

MICHAEL C. CRAIR, PH.D.
WILLIAM ZIEGLER III PROFESSOR
DEPARTMENT OF NEUROBIOLOGY
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EDUCATION

- 1981-1985 *A.B. in Physics, with High Honors*
University of California at Berkeley
- 1985-1987 *M.A. in Physics*
University of California at Berkeley
- 1987-1991 *Ph.D. in Physics*
University of California at Berkeley
Thesis: "Non-Boltzmann Dynamics in Networks of Spiking Neurons"
Advisor: William Bialek, Ph.D.

POSTGRADUATE TRAINING

- 1991-1993 *Postdoctoral Researcher, supported by an N.S.F./J.S.P.S. Fellowship*
Kyoto University and Kyoto Prefectural Medical School, Kyoto, Japan
Advisors: Profs. Shigeru Shinomoto. (Physics) and Keisuke Toyama (Neuroscience)
- 1993-1997 *Postdoctoral Researcher, supported by an N.I.H./N.R.S.A. Fellowship*
University of California at San Francisco
Advisors: Profs. Robert Malenka (Neuroscience) and Michael Stryker (Neuroscience)

ACADEMIC APPOINTMENTS

- 1998-2006 *Assistant Professor, Department of Neuroscience, Baylor College of Medicine (BCM)*
- 1998-2006 *Assistant Professor, Program in Developmental Biology, Baylor College of Medicine*
- 2005-2006 *Assistant Professor, Program in Translational Biology and Molecular Medicine, BCM*
- 2006 *Associate Professor, Department of Neuroscience, Program in Developmental Biology, and Program in Translational Biology and Molecular Medicine, BCM*
- 2006 *Co-Director, Medical Scientist Training Program (MD/PhD program), BCM*
- 2007-2012 *Associate Professor, Department of Neurobiology, Department of Ophthalmology & Visual Science, Yale University School of Medicine*
- 2007-present *Director, Vision Core Program, Yale University*
- 2008-present *Director of Graduate Studies, Neurobiology Graduate Program, Yale University School of Medicine*
- 2009-2012 *William Ziegler III Associate Professor of Vision Research*
- 2010-present *Fellow (undergraduate faculty advisor), Berkeley College, Yale University*
- 2012-present *William Ziegler III Professor, Department of Neurobiology, Department of Ophthalmology & Visual Science, Yale University School of Medicine*
- 2012-present *Member, Swartz Program in Theoretical Neurobiology at Yale University*
- 2012-present *Member, Kavli Institute for Neuroscience at Yale University*

PROFESSIONAL SOCIETIES

ΣΠΣ, Physics Honors Society
American Association for the Advancement of Science
American Physiological Society

HONORS AND AWARDS

Outstanding Graduate Student Instructor, University of California at Berkeley, 1989
Faculty Associate in the Department of Physics, University of California at Berkeley (for excellence in Physics instruction), 1989
NSF/JSPS Post-Doctoral Fellowship, 1991-1993
National Research Service Award (NIH), 1993-1996
Alfred P. Sloan Foundation Research Fellow, 1998-2000
The Esther A and Joseph Klingenstein Foundation Fellowship Award in the Neurosciences, 1998-2001
John Merck Fund Scholar, 1998-2002
MRRC New Program Development Award, Baylor College of Medicine, 1999-2000
Curtis Hankamer Research Award, 1999-2000
Basil O'Connor Fellow, March of Dimes Foundation, 1999-2001
American Heart Association Grant-in-Aid, 1999-2001
Marc Dresden Excellence in Graduate Education Award, Baylor College of Medicine, 2002
NARSAD-Sidney R. Baer, Jr. Foundation Young Investigator Award, 2004-2006
Rett Syndrome Research Foundation Grant Award, 2006-2008
William Ziegler III Endowed Chair in Vision Research, 2009-present

REVIEW PANELS AND ADVISORY BOARDS

Ad hoc grant reviewer for Medical Research Council (UK), 1999, 2003, 2005
Co-Director of the De Lange Conference on Neuroscience, 1999-2001
Ad hoc grant reviewer for NSF, 2001, 2003, 2005
NIH (NCI) Special Emphasis Study Section ZCA1, Washington DC, June 19-20, 2003
Co-Organizer of the Vision Research Conference, "The Mouse Visual System: From Photoreceptors to Cortex", April, 2004
External Peer Review of Department of Environmental Medicine and Visual Neuroscience, University of Nagoya, Japan, November 2005
NIH F02B study section, 2005 – 2007
NIH F03A study section, 2006 – 2011
NIH MDCN Special Emphasis Panel August 2007, November 2011
NIH (NEI) Special Emphasis Panel ZEY1, Dec 2007, 2008, 2009, 2010, 2013
Ad hoc grant reviewer for Swiss National Science Foundation, ISF
NIH SMI study section Regular Member, 2008-present, Chair, 2011-2012
E. Matilda Ziegler Foundation for the Blind Scientific Advisory Committee, 2009-pres., Chair, 2011-pres.
NIH ZRG1 MDCN R15 Scientific Review Group, 2010-2012
NIH SPC study section, 2013, 2014
NIH (NINDS) ZNS1 (R25) special study section, 2011, 2012, 2013
NIH (NINDS) ZNS1 (T32) special study section, 2013
External Peer Review of Duke University Neurobiology Graduate Program, 2011
E. Matilda Ziegler Foundation for the Blind Board of Directors, 2011-present

EDITORIAL ACTIVITIES

Guest Editor for *Vision Research*, 2004; Member: *Faculty of 1000*
Reviewer for: *Journal of Neuroscience*, *Journal of Neurophysiology*, *Nature*, *Nature Methods*, *Nature Neuroscience*, *Neuron*, *Development*, *Visual Neuroscience*, *European Journal of Neuroscience*, *Vision Research*, *Journal of Physiology*, *Journal of Comparative Neurology*, *Cerebral Cortex*, *Proceedings of the National Academy of Science*, *PLoS Biology* and others.

