May 2023

CURRICULUM VITAE

Gilad Barnea Ph.D.
Sidney A. Fox and Dorothea Doctors Fox Professor
of Ophthalmology, Visual Sciences, and Neuroscience
Department of Neuroscience
Division of Biology and Medicine
Brown University

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Website: https://www.barnealab.com/

Education:

Undergraduate degree:

B.Sc., *cum laude* Biology Hebrew University of Jerusalem, Israel, 1989

Higher degrees:

M.Sc., Department of Pharmacology, New York University, 1992

Ph.D., Department of Pharmacology, New York University, 1995

Dissertation topic: *"Molecular Characterization of a New Family of Receptor Tyrosine Phosphatases."* Thesis advisor: Dr. Joseph Schlessinger

Professional Appointments:

1996 - 2001 Postdoctoral fellow with Dr. Richard Axel,
Howard Hughes Medical Institute, Columbia University, New York, NY

2001 - 2006 Associate Research Scientist In the laboratory of Dr. Richard Axel,
Center for Neurobiology and Behavior, Columbia University, New York, NY

2007 - 2014 Assistant Professor of Neuroscience,
Division of Biology and Medicine, Brown University, Providence, RI

2012 - 2015 Robert and Nancy Carney Assistant Professor of Neuroscience

2015 - 2021 Associate Professor of Neuroscience,

	Division of Biology and Medicine, Brown University, Providence, RI
2017 - 2021	Director, NIH-Brown Graduate Partnership Program, Brown University, Providence, RI
2017 - 2021	Co-Director, Neuroscience Graduate Program, Brown University, Providence, RI
2018 - 2021	Sidney A. Fox and Dorothea Doctors Fox Associate Professor of Ophthalmology, Visual Sciences, and Neuroscience
2019 - Present	Director, Center for the Neurobiology of Cells and Circuits, Robert J. and Nancy D. Carney Institute for Brain Science, Brown University, Providence, RI
2021- Present	Professor of Neuroscience, Division of Biology and Medicine, Brown University, Providence, RI
2021 - Present	Sidney A. Fox and Dorothea Doctors Fox Professor of Ophthalmology, Visual Sciences, and Neuroscience

Academic Honors and Awards:

1989	Graduation Cum Laude, Hebrew University of Jerusalem, Israel
2008	Pew Scholar in the Biomedical Sciences, The Pew charitable trusts
2009	Kavli Fellow, National Academy of Science
2009	EUREKA, NIH
2012	Robert and Nancy Carney Assistant Professor of Neuroscience
2014	EUREKA, NIH
2014	BIBS Innovation Award, Brown Institute for Brain Science
2015	BIBS Innovation Award, Brown Institute for Brain Science
2016	Visiting Scientist, École des Neurosciences de Paris Île-de-France (ENP)
2017	The Pew Innovation Fund Award, The Pew charitable trusts
2018	Sidney A. Fox and Dorothea Doctors Fox Professor of Ophthalmology, Visual Sciences, and Neuroscience

Fellowships:

2008	Pew Scholar in the Biomedical Sciences
2009	21st Annual Kavli Frontiers of Science Symposium, National Academy of Sciences

Refereed journal articles:

1. LaForgia, S., Morse, B., Levy, J., **Barnea, G.,** Cannizzaro, L. A., Li, F., Nowell, P. C., Boghosian-Sell, L., Glick, J., Weston, A., Harris, C., Drabkin, H., Patterson, D., Croce, C. M., Schlessinger, J., and Huebner, K. (1991) Receptor protein-tyrosine phosphatase γ is a candidate tumor suppressor gene at human chromosome region 3p21. *Proc. Natl. Acad. Sci. USA* 88: 5036-5040.

2. **Barnea, G.,** Silvennoinen, O., Shaanan, B., Honegger, A. M., Canoll, P. D., D'Eustachio, P., Morse, B., Levy, J. B., LaForgia, S., Huebner, K., Musacchio, J. M., Sap, J., and Schlessinger, J. (1993) Identification of a carbonic anhydrase-like domain in the extracellular region of RPTPγ defines a new subfamily of receptor tyrosine phosphatases. *Mol. Cell. Biol.* 13: 1497-1506.

3. LaForgia, S., Lasota, J., Latif, F., Boghosian-Sell, L., Kastury, K., Ohta, M., Druck, T., Atchison, L., Cannizzaro, L. A., **Barnea G.,** Schlessinger, J., et al. (1993) Detailed genetic and physical map of the 3p chromosome region surrounding the familial renal cell carcinoma chromosome translocation, t(3;8)(p14.2;q24.1). *Cancer Res.* 53: 3118-3124.

4. Levy, J. B., Canoll, P. D., Silvennoinen, O., **Barnea, G.,** Morse, B., Honegger, A. M., Huang, J. T., Cannizzaro, L. A., Park, S. H., Druck, T., Huebner, K., Sap, J., Ehrlich M., Musacchio, J. M., and Schlessinger, J. (1993) The cloning of a receptor-type protein tyrosine phosphatase expressed in the central nervous system. *J. Biol. Chem.* 268: 10573-10581.

5. Canoll, P. D., **Barnea, G.,** Levy, J. B., Sap, J., Ehrlich, M., Silvennoinen, O., Schlessinger, J., and Musacchio, J. M. (1993) The expression of a novel receptor-type tyrosine phosphatase suggests a role in morphogenesis and plasticity of the nervous system. *Brain Res. Develop. Brain Res.* 75: 293-298.

