

# Curriculum Vitae

## EDUCATION:

2009	Doctor of Philosophy, Neuroscience University of Michigan	Ann Arbor, MI
2004	Master of Arts, Linguistics Brigham Young University	Provo, UT
2002	Bachelor of Arts, Linguistics Brigham Young University	Provo, UT

## POST GRADUATE TRAINING

2011-2014	Post-Doctoral Fellow University of Washington, Department of Ophthalmology	Seattle, WA
2009-2011	Post-Doctoral Fellow University of Washington, Department of Biological Structure	Seattle, WA

## FACULTY POSITIONS HELD

2015-present	Assistant Professor University of Washington, Department of Ophthalmology	Seattle, WA
2014-2015	Acting Instructor University of Washington, Department of Ophthalmology	Seattle, WA

## HONORS/AWARDS

2008	Invited Speaker, Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, Snowmass Village, CO
2005	National Eye Institute Travel Award Recipient, ARVO meeting, Ft. Lauderdale, FL
2000-2001	Office of Research and Creative Activities Research Scholarship Recipient, Brigham Young University, Provo, UT

## PROFESSIONAL MEMBERSHIPS:

2005-present	Association for Research in Vision and Ophthalmology
2004-present	Society for Neuroscience
2015-present	American Physiological Society

## TEACHING RESPONSIBILITIES:

2016-present	Neuro 511-A: The Visual System, University of Washington
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2010 Medical Neuroanatomy, University of Washington Medical School  
2006 Biology 222: Introduction to Neurobiology, University of Michigan  
2001-2004 Linguistics 490: Senior Seminar, Brigham Young University  
2003 eXtensible Markup Language (XML) Programming, Brigham Young University

#### **EDITORIAL RESPONSIBILITIES:**

2006-present Manuscript Reviewer, Journal of Neuroscience  
2006-present Manuscript Reviewer, Journal of Neurophysiology  
2006-present Manuscript Reviewer, Journal of Physiology  
2008-present Manuscript Reviewer, Visual Neuroscience  
2010-present Manuscript Reviewer, Journal of the Optical Society of America  
2015-present Manuscript Reviewer, Current Biology  
2016-present Manuscript Reviewer, Philosophical Transactions B  
2017-present Manuscript Reviewer, Journal of Comparative Neurology

#### **SPECIAL NATIONAL RESPONSIBILITIES:**

2016 Session Moderator, Federation of American Societies for Experimental Biology, Retinal Neurobiology and Visual Processing Meeting, Keystone, CO  
2016 Session Moderator, Association for Research in Vision and Ophthalmology Annual Meeting, Seattle, WA  
2012 Session Moderator, Association for Research in Vision and Ophthalmology Annual Meeting

#### **RESEARCH FUNDING:**

2017 Alcon Young Investigator Grant Awardee  
2016 Latham Research Grant Awardee  
2014 NIH F32 NRSA Awardee  
2011-2014 Helen Hay Whitney Foundation Postdoctoral Fellowship Recipient  
2011 NIH F32 NRSA Awardee (Declined)  
2009-2010 Vision Research Training Grant Recipient, University of Washington  
2008-2009 Rackham Graduate School Pre-Doctoral Fellowship Recipient  
2005-2008 Vision Research Training Grant Recipient, University of Michigan

#### **BIBLIOGRAPHY:**

##### ***Manuscripts in Refereed Journals:***

1. Laprell L, Tochitsky I, Kaur K, **Manookin MB**, et al. 2017. Photopharmacological control of bipolar cells restores visual function in blind mice. *J Clin Invest* 127(7):2598-2611.
2. **Manookin MB**. 2016. Neuroscience: Peeking under the sombrero. *Current Biology* 26(15):R713-5.
3. **Manookin MB**, Puller C, Rieke F, Neitz J, Neitz M. 2015. Distinctive receptive field and physiological properties of a wide-field amacrine cell in the macaque monkey retina. *J Neurophysiol* 114(3):1606-16.
4. Puller C, **Manookin MB**, Neitz J, Rieke F, Neitz M. 2015. Broad thorny ganglion cells: a candidate for visual pursuit error signaling in the primate retina. *J Neurosci* 35(13):5397-408.
5. Stafford B, **Manookin MB**, Singer JH, Demb JB. 2014. NMDA and AMPA receptors contribute similarly to temporal processing in mammalian retinal ganglion cells. *J Physiol* 592(22):4877-89.

6. Puller CP, **Manookin MB**, Neitz M, Neitz J. 2014. 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 Image Sci Vis* 31(4): A189-194.
7. 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.
8. **Manookin MB**, Weick M, Stafford B, Demb JB. 2010. NMDA receptor contributions to visual contrast coding. *Neuron*, 67(2):280-293.
9. 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.
10. **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.
11. 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.
12. **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.

**Other Publications:**

**Manuscripts Submitted:**

1. **Manookin MB**. 2016. Retinal contributions to early motion processing in primates. *Neuron* in revision.

**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 M, Neitz J. Centrifugal motion sensitivity of starburst amacrine cells. Federation of American Societies for Experimental Biology, 2016. Keystone, CO.

**Manookin MB**, Kuchenbecker JA, Neitz M, Neitz J. In search of the color-coding ganglion cell. Association for Research in Vision and Ophthalmology Meeting, 2016. Seattle, WA.

**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 mid-ganglion 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 mid-ganglion 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 mid-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 mid-ganglion, 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.

**Local Presentations:** None