CURRENT FUNDING

NEI/NIH R01 EY015788-10 grant titled, "*Mechanisms of Visual Map Development*"
Principal Investigator; Dates of funding: 7/1/2004 – 12/31/2018

Annual direct costs: \$200,000; Total direct costs: \$800,000; Total costs: \$1,332,000

NEI/NIH R01 EY023105-02 grant titled, *"In Vivo Properties of Spontaneous Waves in the Retina and Developing Visual System"*

Principal Investigator; Dates of funding: 2/1/2013 – 1/31/2018

Annual direct costs: \$245,000; Total direct costs: \$1,225,000; Total costs: \$2,039,625

NINDS/NIH T32 NS007224-30 grant titled, *"Neurobiology of Cortical Systems Training Grant"*

Principal Investigator; Dates of funding: 7/01/1983– 6/30/2015

Annual direct costs: \$200,180; Total direct costs: \$1,000,900; Total costs: \$1,068,170

Simons Foundation (SFARI) 308450 grant titled, *"Disrupted Network Activity in Neonatal Cortex of Mouse Models of Autism"*

Principal Investigator; Dates of funding: 7/01/2014 – 6/30/2016

Annual direct costs: \$105,500; Total direct costs: \$211,000; Total costs: \$250,000

Kavli Institute For Neuroscience grant titled, *"Develop, characterize and harness novel genetic indicators of neuronal activity for in vivo optical neurophysiology"*

Principal Investigator; Dates of funding: 7/01/2013 – 6/30/2014

Annual direct costs: \$100,000; Total direct costs: \$100,000; Total costs: \$100,000

NEI/NIH R01 grant titled "HDAC4-mediated Photoreceptor Protection in Retinal Degeneration"

Principal Investigator: Bo Chen; Role on project: Co-Investigator;

Dates of funding: 5/01/2012 - 4/30/2017

Annual direct costs: \$245,000; Total direct costs: \$1,225,000; Total costs: \$2,039,625

NIMH/NIH P50 grant titled "Functional Genomics of Human Brain Development"

Principal Investigator: Nenad Sestan; Role on project: Co-Investigator;

Dates of funding: 9/19/2014 - 7/31/2019

Annual direct costs: \$873,179; Total direct costs: \$4,365,895; Total costs: \$6,690,075

PENDING FUNDING

NIMH/NIH U01 'Brain Initiative' MH105994 grant titled, *"Single Cell Transcriptomics of Mouse and Primate Visual Development and Function"*

Co-Principal Investigator with Nenad Sestan; Dates of funding: 9/01/2015 – 8/31/2018

Annual direct costs: \$1,332,331; Total direct costs: \$3,557,087; Total costs: \$5,324,218

NINDS/NIH T32 NS007224 grant titled, *"Neurobiology of Cortical Systems Training Grant"*

Principal Investigator; Dates of funding: 7/01/2016– 6/30/2021

Annual direct costs: \$373,080; Total direct costs: \$1,672,900; Total costs: \$1,953,832

Competitive renewal for currently funded training grant

NEI/NIH P30 EY000785-40 grant titled, *"Yale Core Grant for Vision Research"*

Principal Investigator; Dates of funding: 7/01/2015– 6/30/2020

Annual direct costs: \$418,484; Total direct costs: \$1,998,894; Total costs: \$3,293,362

Competitive renewal for core grant

PUBLICATIONS

PEER REVIEWED ARTICLES PUBLISHED

1. M C Crair and W Bialek, 1990 "Non-Boltzmann Dynamics in Networks of Spiking Neurons", *Advances in Neural Information Processing Systems 2*, ed., D. Touretzky, Morgan Kaufmann, San Mateo, 109-116.

2. M C Crair and R C Malenka, 1995, "A Critical Period for Long-Term Potentiation at Thalamocortical Synapses", *Nature*, 375:325-328.
3. T Kurotani, M C Crair, Z Molnar, S Higashi, and K Toyama, 1996, "The Development of Rat Somatosensory (Barrel) Cortex Visualized by Optical Recording", *Protein, Nucleic Acid and Enzyme*, 41:758-765.
4. J T R Isaac, M C Crair, R A Nicoll and R C Malenka, 1997, "Silent Synapses during Development of Thalamocortical Inputs", *Neuron*, 18:269-280.
5. M C Crair, E S Ruthazer, D C Gillespie, M P Stryker, 1997, "Ocular Dominance Peaks at Pinwheel Center Singularities of the Orientation Map in Cat Visual Cortex", *Journal of Neurophysiology*, 77:3381-3385.
6. M C Crair, E S Ruthazer, D C Gillespie, M P Stryker, 1997, "Relationship between the Ocular Dominance and Orientation Maps in Visual Cortex of Monocularly Deprived Cats", *Neuron*, 19:307-318.
7. T Aihara, M Tsukada, M C Crair and S Shinomoto, 1997, "The Stimulus-dependent Induction of Long-Term Potentiation in the CA1 Area of the Hippocampus: Experiment and Model", *Hippocampus*, 7:416-426.
8. M C Crair, D C Gillespie and M P Stryker, 1998, "The Role of Visual Experience in the Development of Columns in Cat Visual Cortex", *Science*, 19:566-570.
9. A Antonini, D C Gillespie, M C Crair and M P Stryker, 1998, "Morphology of Single Geniculocortical Afferents and Functional Recovery of the Visual Cortex after Reverse Monocular Deprivation in the Kitten", *Journal of Neuroscience*, 18:9896-909.
10. S Higashi, M C Crair, T Kurotani, H Inokawa and K Toyama, 1999, "Altered Spatial Patterns of Functional Thalamocortical Connections in the Barrel Cortex After Neonatal Infraorbital Nerve Cut Revealed by Optical Recording", *Neuroscience*, 91:439-452.
11. M C Crair, 1999, "Neuronal Activity in Developing Circuits: Permissive or Instructive?" *Current Opinion in Neurobiology*, 9:88-93.
12. C Zhou, Y Qiu, F A Pereira, M C Crair, S Y Tsai, M Tsai, 1999, "The Nuclear Orphan Receptor COUP-TFI is Required for Differentiation of Subplate Neurons and Guidance of Thalamocortical Axons", *Neuron*, 24:847-859.
13. D C Gillespie, M C Crair and M P Stryker, 2000, "Neurotrophin-4/5 Alters Responses and Blocks the Effects of Monocular Deprivation in Cat Visual Cortex during the Critical Period", *Journal of Neuroscience*, 20:9174-9186.
14. M C Crair, J Horton, A Antonini and M P Stryker, 2001, "The Emergence of Ocular Dominance Columns in the Cat by Two Weeks of Age", *Journal of Comparative Neurology*, 430:235-249.
15. H-C Lu, E Gonzalez and M C Crair, 2001, "Barrel Cortex Critical Period Plasticity is Independent of Changes in NMDA Receptor Subunit Composition," *Neuron*, 32:619:634.
16. S W Wang, X Mu, W J Bowers, D-S Kim, D J Plas, M C Crair, H Federoff, L Gan and W H Klein, 2002, "Brn3b/Brn3c double knockout mice reveal an unsuspected role for Brn3c in retinal ganglion cell axon outgrowth", *Development*, 129:467-477.
17. H-C Lu, W-C She, D T Plas, P E Neumann, R Janz and M C Crair, 2003, "Adenylyl Cyclase I Regulates AMPAR Trafficking During Mouse Cortical 'Barrel' Map Development", *Nature Neuroscience*, 6:939-947.
18. S M Wu, W Baehr and M C Crair, "The Mouse Visual System: From Photoreceptors to the Cortex", *Vision Research*, 2004, 44:3233-34.
19. D T Plas, A Visel, E R Gonzalez, W-C She and M C Crair, 2004, "Adenylate Cyclase 1 Dependent Refinement of Retinotopic Maps in the Mouse", *Vision Research*, 44:3357-64.
20. D Murali, S Yoshikawa, R R Corrigan, D J Plas, M C Crair, G C Oliver, K M Lyons, Y Mishina and Y Furuta, 2005, "Distinct Developmental Programs Require Different Levels of BMP Signaling During Mouse Retinal Development", *Development*, 132:913-23.

