

Curriculum Vitae

Michael Manookin, Ph.D.

Undergraduate

2002 Bachelor of Arts, Linguistics, Brigham Young University Department of Linguistics, Provo, UT

Graduate

2004 Master of Arts, Linguistics, Brigham Young University Department of Linguistics, Provo, UT

2009 Doctor of Philosophy, Neuroscience, University of Michigan, Ann Arbor, MI

Post Graduate Training

2009-2011 **Post-Doctoral Fellow:** University of Washington, Department of Biological Structure, Seattle, WA

2011-2014 **Post-Doctoral Fellow:** University of Washington, Department of Ophthalmology, Seattle, WA

FACULTY POSITIONS HELD:

2014-present Acting Instructor, University of Washington, Department of Ophthalmology, Seattle, WA

HONORS/AWARDS:

2000-2001 Office of Research and Creative Activities Research Scholarship Recipient, Brigham Young University, Provo, UT

2005 National Eye Institute Travel Award Recipient, ARVO meeting, Ft. Lauderdale, FL

2008 Invited Speaker, Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, Snowmass Village, CO

PROFESSIONAL MEMBERSHIPS:

2004-2014 Society for Neuroscience

2005-2014 Association for Research in Vision and Ophthalmology

TEACHING RESPONSIBILITIES:

2001-2004	Linguistics 490: Senior Seminar, Brigham Young University
2003	eXtensible Markup Language (XML) Programming, Brigham Young University
2006	Biology 222: Introduction to Neurobiology, University of Michigan
2010	Medical Neuroanatomy, University of Washington Medical School

EDITORIAL RESPONSIBILITIES:

Manuscript Reviewer, Journal of Neuroscience
Manuscript Reviewer, Journal of Neurophysiology
Manuscript Reviewer, Journal of Physiology
Manuscript Reviewer, Visual Neuroscience
Manuscript Reviewer, Journal of the Optical Society of America

RESEARCH FUNDING:

2005-2008	Vision Research Training Grant Recipient, University of Michigan
2008-2009	Rackham Graduate School Pre-Doctoral Fellowship Recipient
2009-2010	Vision Research Training Grant Recipient, University of Washington
2011	NIH F32 NRSA Awardee (Declined)
2011-2014	Helen Hay Whitney Foundation Postdoctoral Fellowship Recipient
2014	NIH F32 NRSA Awardee

BIBLIOGRAPHY:

Manuscripts in Refereed Journals:

1. Stafford B, **Manookin MB**, Demb JB. NMDA receptor contributions to spatial and temporal processing by the retina. *Journal of Physiology*, *Accepted*.
2. Puller CP, **Manookin MB**, Neitz M, Neitz J. 2013. A specialized synaptic pathway for chromatic signals beneath S-cone photoreceptors is common to human, Old and New World primates. *J Opt Soc Am A*, accepted for publication.
3. Crook JD, **Manookin MB**, Dacey DM. 2011. Non-synaptic horizontal cell feedback mediates 'red-green' color opponency in midget ganglion cells. *J Neurosci*, 31 (5):1762-72.
4. **Manookin MB**, Weick M, Stafford B, Demb JB. 2010. NMDA receptor contributions to visual contrast coding. *Neuron*, 67(2):280-293.
5. Beaudoin DL, **Manookin MB**, Demb JB. 2008. Distinct expressions of contrast gain control in parallel synaptic pathways converging on a retinal ganglion cell. *J Physiol* 586(22):5487-5502.
6. **Manookin MB**, Beaudoin DL, Ernst ZR, Flagel LJ, Demb JB. 2008. Disinhibition combines with excitation to extend the operating range of the OFF visual pathway in daylight. *J Neurosci* 28(16):4136-50.
7. Zaghoul KA, **Manookin MB**, Borghuis BG, Boahen K, Demb JB. 2007. Functional circuitry for peripheral suppression in mammalian Y-type retinal ganglion cells. *J Neurophysiol* 97(6):4327-40.
8. **Manookin MB**, Demb JB. 2006. Presynaptic mechanism for slow contrast adaptation in mammalian retinal ganglion cells. *Neuron* 50(3):453-64.

Chapters:

1. **Manookin MB**, Demb JB. 2010. Information processing: Contrast sensitivity. In: Darlene A. Dartt, editor. *Encyclopedia of the Eye*, Vol 2. Oxford: Academic Press. pp. 344—348.

Abstracts:

Manookin MB, Puller C, Rieke F, Neitz J, Neitz M. ON parasol ganglion cells of the primate retina exhibit directional sensitivity. Association for Research in Vision and Ophthalmology Meeting, 2013. Seattle, WA.

Puller C, **Manookin MB**, Neitz M, Rieke F, Neitz J. Response properties of broad thorny ganglion cells in the primate retina. Association for Research in Vision and Ophthalmology Meeting, 2013. Seattle, WA.

Puller C, **Manookin MB**, Neitz M, Neitz J. Syntaxin-4 is highly enriched beneath S-cone pedicles in the primate retina. Association for Research in Vision and Ophthalmology Meeting, 2012. Ft. Lauderdale, FL.

Crook JD, Packer OS, **Manookin MB**, Dacey DM. Distinct spatio-chromatic receptive field structure mediates red-green opponency and high achromatic contrast sensitivity in primate midget ganglion cells. Association for Research in Vision and Ophthalmology Meeting, 2011. Ft. Lauderdale, FL.

