

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel in the order listed for Form Page 2.  
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE	
Stuart C. Mangel, Ph.D.		Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Columbia University, New York	B.A.	1973	Psychology
University of Oregon, Eugene, Oregon	M.A.	1976	Psychology
University of Virginia, Charlottesville, VA	Ph.D.	1981	Physiology
Harvard University, Cambridge, MA	Postdoc.	1981-1984	Neurobiology

**A. Positions and Honors****Positions and Employment**

1976-1981 Predoctoral Fellow, University of Virginia, Charlottesville, VA  
 1981-1984 NIH Postdoctoral Fellow, Harvard University, Cambridge, MA  
 1982-1984 Teaching Assistant, Harvard University  
 1984-1986 Research Associate, Washington University School of Medicine, St. Louis, MO  
 1986-1987 Research Assistant Professor, Washington University School of Medicine  
 1987-1996 Assistant Professor, Departments of Physiology & Biophysics and Ophthalmology, University of Alabama at Birmingham, School of Medicine  
 1987-1996 Associate Scientist, Neurobiology Research Center, University of Alabama at Birmingham, School of Medicine  
 1991-2005 Scientist, Vision Science Research Center, University of Alabama at Birmingham  
 1996-2003 Associate Professor, Departments of Neurobiology, Physiology & Biophysics, Physiological Optics, and Ophthalmology, University of Alabama at Birmingham  
 2003-2005 Professor, Department of Neurobiology, University of Alabama School of Medicine, Birmingham, AL  
 2005-present Professor, Department of Neuroscience, The Ohio State University College of Medicine, Columbus, OH

**Honors and Awards**

Undergraduate Scholarship, Columbia University, New York, 1969-1973  
 NIH Predoctoral Training Grant, University of Virginia School of Medicine, 1976-1979  
 Individual NIH Postdoctoral Fellowship, Harvard University, 1981-1984  
 Principal Investigator - RO1 Grants (2x), National Eye Institute - NIH, 1984-2009  
 Invited Speaker, International Congress of Eye Research, 1988, 1994, 1996, 1998, 2002, 2004, 2006  
 Rich Retina Research Foundation Award, Birmingham, AL, 1991  
 Robert E. McCormick Scholars Award, Research to Prevent Blindness, Inc., New York, 1992-1993  
 Principal Investigator - Grants (3x), National Science Foundation, 1993-2005  
 Elected to Program Planning Committee, Association for Research in Vision and Ophthalmology (ARVO), 1997-2000; Chair - Visual Neurophysiology Section, 1999-2000  
 Editorial Board, *Visual Neuroscience*, 1998-2003  
 NIH-National Eye Institute Five-Year Planning Committee, 2003  
 NIH - Center for Scientific Review, Study Section VISCS, regular member, 2000-2003, Vice-Scientific Chair, 2003 (2X)

