

## CURRICULUM VITAE

**NAME:** Seth Blackshaw

Updated: May 17, 2010

### **Personal Data:**

Date and Place of Birth: January 24<sup>th</sup>, 1970. Greenwich, U.K.

Nationality: Naturalized U.S. citizen.

Marital Status: Married

Spouse's Name: Wendy Yi-Hsun Yap

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### **Academic Appointments:**

3/04 -present      Assistant Professor, Departments of Neuroscience, Neurology, and Ophthalmology, and Assistant Investigator, Institute for Cell Engineering and Center for High-Throughput Biology, Johns Hopkins University School of Medicine, Baltimore, MD 21287

### **Professional Training:**

4/97-2/99          Postdoctoral fellow, laboratory of Dr. Solomon Snyder  
Department of Neuroscience, Johns Hopkins University School of Medicine,  
Baltimore, MD 21205

2/99-3/04          Postdoctoral fellow, laboratory of Dr. Connie Cepko,  
Department of Genetics, Harvard Medical School, Boston, MA 02115

### **Education:**

1991                  Bachelor of Arts, Biology , University of Chicago, Chicago, IL 60637  
1991                  Master of Science, Biochemistry , University of Chicago, Chicago, IL 60637  
1997                  Doctor of Philosophy, Neuroscience, Johns Hopkins University School of Medicine  
Baltimore, MD 21205  
Mentor: Solomon Snyder  
Thesis title: "The Molecular Basis of Extraretinal Phototransduction"

### **Awards and Honors:**

1991      Howard Hughes Medical Institute Predoctoral Fellow  
1999      Howard Hughes Medical Institute Fellow of the Life Sciences Research Foundation  
2005      Sloan Foundation Research Fellowship  
2005      Whitehall Foundation Research Grant  
2006      Basil O'Connor Starter Scholar Award, March of Dimes  
2006      Klingenstein Foundation Award in the Neurosciences  
2006      W. M. Keck Foundation Distinguished Young Scholar in Medical Research Award  
2007      NARSAD Young Investigator Award  
2007      Ruth and Milton Steinbach Fund Award for Research in Macular Degeneration

**Affiliations:**

Member, Society for Neuroscience

Member, Society for Developmental Biology

**United States Patents:**

Li, X., **Blackshaw, S.**, and Snyder, S. H. Amiloride-sensitive sodium channel and method of identifying substances which stimulate or block salty taste perception. Patent No. US 5693756-A 1, approved 12/2/97.

