CURRICULUM VITAE

IAN G. DAVISON

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RESEARCH INTERESTS

Circuits underlying sensory perception and behavior in the olfactory system; neural pathways for regulating social behaviors; learning and plasticity in neural networks.

CITIZENSHIP

Canadian citizen
U.S. Lawful Permanent Resident

EDUCATION AND TRAINING

Ph. D. in Neurobiology 1995-2003
Dept. of Biological Sciences, Simon Fraser University, Vancouver, Canada

B.Sc., Joint Hons. Biology and Physics 1990-1994
St. Francis Xavier University, Antigonish, Canada

PROFESSIONAL EXPERIENCE

Assistant Professor, Boston University Dept. of Biology 2011-

Postdoctoral Research Associate 2004-2011
HHMI and Dept. of Neurobiology, Duke University Medical Center, Durham NC
Advisors, Drs. Larry Katz (2003-2005) and Michael Ehlers

Grass Fellowship in Neuroscience, Marine Biological Laboratory, Woods Hole MA 2003

FELLOWSHIPS AND AWARDS

Klingenstein Fellow in Neuroscience		2013-2016
Grass Fellowship in Neuroscience	Marine Biological Lab, Woods Hole	2003
NSERC Postgraduate Scholarships A & B		1996-1999
Frank A. Linville Scholarship in Olfaction	Simon Fraser University	2000, 2002
Graduate Fellowship	SFU	1996, 2000
Canada Scholarship	St. Francis Xavier University.	1990-1994
Dr. J.J. Carrol Memorial Scholarship	St. F. X.	1990-1994
NSERC Undergraduate Research Scholarship	St. F. X.	1993

Vinograd A, Fuchs-Shlomai Y, Stern M, Mukherjee D, Gao Y, Citri A, **Davison IG**, and Mizrahi A. (2017) Functional plasticity in the mouse olfactory bulb following motherhood. Cell Reports **21**: 1-15. doi: 10.1016/j.celrep.2017.09.038

Gao Y, Budlong C, Durlacher E, and **Davison I.G.** (2017). Neural mechanisms of social learning in the female mouse. eLife **6**:e25421; doi: 10.7554/eLife.25421

Yang R, Weber T, Witkowski ED, **Davison IG,** and Mertz J. (2017). Neuronal imaging with ultrahigh dynamic range multiphoton microscopy. Sci. Rep. **7**(1): 5817; doi: 10.1038/s41598-017-06065-7.

Sharma R, Ishimaru Y, **Davison I**, Ikegami K, Chien M-S, You H, Chi Q, Kubota M, Yohda M, Ehlers M, and Matsunami H. (2017) Olfactory receptor accessory proteins play crucial roles in receptor function and gene choice. eLife **6**: e21895. doi: 10.7554/eLife.21895

Dai R, Rossello R, Chen CC, Kessler J, **Davison** I, Hochgeschwender U, Jarvis ED (2014). Maintenance and neuronal differentiation of chicken induced pluripotent stem-like cells. Stem Cells Int. 2014: 182737.

Gao Y and Davison IG (2014). Hippocampal neurons wait their turn. eLife 3:e02590.

Mertz J, Gasecka A, Daradich A, **Davison I**, and Coté D (2014). Phase-gradient contrast in thick tissue with a scanning microscope. Biomed. Opt. Express 5:407-416.

Davison IG and Ehlers MD (2011). Neural circuit mechanisms for pattern detection and feature combination in olfactory cortex. Neuron **70**: 82-94 (previewed in Neuron **70**: 1-2)

Kennedy MJ, **Davison IG**, Robinson CG, and Ehlers MD (2010). Syntaxin-4 defines a domain for activity-dependent exocytosis in dendritic spines. Cell **141**: 524-535

Wang Z, Edwards JG, Riley N, Provance DW Jr, Karcher R, Li XD, **Davison IG**, Ikebe M, Mercer JA, Kauer JA, and Ehlers MD (2008). Myosin Vb mobilizes recycling endosomes and AMPA receptors for postsynaptic plasticity. Cell **135**: 535-48

Arenkiel BR, Klein ME, **Davison IG**, Katz LC, and Ehlers MD (2008). Genetic control of neuronal activity in mice conditionally expressing TRPV1. Nature Methods **5**(4): 299-302.

Arenkiel BR, Peca J, **Davison IG**, Feliciano C, Deisseroth K, Augustine GJ, Ehlers MD, and Feng G (2007). In vivo light-induced activation of neuroal circuitry in transgenic mice expressing channelrhodopsin-2. Neuron **54**: 205-18.

Davison IG and Katz LC (2007). Sparse and selective odor coding by mitral/tufted neurons in the main olfactory bulb. J. Neurosci. **24** (3): 8057-8067.

Davison IG, Boyd JD, and Delaney KR (2004). Dopamine inhibits mitral/tufted to granule cell synapses in the frog olfactory bulb. J. Neurosci. **24** (3): 8057-8067.

Delaney KR, **Davison IG**, and Denk W (2001). Odour-evoked [Ca^{2+}] transients in mitral cell dendrites of frog olfactory glomeruli. Eur. J. Neurosci. **13** (9): 658-72.

Mulligan SJ, **Davison IG**, and Delaney KR (2001). Mitral cell presynaptic Ca(2+) influx and synaptic transmission in frog amygdala. Neuroscience **104** (1):137-51.