6. **Barnea, G.,** Grumet, M., Sap, J., Margolis, R. U., and Schlessinger, J. (1994) Close similarity between receptor-linked tyrosine phosphatase and rat brain proteoglycan. *Cell 76:* 205.
http://www.sciencedirect.com/science/article/pii/009286749490328X

7. **Barnea, G.,** Grumet, M., Milev, P., Silvennoinen, O., Levy, J. B., Sap, J., and Schlessinger, J. (1994) Receptor tyrosine phosphatase β is expressed in the form of proteoglycan and binds to the extracellular matrix protein tenascin. *J. Biol. Chem.* 269: 14349-14352.
http://www.jbc.org/content/269/20/14349.full.pdf

8. Peles, E., Nativ, M., Campbell, P. L., Sakurai, T., Martinez, R., Lev, S., Clary, D. O., Schilling, J., **Barnea, G.,** Plowman, G. D., Grumet, M., and Schlessinger, J. (1995) The carbonic anhydrase domain of receptor tyrosine phosphatase β is a functional ligand for the axonal cell recognition molecule contactin. *Cell* 82: 251-26.
http://www.sciencedirect.com/science/article/pii/0092867495903127

9. Yu, C.R., Power, J., **Barnea, G.,** O'Donnell, S., Brown, H.E.V., Osborne, J., Axel, R., and Gogos, G.A. (2004) Spontaneous neural activity is required for the establishment and maintenance of the olfactory sensory map. *Neuron* 42: 553-566.
http://www.sciencedirect.com/science/article/pii/S0896627304002247

10. **Barnea, G.,** O'Donnell, S., Mancia, F., Sun, X., Nemes, A., Mendelsohn, M., and Axel, R. (2004) Odorant receptors on axon termini in the brain. *Science* 304: 1468.
http://www.sciencemag.org/content/304/5676/1468.full.pdf

11. Shykind, B. M., Rohani, S. C., O'Donnell, S., Nemes, A., Mendelsohn, M., Sun, Y., Axel, R., and **Barnea, G.** (2004) Gene switching and the stability of odorant receptor gene choice. *Cell* 117: 801–815.
http://www.sciencedirect.com/science/article/pii/S009286740400529X

12. Lomvardas, S., **Barnea, G.,** Pisapia, D., Mendelsohn, M., Kirkland, J., and Axel, R. (2006) Interchromosomal interactions and olfactory receptor choice. *Cell* 126: 403-413.
http://www.sciencedirect.com/science/article/pii/S0092867406008555

13. **Barnea, G.,** Strapps, W., Herrada, G., Berman, Y., Ong J., Kloss, B, Axel, R., and Lee, K. J. (2008) The genetic design of signaling cascades to record receptor activation. *Proc. Natl. Acad. Sci. USA.* 105: 64-69.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2224232/pdf/zpq64.pdf

14. Magklara, A., Yen, A., Coquitt, B. M., Clowney, E. J., Allen, W., Markenscoff-Papadimitriou, E., Evans, Z., Kheradpour, P., Mountoufaris, G., Carey, C., **Barnea, G.,** Kellis, M. and Lomvardas, S. (2011) An epigenetic signature for monoallelic olfactory receptor expression. *Cell* 145: 555–570.
http://www.sciencedirect.com/science/article/pii/S0092867411003746

15. Inagaki, H. K., Ben-Tabou de-Leon, S., Wong, A. M., Jagadish, S., Ishimoto, H., **Barnea, G.,** Kitamoto, T., Axel, R. and Anderson, D. J. (2012) Visualizing neuromodulation in vivo: TANGO-Mapping of dopamine signaling reveals appetite control of sugar sensing. *Cell* 148: 583–595.
http://www.sciencedirect.com/science/article/pii/S0092867412000098

16. Johnson, M. A, Tsai, L., Roy, D, Valenzuela, D. H., Mosley, C., Magklara, A., Lomvardas, L., Liberles, S. D. and **Barnea, G.** (2012) Neurons expressing trace amine-associated receptors project to discrete glomeruli and constitute an olfactory subsystem. *Proc. Natl. Acad. Sci. USA.* 109, 13410-13415; published online ahead of print on July 26, 2012, doi:10.1073/pnas.1206724109.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3421222/pdf/pnas.201206724.pdf

17. Cao, L., Benz, E. G., Schrank, B. R., Rickenbacher, G. T., Gomez, A. C., Rodriguez, S., Levites, Y., Edwards, S. R., Golde, T., Hyman, B. T., **Barnea G.** and Albers, M. W. (2012) Aβ alters the connectivity of olfactory neurons in the absence of amyloid plaques *in vivo*. *Nat. Commun*. 3:1009 doi: 10.1038/ncomms2013.
http://www.nature.com/ncomms/journal/v3/n8/pdf/ncomms2013.pdf

18. Clowney, E. J., Le Gross, M. A., Mosley, C. P., Clowney, F. G., Markenskoff-Papadimitriou, E. C., Myllys, M., **Barnea, G.**, Larabell, C. A. and Lomvardas, S. (2012) Nuclear aggregation of olfactory receptor genes governs their monogenic expression. *Cell.* 151, 724-737.
http://www.sciencedirect.com/science/article/pii/S009286741201286X

19. Lyons, D.B., Magklara, A., Allen, W., Goh, T., Evans, Z., Tsai, L., **Barnea, G.** and Lomvardas, S. (2013) An Epigenetic Trap Stabilizes Singular Olfactory Receptor Expression. *Cell* 154,325-336. http://www.sciencedirect.com/science/article/pii/S0092867413007782

20. Colquitt, B., Allen, W.E., **Barnea, G.** and Lomvardas, S. (2013) Alteration of genic 5-hydroxymethylcytosine patterning in olfactory neurons correlates with changes in gene expression and cell identity. *Proc. Natl. Acad. Sci. USA.* 110, 14682-14687; published online ahead of print on August 22, 2013, doi:10.1073/pnas.1302759110.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767503/pdf/pnas.201302759.pdf

21. Tsai, L. and **Barnea, G.** (2014) A critical period defined by axon-targeting mechanisms in the murine olfactory bulb. *Science*. 344, 197-200.
http://www.sciencemag.org/content/344/6180/197.full.pdf

Accompanied by a Perspective in *Science*:
http://www.sciencemag.org/content/344/6180/157.full.pdf

Featured in *Nature Reviews Neuroscience*:
http://www.nature.com/nrn/journal/v15/n6/pdf/nrn3754.pdf

Featured in *Science News*:
https://www.sciencenews.org/article/smell-wiring-gets-set-early

22. Jagadish, S., **Barnea, G.**, Clandinin, T.R. and Axel, R. (2014) Identifying functional connections of the inner photoreceptors in *Drosophila* using Tango-Trace. *Neuron*. 83, 630-644.
http://dx.doi.org/10.1016/j.neuron.2014.06.025