**Publications:****Research articles (senior author indicated by underlining):**

- Li, X.-J., **Blackshaw, S.**, and Snyder, S. H. (1994). Expression and localization of amiloride-sensitive sodium channel indicates a role for non-taste cells in taste perception. *Proc. Natl. Acad. Sci. U.S.A.* 91:1814-1818.
- O'Brien, R. J., Mammen, A. L., **Blackshaw, S.**, Ehlers, M. D., Rothstein, J. D., and Huganir, R. L. (1997). The development of excitatory synapses in cultured rat spinal cord. *J. Neurosci.* 17:7339-7350.
- Eliasson, M. J. L. \*, **Blackshaw, S.** \*, Schell, M. J., and Snyder, S. H. (1997). Alternative splice forms of neuronal nitric oxide synthase: prominent neuronal localizations. *Proc. Natl. Acad. Sci. U.S.A.* 94:3396-3401. (\* indicates equal contribution by both authors).
- Blackshaw, S.**, and Snyder, S. H. (1997). Parapinopsin, a novel catfish opsin localized to the parapineal organ, defines a new gene family. *J. Neurosci.* 17:8083-8092.
- Blackshaw, S.**, and Snyder, S. H. (1997). Developmental expression pattern of phototransduction components in mammalian pineal implies a light-sensing function. *J. Neurosci.* 17:8074-8082.
- Wolosker, H., Kline, D., Bian, Y., **Blackshaw, S.**, Cameron, A. M., Fralich, T. D., Schnaar, R. L., and Snyder, S. H. (1998) Molecularly cloned mammalian glucosamine 3-phosphate deaminase localizes to transporting epithelium and lacks oscillin activity. *FASEB J.*, 12:91-101.
- Walensky, L. D., Gascard, P., Fields, M. E., **Blackshaw, S.**, Conboy, J. G., Mohandas, N., and Snyder, S. H. (1998). Immunophilin FKBP13 interacts with a novel homologue of the erythrocyte membrane cytoskeletal protein 4.1. *J. Cell Biol.*, 141:143-153.
- Walensky, L. D., Ruat, M., Bakin, R. E., **Blackshaw, S.**, Ronnett, G. V., and Snyder, S. H. (1998). Two novel odorant receptor families expressed in spermatids undergo 5'-splicing. *J. Biol. Chem.*, 273:9378-9387.
- Lai, M. M., Burnett, P. A., Wolosker, H., **Blackshaw, S.**, and Snyder, S. H. (1998). Cain: a novel physiologic protein inhibitor of calcineurin. *J. Biol. Chem.*, 273:18325-18332.
- Burnett, P. E., **Blackshaw, S.**, Lai, M. M., Quereshi, I. A., Burnett, A. F., Sabatini, D. M., and Snyder, S. H. (1998). Neurabin is a synaptic protein linking p70 S6 kinase and the neuronal cytoskeleton. *Proc. Natl. Acad. Sci.* 95:8351-8356.
- Walensky, L. D., Zheng, T. S., **Blackshaw, S.**, DeVries, A. C., Demas, G. D., Gascard, P., Nelson, R. J., Conboy, J. G., Rubin, E. M., Snyder, S. H., and Mohandas, N. (1998). Focal neurobehavioral deficits in mice lacking the erythrocyte membrane cytoskeletal protein 4.1. *Current Biology*, 8:1296-72.
- Kriegsfeld, L. J., Eliasson, M. J. L., Demas, G. E., **Blackshaw, S.**, Dawson, T. M., Nelson, R. J., and Snyder, S. H. (1999). Nocturnal motor coordination deficits in neuronal nitric oxide synthase knock-out mice. *Neuroscience*, 89: 311-15.
- Pieper, A. A., Brat, D., Krug, D., Watkins, C., **Blackshaw, S.**, Gupta, A., Verma, A., and Snyder, S. H. (1999). PARP-deficient mice are resistant to streptozocin-induced diabetes. *Proc. Natl. Acad. Sci. USA*, 96:3059-64.
- Sabatini, D. M., Barrow, R. K., **Blackshaw, S.**, Fields, M., Kirsch, J., Betz, H., and Snyder, S. H. (1999). Interaction of RAFT1 with the clustering protein gephyrin required for rapamycin-sensitive signaling. *Science*, 294:1161-64.
- Walensky, L. D., **Blackshaw, S.**, Liao, D., Watkins, C., Weier, H.-U. G., Huganir, R. L., Conboy, J. G., Mohandas, N., and Snyder, S. H. (1999). A novel neuron-enriched homologue of the erythrocyte membrane cytoskeletal protein 4.1 is associated with synapses. *J. Neurosci.*, 19:6457-6467.
- Demas, G. E., Kreigsfeld, L. J., **Blackshaw, S.**, Nelson, R. J., and Snyder, S. H. (1999). Elimination of aggression in mice lacking endothelial nitric oxide synthetase. *J. Neurosci.*, RC 30, 1-5.
- Wolosker, H., **Blackshaw, S.**, and Snyder, S. H. (1999). Serine racemase: a glial enzyme synthesizing D-serine to regulate glutamate-NMDA neurotransmission. *Proc. Natl. Acad. Sci. USA*, 96:13409-14.

