CURRICULUM VITAE

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Name: Lisa Stowers

Address: Dorris Neuroscience Center
Department of Molecular and Cellular Neurosciences
Scripps Research
10550 North Torrey Pines Road
La Jolla, CA 92037

Telephone: 858-784-7288

Email: stowers@scripps.edu

Education:

1988	B.A. (Bacteriology)	University of California at Davis
1994	M.A. (Biochemistry)	Harvard University
1997	Ph. D. (Molecular & Cellular Biology)	Harvard University

Postdoctoral Training:

1997	Dulac Laboratory	Howard Hughes Medical Institute, Harvard University

Academic Appointments:

2017	Adjunct Professor	Dept. of Neurosciences, UCSD
2016	Full Professor	Department of Molecular and Cellular Neurosci. Scripps
2010-2017	Asso. Adjunct Prof.	Dept. of Neurosciences, UCSD
2008-2016	Associate Professor	Dept. of Cell Biology, Scripps
2008-2010	Asst. Adjunct Prof.	Dept. of Neurosciences, UCSD
2002-2008	Assistant Professor	Dept. of Cell Biology, Scripps

Awards and Honors:

2012	Ellison Medical Foundation Senior Scholar in Neuroscience
2009	HHMI Early Career, semifinalist
2004	Pew Scholar
2002	Eppendorf & Science Prize for Neurobiology, Finalist
1996	Grass Fellowship
1994	Derik Bok Excellence in Teaching Award
1988	Outstanding Senior, Leadership UC Davis

Honorary Lectures:

2019	Plenary Lecture, European Chemoreception Research Organization, Trieste Italy
2018	Keynote Speaker, The Kavli Foundation and the FENS-Kavli Network of Excellence Frontiers of Neuroscience Symposium, La Jolla CA
2017	Presidential Symposium, AChemS 39, Fort Meyers, Fl.

2014 Dave Kelly Lecture, UKSN, Cambridge UK

Conference and Association Service

2021 Keystone, Conference Chair; Mammalian Sensory Systems
2020 Janelia/HHMI, Conference Chair; Interoception, Molecules to Behavior

2019-2021 Gordon Conference Chair; Modulation of Neural Circuits and Behavior
2017-2019 Gordon Conference Vice-Chair; Modulation of Neural Circuits and Behavior
2015 Planning Committee, Pew Scholars 30th Reunion Meeting, Grand Cayman Island
2011-13 Program Committee Member, AChemS
2011 Olfactory System, Session Chair, International Institute for Advanced Study, Japan
2010 Avoidance and Recognition, Co-Session Chair, Exciting Biologies, Singapore
2009 Gender effects on Olfactory processing, Symposium Chair/Organizer, AChemS

Professional Service

2002-present Ad hoc reviewer: NIH (NIDCD), *Cell, Nature, Science, Nature Neuroscience, Neuron, PLoS Biology, Nature Communication, Cell Reports, Current Biology, Development, Phys & Behav, Horm & Beahv,*

Memberships

2002-present Association for Chemoreception Sciences, American Association for the Advancement of Science, Society for Neuroscience

Funding Information:

Current

NIH 1 R01 NS108439 (Stowers, PI) 9/30/2018-9/30/2023
Identifying, manipulating, and studying a complete sensory-to-motor model behavior circuit.

NIH 1 R01 DC015253 (Stowers, PI) 12/01/2016-11/30/2021
Identifying the mechanisms underlying stress modulation of olfactory sensation.

NSF DBI2014217, subaward 1559633 (Cremaldi, PI) 9/1/2020-8/31/2025
NeuroNex: From odor to action: Discovering principles of olfactory-guided natural behavior. Odor2action.org

Skaggs Institute 2006-present

Completed

NSF/Ideas Lab/BRAIN Initiative 11/1/2015-11/1/2019
IOS-1556085 (Stowers Co-PI)
Mammalian olfaction is arguably the most complex sensory system in the animal kingdom, with hundreds of odorant receptors deployed to detect a vast array of chemical compounds across a stimulus space with unknown dimensionality. This project will study how the mammalian olfactory system detects, encodes and extracts meaning from olfactory stimuli. The

multidisciplinary strategy implemented here aims to lead to an integrated and comprehensive understanding of mammalian odor coding.

Ellison Medical Foundation 3/01/2012-3/01-2016
NR-SS-0107-12 (Stowers, PI)
Sensory-initiated approach to identify, map, and study the relevant neuron in the brain that promote aggression

NIH 1 R01 DC009413 (Stowers, PI) 1/01/2009-1/01/2013
Identification of the ligands and sensory neurons that mediate pheromone behavior

NIH 1 R01 DC006885 (Stowers, PI) 7/01/2004-5/31/2015
Characteristics of Pheromone Binding Proteins
Determine the function of pheromone carrier proteins in the mouse.