23. Talay, M., Richman, E. B., Snell, N. J., Hartmann, G. G., Fisher, J. D., Sorkaç, A., Santoyo, J. F., Chou-Freed, C., Nair, N., Johnson, M., Szymanski, J.R. and **Barnea, G.** (2017) Transsynaptic Mapping of Second-order Taste Neurons in Flies by *trans*-Tango. *Neuron.* 96, 783–795.
http://www.cell.com/neuron/pdf/S0896-6273(17)30979-0.pdf

Featured in *Nature Methods*:
https://www.nature.com/articles/nmeth.4569.pdf

24. Scaplen, K.M., Talay, M., Nunez, K.M., Salamon, S., Waterman, A.G., Gang, S., Song, S.L., **Barnea G.** and Kaun, K.R. (2020) Circuits that encode and guide alcohol-associated preference. *eLife*. 2020 Jun 4;9. doi:10.7554/eLife.48730. PubMed PMID: 32497004; PubMed Central PMCID: PMC7272191.

https://elifesciences.org/articles/48730

25. Scaplen, K. M., Talay, M., Fisher, J. D., Cohn, R., Sorkaç, A., Aso, Y., **Barnea, G.*** and Kaun, K. R. (2021) Transsynaptic mapping of *Drosophila* mushroom body output neurons. *eLife.* 2021;10:e63379 DOI: 10.7554/eLife.63379

https://elifesciences.org/articles/63379

* Co-corresponding author

26. Fei, A., Wu, W., Tan, L., Tang, C., Xu, Z., Huo, X., Bao, H., Johnson, M., Hartmann, G., Talay, M., Yang, C., Riegler, C., Joseph, K., Engert, F., Xie, S., **Barnea, G.**, Liberles, S., Yang, H. and Li, Q. (2020) Coordination of two enhancers drives expression of olfactory trace amine-associated receptors. *Nat. Commun*. 12, 3798 (2021). https://doi.org/10.1038/s41467-021-23823-4

https://www.nature.com/articles/s41467-021-23823-4

27. Sorkaç A., Savva Y. A., Savaş, D., Talay, M. and **Barnea, G.** (2022) Circuit analysis reveals a neural pathway for light avoidance in *Drosophila* larvae. *Nat Commun*. 13, 5274. DOI: 10.1038/s41467-022-33059-5. PMCID: PMC9452580.

https://www.nature.com/articles/s41467-022-33059-5

28. Snell, N. J., Fisher, J. D., Hartmann, G. G., Zolyomi, B., Talay, M. and **Barnea, G.** (2022) Complex representation of taste quality by second-order gustatory neurons in *Drosophila*. *Curr Biol*. 32, 3758–3772 DOI: https://doi.org/10.1016/j.cub.2022.07.048 PMCID: PMC9474709.

https://www.cell.com/current-biology/fulltext/S0960-9822(22)01197-6

29. Sorkaç, A., A Moşneanu, R. A., Crown, A. M., Savaş, D., Okoro, A. M., Memiş, E., Talay, M. and **Barnea, G.** (2023) *retro*-Tango enables versatile retrograde circuit tracing in *Drosophila eLife* 12:e85041. https://doi.org/10.7554/eLife.85041

30. Bashkirova, E.V., Klimpert, N., Pourmorady, A., Monahan, K., Campbell, C.E., Osinski, J.M., Tan, L., Schieren, I., Stecky, B., **Barnea, G.**, Xie, X.S., Abdus-Saboor, I., Shykind, B., Jones-Marlin, B., Gronostajski, R.M., Fleischmann, A. and Lomvardas, S. (2023) Opposing, spatially-determined epigenetic forces impose restrictions on stochastic olfactory receptor choice *eLife* 12:RP87445 https://doi.org/10.7554/eLife.87445.1

Manuscripts at various stages of peer review that were published as preprints on *BioRxiv*:

31. Coomer, C., Naumova, D., Talay, M., Zoliyomi, B., Snell, N. J., Sorkaç, A., Chanchu, J-M., Cheng, J., Roman, I., Li, J., Robson, D., **Barnea, G.** and Halpern, M.E. (2023) Transsynaptic labeling and transcriptional control of zebrafish neural circuits. bioRxiv 2023.04.03.535421; doi: https://doi.org/10.1101/2023.04.03.535421

Under review by *Nature Neuroscience*

Selected Patents

1. US Patent No. 6,160,090 Receptor protein tyrosine phosphatases. New York University. Inventors listed on the patent are: Joseph Schlessinger, **Gilad Barnea**, Martin H. Grumet and Richard U Margolis.

2. US Patent No. 6,803,452 B2 RPTPb antibodies. New York University. Inventors listed on the patent are: Joseph Schlessinger and **Gilad Barnea**.

3. US Patent No. 7,049,076 Method for assaying protein-protein interaction. Sentigen Biosciences and Columbia University. Inventors listed on the patent are: Kevin Lee, Richard Axel, Walter Strapps and **Gilad Barnea**.

4. US Patent No. 10,619,155 Methods for labeling and manipulating a cellular circuit. Brown University. Inventors listed on the patent are: **Gilad Barnea**, Mustafa Talay, Ethan Richman, John Szymanski, Mark Johnson, John Fisher and Nathaniel Snell.

Invited lectures:

2006: FEBS Special Meeting Cellular Signaling, Dubrovnik, Croatia, Invited speaker

2007: Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, Rhode Island

Department of Anatomy, Boston University, Boston, Massachusetts

2008: Department of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel

Department of Biology, Brandeis University, Waltham, Massachusetts

2009: The 2009 Annual Meeting of the Pew Scholars, Rio Mar, Puerto Rico

2011: Suna Kiraç Workshop on Neurodegenerative Disease: From genetic models to therapies, Boghaziçi University, Istanbul, Turkey (two lectures)

2012: The 2012 Annual Meeting of the Pew Scholars, Gamboa, Panama

Brains and Roses: 1st International Symposium on Olfaction, Collège de France, Paris, France

2013: Suna Kiraç Workshop on Neurodegenerative Disease: From genetic models to therapies, Boghaziçi University, Istanbul, Turkey (two lectures)

University of Nebraska Medical Center, Omaha, Nebraska

The Schwalb Center for Israel and Jewish studies, University of Nebraska, Omaha, Nebraska, "Academics Without Borders: Israeli Scientists in the United States"