- Halleck, M. S., Lawler J. F. Jr., **Blackshaw, S.**, Gao, L., Nagarajan, P., Hacker, C., Pyle, S., Nakanashi, Y., Ando, H., Weinstock, D., Williamson, P. and Schlegel, R. A. (1999). Differential expression of putative transbilayer amphipath transporters. *Physiological Genomics*, 1: 139-150.
- Borjigin, J., Deng, J., Wang, M. M., Li, X., **Blackshaw, S.**, and Snyder, S. H. (1999). Circadian rhythm of patched1 transcription in the pineal regulated by adrenergic stimulation and cAMP. *J. Biol. Chem.*, 274: 35012-35016.
- Blackshaw, S.** and Snyder, S. H. (1999). Encephalopsin: A novel mammalian extraretinal opsin with discrete localizations in brain. *J. Neuroscience*, 19:3681-90.
- Dore, S., Sampi, K., Goto, S., Alkayed, N. J., **Blackshaw, S.**, Gallagher, M., Traysman, R.J., Hurn, P. D., Guastella, D., Koehler, R.C., and Snyder, S.H. (1999). Heme oxygenase-2 is neuroprotective in focal cerebral ischemia. *Mol. Med.* 5:656-663.
- Sohocki, M. M., Bowne, S.J., Sullivan, L.S., **Blackshaw, S.**, Cepko, C. L., Payne, A. M., Bhattacharya, S. S., Khaliq, S., Qasim Mehdi, S., Birch, D. G., Harrison, W. R., Elder, F. F., Heckenlively, J. R., and Daiger, S. P. (2000). Mutations in a new photoreceptor-pineal gene on 17p cause Leber's congenital amaurosis. *Nature Genetics*, 24:79-83.
- Parra, M., Gascard, P., Walensky, L. D., Gimm, J. A., **Blackshaw, S.**, Chan, N., Takakuwa, Y., Berger, T., Lee, G., Chasis, J. A., Snyder, S. H., Mohandas, N., and Conboy, J. G. (2000). Molecular and functional characterization of protein 4.1B, a novel member of the band 4.1 family with high level, focal expression in brain. *J. Biol. Chem.*, 275:3247-55.
- Blackshaw, S.**, Sawa, A., Snyder, S. H., and Khan, A. (2000). Type 3 inositol 1,4,5-triphosphate receptor modulates cell death. *FASEB J.*, 14:1375-1379.
- Watkins, C. C., Sawa, A., Jaffrey, S. R., **Blackshaw, S.**, Barrow, R. K., Ferris, C. D., and Snyder, S. H. (2000). Diabetic gastropathy in mice reflects loss of neuronal nitric oxide synthase that is restored by insulin. *J. Clin. Invest.* 106:373-384.
- Pieper AA, **Blackshaw S**, Clements EE, Brat DJ, Krug DK, White AJ, Pinto-Garcia P, Favit A, Conover JR, Snyder SH, Verma A. Poly(ADP-ribosyl)ation basally activated by DNA strand breaks reflects glutamate-nitric oxide neurotransmission. *Proc Natl Acad Sci U S A.* 2000 Feb 15;97(4):1845-50
- Dore, S., Goto, S., Sampei, K., **Blackshaw, S.**, Hester, L. D., Ingi, T., Sawa, A., Traystman, R. J., Koehler, R. C., and Snyder, S. H. (2000). Heme oxygenase-2 acts to prevent neuronal death in brain cultures and following transient cerebral ischemia. *Neuroscience*, 99:587-92 (2000).
- Law, S., Dore, S., **Blackshaw, S.**, Gauthier, S., and Quirion, R. (2000) Alteration of expression levels of neuronal nitric oxide synthase and haem oxygenase-2 messenger RNA in the hippocampi and cortices of young adult and aged cognitively unimpaired and impaired Long-Evans rats. *Neuroscience*, 100:769-775.
- Ye, K., Hurt, K. J., Wu, F. Y., Fang, M., Luo, H., Hong, J. J., **Blackshaw, S.**, Ferris, C. D., and Snyder, S. H. (2000). PIKE: A novel nuclear GTPase that enhances PI3-kinase activity and is regulated by protein 4.1N. *Cell*, 103:919-30.
- Blackshaw, S.**, Fraioli, R. E., Furukawa, T., and Cepko, C. L. (2001). Comprehensive analysis of photoreceptor gene expression and the identification of candidate retinal disease genes. *Cell*, 107: 579-89.
- Browne, S. J., Sullivan, L. S., Blanton, S. H., Cepko, C. L., **Blackshaw, S.**, Birch, D. G., Hughbanks-Wheaton, D., Heckenlively, J. R., and Daiger, S. P. (2002). Mutations in the inosine monophosphate dehydrogenase 1 gene (IMPDH1) cause the RP10 form of autosomal dominant retinitis pigmentosa. *Hum. Mol. Genet.*, 11(5):559-568.
- Sharon, D\*, **Blackshaw, S\***, Cepko, C. L., and Dryja, T. P. (2002). Profile of the genes expressed in the human peripheral retina, macula, and retinal pigment epithelium determined through serial analysis of gene expression (SAGE). *Proc. Natl. Acad. Sci. USA* 99:315-20 (\* indicates equal contribution by both authors).
- Akey, D. T., Zhu, X., Dyer, M., Li, A., Sorensen, A., **Blackshaw, S.**, Fukuda-Kamitani, T., Daiger, S. P., Craft, C., Kamitani, T., and Sohocki, M. M. (2002) The inherited blindness associated protein, AIPL1, interacts with the cell-cycle regulator protein, NUB1. *Hum. Mol. Genet.*, 11:2723-33.
- Sezen, S. F., **Blackshaw, S.**, Steiner, J. P., and Burnett, A. L. (2002) FK506 binding protein 12 is expressed in rat penile innervation and upregulated after cavernous nerve injury. *Int J Impot Res.* 14:506-12.
- Blackshaw, S.**, Kuo, W. P., Park, P. J., Tsujikawa, M., Gunnensen, J. M., Scott, H. S., Wee-Boon, M., Tan, S. S., and Cepko, C. L. (2003) MicroSAGE is highly representative and reproducible, but reveals major differences in gene expression between samples obtained from identical tissues. *Genome Biology*, 4:R17.
- Blackshaw, S.**, Sawa, A., Eliasson, M., Krug, D., Watkins, C, Gupta, A., Ferante, R.J., and Snyder, S.H. (2003) Expression of nitric oxide synthase isoforms in hippocampal neurons: species and developmental variability and implications for synaptic plasticity. *Neuroscience*, 119:979-90.