21. S Q Mehta, P R Hiesinger, S Beronja, R G Zhai, K L Schulze, P Verstreken, Y Cao, Y Zhou, U Tepass, M C Crair and H J Bellen, 2005, "Mutations in *Drosophila* Sec15 Reveal a Function in Neuronal Targeting for a Subset of Exocyst Components", *Neuron*, 46:219-32.
22. A R Chandrasekaran, D T Plas, E Gonzalez and M C Crair, 2005, "Evidence for an Instructive Role of Retinal Activity in Retinotopic Map Refinement in the Superior Colliculus of the Mouse", *Journal of Neuroscience*, 25:6929-38.
23. J P Carson, T Ju, H-C Lu, C Thaller, M Xu, S L Pallas, M C Crair, J Warren, W Chiu and G Eichele, 2005, "A Digital Atlas to Characterize the Mouse Brain Transcriptome", *PLoS Computational Biology*, 1:289-296.
24. D T Plas, J E Lopez and M C Crair, 2005, "Pre-target Sorting of Retino-collicular Axons in the Mouse", *Journal of Comparative Neurology*, 491:305-319.
25. H-C Lu, D A Butts, P S Kaeser, W-C She, R Janz and M C Crair, 2006, "Role of Efficient Neurotransmitter Release in Barrel Map Development", *Journal of Neuroscience*, 26:2692-2703.
26. M Inan, H-C Lu, M J Albright, W-C She and M C Crair, 2006, "Barrel Map Development Requires PKARII β -mediated cAMP signaling", *Journal of Neuroscience*, 26:4338-4349.
27. M Inan, M C Crair, 2007, "Development of cortical maps - Perspectives from the barrel cortex", *The Neuroscientist*, 13:49-61.
28. A R Chandrasekaran, R D Shah and M C Crair, 2007, "Developmental Homeostasis of Mouse Retinocollicular Synapses", *Journal of Neuroscience*, 14:1746-1755.
29. M J Albright, M C Weston, M Inan, C Rosenmund and M C Crair, 2007, "Increased Thalamocortical Synaptic Response and Decreased Layer IV Innervation in GAP-43 Knockout Mice", *Journal of Neurophysiology*, 98:1610-1625.
30. R D Shah and M C Crair, 2008, "Retinocollicular Synapse Maturation and Plasticity are Regulated by Correlated Retinal Waves", *Journal of Neuroscience*, 28:292-303.
31. T Kurotani, K Yamada, Y Yoshimura, M C Crair and Y Komatsu, 2008, "State-Dependent Bidirectional Modification of Somatic Inhibition in Neocortical Pyramidal Neurons", *Neuron*, 57:905-916.
32. T. Iwasato*, M Inan*, H Kanki, R S Erzurumlu, S Itohara and M C Crair, 2008, "Cortical Adenylyl Cyclase 1 is Required for Thalamocortical Synapse Maturation and Aspects of Layer IV Barrel Development", *Journal of Neuroscience*, 28:5931-5943.
33. D T Plas, O S Dhande, J E Lopez, D Murali, C Thaller, M Henkemeyer, Y Furuta, P Overbeek and M C Crair, 2008, "Bone Morphogenetic Proteins, Eye Patterning, and Retinocollicular Map Formation in the Mouse", *Journal of Neuroscience*, 28:7057-7067.
34. R D Shah and M C Crair, 2008, "Mechanisms of Response Homeostasis during Retinocollicular Map Formation" *Journal of Physiology*, 586:4363-4369.
35. M C Crair and R D Shah, 2009, "Long-term Potentiation and Long-term Depression in Experience-Dependent Plasticity", *Encyclopedia of Neuroscience*, edited by Larry Squire et al. 5:561-570.
36. A R Chandrasekaran, Y Furuta and M C Crair, 2009, "Consequences of Axon Guidance Defects on the Development of Retinotopic Receptive Fields in the Mouse Colliculus", *Journal of Physiology*, 587:953-963.
37. H P Xu, H Chen, Q Ding, Z H Xie, L Chen, L Diao, P Wang, L Gan, M C Crair and N Tian, 2010, "The Immune Protein CD3 ζ is Required for Normal Development of Neural Circuits in the Retina", *Neuron*, 65:503-515.
38. O S Dhande, E Hua, E Guh, J Yeh, S Bhatt, Y Zhang, E S Ruthazer, M B Feller and M C Crair, 2011, "Development of Single Retinofugal Axons in Normal and β 2 Knockout Mice", *Journal of Neuroscience*, 31:3384-3399.
39. O S Dhande and M C Crair, 2011, "Transfection of Mouse Retinal Ganglion Cells by *in vivo* Electroporation", *Journal of Visualized Experiments*, 50:2678 pii: 2678. doi: 10.3791/2678.
40. H Li and M C Crair, 2011, "How Do Barrels Form in Somatosensory Cortex?" *Annals of the New York Academy of Science*, 1225:119-129. doi: 10.1111/j.1749-6632.2011.06024.x.