Crook JD, **Manookin MB**, Dacey DM. Circuitry and receptive field structure underlying 'double duty' performance by midget ganglion cells. Optical Society of America Fall Vision Meeting, 2010. Rochester, NY.

Demb JB, **Manookin MB**. The role of NMDA receptors in visual contrast coding. Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, 2010. Saxtons River, VT.

Crook JD, **Manookin MB**, Dacey DM. Midget ganglion cells can signal both form and color with high sensitivity. Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, 2010. Saxtons River, VT.

Crook JD, **Manookin MB**, Troy JB, Packer OS, Dacey DM. Horizontal cell feedback establishes red-green opponency in primate midget ganglion cells. Gained in Translation Symposium, May 2010. Seattle, WA.

Manookin MB, Crook JD, Dacey DM. Ligand-gated conductances in midget, parasol, and small bistratified ganglion cells of the macaque monkey retina. Gained in Translation Symposium, May 2010. Seattle, WA.

Crook JD, **Manookin MB**, Dacey DM. Excitatory synaptic conductances mediate 'blue-yellow' and 'red-green' opponency in macaque monkey retina. Association for Research in Vision and Ophthalmology Meeting, 2010. Ft. Lauderdale, FL.

Demb JB, **Manookin MB**. NMDA receptor contributions to visual contrast encoding in retinal ganglion cells. Association for Research in Vision and Ophthalmology Meeting Ganglion Cell Meeting, May 2010 (Retinal Ganglion Cell Pre-Meeting). Ft. Lauderdale, FL.

Dacey DM, Crook JD, **Manookin MB**, Troy JB, Packer OS. Synaptic basis for 'red-green' and 'blue-yellow' color opponency in primate retinal ganglion cells. Association for Research in Vision and Ophthalmology Meeting Ganglion Cell Meeting, May 2010 (Retinal Ganglion Cell Pre-Meeting). Ft. Lauderdale, FL.

Manookin MB, Beaudoin DL, Demb JB. Different circuits govern high- and low-contrast responses in OFF retinal ganglion cells. Society for Neuroscience Meeting, 2007. San Diego, CA.

Demb JB, Beaudoin DL, **Manookin MB**. Multiple circuits converging on a single retinal ganglion cell express distinct adaptations to contrast. Society for Neuroscience Meeting, 2007. San Diego, CA.

Manookin MB, Demb JB. Slow contrast adaptation in mammalian retinal ganglion cells. Society for Neuroscience Meeting, 2005. Washington, D.C.

OTHER:

Manookin MB, Puller C, Rieke F, Neitz J, Neitz M. Primate parasol (magnocellular-projecting) ganglion cells exhibit direction sensitivity. Society for Neuroscience Meeting, 2013. San Diego, CA.

Manookin MB, Puller C, Schwartz GW, Cafaro M, Rieke FM, Neitz J, Neitz M. The synaptic receptive-field organization of parasol ganglion cells of the primate retina. Association for Research in Vision and Ophthalmology Meeting, 2012. Ft. Lauderdale, FL.

Dacey DM, Crook JD, **Manookin MB**, Packer OS. Absence of synaptic inhibition associated with S-cone ON excitatory input to the small bistratified, blue-yellow opponent ganglion cell of the macaque monkey retina. Association for Research in Vision and Ophthalmology Meeting, 2011. Ft. Lauderdale, FL.

Manookin MB, Crook JD, Dacey DM. Excitatory and inhibitory circuitry and receptors in midget and parasol ganglion cells of the macaque monkey retina. Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, 2010. Saxtons River, VT.

Manookin MB, Crook JD, Dacey DM. Synaptic origins of excitatory and inhibitory conductances in midget and parasol ganglion cells of the macaque monkey retina. Association for Research in Vision and Ophthalmology Meeting, 2010. Ft. Lauderdale, FL.

Crook JD, **Manookin MB**, Troy JB, Packer OS, Dacey DM. Increased pH buffering abolishes red-green opponency in primate midget ganglion cells. Association for Research in Vision and Ophthalmology Meeting Ganglion Cell Meeting, May 2010 (Retinal Ganglion Cell Pre-Meeting). Ft. Lauderdale, FL.

Manookin MB, Crook JD, Dacey DM. NMDA receptors mediate synaptic excitation in midget, parasol, and small bistratified ganglion cells in macaque monkey retina. Association for Research in Vision and Ophthalmology Meeting, 2010 (Retinal Ganglion Cell Pre-Meeting). Ft. Lauderdale, FL.

Weick M, **Manookin MB**, Demb JB. Intrinsic mechanism for contrast adaptation in Alpha (Y-type) retinal ganglion cells. Association for Research in Vision and Ophthalmology Meeting, 2009. Ft. Lauderdale, FL.

Manookin MB, Demb JB. AMPA and NMDA receptor-mediated responses adapt differently to contrast in retinal ganglion cells. Society for Neuroscience Meeting, 2008. Washington, D.C.

Manookin MB, Demb JB. Slow contrast adaptation occurs presynaptically in mammalian retinal ganglion cells. Association for Research in Vision and Ophthalmology Meeting, 2005. Ft. Lauderdale, FL.

National Invitational Lectures:

Manookin MB, Dacey DM. Neural circuits and synapses for early stage visual processing. Biological Structure Dept. Post-Doctoral Symposium. May 2010. Seattle, WA.

Manookin MB, Demb JB. Contrast processing and adaptation in mammalian retina. Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, 2008. Snowmass Village, CO.