Matthew D. Nelson, Ph.D.

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Positions

2014-Present **Saint Joseph's University** Philadelphia, PA
Assistant Professor of Biology

Education and Training

2011-2014 **University of Pennsylvania** Philadelphia, PA
Postdoctoral Fellow

2005-2010 **New York University** New York, NY
Ph.D. Biology; Sub specialization: Developmental Genetics; Degree received – November 23rd, 2010

2002-2005 **Villanova University** Villanova, PA
M.S. Biology; Degree received – September, 2005

1996-2000 **The Pennsylvania State University** University Park, PA
B.S. Mathematics; Degree received – May, 2000

Publications

- Ryu M-H., Kang I-H., **Nelson M.D.**, Jensen T., Silyberg-Liberies J., Raizen D.M, and Gomelsky M. 2014. Homodimeric bacteriophytochrome engineering: a near-infrared light activated adenylyl cyclase. *PNAS*. Jul 15;111(28):10167-72. doi: 10.1073/pnas.1324301111.
- **Nelson M.D.**, Trojanowski D.F, Smith C., George-Raizen J, Chiu Cheui JJ, Fang-Yen C and Raizen D.M. 2013. The Neuropeptide NLP-22 regulates a sleep-like state in *Caenorhabditis elegans*. *Nature Communications* Dec 4;4:2846. doi: 10.1038/ncomms3846.
- **Nelson M.D.** and Raizen D.M. 2013. A sleep state during *C. elegans* development. *Current Opinion in Neurobiology* 23(5), 824-830**.** doi:10.1016/j.conb.2013.02.015.
- **Nelson M.D.**, Zhou E., Kiontke K., Fradin H., Maldanado G. Martin D., Shah K, and Fitch D.H.A. 2011. A bow-tie genetic architecture for morphogenesis suggested by a genome-wide RNAi screen in *C. elegans*. *PLoS Genetics* 7(3): e1002010. doi:10.1371/journal.pgen.1002010.
- **Nelson, M.D.**, and Fitch, D.H. 2011. Overlap extension PCR: an efficient method for transgene construction. *Methods in Molecular Biology: Evolutionary Genetics 772*, 459-470.
- Kennedy C., **Nelson M.D.** and Bamezai A. 2011. A detergent-free method of lipid raft isolation. *Cell Communication and Signaling* Dec 8;9(1):31. doi:10.1186/1478-811X-9-31.
- George S.*****, **Nelson M.D.***, and Bamezai A. 2006. A novel approach to examining compositional heterogeneity of detergent resistant lipid rafts. *Immunology and Cell Biology* 84:192-202. doi:10.1111/j.1440-1711.2006.01421.x. ***Co-first authors.**

Teaching Experience

2007 **New York University** New York, NY
Teaching assistant coordinator for general biology – spring and fall semesters
- Managed TAs for >20 sections. Organized scheduling and exams, completed grading; Managed personnel issues

2005-2006 **New York University** New York, NY
Teaching assistant for General Biology – fall and spring semesters
- Coordinated 4 sections; Organized/conducted pre-lab lectures, designed and administered quizzes

2004 **Delaware County Community College** Media, PA
Instructor for General Biology - fall semester
- Designed and conducted classroom lectures and exams; Coordinated General Biology Laboratory

2004 **Delaware County Community College** Media, PA
Instructor for Anatomy and Physiology - summer session and fall semester
- Designed/conducted lectures; designed/administered exams; Coordinated anatomy laboratory (Cat Dissection)

2004 **Villanova University** Villanova, PA
Teaching assistant for Histology – spring semester
- Assisted students with general microscopy and advanced topics in histology; Graded exams and lab reports

2003-2004 **The Community College of Philadelphia** Philadelphia, PA
Supplemental instructor for Organic Chemistry I and II – fall and spring semesters
- Out of classroom instructor for class support for 10 students; Assisted with class material and exam preparation

2002-2004 **The Community College of Philadelphia** Philadelphia, PA
Tutor for general biology and chemistry, organic chemistry, and anatomy and physiology
- One-on-one tutoring with students; Assisted with assignments and exam preparation

2002-2003 **Villanova University** Villanova, PA
Teaching assistant for Anatomy and Physiology I and II – fall and spring semesters
- Organized and conducted pre-lab lectures, designed and administered quizzes; Proctored and graded exams

Awards and Fellowships

2013 Poster competition: First place. The Mahoney Institute of Neurological Sciences Annual Retreat, UPenn, 2013.
2013 Merit-based travel award for SLEEP 2013. Sleep Research Society. Baltimore, MD

2013	First time travel award for SLEEP 2013. Sleep Research Society. Baltimore, MD
2011 - present	**T32-HL-007713-20 NIH training grant.** Postdoctoral fellowship in circadian biology and sleep science. PI: Dr. Allan Pack, University of Pennsylvania Perelman School of Medicine.
2011	Best oral presentation: Center for sleep and circadian neurobiology retreat. UPenn
2009	NYU Biology: Gladys Mateyko Award: For outstanding research accomplishments.
2009	2nd Place – Poster Competition (Subject: Morphogenesis). The 17th International *C. elegans* meeting. UCLA.
2009	Horizon Fellowship for Life Sciences – New York University
2007-2009	**T31-HD-007520-11 NIH training grant.** Pre-doctoral fellowship in Developmental Genetics. PI: Dr. Ruth Lehmann, New York University School of Medicine.
2007	The New York University Biology Department Teaching Assistant Award