41. O S Dhande, S Bhatt, A Anishchenko, J Elstrott, T Iwasato, E Swindell, HP Xu, M Jamrich, S Itohara, M B Feller and M C Crair, 2011, "Role of Adenylate Cyclase 1 in Retinofugal Map Development", *Journal of Comparative Neurology*, doi: 10.1002/cne.23000.
42. H P Xu, M Furman, Y S Mineur, H Chen, S L King, D Zenisek, Z J Zhou, D A Butts, N Tian, M R Picciotto and M C Crair, 2011, "An Instructive Role for Patterned Spontaneous Retinal Activity in Mouse Visual Map Development", *Neuron*, 70:1115-27.
43. J Zhang, J Ackman, O S Dhande and M C Crair, 2011, "Visualization and Manipulation of Neural Activity in the Developing Vertebrate Nervous System", *Frontiers in Molecular Neuroscience*, 4:43 doi:10.3389/fmol.2011.0043.
44. J Zhang, J Ackman, H P Xu and M C Crair, 2011, "Visual Map Development Depends on the Temporal Pattern of Binocular Activity in Mice", *Nature Neuroscience*, 15:298-307 doi:10.1038/nn.3007.
45. M Furman and M C Crair, 2012, "Synapse Maturation is Enhanced in the Binocular Region of the Retinocollicular Map Prior to Eye Opening", *Journal of Neurophysiology*, 107:3200-3216 doi:10.1152/jn.00943.2011.
46. J Ackman, T Burbridge and M C Crair, 2012, "Retinal Waves Coordinate Patterned Activity Throughout the Developing Visual System", *Nature*, 490:219-225 doi:10.1038/nature11529.
47. M Furman, H P Xu and M C Crair, 2013, "Competition Driven by Retinal Waves Promotes the Morphological and Functional Synaptic Development of Neurons in the Superior Colliculus", *Journal of Neurophysiology*, 110:1441-1454 doi:10.1152/jn.01066.2012.
48. A Ribic, X Liu, M C Crair and T Biederer, 2013, "Structural Organization and Function of Mouse Photoreceptor Ribbon Synapses Involve the Immunoglobulin Adhesion Protein SynCAM 1", *Journal of Comparative Neurology*, 522:900-920. doi: 10.1002/cne.23452.
49. J Ackman and M C Crair, 2013, "Role of Emergent Neural Activity in Visual Map Development" *Current Opinion in Neurobiology*, 24:166-175. <http://dx.doi.org/10.1016/j.conb.2013.11.011>
50. H Li, S Fertuzinhos, E Mohns, T S Hnasko, M Verhage, R Edwards, N Sestan and M C Crair, 2013, "Laminar and Columnar Development of Barrel Cortex Relies on Thalamocortical Neurotransmission", *Neuron*, 79:970-986 doi:10.1016/j.neuron.2013.06.043.
51. S Fertuzinhos, M Li, Y I Kawasawa, V Ivic, D Franjic, D Singh, M C Crair, and N Sestan, 2014, "Laminar and Temporal Expression Dynamics of Coding and Noncoding RNAs in the Mouse Neocortex", *Cell Reports*, 13:938-50 doi: 10.1016/j.celrep.2014.01.036
52. T J Burbridge, H P Xu, J B Ackman, X Ge, Y Zhang, M-J Ye, Z J Zhou, J Xu, A Contractor and M C Crair, 2014, "Visual Circuit Development Requires Patterned Activity Mediated by Retinal Acetylcholine Receptors", *Neuron*, doi:10.1016/j.neuron.2014.10.051.
53. H P Xu, T J Burbridge, G-G Chen, X Ge, Y Zhang, Z J Zhou and M C Crair, 2015, "Spatial pattern of spontaneous retinal waves instructs retinotopic map refinement more than activity frequency", *Developmental Neurobiology* (in press).

INVITED SEMINARS/SYMPOSIA

INTERNATIONAL

Kyoto Prefectural Medical School, Department of Physiology, "A Model Learning Rule for Hippocampal Plasticity", Kyoto, Japan, November, 1992

University of Kyoto, Department of Physics, "Optical Imaging of Barrel Development in the Rat", Kyoto, Japan, April, 1993

Tadeshina Conference on Neuroscience, "Optical Imaging of Barrel Development in the Rat", Tadeshina, Japan, May, 1993

University of Nagoya, Department of Physiology, "Role of Sensory Experience and Neural Activity in Cortical Map Development, Nagoya, Japan, March, 2000

University of Osaka, Department of Physiology, "Role of Sensory Experience and Visual Cortical Development", Osaka, Japan, March, 2000

National Institute for Basic Biology Center of Excellence International Symposium, "Role of Sensory Experience in Visual Cortical Development", Okazaki, Japan, March, 2000

National Academy of Science Frontiers in Science Symposium, "Activity Dependent Neural Circuit Development", Beijing, China, Sept 2001

European Winter Conference on Brain Research, "Mechanisms of Sensory Map Development", Les Arcs, Switzerland, March, 2003

Gulbenkian Institute for Science Seminar, "Nature vs. Nurture in Sensory Map Development", Lisbon, Portugal, February, 2005

RIKEN Brain Sciences Institute, "Mechanisms of Sensory Map Development", Wako, Japan, November 2005

International Symposium on Molecular and Cellular Mechanisms of Environmental Adaptation, "Development of Thalamocortical Connections", Nagoya University, Nagoya, Japan, November 2005

Nagoya University, Department of Visual Sciences, "Spontaneous Retinal Waves During Development are Instructive in Retinotopic Map Refinement", Nagoya University, Nagoya, Japan, December 2005

Osaka University, Graduate School of Frontier Biosciences, "Nature vs. Nurture in Sensory Map Development", Osaka University, Osaka, Japan, December 2005

University of Tokyo, Department of Molecular and Systems Biology "Mechanisms of Sensory Map Development", University of Tokyo, Tokyo, Japan, September 2012

Japanese Neuroscience Society Symposium, "Retinal Waves Drive the Activity-Dependent Development of Visual Circuits In Vivo", Nagoya, Japan, September 2012

Osaka University, Graduate School of Frontier Biosciences, "Retinal Waves Drive the Activity-Dependent Development of Visual Circuits In Vivo", Osaka University, Osaka, Japan, September 2012

Basel NeuroSeminars at Friedrich Miescher Institute for Biomedical Research, "Characteristics and Role of Spontaneous Activity in Neonatal Sensory Map Development", FMI, Basel, Switzerland, May 2013

University of Geneva, Department of Basic Neurosciences Seminar, "Spontaneous Activity in Neonatal Sensory Map Development", University of Geneva, Geneva, Switzerland, May 2013

Institute for Advanced Study Workshop on Statistical Physics and Computational Neuroscience, "Activity Dependent Mechanisms of Sensory Map Development", Hong Kong University of Science and Technology, Hong Kong, July 2013

IAS Program on Statistical Physics and Computational Neuroscience, "What Does Activity Have To Do With It? Development of Visual Circuits Before Vision", Hong Kong Baptist University, Hong Kong, July 2013

From Maps to Circuits: Models and Mechanisms for Generating Neural Connections, "Activity-Dependent Map Development Prior to Sensory Experience", Edinburgh, UK, July 2014

Killam Lecture, Montreal Neurological Institute, McGill University, "Activity Dependent Neural Circuit Development Prior to Sensory Experience", Montreal, Canada, October 2014

MRC Centre for Developmental Neurobiology / King's College London, "Self-Organization in the Developing Nervous System", London, UK, March 2015