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- Blackshaw, S.**, Harpavat, S., Trimarchi, J., Cai, L., Huang, H., Kuo, W. P., Weber, G., Lee, K., Fraioli, R. E., Cho, S.-H., Yung, R., Asch, E., Wong, W. H., and Cepko, C. L. (2004) Genomic analysis of mouse retinal development. *PLoS Biol.* 2:E247.
- Cai, L., Huang, H., **Blackshaw, S.**, Liu, J. S., Cepko, C. L., and Wong, W. H. (2004) Clustering Analysis of SAGE data: A Poisson Approach. *Genome Biology*, 5:R51.
- Kim, J. S., Coon, S. L., **Blackshaw, S.**, Cepko, C. L., Moller, M., Mukda, S., Zhao, W.-Q., Charlton, C. G., and Klein, D.C. (2005) Methionine Adenosyltransferase (MAT): Adrenergic-cyclic AMP Mechanism Mediates Control of a Daily Rhythm in Pineal Expression. *J. Biol. Chem.*, 280:677-84.
- Huang, A. S., Beigneaux, A., Weil, Z., Kim, P. M., Molliver M. E., **Blackshaw, S.**, Young, S. G., Nelson, R. J., and Snyder, S. H. (2006) D-aspartate regulates melanocortin formation and function: behavioral alterations in D-aspartate oxidase mutant mice. *J. Neurosci.*, 26:2814-9.
- Weil, Z., Huang, A. S., Beigneaux, A., Kim, P. M., Molliver M. E., **Blackshaw, S.**, Young, S. G., Nelson, R. J., and Snyder, S. H. (2006) Behavioral alterations in male mice lacking the gene for D-aspartate oxidase. *Behav. Brain Res.*, 171:295-302.
- Huang, A. S., Lee, D. A., and **Blackshaw, S.** (2008) D-Aspartate and D-Aspartate oxidase show selective and developmentally dynamic localization in mouse retina. *Experimental Eye Research*, 86:704-9.
- Onishi, A., Peng, G.H., Du, C.H., Alexis, U., Chen, S., and **Blackshaw, S.** (2009) Pias3 directs rod photoreceptor development via SUMOylation of Nr2e3. *Neuron*, 61:234-46.
- Kim, J.S., Coon, S.L., Weller, J.L., **Blackshaw, S.**, Rath, M.F., Møller, M. and Klein, D.C. Muscleblind-like 2: Circadian expression in the mammalian pineal gland is controlled by an adrenergic-cAMP mechanism. (2009) *J. Neurochem.*, 110:756-64.
- Hu S, Xie Z, Onishi A, Jiang L, Wang H, He X, Rho H-S, Woodard C, Yu X, Lin J, Long S, **Blackshaw S**, Qian J, and Zhu H. Profiling the Human Protein-DNA Interactome Reveals ERK2 as a Transcriptional Repressor of Interferon Signaling. *Cell*, 139:610-22.
- Xie Z, Hu S, **Blackshaw S**, Zhu H, and Qian J. hPDI: a database of experimental human protein-DNA interactions. *Bioinformatics* (2010) [Epub ahead of print].
- Aggarwal M, Mori S, Shimogori T, **Blackshaw S**, and Zhang J. Three-dimensional rapid diffusion tensor microimaging for anatomical characterization and gene expression mapping in mouse brain. *Magnetic Resonance in Medicine*, in press.
- Yuge K, Kataoka A, Yoshida A.C., Itoh D., Aggarwal M, Mori S, **Blackshaw S**, and Shimogori T. Region-specific gene expression in early postnatal mouse thalamus. *J. Comp. Neurol.*, in press.
- Suzuki-Hirano, A., Ogawa, M. Yuge K, Kataoka A, Yoshida A.C., Itoh D., **Blackshaw S**, and Shimogori T. Region-specific gene expression in embryonic mouse thalamus. *J. Comp. Neurol.*, in press.
- Rapicavoli N, Poth E, and **Blackshaw S**. The long noncoding RNA RNCR2 directs mouse retinal cell specification. *BMC Developmental Biology* 2010, 10:49.
- Shimogori T, Lee DA, Miranda-Angulo A, Yang Y, Yoshida A, Jiang L, Kataoka A, Wang H, Mashiko H, Avetisyan MA, Qi L, Qian J, and **Blackshaw S**. A genomic atlas of mouse hypothalamic development. *Nature Neuroscience* (2010) [e-pub ahead of print].
- Onishi A, Peng G-H, Chen J, Lee DA, Alexis, U, Poth E, de Melo J, Chen S, and **Blackshaw S**. The orphan nuclear hormone ERRbeta regulates rod photoreceptor development and survival. *PNAS*, in press.