Reports about this lecture appeared in the general press:
The Jewish Press, Omaha:
http://www.jewishomaha.org/jewish-press/2013/schwalb-center-hosts-talk-by-israeli-scientist-gilad-barnea/
The Guardian, UK:
http://www.theguardian.com/science/occams-corner/2013/apr/26/scientific-brain-drain

The Edmond and Lily Safra Center for Brain Sciences, ELSC-ICNC Seminar series, The Hebrew University of Jerusalem, Jerusalem, Israel

Leiden University Medical Center, Leiden, The Netherlands

Institut Jacques Monod, Paris, France

Institut Pasteur, Paris, France

Brains and Roses: 2nd International Symposium on Olfaction, Collège de France, Paris, France

Neurological and Psychiatric Diseases: Model Systems and Treatments Symposium, Brown Institute for Brain Science and Kiraç Foundation, Brown University, Providence, Rhode Island

2014: Department of Physiology Seminar, Columbia University, New York, New York

Pathobiology Graduate Seminar, Brown University, Providence, Rhode Island

Neuroscience Graduate Seminar, Brown University, Providence, Rhode Island

Brains and Roses: 3rd International Symposium on Olfaction, College de France, Paris, France, Invited speaker

Department of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel

National Institutes of Health (NIH)/Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), Bethesda, Maryland

Neuroscience Seminar Series, Massachusetts General Hospital (MGH), Boston, Massachusetts

Neuroscience Seminar, Yale University, New Haven, Connecticut

Neuroscience Seminar, University of Pennsylvania, Philadelphia, Pennsylvania

2015: Suna Kiraç Workshop on Neurodegenerative Disease: From genetic models to therapies, Boghaziçi University, Istanbul, Turkey (two lectures)

University of Texas Southwestern, Medical Center, Neurosciences Symposium, Dallas, Texas

Champalimaud Neuroscience Program Seminar Series, Champalimaud Centre for the Unknown, Lisbon, Portugal

Association for Chemoreception Sciences (AChemS) 2015, Symposium on signal transformation and routing in the olfactory system, Invited speaker

Kavli Institute for Theoretical Physics, Symposium on Olfaction, Invited speaker

Brains and Roses: International Symposium on Olfaction, MRC, London, United Kingdom, Invited speaker – The Scientifica Lecture

Pew Scholars' 30th Reunion, Grand Cayman, Invited speaker

2016: ENP Seminar, Collège de France, Paris, France

Biochemistry Seminar series, Columbia University, New York, New York

The Gladstone Institute, University of California San Francisco, San Francisco, California

ENP Seminar, Institut de la Vision, Paris, France

ECRO XXVI, Athens, Greece, Invited Speaker

Brains and Roses: 4th International Symposium on Olfaction, Alicia Foundation, Mont San Benet, San Fruitos de Bages, Spain, Invited speaker

The Hospital for Sick Children, Co-hosted by the programs in Cell Biology and Neuroscience, Toronto, Canada

Penn State University, Neuroscience seminar, State College, Pennsylvania

Weizmann Institute of Science, Molecular Neuroscience Forum, Rehovot, Israel

Hebrew University of Jerusalem, Hadassah Ein-Kerem Medical School, Jerusalem, Israel

2017: Cornell University, Ithaca, New York

Brains and Roses: 5th International Symposium on Olfaction, Hebrew University, Jerusalem, Israel, Invited speaker

2018: Boston University, Biology department, Boston, Massachusetts

Texas A&M Health Science Center, Department of Molecular and Cellular Medicine, College Station, TX

Brains and Roses: 6th International Symposium on Olfaction, College de France, Paris, France, Invited speaker

BRAIN Initiative Technology Integration webinar, online seminar

2019: Stanford University, Stanford Neurosciences Institute, Palo Alto, California

Achems XLI satellite meeting, Bonita Springs, Florida, Invited speaker

Suna Kiraç Workshop on Neurodegenerative Disease: From genetic models to therapies, Koç University, Istanbul, Turkey (two lectures)

Brains and Roses: 7th International Symposium on Olfaction, Collège de France, Paris, France, Invited speaker

2020: Department of Molecular Genetics, Weizmann Institute of Science, Rehovot, Israel

Departmental seminar, The Edmond and Lily Safra Center for Brain Sciences, The Hebrew University of Jerusalem, Jerusalem, Israel

2021: Department of Physiology and Neurobiology, University of Connecticut, Storrs, CT

2022: Department of Pharmacology, Yale University, New Haven, CT

2023: Distinguished Lecture Series, Sagol School of Neuroscience, Tel Aviv University, Tel Aviv, Israel

Research Support:

Current Grants:

1R01DC017145
NIH, National Institute on Deafness and Other Communication Disorders
"Molecular and cellular analysis of accessory olfactory circuits in mice"
6/1/2018-5/31/2023
Role: Principal investigator

1R01DC017146
NIH, National Institute on Deafness and Other Communication Disorders
"The neural circuits underlying gustatory perception in flies"
7/1/2018-6/30/2023
Role: Principal investigator

1RF1MH123213
NIH BRAIN Initiative
"Molecular Multi-Species Approach for Trans-Synaptic Labeling of Neural Circuits"
08/01/2020- 07/31/2023
Role: Co-PI (Multi PI grant, contact PI: Marnie Halpern, Dartmouth Medical School)

Pending Grants:

NIH, R01NS133238-01
"Sensorimotor transformations for controlling heading direction in the insect central complex"
07/01/2023- 06/30/2028
Role: Principal investigator

1R01DC020703-01A1
NIH, National Institute on Deafness and Other Communication Disorders
"A Neuropeptidergic Neural Network Integrates Taste with Internal State to Modulate Feeding"
7/1/2023-6/30/2028
Role: Principal investigator

1R01OD035069-01
NIH Transformative R01
"A method for monitoring the activation of specific G Protein-Coupled Receptors *in vivo*"
08/01/2023- 07/31/2028
Role: Principal investigator

1RM1NS132988-01
NIH, National Institute of Neurological Disorders and Stroke RM1
"Integrated Circuit Analysis through Transsynaptic Signaling"
08/01/2023- 07/31/2028
Role: Co-PI (Multi PI grant, contact PI: Marnie Halpern, Dartmouth Medical School)