**B. Selected Peer-Reviewed Publications**

- Mangel, S.C., Wilson, J.R. and Sherman, S.M. (1983) Development of neuronal response properties in the cat lateral geniculate nucleus during monocular lid suture. J. Neurophysiol. 50: 240-264.
- Mangel, S.C., Ariel, M. and Dowling, J.E. (1985) Effects of acidic amino acid antagonists on the spectral properties of fish horizontal cells: circuitry of the outer retina. J. Neurosci. 5: 2839-2850.
- Mangel, S.C. and Dowling, J.E. (1985) Responsiveness and receptive field size of carp horizontal cells are reduced by prolonged darkness and dopamine. Science 229: 1107-1109.
- Mangel, S.C. and Miller, R.F. (1987) Horizontal cells contribute to the receptive field surround of ganglion cells in the rabbit retina. Brain Res. 414: 182-186.
- Mangel, S.C. and Dowling, J.E. (1987) The interplexiform-horizontal cell system of the fish retina: Effects of dopamine, light stimulation and time in the dark. Proc. Royal Soc. Lond. B 231: 91-121.
- Mangel, S.C. (1991) Analysis of the horizontal cell contribution to the receptive field surround of ganglion cells in the rabbit retina. Journal of Physiology (Lond) 442: 211-234.
- Harsanyi, K. and Mangel, S.C. (1992) Activation of a D2 receptor increases the electrical coupling between retinal horizontal cells by inhibiting dopamine release. Proc. Natl. Acad. Sci. USA 89: 9220-9224.
- Harsanyi, K. and Mangel, S.C. (1993) Modulation of cone to horizontal cell transmission by calcium and pH in the fish retina. Visual Neuroscience. 10: 81-91
- Mangel, S.C., Baldrige, W.H., Weiler, R. and Dowling, J.E. (1994) Threshold and chromatic sensitivity changes in fish cone horizontal cells following prolonged darkness. Brain Res. 659: 55-61.
- Harsanyi, K., Wang, Y. and Mangel, S.C. (1996) Activation of NMDA receptors produces dopamine-mediated changes in fish horizontal cell light responses. J. Neurophysiol., 75: 629-639.
- Wang, Y. and Mangel, S.C. (1996) A circadian clock regulates rod and cone input to fish retinal cone horizontal cells. Proc. Natl. Acad. Sci. U.S.A., 93: 4655-4660.
- Weiler, R., Baldrige, W. H., Mangel, S. C. and Dowling, J. E. (1997) Modulation of endogenous dopamine release in the fish retina by light and prolonged darkness. Visual Neuroscience. 14: 351-356.
- Wang, Y., Harsanyi, K. and Mangel, S.C. (1997) Endogenous activation of dopamine D2 receptors regulates dopamine release in the fish retina. J. Neurophysiol., 78: 439-449.
- Mangel, S. C. (1998) The generation of directionally selective responses in the retina. Journal of Physiology (Lond.), 512: 316.
- Dmitriev, A.V. and Mangel, S.C. (2000) A circadian clock regulates the pH of the fish retina. Journal of Physiology (Lond.), 522: 77-82.
- Dmitriev, A.V. and Mangel, S.C. (2001) Circadian clock regulation of pH in the rabbit retina. Journal of Neuroscience 21: 2897-2902.
- Mangel, S.C. (2001) Circadian clock regulation of neuronal light responses in the vertebrate retina. Progress in Brain Research, 131: 505-518.
- Zhang, D-Q., Ribelayga, C., Mangel, S.C. and McMahon, D.G. (2002) Suppression by zinc of AMPA receptor mediated synaptic transmission in the retina. J. Neurophysiol., 88: 1245-1251.
- Ribelayga, C. Wang, Y. and Mangel, S.C. (2002) Dopamine mediates circadian clock regulation of rod and cone input to fish retinal cone horizontal cells. Journal of Physiology (Lond.), 544: 801-816.
- Ribelayga, C. and Mangel, S.C. (2003) Absence of circadian clock regulation of horizontal cell gap junctional coupling reveals two dopamine systems in the goldfish retina. J. Comp. Neurol., 467: 243-253.
- Gavrikov, K.E., Dmitriev, A.V., Keyser, K.T. and Mangel, S.C. (2003) Cation-chloride cotransporters mediate neural computation in the retina. Proc. Natl. Acad. Sci. USA, 100: 16047-16052.
- Ribelayga, C., Wang, Y. and Mangel, S.C. (2004) A circadian clock in the fish retina regulates dopamine release via activation of melatonin receptors. Journal of Physiology (Lond.), 554: 467-482.
- Dmitriev, A. V. and Mangel, S.C. (2004) Retinal pH reflects retinal energy metabolism in the day and night. J. Neurophysiol., 91: 2404-2412.
- Ribelayga, C. and Mangel, S. C. (2005) A circadian clock and light/dark adaptation differentially regulate adenosine in the mammalian retina. J. Neuroscience, 25: 215-222.
- Dmitriev, A. V. and Mangel, S.C. (2006) Electrical feedback in the cone pedicle: a computational analysis. J. Neurophysiol., 95: 1419-1427.
- Gavrikov, K.E., Nilson, J.E., Dmitriev, A.V., Zucker, C.L., and Mangel, S.C. Dendritic compartmentalization of chloride cotransporters underlies directional responses of starburst amacrine cells in retina. Proc. Natl. Acad. Sci. U.S.A., in revision.

## C. Research Support

### Ongoing Research Support

Title: Chloride Cotransporter Function in the Retina

Principal Investigator: Mangel, Stuart C, Ph.D.

Agency: NIH NEI

Type: RO1 EY014235

Period: 09/01/02-07/31/07

Goals: The goal of this grant is to determine whether the differential distribution of two types of chloride cotransporter on starburst amacrine cell dendrites generates the directionally selective responses of the amacrine cells and of directionally selective ganglion cells in the rabbit retina. An additional goal is to determine whether and how postnatal development of the chloride cotransporters alters the development of direction selectivity.

Title: Neuronal Plasticity in the Retina

Principal Investigator: Mangel, Stuart C, Ph.D.

Agency: NIH NEI

Type: RO1 EY005102

Period: 03/01/84-06/30/09

Goals: The goals of this grant are to determine whether a circadian clock regulates rod and cone pathways in the mammalian outer and inner retina and whether the clock uses dopamine, melatonin and/or adenosine to achieve its effects. Additional goals are to determine whether the circadian clock that regulates dopamine, adenosine and melatonin release and extracellular pH is located in the mammalian retina itself and to characterize the mechanisms by which the mammalian clock regulates the release of dopamine and adenosine.

Title: Development of the Mouse Retina

Principal Investigator: Mangel, Stuart C., Ph.D.

Agency: Eye Sight Foundation of Alabama

Type:

Period: 10/01/03-09/30/06

Goals: The goals of this project are to study the development of the mouse retina and to compare development in control mice to development in retinal degeneration (*rd*) mice, a model of human retinitis pigmentosa.

Pending Research Support: None