#### Editorials:

- Blackshaw, S.** and Livesey, F. J. (2002). Applying genomic technologies to neural development. *Current Opinion in Neurobiology*, 6:110-14.
- Blackshaw, S.** (2002) "SAGE" for Ergito.com, Virtual Text, Cambridge, MA.
- Blackshaw, S.** and Cepko, C. L. (2002) Stem cells that know their place, *Nature Neuroscience*, 5:1251-2.
- Rapicavoli, N. A. and **Blackshaw, S.** (2009) New meaning in the message: noncoding RNAs and their role in retinal development. *Dev. Dynamics*, 238:2103-14.
- Byerly, M. S. and **Blackshaw, S.** (2009) Development of vertebrate retina and hypothalamus, *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*.

#### Book chapters:

- Hwang, P. M., **Blackshaw, S.**, Li, X.-J., and Snyder, S. H. (1994) Molecular mechanisms of taste receptor cell signal transduction. In *Olfaction and Taste XI*, Springer-Verlag pp 77-81.
- Cepko, C.L., **Blackshaw, S.**, and Livesey, F.J. (2001) A comparison of SAGE and microarray technologies. In DNA microarrays: the new frontier in gene discovery and gene expression analysis. Soc. for Neuroscience Press.
- Kim, J. B. and **Blackshaw, S.** One-Step Enzymatic Purification of PCR Products for Direct Sequencing. *Current Protocols in Human Genetics*, Unit 7.13.
- Blackshaw, S.**, Kim, J. B., St. Croix, B., and Polyak, K. (2001) Serial Analysis of Gene Expression. . *Current Protocols in Human Genetics*, Unit 11.6.
- Blackshaw, S.**, Kim, J. B., St. Croix, B., and Polyak, K. (2002). Serial Analysis of Gene Expression. *Current Protocols in Molecular Biology*, Unit 25B.6.
- Blackshaw, S.** (2005) "SAGE", in Encyclopedia of Genetics, Genomics, Proteomics and Bioinformatics, (Quackenbush, J., and Little, P., eds), John Wiley and Sons.
- Blackshaw, S.** (2006) "Developmental Genomics", in Mechanisms of Retinal Development, (Sernagor, E., Eglén, S., Harris, W., and Wong, R. eds), Cambridge University Press.
- Blackshaw, S.**, Kim, J. B., St. Croix, B., and Polyak, K. (2007). Serial Analysis of Gene Expression. *Current Protocols in Molecular Biology*, Unit 25B.6.
- Blackshaw, S.**, Kim, J. B., St. Croix, B., and Polyak, K. (2007) Serial Analysis of Gene Expression. . *Current Protocols in Human Genetics*, Unit 11.6.