Internal Funding:

Brown OVPR, Research Seed Funds
"Generating icTango, a technique for tracking developing cellular networks"
02/01/2023- 06/30/2024
Role: Principal investigator

Carney Institute for Brain Science, Zimmerman Innovation Awards Program
"Visualizing sites of neuromodulation in mice"
3/01/2023-6/30/2024
Role: Principal investigator

Completed Grants

Pew Scholar in the Biomedical Sciences
The Pew Charitable Trusts
"Mapping the neural projections from the olfactory bulb of the mouse by a new technique for trans-synaptic labeling"
7/1/2008-6/30/2012
Role: Principal investigator

NIH EUREKA 5R01MH086920
NIH, National Institute of Mental Health
"A Molecular Method to Selectively Record Activation of Dopamine Receptor Subtypes"
8/01/2009-7/31/2013
Role: Principal investigator

Supplement to the above EUREKA Grant
NIH, National Institute of Mental Health
"A Molecular Method to Selectively Record Activation of Dopamine Receptor Subtypes"
4/01/2010-3/31/2013
Role: Principal investigator

1R21DC014333
NIH, National Institute on Deafness and Other Communication Disorders
"Trans-synaptic tracing and manipulation of olfactory circuits in flies"
10/01/2014-9/30/2016
Role: Principal investigator

1R01DA036894
NIH, Director Road Map, National Institute of Drug Abuse
"Controlling epigenetic states and nuclear architecture in the brain"
9/15/13-5/31/18
Role: Co-PI (Multi PI grant with Stavros Lomvardas, Columbia University)

NIH EUREKA 1R01MH105368
NIH, National Institute of Mental Health
"Functional mapping of mammalian neural circuits"

9/15/2014-6/30/2018
Role: Principal investigator

1R01DC013561
NIH, National Institute on Deafness and Other Communication Disorders
"An olfactory subsystem that mediates innate behaviors"
6/09/2014-5/31/2020
Role: Principal investigator

Pew Biomedical Programs Innovation Fund
The Pew Charitable Trusts
"Using trans-Tango, a new circuit tracing tool in neuroscience, to track metastatic cancer"
9/1/2017-8/31/2020
Role: Principal investigator (Co-PI: Ben Stanger, U. Penn)

Completed Internal Funding:

CVR Pilot grant
Center for Vision Research, Brown University
"Identifying ligands for the receptor GPR161 that is implicated in congenital cataracts"
10/1/2009-5/28/2010
Role: Principal investigator

COBRE Pilot Funds
COBRE Center for Cancer Signaling Networks, Brown University
"Functional characterization of the olfactory subsystem of TAAR expressing neurons"
4/01/2012-3/31/2013
Role: Principal investigator

Brown Institute for Brain Science, Pilot Award
"The role of gap junctions between mitral cells in olfactory coding"
11/15/2012-11/14/2013
Role: Principal investigator

COBRE Pilot Funds
COBRE Center for Cancer Signaling Networks, Brown University
"The role of the odorant receptors in the formation and maintenance of the glomeruli in the olfactory bulb"
6/01/2013-3/31/2014
Role: Principal investigator

Brown OVPR, Richard B. Salomon Faculty Research Award
"Developing a technique for mapping and manipulating neural circuits in flies"
2/15/2013-6/30/2014
Role: Principal investigator

Brown OVPR, Research Seed Funds
"The role of electrical coupling between mitral cells in olfactory coding"

4/01/2013-6/30/2014
Role: Principal investigator

Brown OVPR, Research Seed Funds
“Establishing a technique for studying the neural circuits underlying alcohol responses in flies”
5/01/2014-6/30/2015
Role: Co-PI (Karla Kaun PI)

Brown Institute for Brain Science, Innovation Fund
“Establishing a new technique for circuit tracing and manipulation”
7/01/2014-6/30/2015
Role: Principal investigator

Brown Institute for Brain Science, Innovation Fund (Renewal)
“Establishing a new technique for circuit tracing and manipulation”
7/01/2015-6/30/2016
Role: Principal investigator

Service:

To the University:

2008	Selection Committee, Postdoctoral Training Grant, Department of Neuroscience, member
2008	Organizing Committee, Annual Neuroscience Retreat, member
2008 - 2009	Admissions Committee, Neuroscience Graduate Program, member
2008 - 2009	Faculty Search Committee, Department of Neuroscience, member
2008 - 2009	Steering Committee, "Genetics and Genomics" T32 Training Grant, Department of Molecular Biology, Cell Biology and Biochemistry
2008 - 2012	"In House" seminar series, Department of Neuroscience, organizer
2008 - Present	Speakers' Selection Committee, NSGP seminar series, member
2009 - 2010	Planning Committee, Brown Institute for Brain Science's 10th Anniversary Symposium, member
2009 - 2010	Faculty Search Committee, Department of Neuroscience, member
2009 - Present	Committee to select Brown's nominee for a Pew Award, member
2009 - 2013	Institutional Animal Care and Use Committee (IACUC), member
2010 - 2013	Subcommittee on voting and policy of IACUC, member
2012 - 2013	IACUC COEUS Subcommittee, member
2012 - 2015	Steering Committee, Neuroscience Graduate Program, member
2013 - 2014	Advisory Committee for Honorary Degrees, member
2014 - 2015	Advisory Committee for Honorary Degrees, Co-Chair
2015 - 2016	Advisory Committee for Honorary Degrees, Chair
2014 - 2015	Faculty Search Committee, Department of Neuroscience, member
2015 - 2016	Brown Institute for Brain Science, Director Search Committee, member
2017 - 2021	Brown University, Neuroscience Graduate Program, Co-Director
2017 - 2021	Brown University-NIH, Graduate Program Partnership, Director
2017	Departmental Tenure Committee (Fleischmann), member
2018	Departmental Tenure Committee (O'Connor-Giles), Chair

