

Ofer Yizhar, Ph.D.



Senior Scientist, Weizmann Institute of Science

October 2011 – Present

Department of Neurobiology

Education

Postdoctoral research scholar, Stanford University

February 2008 – September 2011

Advisor: Prof. Karl Deisseroth, M.D. Ph.D.

Graduate studies – Neurobiology, Tel Aviv University

Awarded Ph. D. with distinction, April 2008; Advisor: Dr. Uri Ashery

Thesis title: “Elucidating the role of Tomosyn in neurotransmitter release”.

B. Sc., Hebrew University of Jerusalem

B. Sc. with distinction, September 2001 Life Science Honors Program

Honors and Awards

2012 ‘Alon Fellowship’ for returning scientists, granted by the Israeli Council for Higher Education

2012 Gertrude and Philip Nollman Career Development Chair, Weizmann Institute

2011 Sieratzki Prize for Advances in Neuroscience

2008 Long term postdoctoral fellowship, Human Frontiers in Science Program (HFSP)

2007 Long term postdoctoral fellowship, the European Molecular Biology Organization (EMBO)

2006 Teaching Award for Graduate Students, Life Science Faculty, Tel Aviv University

2005 Jorge Deutsch Prize for Research in Bio-Medicine

2004 Wolff Foundation Prize for Excellent Graduate Students

Publications

Liang L, Li Y, Potter CJ, **Yizhar O**, Deisseroth K, Tsien RW, Luo L. GABAergic projection neurons route selective olfactory inputs to specific higher-order neurons. *Neuron* 2013 Sep 4;79(5):917-31.

Barak B, Okun E, Ben-Simon Y, Lavi A, Shapira R, Madar R, Wang Y, Norman E, Sheinin A, Pita MA, **Yizhar O**, Mughal MR, Stuenkel E, van Praag H, Mattson MP, Ashery U. Neuron-specific expression of tomosyn1 in the mouse hippocampal dentate gyrus impairs spatial learning and memory. *Neuromolecular Med.* 2013 Jun;15(2):351-63.

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- Yizhar O.** Optogenetic Insights into Social Behavior Function. *Biol Psychiatry*. 2012 Jun 15;71(12):1075-80.
- 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 Jan 22. doi: 10.1038/nature10870.
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- 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 Jul 27; 477(7363):171-8.
- Fenno LE, **Yizhar O**, Deisseroth K. The Development and Application of Optogenetics. *Annu Rev Neurosci*. 2011;34:389-412.
- Yizhar O**, Fenno LE, Davidson TJ, Mogri M, Deisseroth K. Optogenetics in Neural Systems. *Neuron*. 2011 Jul 14;71(1):9-34.
- Diester I, Kaufman M, Pashaie R, Mogri M, Goo W, Ramakrishnan C, **Yizhar O**, Deisseroth K, Shenoy KV. An Optogenetic Toolbox for Primates. *Nat Neurosci*. 2011 Mar;14(3):387-97. Epub 2011 Jan 30.
- Yizhar O**, Fenno LE, Zhang F, Hegemann P, Deisseroth K. Microbial opsins - A Family of Single-Component Tools for Optical Control of Neural Activity (2010). In "Imaging In Neuroscience and Development: A Laboratory Manual" (eds. Rafael Yuste and Arthur Konnerth). *Cold Spring Harb Protoc*. 2011 Mar 1;2011
- Carter ME, **Yizhar O**, Nguyen H, Chikahisa S, Nishino S, Deisseroth K, de Lecea L. Tuning arousal with optogenetic modulation of locus coeruleus neurons. *Nat Neurosci*. 2010 Dec;13(12):1526-33.
- Lam AD, Ismail S, Wu R, **Yizhar O**, Passmore DR, Ernst SA, Stuenkel EL. Mapping Dynamic Protein Interactions to Insulin Secretory Granule Behavior with TIRF-FRET. *Biophys J*. 2010 Aug 9;99(4):1311-1320.
- Feinshreiber L, Singer-Lahat D, Friedrich R, Matti U, Sheinin A, **Yizhar O**, Nachman R, Chikvashvili D, Rettig J, Ashery U, Lotan I. Non-conducting function of the Kv2.1 channel enables it to recruit vesicles for release in neuroendocrine and nerve cells. *J Cell Sci*. 2010 Jun 1;123(Pt 11):1940-7.
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Ashery U, Barak B, Bielopolsky N, **Yizhar O**. Friends and foes in synaptic transmission – the role of Tomosyn in vesicle priming. *Trends Neurosci*. 2009 May;32(5):275-82 **Review**

Yizhar O, Ashery U. Modulating vesicle priming reveals that vesicle immobilization is necessary but not sufficient for fusion-competence. *PLoS ONE*. 2008 Jul 16;3(7):e2694.

Zhang F, Prigge M, Beyrière F, Tsunoda SP, Mattis J, **Yizhar O**, Hegemann P, Deisseroth K. Red-shifted optogenetic excitation: a tool for fast neural control derived from *Volvox carteri*. *Nat Neurosci*. 2008 Jun;11(6):631-3. Epub 2008 Apr 23.

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Yizhar O.*, Matti U.*, Melamed R., Hagalili Y., Bruns D., Rettig J., Ashery U. Tomosyn inhibits priming of large dense-core vesicles in a calcium-dependent manner. *Proc Natl Acad Sci U S A*. 2004 Feb 24;101(8):2578-83.

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