### Invited Lectureships:

- "The molecular basis of mammalian taste transduction", International Symposium on Smell and Taste (ISOT XI), Sapporo, Japan, 7/14/93
- "Neuronal nitric oxide synthase: prominent alternative splice forms", Nitric Oxide Club of Paris, Institute Curie, Paris, France, 5/6/97
- "Neuronal nitric oxide synthase: prominent alternative splice forms", CNRS Paris, Université de Paris 7, Paris, France, 5/7/97
- "The molecular basis of extraretinal phototransduction", NSF Center for Biological Timing, University of Virginia, Charlottesville, VA, 6/20/97
- "A SAGE analysis of retinal development", Boston Cancer Genomics Club, Dana-Farber Cancer Institute, Boston, MA, 4/26/00
- "A SAGE analysis of retinal development", SAGE 2000 conference, Baltimore, MD, 9/20/00
- "A SAGE analysis of retinal development", Dana-Farber Cancer Institute, Boston, MA, 9/26/00
- "Genomic analysis of retinal development and disease", European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, 11/30/00
- "Genomic analysis of pineal-specific gene expression", AANAT 2001 conference, Arlie, VA, 5/14/01
- "Genomic analysis of retinal development and disease", Development and Evolution of the Eye, Les Treilles, France, 9/4/01
- "Genomic analysis of retinal development and disease", SAGE 2001 conference, San Diego, CA, 9/10/01
- "Genomic analysis of retinal development and disease", Boston Cancer Genomics Club, Dana-Farber Cancer Institute, Boston, MA, 9/28/01
- "Genomic analysis of light-dependent transcription in mammalian pineal gland", Pineal Cell Biology Gordon Research Conference, Ventura, CA, 2/12/02
- "Genomic analysis of retinal development and disease", Macular Vision Research Foundation, Marina del Rey, CA, 3/23/02
- "Genomic analysis of retinal development and disease", Neural Development Gordon Research Conference, Newport, RI, 8/20/02
- "Genomic analysis of retinal development and disease", Mental Health Research Institute, University of Michigan, Ann Arbor, MI, 11/15/02
- "Genomic analysis of retinal development and disease", Department of Biological Chemistry, University of California, Los Angeles, CA, 1/7/03
- "Genomic analysis of retinal development and disease", Institute for Neuroscience, University of Oregon, Eugene, OR, 1/9/03
- "Genomic analysis of light-dependent transcription in mammalian pineal gland", Pineal Microarray Workshop, Arlie, VA, 1/13/03

- “Genomic analysis of retinal development and disease”, McGovern Institute for Brain Research, Massachusetts Institute of Technology, Cambridge, MA, 1/27/03
- “Genomic analysis of retinal development and disease”, Department of Biology, Columbia University, New York, NY, 1/30/03
- “Genomic analysis of retinal development and disease”, Departments of Microbiology and Molecular Biology and Department of Cell Biology, Duke University, Durham, NC, 2/17/03
- “Genomic analysis of retinal development and disease”, Department of Neurobiology, University of Massachusetts School of Medicine, Worcester, MA, 2/22/03
- “Genomic analysis of retinal development and disease”, High-Throughput Biology Center and Institute for Cell Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, 2/27/03
- “Genomic analysis of retinal development and disease”, Department of Biochemistry and Biophysics, University of California, San Francisco, CA, 3/3/03
- “Genomic analysis of retinal development and disease”, Department of Genetics, Stanford University School of Medicine, Palo Alto, CA, 3/6/03
- “Genomic analysis of retinal development and disease”, Department of Neurobiology and Anatomy, Washington University, Saint Louis, MO, 3/18/03
- “Genomic analysis of retinal development and disease”, Department of Molecular and Cell Biology, University of California, Berkeley, CA, 3/21/03
- “Genomic analysis of retinal development and disease”, Marsh Laboratory for Veterinary Medicine, Montana State University, Bozeman, MT, 3/25/03
- “Genomic analysis of light-dependent transcription in mammalian pineal gland”, Chronobiology Gordon Research Conference, Il Ciocco, Barga, Italy 5/11/03
- “Genomic analysis of retinal development and disease”, SAGE 2004 conference, Boston, MA, 9/30/04
- “Genomic analysis of retinal development and disease”, Department of Biology, Johns Hopkins University, Baltimore, MD, 10/28/04
- “Genomic analysis of retinal development”, Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD 3/7/05
- “Genomic analysis of retinal and hypothalamic development”, Carnegie Institute of Embryology, Baltimore, MD, 5/2/05
- “Functional genomic analysis of retinal development”, Ottawa Health Research Institute, University of Ottawa, 9/19/05
- “Genomic analysis of retinal and hypothalamic development”, Krasnow Institute for Advanced Study, George Mason University, 9/26/05
- “Genomic analysis of retinal development”, Osaka Bioscience Institute, Osaka, Japan 12/14/05
- “Genomic analysis of retinal development”, Scripps Research Institute, Jupiter, FL 2/28/06
- “Genomic analysis of retinal development”, Allen Brain Research Institute, Seattle, WA 4/7/06
- “Functional genomics of retinal development”, International IUBMB meeting, Kyoto, Japan 6/22/06
- “Functional genomics of retinal development”, University of Utah School of Medicine, Salt Lake City, UT 3/30/07
- “Functional genomics of retinal development”, Systems Biology Consortium Meeting, Pennsylvania State University, PA 7/25/07
- “Functional genomics of hypothalamic development”, Colorado State University, Colorado Springs, CO 9/19/07
- “Pias3 and ERR $\beta$ : key regulators of rod photoreceptor specification and survival”, Wilmer Eye Institute, Johns Hopkins University School of Medicine, 12/18/07
- “Functional genomics of retinal development”, Oxford University, Oxford, U.K. 3/18/08
- “Functional genomics of retinal development”, RIKEN Brain Sciences Institute, Saitama, Japan 4/18/08
- “Functional genomics of retinal development” University of Osaka, Osaka, Japan 4/25/08
- “Molecular mechanisms of rod photoreceptor specification”, Visual Systems Development Gordon Research Conference, Newport, RI 8/10/08
- “Novel mechanisms of transcriptional regulation in retinal cell fate specification.” Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD 10/20/08
- “Unconventional transcriptional regulation and vertebrate neuronal cell fate specification”, RIKEN Brain Sciences Institute, Saitama, Japan 4/14/09
- “Molecular mechanisms of rod photoreceptor specification”, Biology and Chemistry of Vision, FASEB Summer Research Conference, Snowmass, CO 6/14/09