2018 - 2019	Faculty Search Committee, Alzheimer's Disease Research, Division of Biology and Medicine, member
2019 - Present	Director, Center for the Neurobiology of Cells and Circuits, Robert J. and Nancy D. Carney Institute for Brain Science
2019	Departmental Tenure Committee (Valdez, MCB), member
2019	Departmental Tenure Committee (Kaun), Chair
2020	Departmental Tenure Committee (Jaworski), Chair
2020	*Ad hoc* committee on Departmental Governance
2020 - Present	Center for Translational Neuroscience, Executive committee, member
2021 - Present	Departmental Mentoring and Awards Committee, Chair
2021 - Present	Steering Committee of the Advancing Research Careers (ARC) program of The Carney Institute, member
2023	Carney Institute Promotion Committee (Andrade), member

To the Profession:

1997 - Present	Selection Committee, The Bessie Lawrence Summer program for Pre-College Students, Friends of the Weizmann Institute in the United States, member
2010	NIH Peer Review Committee: 2011/01 ZRG1 ETTN-J (40) P, *ad hoc* reviewer
2011 - Present	Suna Kiraç Workshop on Neurodegenerative Disease: From genetic models to therapies, Boghaziçi University, Istanbul, Turkey, participating faculty
2014	NIH Peer Review Committee: ZRG1 F02AJ (20) Behavioral Neuroscience panel, reviewer
2014 - 2020	Scientific Advisory Committee (SAC) of the Ernest and Bonnie Beutler Research Program of Excellence in Genomic Medicine, member
2015	NIH Peer Review Committee: ZMH1 ERB-L (06) BRAIN initiative: Development and Validation of Novel Tools to Analyze Cell-Specific and Circuit-Specific Processes in the Brain, NIMH Special Emphasis panel, reviewer
2015	University of Texas, UT BRAIN Initiative, reviewer
2015 - Present	The Israel Science Foundation, Individual Research Grants Program, reviewer
2016	U.S.-Israel Binational Science Foundation, Annual BSF competition for research grants, reviewer

2017	NIH R15 Peer Review Committee: ZRG1 MDCN-R (86) Academic Research Enhancement Award (AREA), *ad hoc* reviewer
2016 - 2019	Society for Neuroscience, Program Committee, member
2016 - 2019	Society for Neuroscience, Program Committee, Innovative Learning Working Group, member
2017 - 2018	Society for Neuroscience, Program Committee, Subcommittee for Sensory Systems Theme, Vice Chair
2018	NIH Special Emphasis Panel/Scientific Review Group 2018/05 ZRG1 BCMB-A (51) R, ad hoc reviewer
2018 - 2019	Society for Neuroscience, Program Committee, Subcommittee for Sensory Systems Theme, Chair
2020	NIMH Board of Scientific Counselors (BSC), *ad hoc* review member
2020-2021	The French public scientific organizations (CNRS and INSERM), French ATP-Avenir 2021 (LS5) competition, *ad hoc* reviewer
2021	NIH Molecular Neurogenetics (MNG), *ad hoc* reviewer
2022 – Present	The Pew charitable trusts, Pew Innovation Fund Committee, member

Professional Societies:

Society for Neuroscience

Association for Chemoreception Sciences (AChemS)

Teaching:

Course Director:

NEUR2040: Advanced Cellular and Molecular Neurobiology II

This is a core course in the Neuroscience Graduate Program.

2008 (13 students)
2009 (12 students)
2010 (15 students)
2011 (10 students)
2012 (13 students)
2014 (13 students)
2015 (9 students)
2017 (12 students)
2018 (17 students)
2019 (13 students)
2020 (18 students)
2021 (14 students)
2023 (19 students)

NEUR1940E: Topics in Molecular Neurobiology: Genes, Circuits and Behavior

2009 (17 students)
2008 (25 students)

Guest lectures:

NEUR1020: Principles of Neurobiology

2009, 2010, 2011, 2012, 2015, 2017, 2018, 2019

BIOL201A: Faculty on Parade

2007, 2008, 2009, 2010, 2011, 2016, 2017, 2018, 2020

NEUR 1040: Introduction to Neurogenetics

2015, 2017, 2018, 2019, 2020, 2021

Ethics & Skills Workshop

2007, 2009, 2010, 2015, 2017, 2018, 2019, 2020

BIOL1100: Cell Physiology and Biophysics

2011, 2012

NEUR2040: Advanced Cellular and Molecular Neurobiology II

2007

BN104: Developmental Neuroscience

2008

BN166: Neural basis of Cognition

2008

Bench to Bedside

2009

BIOL1540: Molecular Genetics

2015

Independent studies:

NEUR1970: Independent studies Neuroscience

2008 (2 students)
2009 (2 students)
2010 (6 students)
2011 (4 students)
2012 (3 students)
2013 (3 students)
2014 (2 students)
2015 (1 student)
2016 (1 student)
2017 (1 student)
2018 (3 students)
2019 (7 student)
2020 (3 students)
2021 (3 students)
2022 (4 students)

BIOL1950/1960: Independent studies Biology

2007 (1 student)
2008 (2 students)
2010 (1 student)
2012 (3 students)
2014 (1 student)
2015 (1 student)
2016 (2 students)
2017 (3 student)
2018 (2 students)
2019 (1 student)
2021 (1 student)
2022 (1 student)

Faculty Advising:

Undergraduate Students:

Undergraduate research projects supervised:

30 students since 2007

Honors Thesis supervised:

1 student in 2008
1 student in 2009
1 student in 2010
2 students in 2011
5 students in 2012
2 students in 2013
1 student in 2015
1 student in 2017
1 student in 2018
2 students in 2019
3 students in 2020
1 student in 2021
2 students in 2022

Currently in the laboratory:

Xavier Dawkins, Neuroscience ‘23
Ilyaas Sugal, Neuroscience ‘23
Rebecca Siegel, Neuroscience ’23.5
Jared Chung, Neuroscience ‘24
Joseph Lipschitz, Neuroscience ‘24
Chloe Zhao, Neuroscience & Philosophy ‘24
Ece Erdogan, Neuroscience ‘25
Lindsey Hofflander, Neuroscience ‘25
Tongda Shen, Neuroscience and Computer Science ‘25

Graduated:

Alexander Raufi, PLME, Biology ‘08 with honors, MD ‘13
Current position: Assistant Professor of Medicine, The Warren Alpert Medical School of Brown University, Lifespan Cancer Institute/Rhode Island Hospital/The Miriam Hospital.