NIH 1 U01 MH078833 (Stowers, Co-PI) 8/01/2006-7/31/2011
C57Bl/6 Mouse Lines Expressing CRE-Recombinase in the Nervous System
Generation of genetic drivers, including inducible Cre & Tet in C57Bl, as mouse models for the neuroscience community under NIH Neuroscience

Pew Scholars Award 9/01/2004-6/30/2008
2003-000147 (Stowers, PI)
Characterization of Neglected Pheromone Response Neurons

Helen Dorris Childhood and Adolescent Neuro. & Psych Institute 2002

Published works:

Stowers L., Pallé A, Mukhopadhyay S. Less is more: Hormonal-induced decrease in brain activity is required for associative learning. Neuron. 2021 Jun 2;109(11):1760-1762. doi: 10.1016/j.neuron.2021.05.010. PMID: 34081917.

Stowers, L. Chen, J., Markowitz, J. E., Lilascharoen, V., Taylor, S., Sheurpukdi, P., Keller, J. A., (2021, March 31). *Flexible scaling and persistence of social vocal communication*. Nature News. https://www.nature.com/articles/s41586-021-03403-8.

Tan S, Stowers L. Bespoke behavior: mechanisms that modulate pheromone-triggered behavior. Curr Opin Neurobiol. 2020 Oct;64:143-150. doi: 10.1016/j.conb.2020.05.003. Epub 2020 Jul 15. PMID: 32682209; PMCID: PMC7669710.

Jingyi Chen, Jeffrey Markowitz, Varoth Lilascharoen, Sandra Taylor, Pete Sheurpukdi, Jason Keller, Jennifer Jensen, Byung Kook Lim, Sandeep Robert Datta, and Lisa Stowers. Flexible scaling and persistence of social vocal communication**. Nature**, in press (2021).

Marshall, K.L., Saade, D., Ghitani, N., Coombs, A.M., Szczot, M., Keller, J., Ogata, T., Daou, I., Stowers, L.T., Bonnemann, C.G., *et al.* (2020). PIEZO2 in sensory neurons and urothelial cells coordinates urination. **Nature** *588*, 290-295.

Carvalho, V.M.A., Nakahara, T.S., Souza, M.A.A., Cardozo, L.M., Trintinalia, G.Z., Pissinato, L.G., Venancio, J.O., Stowers, L., and Papes, F. (2020). Representation of Olfactory Information in Organized Active Neural Ensembles in the Hypothalamus. **Cell Reports** *32*, 108061. PMID: 32846119

Mukhopadhyay, S., and Stowers, L. (2020). Choosing to urinate. Circuits and mechanisms underlying voluntary urination. **Current Opinion in Neurobiology** *60*, 129-135. PMID: 31875530

Koblesky, N., and Stowers, L. Animal Behavior: Honesty Can Kill.
Current Biology; (2019) 29:R259-R261.

Mukhopadhyay, S., and Stowers, L. Social Behavior: How the Brain Thinks Like a Mom.
Current Biology; (2018) 28, PR746-R749.

Jason A. Keller, Jingyi Chen, Sierra Simpson, Eric Hou,
Jen Wang, Varoth Lilascharoen, Olivier George, Byung Kook Lim, Lisa Stowers. Voluntary urination control by brainstem neurons that relax the urethral sphincter. **BioRxiv** (2018) https://doi.org/10.1101/270801. **Nature Neuroscience**, (2018) 21:1229-1238.
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Stowers, L.. Olfactory Receptors in the **Encyclopedia of Signaling Molecules 2nd Edition**. Springer-Verlag New York, Edited by; Choi, S. (2017) p. 3650-3655

Stowers, L., and Kuo, T.H. Specialized chemosignaling that generates social and survival behavior in mammals in **Chemosensory Transduction: The Detection of Odors, Tastes, and Other Chemostimuli**. Elsevier Science. Edited by Munger, S & Zufall, F. (2016) p. 3-20.

Schoeller EL, Clark DD, Dey S, Cao NV, Semaan SJ, Chao LW, Kauffman AS, Stowers L, Mellon PL. Bmal1 is Required for Normal Reproductive Behaviors in Male Mice.
Endocrinology (2016) 157;4914-4929. PMID: 27704948

Dey, S., Chamero, P. Pru, J.K, Chien, M-S., Ibarra-Soria, X, Spencer, K.R., Logan, D.W., Matsunami, H., Peluso, J.J., Stowers, L. Cyclic regulation of sensory perception by a female hormone alters behavior. Dey et al., Cyclic Regulation of Sensory Perception by a Female Hormone Alters Behavior, **Cell** (2015), 161(6): 1334-44.