Cortex Club, Oxford University, "Self-Organization in the Developing Nervous System", Oxford, UK, March 2015

NATIONAL

University of California, San Francisco, Department of Psychiatry, "A Model Learning Rule for Hippocampal Plasticity", San Francisco, CA, November, 1992

University of California, Irvine, Department of Neuroscience, "Optical Imaging of Barrel Development in the Rat", Irvine, CA, October, 1994

University of Rochester, Cognitive Science Department Seminar Series, "Cortical Development and Plasticity", Rochester, NY, February, 1997

Case Western Reserve University, Neuroscience Department Seminar Series, "Cortical Development and Plasticity", Cleveland, OH, March, 1997

University of Pittsburgh, Neuroscience Department Seminar Series, "Cortical Development and Plasticity", Pittsburgh, PA, March, 1997

Case Western Reserve University, Bioengineering Department, "Cortical Development and Plasticity", Cleveland, OH, March, 1997

Baylor College of Medicine, Division of Neuroscience, "Cortical Development and Plasticity", Houston, TX, May, 1997

University of California at Los Angeles, Neuroscience Department Seminar Series, "Cortical Development and Plasticity", Los Angeles, CA, May, 1997

University of Pennsylvania, Neuroscience Department, "Cortical Development and Plasticity", Philadelphia, PA, June, 1997

Baylor College of Medicine, Developmental Biology Retreat, Feb., 1999

University of Florida, Neuroscience Department, "Cortical Development and Plasticity", Gainesville, FL, November, 1999

Baylor College of Medicine, Department of Cell and Molecular Biology, "Cortical Development and Plasticity", Houston, TX, February, 2000

Gordon Conference on Neural Development, "Role of Sensory Experience and Neural Activity in Cortical Map Development", Newport, RI, June, 2000

LTP, LTD and Synaptic Plasticity in the Brain, Satellite Symposium, "Synaptic Plasticity, Adenylyl Cyclase and Barrel Development", Society for Neuroscience, New Orleans, LA, November, 2000

University of Texas at Houston Health Science Center, Neurobiology and Anatomy Department Seminar, 'Mechanisms of Cortical Development and Plasticity', Houston, TX, November, 2000

Baylor College of Medicine MD/PhD Symposium, "Nature vs. Nurture: Exploring the roles of genetics and the environment in brain development", Galveston, TX, September, 2001

Louisiana State University, Neuroscience Department Seminar, "Mechanisms of Sensory Map Development and Plasticity", New Orleans, LA, October, 2001

University of California Alumni Club Annual Meeting, "Nature vs. Nurture in Brain Development", Feb., 2002

Brain Expo, "Brain Development", San Antonio Texas, July 2002

Cold Spring Harbor Lab Meeting, "Altered Thalamocortical Synapse Development in Barrelless Mice", September, 2002

MIT Department of Brain and Cognitive Sciences Seminar, "Mechanisms of Sensory Map Development", Boston, MA, October, 2002

UT Southwestern Neuroscience Department Seminar, "Mechanisms of Sensory Map Development", Dallas, TX, January, 2003

Baylor College of Medicine, Developmental Biology Retreat, "Mechanisms of Neuronal Map Development", Houston, TX Feb, 2003

University of California, San Diego and The Salk Institute for Neuroscience Seminar, "Mechanisms of Sensory Map Development", San Diego, CA, April, 2003

Society for Neuroscience Satellite Symposium on Cortical Development, "Mechanisms of Thalamocortical Synapse Development", New Orleans, LA, November, 2003

University of Texas, Houston Neuroscience Department Seminar, "Mechanisms of Visual Map Development", Houston, TX, Jan., 2004

Rice University, Psychology Department, "Nature vs. Nurture in Sensory Map Development", Houston, TX, February, 2004

Society for Neuroscience Mini Symposium on “Cellular and Molecular Mechanisms Patterning Cortical Connectivity”, San Diego, CA, Oct., 2004

University of Virginia Neuroscience Department Symposium on “Mechanisms of Thalamocortical Synapse Development and Plasticity”, Charlottesville, VA, Dec., 2004

Harvard Medical School Neuroscience Department Symposium on “Mechanisms of Visual Map Development”, Boston, MA, Dec., 2004

Texas A&M University Symposium on Neurodevelopment, “Nature vs. Nurture in Sensory Map Development”, Bryan, TX, April, 2005

Baylor College of Medicine, Menninger Department of Psychiatry and Behavioral Sciences Grand Rounds, “Nature vs. Nurture in Sensory Map Development”, Houston, TX, May, 2005

Cullen Eye Institute Vision Research Seminar Series on “Neurophysiologic and Clinical Aspects of Amblyopia and Vision Development”, Houston, TX, June, 2005

Houston Society for Engineering in Medicine and Biology, “Nature vs. Nurture in Sensory Map Development”, Houston, TX, Feb 2006

Yale School of Medicine, Department of Neurobiology, “Mechanisms of Sensory Map Development”, New Haven, CT, Mar 2006

NINDS/NIH Neurobiology Seminar, “Mechanisms of Sensory Map Development”, Bethesda, MD, June 2006

Albert Einstein College of Medicine Neurobiology Department Seminar, “Nature vs. Nurture in Sensory Map Development”, New York, NY, Mar 2007

Duke University, Department of Neuroscience, “Mechanisms of Retinotopic Map Development”, Durham, NC, April 2007

Brown University, Department of Neuroscience, “Mechanisms of Sensory Map Development”, Providence, RI, Oct 2007

Winter Conference on Brain Research, “Retinocollicular Response Homeostasis”, Snowbird, UT Feb 2008

ARVO Symposium on Retinal Ganglion Cells in Model Organisms, “Response Homeostasis of Retinocollicular Receptive Fields”, Ft. Lauderdale, FL April 2008

SFN Mini-Symposium on Homeostatic Plasticity in Intact Neural Circuits, “Response Homeostasis of Retinocollicular Receptive Fields”, Washington, DC Nov 2008

University of Connecticut, Behavioral Neuroscience Seminar Series, “How ‘Nature’ and ‘Nurture’ Guide the Development of Visual Maps”, Storrs, CT Oct 2008

University of Wyoming, Center for Neuroscience Seminar, “Mechanisms of Sensory Map Development”, Laramie, WY, Oct 2008

Columbia University, VisionNYC, “Ankle Busters and Mavericks: Wave Size Matters in Visual Map Development”, NY, Dec 2008

University of Chicago, Department of Neuroscience Seminar, “Nature vs. Nurture in Visual Map Development”, Chicago, IL, Dec 2008

Cold Spring Harbor Lab, Meeting on Synapses: From Molecular to Circuits & Behaviors, “Retinal Wave Size Matters for Eye-Specific Segregation and Retinotopic Map Refinement”, Cold Spring Harbor, NY, Apr 2009