John Szymanski, Neuroscience ‘09 with honors
Stayed in the lab as a technician for a year.
Graduated with Ph.D. from Columbia University in 2018.

Grisselle Escotto, Neuroscience ‘09
Stayed in the lab as a technician for a year.
Current position: Director of Operations, Gleamin, Los Angeles, CA.

Alexander Logan, Biology ‘10 with honors
Stayed in the lab as a technician for a year.
Graduated with MD from the University of Pennsylvania.
Current position: HS Clinical Instructor, School of Medicine, UCSF, San Francisco, CA.

Michael Chang, Neuroscience ‘11 with honors
Graduated with MD from Yale.
Current position: Clinical Instructor, Otolaryngology-Head & Neck Surgery, Stanford Hospital, Palo Alto, CA.

Charles Bengson, Neuroscience ‘11 with honors
Graduated with MD from the University of Maryland.
Current position: Assistant Professor, Anesthesiology, University of Colorado School of Medicine, Aurora, CO.

William Allen, Applied Mathematics and Biology ‘12 with honors
Graduated with Ph.D. from Stanford University in 2019.
Current position: Fellow, The Society of Fellows, Harvard University, Cambridge, MA.

Elias Scheer, Applied Mathematics and Biology ‘12 with honors
Graduated with Ph.D. from Rockefeller University in 2021.
Current position: Postdoctoral Associate at Rockefeller University.

Eliza Adams, Neuroscience ‘12 with honors
Graduated with Ph.D. from Stanford, Palo Alto, CA.
Current position: Yoda Ed., Advisory Board

Ivan Kaspruk, Neuroscience ‘12 with honors
Graduated with MD from the University of Wisconsin - Madison.
Current position: Emergency Medicine Resident, University of Toledo, Toledo, OH.

Douglas Dmytrenko, Neuroscience ‘12 with honors
Current position: Winemaker's Assistant at Littorai Wines, Sebastopol, CA.

Danielle Lo, Neuroscience ‘13 with honors
Graduated with MD from NYU.
Current position: Comprehensive ophthalmologist and a premier cataract and refractive surgeon, Hacienda Heights, CA.

Ethan Richman, Applied Mathematics and Biology ‘13 with honors
Stayed in the lab as a technician for two years.
Current position: Graduate student at Stanford, Palo Alto, CA.

Griffin Hartmann, Neuroscience ’15 with honors
Stayed in the lab as a technician for 2.5 years.
Current position: Graduate student at Stanford, Palo Alto, CA.

Cambria Chou-Freed, Biology ’17 with honors
Stayed in the lab for 5 months before going to Argentina on a Fulbright scholarship.
Current position: Graduate student at UCSF, San Francisco, CA.

Sasha Martinez-Machado, Neuroscience ’18 with honors
Current position: Technician in a research lab at Massachusetts General Hospital, Boston, MA. Intends to enroll in medical school in 2020.

Victoria Tran, Biology ’19 with honors
Current position: Graduate student at UCSF, San Francisco, CA.

Bence Zolyomi, Neuroscience ’19 with honors
Current position: Medical student at Duke University, class of 2023, Durham, NC.

Jonathan Huang, Neuroscience ’20 with honors
Current position: Medical student at Northwestern University, class of 2024, Chicago, IL.

Neel Vishwanath, PLME, Neuroscience ’20 with honors
Current position: Medical student at Brown University, class of 2024, Providence, RI.

Chloe Zana, Neuroscience ’20 with honors
Current position: Dental student at Harvard School of Dental Medicine, class of 2024, Boston, MA.

Silas Monje, PLME, Neuroscience ’21 with honors
Current position: Medical student at Brown University, class of 2025, Providence, RI.

Annie Wu, Neuroscience, ’22 with honors
Current position: Research Assistant Barnea laboratory at Brown University

Adriana Baez Berrios, Biology, ’22 with honors
Current position: Medical student at Icahn School of Medicine at Mount Sinai, class of 2024, New York, NY

Honors and Awards won by Supervised Undergraduate Students:

Undergraduate Teaching and Research Award (UTRA) projects supervised:

1 student in 2008

2 students in 2009

1 student in 2010 (a second student declined since he was awarded a Royce fellowship for that summer)

1 student in 2011

3 students in 2012

1 student in 2013

2 students in 2014

1 student in 2016

1 student in 2017

2 students in 2018

1 student in 2019 (a second student declined since he was awarded an Alpert Medical School Summer Assistantship for that summer)

1 student in 2021

2 students in 2023

INBRE projects supervised:

1 student in 2008 (Lauren Dobson)

Alpert Medical School Summer Assistantship:

1 student in 2009 (Alexander Raufi)

1 student in 2012 (Connie Wu)

1 student in 2019 (Silas Monje)

Royce Fellowship:

2 students in 2010 (Will Allen and Michael Chang)

Goldwater Fellowship:

1 student in 2011 (Will Allen)

Whalen Award:

1 student in 2011 (Michael Chang)

Brown's candidate for a Rhodes Scholarship:

1 student in 2011 (Will Allen)

Brown's candidate for a Marshall Scholarship:

1 student in 2011 (Will Allen)

ENDURE projects supervised:

1 student in 2011

Morris L. Povar Prize:

1 student in 2012 (Will Allen)

Churchill Scholarship:

1 student in 2012 (Will Allen)

Neuroscience Excellence Award:

1 student in 2015 (Griffin Hartmann)

Fulbright Scholarship:

1 student in 2017 (Cambria Chou-Freed)

Maria L. Caleel Memorial Award for Academic Excellenc

1 student in 2017 (Cambria Chou-Freed)

McIlwain Award in Neuroscienc

1 student in 2018 (Sasha Martinez-Machado)

McIlwain Award in Neuroscience

1 student in 2019 (Bence Zolyomi)

Senior Prize in Biology

1 student in 2019 (Victoria Tran)

McIlwain Award in Neuroscience

1 student in 2021 (Silas Monje)

McIlwain Award in Neuroscience

1 student in 2022 (Annie Wu)

Undergraduate honors theses (second reader):

2 in 2008
2 in 2009
2 in 2010
2 in 2011
4 in 2012
2 in 2014
2 in 2015
2 in 2017
2 in 2018
2 in 2019