Cheng J-Y, **Davison IG**, and DeMont ME (1996). Dynamics and energetics of scallop locomotion. J. Exp. Biol. **199**: 1931-19461

Davison IG, Wright GM, and DeMont ME (1995). The structure and mechanical properties of invertebrate and primitive vertebrate arteries. J. Exp. Biol. **198**: 2185-2196

Joshi YN, Tauheed A, and **Davison IG** (1992). The analysis of the $5s^25p^2$, $5s5p^3$, $5s^25p5d$, and $5s^25p6s$ configurations of Te III. Can. J. Phys. **70**: 740-744

CONFERENCE PRESENTATIONS

Witkowski ED, DeWalt G, Eldred W, and Davison IG. Microglial immunoreactivity and hyperexcitability in piriform cortex after repeated TBI. Society for Neuroscience Annual Meeting, 11/2017, Washington DC

Davison IG and Gao Y. Imaging sensory representations in the accessory olfactory bulb during behavior. Society for Neuroscience Annual Meeting, 11/2017, Washington DC

Davison IG and Gao Y. Sensory representations in the accessory olfactory bulb during social interactions. Association for Chemoreception Sciences, 4/2017, Bonita Springs FL

Ganga A, Gao Y, and Davison IG. Influence of farnesene on male aggression in rodents: a behavioral and mapping study. Experimental Biology, 4/2017, Chicago IL

Gao Y, Budlong C, and Davison IG. Neuronal mechanisms underlying mating-induced pheromonal memory in the female mouse. Society for Neuroscience, 11/2015, Chicago IL

Shlomai Y, Vinograd A, Mukherjee D, Gao Y, Citri A, Davison I, and Mizrahi A. Functional plasticity in the mouse olfactory bulb following motherhood. Society for Neuroscience, 11/2015, Chicago IL

Witkowski E, DeWalt G, Foster A, Eldred W, and Davison IG. Chronic in vivo imaging of synaptic reorganization after traumatic brain injury. Society for Neuroscience, 11/2014, Washington DC

Sharma R, Ishimaru Y, Davison IG, Ehlers MD, and Matsunami H. Crucial role of olfactory receptor accessory proteins RTP1 and RTP2 in receptor gene choice, development, and odor detection. Society for Neuroscience, 11/18/2014, Washington DC

Gao Y and Davison IG. Neuronal mechanisms of mating-induced pheromonal memory in the female mouse accessory olfactory bulb. Association for Chemoreception Sciences, 04/10/2014, Bonita Springs FL

Herzog L and Davison IG. Innate odor avoidance for spoiled food categories in the mouse. Association for Chemoreception Sciences, 04/10/2014, Bonita Springs FL

INVITED LECTURES (past 3 years)

BU Neurophotonics NRT Series, Boston MA	May 2017
Depts. of Biology and Anatomy & Cell Biology, University of Illinois at Chicago	Nov 2016
Symposium on mobile zinc and sensory perception, MIT, Boston MA	Oct 2016
Brains and Roses International Symposium on Olfaction, Barcelona, Spain	Sep 2016
Cold Spring Harbor Laboratory	Feb 2016
New Jersey Institute of Technology	Dec 2015
Brains and Roses International Symposium on Olfaction, University College London	Sep 2015
European Chemoreception Research Organization Congress, Istanbul, Turkey	Sep 2015
Dept. of Biology, Brandeis University	Aug 2015
Kavli Institute for Theoretical Physics, Olfaction Meeting, UC Santa Barbara	Jul 2015
Pfizer Neuroscience Unit, Cambridge MA	May 2015
Dept. of Biology, Bowdoin College	Apr 2015
Center for Systems Neuroscience, Boston University	Dec 2014
Brains and Roses International Symposium on Olfaction, Paris, France	Sep 2014
European Chemoreception Research Organization Congress, Leuven, Belgium	Aug 2013
Wellesley College NeuroNite Series, Wellesley MA	Nov 2012
Canadian Association for Neuroscience, Symposium on Neural Coding, Vancouver	May 2012
Dept. of Neuroscience, Baylor College of Medicine	May 2011
Dept. of Neurobiology and Behavior, Cornell University	Mar 2011
Dept. of Biology, Boston University	Feb 2011
Dept. of Cell and Molecular Physiology, UNC Chapel Hill	Nov 2010

PROFESSIONAL ACTIVITY

Professional associations:

Society for Neuroscience
Association for Chemoreception Sciences
Canadian Association for Neuroscience

Ad hoc referee:

Journal of Neurophysiology, Cerebral Cortex, eLife, Science, PLoS One, Nature Neuroscience, Frontiers in Neurosciences, Frontiers in Neuroinformatics, Journal of Neuroscience, Journal of Neurophysiology, Journal of Visualized Experiments

Ad hoc reviewer:

National Science Foundation
German-Israeli Science Foundation
Agence Nationale de la Recherche, France

TEACHING

Boston University:

Neural Systems I: Functional Circuit Analysis (BI741/NE741)	2016-
Sensory Neurobiology (BI520/NE520 4 credit hrs/wk)	2012-
Readings in Biology (BI 472; 2-4 credits)	2013

Guest lecturer, Frontiers in Neuroscience (GRS NE500)	2011
Guest lecturer, Topics in the Mathematical Structure of Biological Systems (BI502)	2011-12
Guest lecturer, Cellular and Systems Neuroscience (BI755/GMS AN810)	2012-15
Guest lecturer, Food and the Senses (MET ML715)	2012-16

TRAINEES

Postdoctoral:

Dr. Brett DiBenedictis, Ph.D.	2017-
Dr. Yuan Gao, Ph.D.	2012-2017

Graduate:

Kelsey Williford, Graduate Program in Neuroscience	2015-16
Ellen Witkowski, Graduate Program in Neuroscience	2012-

Undergraduate:

Simran Shah	2018-
Jessica Lin	2016-
Paul (Shuoyi) Yao	2016-
Emily Durlacher	2015-16
Brian Cotten	2015-
Robert Schulze	2015-
Cory Dubois	2012
Anya Golkowski	2012-13
• UROP summer funding, July-August 2013	
Jacob Gruber	2012