West Virginia University, Center for Neuroscience, “Ankle Busters and Mavericks: Wave Size Matters in Visual Map Development”, WV Nov 2009

Thirteenth Annual Vision Research Conference, “An Instructive Role for Retinal Ganglion Cell Activity in Visual Map Development”, Ft. Lauderdale, FL April 2010

Northwestern University, Department of Neurobiology and Physiology, “Ankle Busters and Mavericks: Retinal Wave Size Matters in Visual Map Development”, Evanston, IL May 2010

New Studies of Neurobehavioral Evolution, “How Do ‘Barrels’ in Somatosensory Cortex Form?”, Bethesda, MD June 2010

Princeton University, Bialek 50th Anniversary Symposium, "Mechanisms of Sensory Map Development", Princeton, NJ Nov 2010

University of California at Santa Cruz, "Mechanisms of Sensory Map Development", Santa Cruz, CA Jan 2011

University of Southern California, Neuroscience Seminar, "What Role Does Neural Activity Play in Sensory Map Development?", Los Angeles, CA Dec 2011

Wesleyan University, "Innate or Experience Dependent? How the Eye Gets Wired to the Brain", Middletown, CT Feb 2012

Yale Eye Center Clinical Conference Series, "Innate or Experience Dependent? How the Eye Gets Wired to the Brain", New Haven, CT Feb 2012

Barrels XXV, "Does Activity Play a Similar Role in Somatosensory and Visual Map Development?", Tulane University, New Orleans, LA Oct 2012

Wesleyan University, Biology Department Seminar, "Brain development before sensory experience: What does activity have to do with it?", Middletown, CT Oct 2012

Molecular and Biophysical Mechanisms of Perception, Sense to Synapse, "Activity-Dependent Mechanisms of Sensory Map Development", Columbia University, NY Apr 2013

Max Planck Florida Institute for Neuroscience, "Activity-Dependent Development of Sensory Maps Prior to Sensory Experience", Jupiter, FL Oct 2013

Yale University Vision Seminar, "Visual Development: What's Activity Got To Do With It?", New Haven CT Feb 2014

City College of New York, Biology Department Colloquium, "Activity Dependent Development Prior to Sensory Experience", New York, NY Feb 2014

Kavli Workshop on Multicellular Monitoring and Manipulation, "Mesoscopic Imaging of Spontaneous Activity in the Neonatal Cortex of Mice", New Haven CT Mar 2014

Johns Hopkins University, Department of Neuroscience Seminar, "Activity Dependent Development Prior to Sensory Experience", Baltimore MD Apr 2014

University of California at San Francisco, Department of Ophthalmology Grand Rounds, "Visual Map Development Prior to Visual Experience", San Francisco, CA May 2014

FASEB Conference on Retinal Neurobiology and Visual Processing, "Role of Down Syndrome Cell Adhesion Molecule (DSCAM) in Mouse Visual Circuit Development", Saxtons River, VT June 2014

University of California at San Diego, Department of Neurobiology, "Activity Dependent Neural Circuit Development Prior to Sensory Experience", San Diego, CA Oct 2014

TEACHING RELATED ACTIVITIES (SINCE 1998)

COURSES TAUGHT AND/OR COORDINATED AT BAYLOR COLLEGE OF MEDICINE (BCM)

1998-2001	Systems Neuroscience (Neuroscience Department core course); 6 hrs/yr; 4 lectures/yr; Co-Director of course.
1999-2006	The Nervous System (Medical School course); 3-4 hrs/yr; 3-4 lectures/yr.
1999-2001	Molecular Neuroscience (Neuroscience Department core course); 4.5 hrs/yr; 3 lectures/yr.
1998-2006	Neural Development (Developmental Biology core course, Neuroscience Department elective course). 5-6 hrs/yr; 5-6 lectures/yr; Co-Director of Course.
2001-2006	Integrative Neuroscience II (Neuroscience Department core course); 11-13 hrs/yr; 11-13 lectures/yr; Director of Course.
2001-2006	Learning and Memory (Neuroscience Department elective course); 3 hrs/yr; 3 lectures/yr.

COURSES TAUGHT AND/OR COORDINATED AT OTHER INSTITUTIONS WHILE AT BCM

- 2005 Neurodevelopment Course, Gulbenkian Institute for Science PhD Program in Biomedicine, Lisbon, Portugal; 8 hrs/yr; 5 lectures/yr.
- 2006 John Merck Fund Summer Institute on the Biology of Developmental Disabilities, Princeton, NJ

CURRICULUM DEVELOPMENT WORK AT BCM

- 1998 New course Co-Director, reorganized the curriculum for the Developmental Biology Core course, "Neural Development"
- 1998-2006 Member of the Examination Committee for the Program in Developmental Biology
- 1998-2006 Member of the Examination Committee for the Department of Neuroscience
- 1998-2006 Member of the Faculty Operating Committee of the Medical Scientist Training Program
- 1998-2006 Member of the Thesis Committees of 21 Graduate Students in Other Laboratories
- 1998-2006 Co-Director of the Developmental Biology Core course "Neural Development"
- 1999-2006 Faculty Coordinator of the Department of Neuroscience Seminar Series
- 1999-2006 Member of three Faculty Recruitment Committees in the Department of Neuroscience
- 2000-2006 Member of the Steering Committee of the Program in Developmental Biology
- 2001 Member of the Committee to Reorganize the Neuroscience Graduate Program curriculum
- 2001-2006 Director of the Neuroscience Core course, "Integrative Neuroscience II".
- 2001 Established elective course for the Neuroscience Graduate Program in "Neural Development"
- 2005-2006 Member, Graduate Program in Translational Biology and Molecular Medicine
- 2005-2006 Member of Committee to Reorganize the Core Curriculum for the Neuroscience Graduate Program
- 2005-2006 Member of the Graduate School of Biomedical Sciences Executive Council
- 2006 Member of the Graduate School of Biomedical Sciences Promotions Committee
- 2006 Director, Neuroscience Core course, "Anatomy and Development of the Nervous System"

COURSES TAUGHT AND/OR COORDINATED AT YALE UNIVERSITY SCHOOL OF MEDICINE

- 2007 Neurodevelopment (Integrative Neuroscience Program elective course). Co-Director of Course.
- 2007,2009 Principles of Neuroscience (Integrative Neuroscience Program core course) lecture on Neuronal Development
- 2007-pres Structural and Functional Organization of the Human Nervous System (Medical School and Graduate School core course) lecture on Eye Movements
- 2007-pres Structural and Functional Organization of the Human Nervous System (Medical School and Graduate School core course) laboratory instructor
- 2009-pres Perspectives on Science and Engineering (Yale College Freshman Seminar)
- 2010, 2013 Sensory Physiology (Yale Graduate School elective course) lecture on visual system
- 2012-pres Neurobiology of Cortical Systems (Yale Graduate School elective course) course director
- 2013-pres Seminar in Brain Development and Plasticity (Yale College Advanced Seminar) 4 lectures/4 discussions