Stowers, L., and Kuo, T.H.. Mammalian pheromones: emerging properties and mechanisms of detection. **Current opinion in neurobiology** (2015) *34C*, 103-109.

Stowers, L. and Spehr, M. The vomeronasal organ. **Handbook of Olfaction and Gustation**. John Wiley & Sons. Edited by Doty, R.L. (2015) Part 12: Chapter 51, p. 1113-1132.

Kaur, A.W., Ackels, T., Kuo, T-H., Cichy, A., Dey, S., Hays, C., Kateri, M., Logan, D.W, Marton, T.F., Spehr, M., & Stowers, L.. Murine pheromone proteins constitute a context dependent combinatorial code governing multiple social behaviors. 2014 **Cell**, 157: 676-688. PMCID4051225

Kaur A, Dey S, Stowers L. Live cell calcium imaging of dissociated vomeronasal neurons. **Methods Mol Biology; Pheromone Signaling, Methods and Protocols. (**2013)1068:189-200.

Stowers, L, Cameron, P., Keller, J.A., Ominous odors: olfactory control of instinctive fear and aggression in mice. **Curr Opin Neurobiol**, (2013) 23:339-345

Li,Q, Korzan, W.J., Ferrero, D.M., Chang, R.B., Roy, D.S., Buchi, M., Lemon, J.K., Kaur, A.W., Stowers, L., Fendt, M., & Liberlies, S.D. Synchronous Evolution of an Odor Biosynthesis Pathway and Behavioral Response, 2012. **Current Biology**, 23:11-20. PMCID3543494

Stowers, L. & Dey, S., Olfactory Receptors. **Encyclopedia of Signaling Molecules 1st Edition**. Springer-Verlag New York, Edited by; Choi, S. (2012) 1299-1304.

Logan, DW, Brunet, LJ, Webb, WR, Cutforth, T, Ngai, J, & Stowers, L. Learned Recognition of Maternal Signature Odors Mediates the First Suckling Episode in Mice. 2012 **Current Biology**, 22, 1998-2007. PMCID3494771
(*Feature article, see also Dispatch Current Biology 22:R907-909)*

Flanagan KA, Webb W, Stowers L. Analysis of Male Pheromones That Accelerate Female Reproductive Organ Development. 2011 **PLoS ONE** 6(2): e16660. doi:10.1371/journal.pone.0016660 PMCID3035649

Stowers, L., & Logan, D.W., Sexual dimorphism in olfactory signaling. 2010 **Curr Opin Neurobiol** 20:770-775.

Papes, F, Logan, DW, & Stowers, L. The vomeronasal organ mediates interspecies defensive behaviors through detection of protein pheromone homologs. 2010, **Cell**, 141, 692-703. *(Cover article, see also Preview Cell 141:568-570, Science 328:960)* PMCID2873972

Stowers, L., Papes, F., Logan, D.W., Interspecies fear signals. 2010 **Cell** PaperFlick, 141.

Stowers, L., & Logan, D.W., Olfactory mechanisms of stereotyped behavior: on the scent of specialized circuits. 2010 **Curr Opin Neurobiol** 20:274-280.

Barros C.S, Calabrese B., Chamero, P., Roberts A.J., Korzus, E.J., Lloyd, K., Stowers, L., Mayford, M., Halpain, S., and Müller, U. Impaired maturation of dendritic spines without disorganization of cortical cell layers in mice lacking NRG1/ErbB signaling in the CNS. 2009, **PNAS**, 106:4507-4512. PMCID2657442

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Stowers, L. Neuronal development: specifying a hard-wired circuit. 2004 **Curr Biol.**;14(2):R62-4.

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Stowers L, Holy TE, Meister M, Dulac C, & Koentges G. Gender discrimination and male-male aggression are abolished in the mouse TRP2-/- mutant. 2002 **Science**. 295:1493-1500. PMID:11823606
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Lamarche,N., Tapon, N., Stowers,L., Burbelo, P.D., Aspenstrom, P., Bridges,T., Chant, J., & Hall, A., Rac and CDC42 induce actin polymerization and G1 cell cycle progression independently of p65PAK and the JNK/SAPK MAP kinase cascade. 1996 **Cell**. 87:519-529. PMID:8898204

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