Post-baccalaureate research projects supervised:

Juan Santoyo:	2015 - 2018 Current position: Graduate student at MIT
Tariq Cannonier:	2018 - 2021 Current position: Graduate student at the University of Pennsylvania
Lizmaylin Ramos:	2021 – 2022 Current position: Graduate student at Brown-NIH Graduate Partnership Program

Graduate Students:

Graduate students working on their theses in my laboratory:

15 students since 2008

Currently in the laboratory:

Anthony Crown (MCB)

Pablo Iturralde (Neuroscience)

Ezgi Memiș (neuroscience)

Rareș Moșneanu (Neuroscience)

Bahati Nkera (Neuroscience)

Angel Okoro (Neuroscience)

Doruk Savaș (Neuroscience)

Graduated:

David Valenzuela - Graduated with M.Sc., 2010
Current position: Department Chair, Sciences Faculty, Madison High School, Portland Public Schools, Portland, OR.

Lulu Tsai - Graduated with Ph.D., 2013
Continued for a postdoctoral fellowship with Michael Akins at Drexel University, Philadelphia, PA.
Current position: Plant science researcher at the Morris Arboretum of the University of Pennsylvania.

Mark Johnson - Graduated with Ph.D., 2014
Continued for a postdoctoral fellowship with Matt Anderson at Beth Israel Deaconess Medical Center, Harvard University.
Current position: Associate Director, New Products, Taconic Biosciences, San Diego, CA.

Scott Herrick - Graduated with Ph.D., 2015
Continued for a postdoctoral fellowship with Mark Albers at Massachusetts General Hospital, Boston, MA.
Current position: Senior Scientific Writer, Takeda Pharmaceuticals, Cambridge, MA.

Lauren Dobson - Graduated with Ph.D., 2016
Current position: Chemistry teacher, South Shore Charter Public School in Norwell, MA.

Mustafa Talay - Graduated with Ph.D., 2016
Stayed in the lab as a postdoctoral fellow for two years.
Current position: Postdoctoral fellow with Catherine Dulac at Harvard University.

Nathaniel Snell (Neuroscience) - Graduated with Ph.D., 2021
Continued for a postdoctoral fellowship with Mark Wu at Johns Hopkins University.
Current position: Scientist at a Nanite, Inc.

John Fisher (Neuroscience) - Graduated with Ph.D., 2022
Current position: Scientist at a Nanite, Inc.

F31 Ruth L. Kirschstein Predoctoral Awarded to students in the laboratory:

Anthony Crown, NIH/NIDCD, 2021-2023

Graduate student rotating in my laboratory:

2 NIH-GPP students in 2008-09
2 NIH-GPP students in 2009-10
2 NSGP students in 2010-11
2 MCB students in 2010-11
1 NIH-GPP student in 2011-12
2 NSGP students in 2011-12
2 NSGP students in 2014-15
1 MPP student in 2014-15
1 NIH-GPP student in 2016-17
1 NSGP student in 2017-18
1 MCB student in 2017-18
1 NSGP student in 2018-19
1 NSGP student in 2019-20
2 NIH-GPP students in 2019-20
1 NIH-GPP student in 2020-21
3 NSGP students in 2020-21
1 NIH-GPP student in 2021-22
1 NIH-GPP student in 2022-23

First year graduate students' faculty advisor:

7 since 2007

Graduate comprehensive exam committees:

11 since 2007

Doctoral thesis committees:

29 since 2007

Current Ph.D. candidates:

Ryan Puterbaugh (Abdelfattah)

Defended their Ph.D. theses and graduated:

Amanda Audesse, Graduate Program: Neuroscience (Advisor: Webb)
Daniel Berg, MCB (Berson)
Hanna Berk-Rauch, MCB (Fallon)
Amanda Duffy, Neuroscience (Fallon)
Courtney Frederick, MPPB (Berson)
Kara Fulton, NIH GPP (Briggman)
Aron Gyuris, MCB (McKeown)
Nellwyn Hagan, Neuroscience (Zervas)
Diego Jaime, MCB (Fallon)
Ashly Leder-Brown, Neuroscience (Zervas)
Megan Leyrer, Neuroscience (Berson)
Elizabeth Normand, Neuroscience (Zervas)
Patrick O'Hern, Neuroscience (Hart)
Rana Ozdeslik, MPPB (Oancea)
Matthew Pescosolido, Neuroscience (Morrow)
Cecilia Phillips, Neuroscience (Lipscombe)
Altar Sorkaç, Neuroscience (Hart)
Emily Stackpole, Neuroscience (Fallon)
Arthur Sugden, MCB (Connors)
Tracey Suter, MPPB (Jaworski)
Alastair Tulloch, Neuroscience (Jaworski)
Alyssa Wheeler, Neuroscience (Simmons)
Atilgan Yilmaz, MCB, (Fallon)

Did not defend their theses and graduated with another degree:

Omar Lansari, MCB (Nilini)
Nicholas Mei, Neuroscience (Kaun)
Arjun Ray, MCB (Kaun)
Steven Russo, Neuroscience (Connors)
Valerie Yorgan, Neuroscience (Lipscombe)

External reviewer on doctoral thesis defense committees in other institutions:

David Strochlic, Harvard University, Medical School (Advisor: Steve Liberles)
Jerome Keoki Kahiapo, Columbia University (Advisor: Stavros Lomvardas)

Postdoctoral Fellows:

Postdoctoral Fellows currently working in my laboratory:

Altar Sorkaç

Aastha Kumari

Former Postdoctoral Fellows:

Jeff Mayes
Current position: Director of Data Security & Governance, Alyce, Providence, RI

Yiannis Savva
Current position: Senior Scientist, Shape Therapeutics, Seattle, WA

Meet Zandawala – Assistant Professor, the University of Würzburg, Würzburg, Germany

Advisory Committee for a Postdoctoral Fellow (for NRSA):

Michael Akins (Fallon)

Faculty mentoring:

Mentor For COBRE Projects

Karla Kaun (Neuroscience) (COBRE PI: Sanes)

Ashley Webb (MCB) (COBRE PI: Quesenberry)

Departmental Faculty mentor

Ahmed Abdelfattah