Nureki. 2012. 'Crystal structure of the channelrhodopsin light-gated cation channel', *Nature*, 482: 369-74.
- Yizhar, O., L. E. Fenno, M. Prigge, F. Schneider, T. J. Davidson, D. J. O'Shea, V. S. Sohal, I. Goshen, J. Finkelstein, J. T. Paz, K. Stehfest, R. Fudim, C. Ramakrishnan, J. R. Huguenard, P. Hegemann, and K. Deisseroth. 2011. 'Neocortical excitation/inhibition balance in information processing and social dysfunction', *Nature*, 477: 171-8.
- Zhang, F., J. Vierock, O. Yizhar, L. E. Fenno, S. Tsunoda, A. Kianianmomeni, M. Prigge, A. Berndt, J. Cushman, J. Polle, J. Magnuson, P. Hegemann, and K. Deisseroth. 2011. 'The microbial opsin family of optogenetic tools', *Cell*, 147: 1446-57.