Paul W. Hook

phook2@jhmi.edu | +1 (865) 719-5230 | pwh124.github.io
733 N. Broadway, MRB 446, Baltimore, MD 21205, USA

EDUCATION

Johns Hopkins School of Medicine | Baltimore, MD, USA | 2014 - Present
Ph.D. Human Genetics (in progress)

The Pennsylvania State University | University Park, PA | 2008 - 2012
B.S. in Biochemistry and Molecular Biology (May 2012)

RESEARCH EXPERIENCE

Graduate Student | Advisor: Andrew McCallion | 2014 - Present
Johns Hopkins School of Medicine, Baltimore, MD

- Established strategies to isolate and characterize mouse dopaminergic neurons from a transgenic mouse model
- Designed, performed, and analyzed RNA-seq and single-cell RNA-seq experiments on mouse dopaminergic neurons
- Established a scoring paradigm for prioritizing candidate genes from Parkinson disease GWAS loci using single-cell RNA-seq data
- Analyzed publicly available ATAC-seq data in order to identify putative enhancers in central nervous system cell populations for subsequent functional testing
- Performed transgenic zebrafish assays in order to functionally validate putative enhancers found within deletions associated with autism

Research Technologist | PI: Andrew McCallion | 2012 - 2014
Johns Hopkins School of Medicine, Baltimore, MD

- Explored the functional consequences of disrupting genes in zebrafish including effects on somitogenesis and heart development
- Developed and implemented the use of Cas9 nuclease genome editing in zebrafish and human cell culture in the lab
- Managed the laboratory including being responsible for all ordering and working to maintain safety and compliance
- Trained lab members in relevant laboratory techniques and protocols

Science Undergraduate Laboratory Internship (SULI) | Advisor**:** Michael Huesemann | 2011
Department of Energy (DOE), Pacific Northwest National Laboratory, Sequim, WA

- Explored how temperature affected algal growth and algal lipid composition for the DOE's National Alliance for Advanced Biofuels and Bio-products team
- Built and established the use of an algal culture thermal gradient incubator

Chemical Research Intern | Advisor: Joseph T. Keiser | 2010 - 2011
The Pennsylvania University, University Park, PA

- Adapted and developed experiments focused on exploring the biochemical components of peanuts for an undergraduate laboratory class
- Assisted in designing and building demonstrations for undergraduate chemistry lectures

Paul W. Hook

phook2@jhmi.edu | +1 (865) 719-5230 | pwh124.github.io
733 N. Broadway, MRB 446, Baltimore, MD 21205, USA

PREPRINTS AND PUBLICATIONS

Hook, P.W., McCallion, A.S. (2018). Heritability enrichment in open chromatin reveals cortical layer contributions to schizophrenia. bioRxiv, 427484.

McClymont, S.A, **Hook, P.W.**, Soto, A.I., Reed, X., Law, W.D., Kerans, S.J., Waite, E.L., Briceno, N.J., Thole, J.F., Heckman, M.G., Diehl, N.N., Wszolek, Z.K., Moore, C.D., Zhu, H., Akiyama, J.A., Dickel, D.E., Visel, A., Pennacchio, L.A., Ross, O.A., Beer, M.A., McCallion, A.S. (2018). Parkinson-associated SNCA enhancer variants revealed by open chromatin in mouse dopamine neurons. bioRxiv, 364257.

Hook, P. W., McClymont, S. A., Cannon, G. H., Law, W. D., Morton, A. J., Goff, L. A., & McCallion, A. S. (2018). Single-Cell RNA-Seq of Mouse Dopaminergic Neurons Informs Candidate Gene Selection for Sporadic Parkinson Disease. *The American Journal of Human Genetics*, *102*(3), 427–446.

Turner, T. N., Hormozdiari, F., Duyzend, M. H., McClymont, S. A., **Hook, P. W.**, Iossifov, I., … Eichler, E. E. (2016). Genome Sequencing of Autism-Affected Families Reveals Disruption of Putative Noncoding Regulatory DNA. *The American Journal of Human Genetics*, *98*(1), 58–74.

Maragh, S., Miller, R. A., Bessling, S. L., Wang, G., **Hook, P. W.**, & McCallion, A. S. (2014). Rbm24a and Rbm24b are required for normal somitogenesis. *PLoS ONE*, *9*(8).

Van Wagenen, J., Miller, T.W., Hobbs, S., **Hook, P.**, Crowe, B., and Huesemann, M. (2012). Effects of light and temperature on fatty acid production in Nannochloropsis salina. *Energies 5*, 731–740.

PRESENTATIONS

Hook, P.W., McClymont S.A., Cannon, G.H., Law, W.D., Morton, A.J., Goff, L.A., McCallion, A.S. Prioritizing genes for sporadic Parkinson disease using single-cell expression profiling of mouse dopaminergic neurons. Presented at the 11th Leena Peltonen School of Human Genomics, August 22, 2018, Les Diablerets, Switzerland. ***Session talk***.

Hook, P.W., McClymont, S.A., Goff, L.A., McCallion, A.S. (2016). RNA-seq analysis identifies phenotypic heterogeneity among *ex vivo* purified dopamine neurons and highlights their progressive temporal diversification; Abstract #319. Presented at the 66th Annual Meeting of *The American Society of Human Genetics*, October 22, 2016, Vancouver, BC, Canada. ***Platform talk***.

HONORS

C.W. Cotterman Award | The American Society of Human Genetics | 2018
Graduated with Distinction | The Pennsylvania State University | 2012
Dean's List | The Pennsylvania State University | 2008 – 2012
Kimberly Clark Bright Futures Scholarship | 2008 - 2012
Gail A. and Thomas G. Ernst Scholarship | 2009 - 2011

Paul W. Hook

phook2@jhmi.edu | +1 (865) 719-5230 | pwh124.github.io
733 N. Broadway, MRB 446, Baltimore, MD 21205, USA

TEACHING

Teaching Assistant: Evolution of Ideas in Human Genetics (Graduate) | 2016
Presenter: Genome Geeks Are In | Smithsonian National Museum of Natural History | 2015
Peer Learning Assistant: Developmental Biology (Undergraduate) | 2011

LEADERSHIP

Student Representative: Human Genetics Pre-Doctoral Training Program | 2016 – Present