“Profiling the Human Protein-DNA Interactome Reveals MAPK1 as a Transcriptional Repressor of Interferon Signaling”, 3<sup>rd</sup> Annual Young Investigators in Genomics and Bioinformatics Symposium, Johns Hopkins University School of Medicine, Baltimore, MD 9/24/09

“Molecular pathways regulating retinal differentiation and disease”, University of Tokyo, Tokyo, Japan, 11/6/09

“Molecular pathways regulating photoreceptor differentiation and disease”, for Retina: Neural Stem Cells and Photoreceptor Degeneration, Okinawa Institute of Science and Technology, Okinawa, Japan. 11/10/09

“Molecular pathways regulating retinal differentiation and disease”, Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, MD 11/24/09

“Molecular pathways regulating retinal differentiation and disease”, Dean A. McGee Eye Institute, University of Oklahoma School of Medicine, 12/3/09.

“Molecular mechanisms of cell specification and regeneration in mammalian hypothalamus”, Department of Neurology, Johns Hopkins University School of Medicine, 5/17/09 (invited)

“Molecular mechanisms of cell specification and regeneration in mammalian hypothalamus”, Department of Neurology, Johns Hopkins University School of Medicine, 5/17/09 (invited)

“Molecular mechanisms of cell specification and regeneration in mammalian hypothalamus”, Department of Neurology Grand Rounds, Albert Einstein School of Medicine, New York, NY, 6/3/10 (invited)

“High-throughput approaches to analyzing retinal cell specification and survival”, 8<sup>th</sup> International Aegean Conference on Pathways, Networks and Systems Medicine, Rhodes, Greece, 7/10/09 (invited)

“Molecular mechanisms of retinal cell fate specification”, 19<sup>th</sup> Biannual Meeting of the International Society for Eye Research, Montreal, Quebec, 7/23/09 (invited)

“Molecular mechanisms of retinal cell fate specification”, McGill University, Montreal, Quebec, 7/26/09 (invited)

“Molecular pathways regulating photoreceptor differentiation and disease”, National Eye Institute, Bethesda, MD 9/21/10 (invited)

“Molecular pathways regulating photoreceptor differentiation and disease”, Department of Ophthalmology and Visual Science, Washington University, St. Louis. 10/1/10 (invited)

### **National Grant Reviews:**

1998 NSF (ad hoc outside reviewer)

2003 NEI (ad hoc outside reviewer)

2005 NIMH – Silvio O. Conte Center for Depression and Circadian Rhythms (study section member)

### **International Grant Reviews:**

2001 Biotechnology and Biological Sciences Research Council (UK)

### **Ad Hoc Manuscript Reviews**

Manuscript reviewer for *Nature*, *Science*, *Nature Neuroscience*, *Developmental Cell*, *PNAS*, *PLoS Genetics*, *PLoS Computational Biology*, *PLoS ONE*, *Journal of Neuroscience*, *Neuroscience*, *Current Biology*, *Human Molecular Genetics*, *Genome Biology*, *Genome Research*, *Molecular and Cellular Neuroscience*, *Journal of Comparative Neurology*, *Brain Research*, *Developmental Dynamics*, *Molecular Vision*, *Investigative Ophthalmology and Visual Science*, *Molecular Evolution*, *BMC Bioinformatics*, *BMC Developmental Biology* and *Biotechniques*.