Presentations

- The 19th international *C.elegans* meeting. Los Angeles, CA. Plenary Talk: **Nelson M.D.**, Janssen T., Schoofs L., and Raizen D.M.FLP-13 peptides released from the ALA neuron signals through FRPR-4 to regulate behavioral quiescence.June 29th, 2013.
- SLEEP Meeting 2013, Baltimore, MD: **Nelson M.D.**, Janssen T., Schoofs L., and Raizen D.M. Neuropeptides regulate sleep/wake transitions in *Caenorhabditis elegans*. June 5th, 2013.
- University of Pennsylvania: Center for sleep and circadian neurobiology retreat: **Nelson M.D.** The Molecular Logic of *C. elegans* Sleep. May 29th, 2013.
- The New York Area Circadian Clock Meeting; Philadelphia, PA. **Nelson M.D.** Invited talk: Neuropeptides regulating lethargus and molting in *C. elegans*. November 18, 2011.
- The 18th international *C. elegans* meeting; Los Angeles, CA. Plenary Talk: **Nelson M.D.** Behavioral quiescence in *C. elegans* is regulated by the FRPamide neuropeptide encoding genes *nlp-22* and *-23*. June 24th, 2011.
- The 18th international *C. elegans* meeting; Los Angeles, CA. **Nelson M.D.,** Kiontke K, Herrera A, and Fitch D.H.A**.** Parallel Talk: The genetic architecture of male tail tip morphogenesis. June 25th, 2011. Presented by: Fitch D.H.A.
- University of Pennsylvania: Center for sleep and circadian neurobiology retreat: **Nelson M.D.** Behavioral quiescence is regulated by the FRPamide neuropeptide encoding genes *nlp-22* and *-23*. May 20th, 2011. First prize: Best presentation.
- Villanova University, Department of Biology, Invited speaker: **Nelson M.D.** A bow-tie genetic architecture for morphogenesis suggested by a genome-wide RNAi screen in *Caenorhabditis. elegans*. February 3rd, 2011.
- Biology of the *C. elegans* male; Madison WI . **Nelson M.D.,** Kiontke K, Herrera A, and Fitch D.H.A**.** The genetic architecture of male tail tip morphogenesis. June 29th, 2010. Presented by: Fitch D.H.A.

Posters

- **Nelson M.D.** and Raizen D.M. The Neuropeptidergic Regulation of *C.elegans* Sleep. University of Pennsylvania: Center for sleep and circadian neurobiology retreat. June 2014.
- **Nelson M.D.**, Trojanowski T. and Raizen D.M. NLP-22 is a neuromedin S-like neuropeptide that regulates sleep. The 19th International *C.elegans* meeting. Los Angeles, CA. June 30th 2013.
- **Nelson M.D.**, Janssen T., Schoofs L. and Raizen D.M. A Flip-Flop Circuit Regulates Sleep in *C.elegans*. The Mahoney Institute of Neurological Sciences Annual Retreat, May 1st, 2013.
- **Nelson M.D.** and Raizen D.M. Neuropeptides controlling behavioral quiescence in *C. elegans*. The University of Pennsylvania Biomedical postdoctoral council symposium. October 9th, 2012.
- **Nelson M.D.** and Raizen D.M. A Neuropeptide circuit regulates behavioral quiescence in *C. elegans*. University of Pennsylvania: Center for sleep and circadian neurobiology retreat. May 2012.
- Herrera A., Kiontke K., **Nelson M.D.**, and Fitch D.H.A. The male tail tip heterochronic regulatory network. Poster session presented at: The 18th international *C. elegans* meeting. 2011; Los Angeles, CA. Presented by: Herrera A.
- **Nelson M.D.** and Fitch D.H. The role of the posterior Hox genes, *php-3* and *nob-1,* in male tail tip morphogenesis.The 17th International *C. elegans* meeting. 2009; Los Angeles, CA.
- Mason A.D., **Nelson M.D.**, Fitch D.H., Murphy, M.W., Zarkower D., and Portman D.S. Poster session presented at: The 17th International *C. elegans* meeting. 2009; Los Angeles, CA. Presented by: Mason A.D.
- **Nelson M.D.**, Maldanado G., Zhou E. and Fitch D.H. A whole-genome RNAi screen reveals a role for the posterior Hox genes during male tail tip development. *C. elegans* development and evolution meeting; 2008 Madison, WI.
- Zhou E., **Nelson M.D.** and Fitch D.H. Localization of Actin and Tubulin in the cells of the *C. elegans* male tail tip. Poster session presented at: 2008 Undergraduate research conference; 2008 New York, NY. Presented by: Zhou E.
- Maldanado G., **Nelson M.D.** and Fitch D.H. Identifying tail tip morphogenesis genes of *Caenorhabditis elegans* on chromosome IV via RNA interference. Poster session presented at: 2008 Undergraduate research conference; 2008 New York, NY. Presented by: Maldanado G.
- Zhou E., **Nelson M.D.**, Peitzman E. and Fitch D.H. Identifying genes involved in tail tip morphogenesis of *Caenorhabditis elegans* using RNAi interference. Howard Hughes Undergraduate research conference; 2007 Albany, NY. Presented by: Zhou E.
- **Nelson M.D.** and Fitch D.H. The heterochronic pathway and male tail tip evolution.The 16th International *C. elegans* meeting; 2007 Jun 27-Jul 1; Los Angeles, CA.