COURSES TAUGHT AND/OR COORDINATED AT OTHER INSTITUTIONS WHILE AT YALE

- 2011 Neurodevelopment Course, Columbia University (lecture on topographic maps)
- 2012 Neurodevelopment Course, Wesleyan University. (lecture on activity dependent development)
- 2013-2015 Neurodevelopment Course, Columbia University (lecture on sensory map development)
- 2013 Institute for Advanced Study Workshop on Statistical Physics and Computational Neuroscience Hong Kong University of Science and Technology, Hong Kong, (lectures on topographic maps and activity dependent development)
- 2015 Neurodevelopment Course, Rockefeller University (lecture on map development)

CURRICULUM DEVELOPMENT WORK AT YALE UNIVERSITY SCHOOL OF MEDICINE

- 2007-2012 Member, Medical School Admissions Committee
- 2007-pres Member, Interdepartmental Neuroscience Program Admissions Committee
- 2008-pres Member, Interdepartmental Neuroscience Program Executive Committee
- 2008-pres Director of Graduate Studies, Neurobiology Graduate Program
- 2008-pres Co-director of Neuroscience Track

2008-pres Member of Biological and Biomedical Science (BBS) Executive Committee
2011 Developed new course on the Neurobiology of Cortical Systems
2012-pres Member of MD/PhD Program Faculty/ Admissions Committee

POSTDOCTORAL TRAINEES/ RESEARCH ASSOCIATES

Dong-Seob Kim, M.D., Ph.D., 1999-2001, Associate Professor, Department of Ophthalmology, Hanyang University School of Medicine, Seoul, South Korea.
Hui-Chen Lu, Ph.D., 1999-2005, Associate Professor in Pediatric Neurology and Neuroscience, Cain Foundation Laboratories, Baylor College of Medicine, Houston TX.
Joanna Zhang, Ph.D., 2009-2011, Associate Professor at Institute of Brain Science, Fudan University, Shanghai, China
Hong-Ping Xu, Ph.D., 2007-present
Hong Li, Ph.D., 2008-2012, Assistant Professor, Anhui Medical School, China
James Ackman, Ph.D., 2008-2014, Assistant Professor in Molecular, Cell and Developmental Biology, University of California at Santa Cruz (as of 1/2015)
Moran Furman, Ph.D., 2008-2011, Scientific Editor, Neuron.
Ethan Mohns, Ph.D., 2010-present
Sophia Fertuzinhos, Ph.D., 2011-2012

GRADUATE STUDENTS

AS MAJOR ADVISOR

Daniel T. Plas, Ph.D. in Neuroscience, 2005; Current Position: Assistant Professor, University of Texas, Pan American
Sunil Mehta, Ph.D. in Developmental Biology, 2005; Current Position: Fellow in Child and Adolescent Psychiatry at UCLA
Michael Albright, Ph.D. in Neuroscience, 2007; Current Position: Postdoctoral fellow in Neuroscience at UT Houston
Anand Chandrasekaran, Ph.D. Candidate in Neuroscience, 2002-2006; Current Position: Founder, Chief Technology Officer, Mad Street Den
Ruchir Shah, Ph.D. Ph.D. in Neuroscience, 2008; Current Position: Supervisor of Scientific Communications at Weber Shandwick
Melis Inan, Ph.D. Candidate in Developmental Biology, 2009; Current Position: Postdoctoral fellow at Weill/Cornell Medical School
Onkar Dhande, Ph.D. Candidate in Developmental Biology, 2005-2011; Current Position: Postdoctoral fellow in Huberman Lab at UC San Diego
Timothy Burbridge, Ph.D. Candidate in Neurobiology, 2009-present
Yidong Li, Ph.D. Candidate in Neuroscience, 2012-present
Alexander Gribizis, Ph.D. Candidate in Neuroscience, 2013-present
Xinxin Ge, Ph.D. Candidate in Neuroscience, 2014-present

AS THESIS COMMITTEE MEMBER (BCM)

Cynthia Galvan, Ph.D. in Neuroscience, 2001
Beth Boudreaux, Ph.D. in Neuroscience, 2002, Postdoctoral Researcher at Northwestern
Sam McClure, Ph.D. in Neuroscience, 2003, Postdoctoral Researcher at Princeton
Tian-ming Yang, Ph.D. in Neuroscience, 2003, Postdoctoral Researcher at the University of Washington
Patrik Verstreken, Ph.D. in Developmental Biology, 2002, Postdoctoral Researcher at BCM
Kartik Pappu, Ph.D. in Developmental Biology, 2004, Postdoctoral Researcher at UCLA
Tycho Hoogland, Ph.D. in Neuroscience, 2004, Postdoctoral Researcher at BCM
Hita Adwanakar, Ph.D. in Neuroscience, 2005, Postdoctoral Researcher at UT Galveston
Jacqueline Lee Alldrit, Ph.D. in Physiology, 2005, High school teacher, CA
Michael Greenbaum, Ph.D. Candidate in Genetics, 2001-2003
Yarimar Carrasaquillo, Ph.D. in Neuroscience, 2005, Postdoctoral Researcher at Washington University
Adam Mayer, Ph.D. Candidate in Neuroscience, 2001-2007
Xu Liu, Ph.D. Candidate in Molecular and Cell Biology, 2002-2008
Tong Wey Koh, Ph.D. Candidate in Developmental Biology, 2002-2006

Marci Antion, Ph.D. Candidate in Neuroscience, 2002-2006
Bryan McGill Ph.D. Candidate in Neuroscience, 2002-2007
William Krause, Ph.D. Candidate in Molecular and Cell Biology, 2003-2008
Wilson Chwang, Ph.D. Candidate in Neuroscience, 2004-2007
Cindy Ly, Ph.D. Candidate in Neuroscience, 2004-2007
Joonyeol Lee, Ph.D. Candidate in Neuroscience, 2004-2007
Kahlil Martin, Ph.D. Candidate in Neuroscience, 2004-6, returned to medical school at BCM
Olivia Fitch, Ph.D. Candidate in Neuroscience, 2004-2007
Matt Weston, Ph.D. Candidate in Neuroscience, 2005-2007
Carlos Ballester, Ph.D. Candidate in Developmental Biology, 2005-2006