### **Teaching:**

2004- Neuroscience and Cognition I, 2 lectures (Neurotechniques)

2005- Cell and Molecular Biology, 1 lecture (Molecular techniques)

2005, 2007, 2009 Stem Cells, 1 lecture

2005, 2007- Developmental Neuroscience, 1 lecture

2008 Co-organizer, Neuroscience (BCMB elective, 1 lecture)

2009- Course organizer, Neuroscience and Cognition I.

### **Administrative Committees:**

2004-2007 Organizer for Neuroscience seminar series, Department of Neuroscience, Johns Hopkins School of Medicine

2004 Member of search committee for assistant professor candidate, Institute for Cell Engineering, Johns Hopkins School of Medicine

- 2005-present Member of Graduate Admissions Committee, Department of Neuroscience  
2005-present Member Graduate Admissions Committee, Biological Chemistry and Molecular Biology graduate program.  
2008 Member of search committee for assistant professor candidate, Department of Neuroscience, Johns Hopkins School of Medicine

**Graduate Student Thesis/Oral Examination Committees:**

Oral Examination Committee:

- Shih-Jung Pan (BCMB) 3/2/05  
Melanie Issigonis (BCMB) 3/8/05  
Jason McLellan (BCMB) 3/9/05  
Tiara Booker (JHU Biology) 7/15/05  
Maimon Hubbi (CMM) 11/23/05  
Christopher Cherry (BCMB) 3/2/06  
Andrew Kim (BCMB) 6/11/06  
Catherine Sheely (JHU Biology) 7/12/06  
Yuko Oku (BCMB) 3/2/07  
Daniel Bodmer (JHU Biology) 7/5/07  
Jason Rosenzweg (CMM) 10/12/07  
ChangHee Lee (CMM) 10/31/07  
Julianne Kellner (BCMB) 3/07/08  
Melody Cheng (BCMB) 3/28/08  
Jillian Prendergast (BCMB) 3/4/09  
Yali Zhang (BCMB) 3/12/09  
Neha Lal (Neuroscience) 5/5/10  
Betsy Mills (Neuroscience) 5/27/10  
Judy Van Nguyen (BCMB) 4/16/10  
HaoJui Weng (Neuroscience) 6/9/10  
Eleftheria Koropouli (Neuroscience) 6/10/10  
Kylie Chew (JHU Biology) 6/29/10

Graduate Student Thesis Committee:

- Alex Huang (Neuroscience)  
Lindsay De Baise (Neuroscience)  
Priyanka Sabherwal (Neuroscience)  
Tarran Pierfliee (CMM)  
Krishna Juluri (CMM)  
Tracy Huang (Neuroscience)  
Alvin Huang (Neuroscience)  
Yang Roby (CMM)

**Awards and Honors to Trainees:**

- 2010 Knights Templar Pediatric Ophthalmology Research Award (to Jimmy de Melo)  
2009 VNTP training grant award for graduate student support (to Erin Poth)  
2009 NRSA graduate fellowship award (to Daniel Lee)  
2009 Invited presentations at **Retina: Neural Stem Cells and Photoreceptor Degeneration**, Okinawa Institute of Science and Technology (to Akishi Onishi and Jimmy de Melo)  
2009 A. McGhee Harvey Young Investigator Award (to Akishi Onishi)  
2007 Knights Templar Pediatric Ophthalmology Research Award (to Akishi Onishi)  
2006 Sigma Xi Travel Award (to Daniel Lee)  
2006 RIKEN-BSI Summer Research Fellowship (to Daniel Lee)  
2006 Provost's Undergraduate Research Award (to Vani Takiar)  
2005 Howard Hughes Medical Institute Undergraduate Research Award (to Vani Takiar)  
2005 National Science Foundation Predoctoral Fellowship (to Daniel Lee)



Completed:

Sloan Scholar Award S. Blackshaw (PI) 7/1/05-6/30/07  
Alfred P. Sloan Foundation  
Transcriptional regulation of retinal cell fate specification.

Young Investigators Award S. Blackshaw (PI) 7/01/07-6/30/09  
National Association for Research in Schizophrenia and Depression  
The role of tanycytes in hypothalamic plasticity and regeneration: relevance in molecular mechanisms of depression

Research Grant S. Blackshaw (PI) 7/01/05-6/30/08  
Whitehall Foundation  
The role of non-protein coding, mRNA-like transcripts in mouse retinal development.

Young Investigators Award S. Blackshaw (PI) 7/01/06-6/30/09  
Klingenstein Fund  
The molecular basis of cell specification and regeneration in neuroendocrine hypothalamus

Basil O'Connor Starter Scholar S. Blackshaw (PI) 2/01/06-1/30/08  
March of Dimes Cell specification and regeneration in mammalian hypothalamus