




Mollie Woodworth

Instructor, Ophthalmology

 NIH Biosketch available Online

Bio

ACADEMIC APPOINTMENTS

- Instructor, Ophthalmology
- Member, Maternal & Child Health Research Institute (MCHRI)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Many types of blindness result from the neurons of the retina no longer being able to communicate with the brain due to injury or disease. In mammals, the adult retina cannot make new retinal ganglion cells (the neurons that connect the retina with the brain) to replace those that are lost. In my work, I aim to learn about normal development of retinal ganglion cells and, further, to regenerate new retinal ganglion cells if they are lost in adulthood.

Publications

PUBLICATIONS

- **An evolutionarily acquired microRNA shapes development of mammalian cortical projections.** *Proceedings of the National Academy of Sciences of the United States of America*
Diaz, J. L., Siththanandan, V. B., Lu, V., Gonzalez-Nava, N., Pasquina, L., MacDonald, J. L., Woodworth, M. B., Ozkan, A., Nair, R., He, Z., Sahni, V., Sarnow, P., Palmer, et al
2020
- **microRNAs Refine Cortical Projection Neuron Subtype during Mammalian Development**
Siththanandan, V., Diaz, J., Lu, V., Gonzalez-Nava, N., Pasquina, L., MacDonald, J., Woodworth, M., Sahni, V., Sarnow, P., Palmer, T., Macklis, J., Tharin, S.
WILEY.2018: S276–S277
- **Aging and neurodegeneration are associated with increased mutations in single human neurons** *SCIENCE*
Lodato, M. A., Rodin, R. E., Bohrsen, C. L., Coulter, M. E., Barton, A. R., Kwon, M., Sherman, M. A., Vitzthum, C. M., Luquette, L. J., Yandava, C. N., Yang, P., Chittenden, T. W., Hatem, et al
2018; 359 (6375): 555–58
- **Somatic Mutations Activating the mTOR Pathway in Dorsal Telencephalic Progenitors Cause a Continuum of Cortical Dysplasias** *CELL REPORTS*
D'Gama, A. M., Woodworth, M. B., Hossain, A. A., Bizzotto, S., Hatem, N. E., LaCoursiere, C. M., Najm, I., Ying, Z., Yang, E., Barkovich, A., Kwiatkowski, D. J., Vinters, H. V., Madsen, et al
2017; 21 (13): 3754–66
- **Intersection of diverse neuronal genomes and neuropsychiatric disease: The Brain Somatic Mosaicism Network** *SCIENCE*
McConnell, M. J., Moran, J. V., Abyzov, A., Akbarian, S., Bae, T., Cortes-Ciriano, I., Erwin, J. A., Fasching, L., Flasch, D. A., Freed, D., Ganz, J., Jaffe, A. E., Kwan, et al
2017; 356 (6336): 395-?

- **Building a lineage from single cells: genetic techniques for cell lineage tracking** *NATURE REVIEWS GENETICS*
Woodworth, M. B., Girsakis, K. M., Walsh, C. A.
2017; 18 (4): 230-44
- **Strict in vivo specificity of the Bcl11a erythroid enhancer** *BLOOD*
Smith, E. C., Luc, S., Croney, D. M., Woodworth, M. B., Greig, L. C., Fujiwara, Y., Minh Nguyen, Sher, F., Macklis, J. D., Bauer, D. E., Orkin, S. H.
2016; 128 (19): 2338-42
- **Ctip1 Regulates the Balance between Specification of Distinct Projection Neuron Subtypes in Deep Cortical Layers** *CELL REPORTS*
Woodworth, M. B., Greig, L. C., Liu, K. X., Ippolito, G. C., Tucker, H. O., Macklis, J. D.
2016; 15 (5): 999-1012
- **Ctip1 Controls Acquisition of Sensory Area Identity and Establishment of Sensory Input Fields in the Developing Neocortex** *NEURON*
Greig, L. C., Woodworth, M. B., Greppi, C., Macklis, J. D.
2016; 90 (2): 261-277
- **Somatic mutation in single human neurons tracks developmental and transcriptional history** *SCIENCE*
Lodato, M. A., Woodworth, M. B., Lee, S., Evrony, G. D., Mehta, B. K., Karger, A., Lee, S., Chittenden, T. W., D'Gama, A. M., Cai, X., Luquette, L. J., Lee, E., Park, et al
2015; 350 (6256): 94-98
- **Katanin p80 Regulates Human Cortical Development by Limiting Centriole and Cilia Number** *NEURON*
Hu, W. F., Pomp, O., Ben-Omran, T., Kodani, A., Henke, K., Mochida, G. H., Yu, T. W., Woodworth, M. B., Bonnard, C., Raj, G., Tan, T., Hamamy, H., Masri, et al
2014; 84 (6): 1240-57
- **Molecular logic of neocortical projection neuron specification, development and diversity** *NATURE REVIEWS NEUROSCIENCE*
Greig, L. C., Woodworth, M. B., Galazo, M. J., Padmanabhan, H., Macklis, J. D.
2013; 14 (11): 755-769
- **SnapShot: Cortical Development** *CELL*
Woodworth, M. B., Greig, L. C., Kriegstein, A. R., Macklis, J. D.
2012; 151 (4): 918-?
- **Smaller dendritic spines, weaker synaptic transmission, but enhanced spatial learning in mice lacking Shank1.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
Hung, A. Y., Futai, K., Sala, C., Valtschanoff, J. G., Ryu, J., Woodworth, M. A., Kidd, F. L., Sung, C. C., Miyakawa, T., Bear, M. F., Weinberg, R. J., Sheng, M.
2008; 28 (7): 1697-708