AS THESIS COMMITTEE MEMBER (YALE)

Amanda Foust, Ph.D. Candidate in Neurobiology, 2008-2012
Nao Gamo, Ph.D. Candidate in Neurobiology, 2008-2012
Wenqi Han Ph.D. Candidate in Neurobiology, 2008-pres
Lu Jin, Ph.D. Candidate in Neurobiology, 2009-pres
Matthew Krause, Ph.D. Candidate in Neurobiology, 2008-2012
Ying Zhu, Ph.D. Candidate in Neurobiology, 2009-2014
Martin Dominguez, Ph.D. Candidate in Neurobiology, 2008-2013
Jah Chaisangmongkon, Ph.D. Candidate in Neuroscience, 2009-pres
Christopher Donahue, Ph.D. Candidate in Neurobiology, 2009-2014
Matthew Kleinman, Ph.D. Candidate in Neurobiology, 2010-pres
Christopher Bartley, Ph.D. Candidate in Neurobiology, 2010-2014
Feras Akbik, Ph.D. Candidate in Neuroscience, 2010-2013
Yixiao Xou, Ph.D. Candidate in Neuroscience, 2009-pres.
Jonas Belina, Ph.D. Candidate in Neuroscience, 2011-pres
Jamie Benoit, Ph.D. Candidate in Psychology, 2011-pres
Paul Yuan, Ph.D. Candidate in Neurobiology, 2012-pres
Mitra Miri, Ph.D. Candidate in Neuroscience, 2012-pres
Jeremy Chang, Ph.D. Candidate in Neurobiology, 2012-pres
Zhen Li, Ph.D. Candidate in Neuroscience, 2012-pres
Bart Massi, Ph.D. Candidate in Neuroscience, 2013-pres
Omer Mano, Ph.D. Candidate in Molecular, Cellular and Developmental Biology, 2013-pres

DIDACTIC LECTURES (SINCE 1998)

INTERNATIONAL AND NATIONAL

Brain Expo, San Antonio, TX, "Nature versus Nurture in Brain Development: How Genes and the Environment Combine to Guide Brain Development", July 2002
Gulbenkian Institute for Science PhD Program in Biomedicine, Lisbon, Portugal; "Neuromuscular Junction Activity-Dependent Development", Feb. 15, 2005
Gulbenkian Institute for Science PhD Program in Biomedicine, Lisbon, Portugal; "Spontaneous Neuronal Activity in Map Development", Feb. 15, 2005
Gulbenkian Institute for Science PhD Program in Biomedicine, Lisbon, Portugal; "Sensory Experience in Map Development", Feb. 16, 2005
Gulbenkian Institute for Science PhD Program in Biomedicine, Lisbon, Portugal; "Nature vs. Nurture in Sensory Map Development", Feb. 16, 2005

LOCAL (BCM AND YALE UNIVERSITY)

More than 200 lectures in 10 different Baylor College of Medicine and Yale University undergraduate, graduate and medical school courses on subjects in Neuroscience ranging from Neural Development, Systems Neuroscience, Biology of Schizophrenia, Sleep, Working Memory, Mouse Transgenic Models, Visual System, Eye Movement, Gene Regulation, Sensory Channels, etc.

SERVICE ACTIVITIES AT BAYLOR COLLEGE OF MEDICINE (BCM)

NEUROSCIENCE DEPARTMENT ASSIGNMENTS

Faculty Search Committee-Assistant Professor, Neuroscience, 1998-99
Examination Committee for the Program in Developmental Biology, 1998-2006
Examination Committee for the Department of Neuroscience, 1998-2006
Chair, Neuroscience Seminar Committee, 1998-2006
Co-Chair, De Lange Conference on Neuroscience, 1999-2001
Neuroscience Graduate Curriculum Reorganization Committee, 2001
Neuroscience Graduate Program Steering Committee, 2004-2006
Chair, Neuroscience Graduate Student Recruitment Committee, 2004-2006
Faculty Search Committee-Tenure Track Professor in Systems Neuroscience, 2005
Neuroscience Graduate Curriculum Reorganization Committee, 2005-2006
Faculty Search Committee-Tenure Track Professor in Molecular/Cellular Neuroscience, 2006

COLLEGE ADMINISTRATIVE ASSIGNMENTS

Faculty Oversight Committee, Medical Scientist Training Program, 1998-2006
Program in Developmental Biology Steering Committee, 2000-2006
Baylor College of Medicine Graduate School Recruitment Committee, 2005-2006
Baylor College of Medicine Graduate School Executive Council, 2005-2006
Director, Machine Shop Module, NEI Vision Core Grant, 2005-2006
Baylor College of Medicine Graduate School Promotions Committee, 2006
Co-Director, Baylor College of Medicine Medical Scientist Training Program (MD/PhD), 2006

SERVICE ACTIVITIES AT YALE UNIVERSITY

DEPARTMENT ASSIGNMENTS

Member, Department of Neurobiology Tenure-Track Faculty Search Committee, 2007, 2008, 2009
Coordinator, 'Club Neurobiology' Colloquium Series, 2007-2010
Member, Department of Ophthalmology Research Director Faculty Search Committee, 2007
Member, Department of Ophthalmology Tenure-Track Faculty Search Committee, 2008, 2009, 2011
Director of Graduate Studies, Neurobiology Graduate Program, 2008-present
Coordinator, Department of Neurobiology Seminar Series, 2009-present
Chair, Department of Neurobiology Tenure-Track Faculty Search Committee, 2011, 2012

UNIVERSITY ADMINISTRATIVE ASSIGNMENTS

Yale University School of Medicine (MD) Admissions Committee, 2007-2012
Director, Yale University Vision Research Core Program, 2007- present
Member, Yale University School of Medicine Machine Shop Oversight Committee, 2007- present
Director, Vision Research Imaging Core Module, 2007- present
Member, Neuroscience Track Admissions Committee, 2007- present
Member, Biological and Biomedical Sciences (BBS) Executive Committee, 2008- present
Co-Director, Neuroscience Track of the BBS, 2008- present
Member, Interdepartmental Neuroscience Program (INP) Executive Committee, 2008- present
Fellow, Berkeley College, Yale University (undergraduate faculty advisor), 2010- present
Member, Funds and Fellowships Committee, Yale University School of Medicine, 2010- 2014
Member, Biological and Physical Sciences Degree Committee, Yale University, 2012-2014
Member, MD/PhD Program Faculty Committee, Yale University School of Medicine, 2012-present
Member, Department of Ophthalmology Chair Search Committee, 2014-present
Member, Term Appointments and Promotions Committee, 2014-present
Member, Strategic Planning Committee for Basic Science, 2014-present
Member, Scholar Awards Committee, 2014-present