WHITNEY E. HEAVNER

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Experienced neurobiologist with strong communication skills specializing in computational biology

Research & Professional Experience

Postdoctoral Research, Stanford University, Stanford, CA (*2013-Present*)

- Conducted independent and collaborative research examining gene networks for mouse development
- Developed algorithms for analyzing next generation sequencing data to identify pathways affecting brain development and neuropsychiatric disease
- Oversaw graduate student rotation projects (computer science), undergraduate summer internships (biology), and two technicians (biology).
- Advisors: Dr. Susan McConnell (biology) and Dr. Gill Bejerano (computer science)
- Computational qualifications: Fluent in **R** and **Bash**, experienced in **Python** and **SQL**, advanced experience with the **UCSC Genome Browser** and **Ensembl**, fluent in **next generation sequencing** analysis, including **RNAseq** and **ATACseq**
- Experimental qualifications: next generation sequencing (RNAseq and ATACseq) library construction and QA, FACS, *in utero* electroporation, stereotactic injection of the cortex, fluorescent and radioactive *in situ* hybridization, primary culture of cortical neurons, luciferase assay

Graduate Research, University of North Carolina at Chapel Hill, Chapel Hill, NC (*2007-2013*)

- Completed doctoral dissertation on the role of *Sox2* in mouse retina development using a combination of mouse genetics and molecular biology
- Advisor: Dr. Larysa Pevny (Genetics)
- Experimental qualifications: mouse genetics, gene targeting in embryonic stem cells, mouse embryo histology, confocal microscopy, live cell imaging, EMSA, Southern blot, western blot, qPCR
- Computational qualifications: DNA microarray analysis

Undergraduate Research, J. Iverson Riddle Center for the Developmentally Disabled, Morganton, NC (*2005*)

- Evaluated life quality metrics of people with severe developmental disabilities (unable to walk or talk) using approaches in applied behavior analysis
- Advisor: Dr. Martin Ivancic (Psychology)

Education

Ph.D., Genetics and Molecular Biology, Certificate in Developmental Biology, *2013*
University of North Carolina at Chapel Hill, Chapel Hill, NC
Thesis: "Using the mouse retina to model the role of SOX2 in neural induction"

B.S., Biology, **B.A, English**, *2006*
Lenoir-Rhyne College, Hickory, NC
GPA: 4.00 (*summa cum laude*)
Honors Thesis: "Bone mineral densities related to anti-epileptic drug use and ambulatory status of people with developmental disabilities"

Fellowships, Grants & Awards

Stanford School of Medicine Teaching and Mentoring Innovation Grant, Evidence-Based Pedagogy Workshop for Postdocs (*Summer 2017*)
Henzl-Gabor Travel Grant, Cortical Development Conference, Chania, Greece (*May 2017*)
Stanford Neurosciences Institute Interdisciplinary Scholar Award (*2015-2017*)
Tuition scholarship, Gene Regulatory Networks for Development course, Woods Hole, MA (*2015*)
NIH Kirschstein NRSA F32 13th percentile/impact score 22 (accepted a different fellowship) (*2014*)
NIH-funded Epilepsy Training Fellowship (*2013-2104*)
NEI-funded tuition to Fundamental Issues in Vision Research course, Woods Hole, MA (*2010*)
NIH-funded Developmental Biology Training Fellowship (*2009-2010*)
Lenoir-Rhyne College First Honor Graduate (*2006*)
NCAA Academic All-American, Women's Cross Country/Track & Field, Division II (*2006*)
Cromer Full Tuition Academic Scholarship, Lenoir-Rhyne College (*2002-2006*)

Publications

1. Matsushima, D.*, **Heavner, W*.** and Pevny, L. H. (2011). Combinatorial regulation of optic cup progenitor cell fate by SOX2 and PAX6. ***Development*** 138, 443-54. *Equal Contributions
2. **Heavner, W.** and Pevny, L.H. (2012). Eye Development and Retinogenesis. ***Cold Spring Harbor Perspect Biol*** doi: 10/1101 / cshperspect.a008391
3. Leone, D.P., **Heavner, W**., Ferenczi, E.A., Dobreva, G., Huguenard, J., Grosschedl, R., and McConnell, S.K. (2014). The chromatin remodeling protein Satb2 regulates the differentiation of subcerebral projection neurons in the developing cerebral cortex. ***Cerebral Cortex*** doi: 10.1093/cercor/bhu156
4. **Heavner, W**., Andoniadou, C. and Pevny, L.H. (2014). SOX2 regulates the neurogenic boundary of the retina via mediation of WNT signaling. ***Neural Development*** 9:27
5. Notwell, J.H., Chung, T., **Heavner, W.,** and Bejerano, G (2015). A family of transposable elements co-opted into developmental enhancers in the mouse neocortex. ***Nature Communications*** 6:6644
6. Leone, D.P., Panagiotakos, G., **Heavner, W.**, Joshi, P., Zhao, Y., Westphal, H., and McConnell, S.K. (2016) Compensatory actions of Ldb Adaptor Proteins During Corticospinal Motor Neuron Differentiation. **Cerebral Cortex** doi: 10.1093/cercor/bhw003
7. Notwell, J.H., **Heavner, W.,** Darbandi, S.F., Katzman, S., McKenna, W.L., Ortiz-Londono, C.F., Tastad, D., Eckler, M.J., Rubenstein, J.L.R., McConnell, S.K., Chen, B., Bejerano, G. (2016) Tbr1 regulates autism risk genes in the developing neocortex. ***Genome Research*** 26:1013-1022.

Selected Extramural Research Talks

1. **Heavner, W.**, Notwell, J.H., Bejerano, G., and McConnell, S.K. Gene Regulatory Networks for Building a Neocortex. (Nov 2016) University of California Santa Cruz NeuroClub, Santa Cruz, CA
2. **Heavner, W.** and Pevny, L.H. (May 2012) Genetic Analysis of SOX2 and WNT signaling in regulating optic cup progenitor cell fate. The Association for Research in Vision and Ophthalmology. Fort Lauderdale, Florida.
3. **Heavner, W.,** Matsushima, D. and Pevny, L.H. (2011). The role of SOX2 in optic cup patterning. Ulm University annual scientific retreat, Ulm, Germany.
4. **Heavner W**, Matsushima D, Pevny L (2010) SOX2 and PAX6 Dosages Control Retinal Progenitor Cell Fate. Vertebrate Organogenesis. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Selected Teaching and Mentoring

Stanford University, Stanford, CA

Certificate, Postdoctoral Short Course on College Science Teaching

- **Co-organizer, Evidence-Based Teaching Practices**, a mini-series for postdocs funded by the Teaching and Mentoring Academy (*Summer 2017*)
- **Co-instructor, A Critical Evaluation of Neuroscience Techniques** (*Winter 2017* mini-course)
- **Teaching Assistant, Developmental Neurobiology** (BIO158), 70 undergraduates (*Fall 2016*)
- **Stanford Summer Research Program (SSRP) mentor**, Melissa Lucero, Amgen scholar (*Summer 2016*)

Science Communication and Outreach

Stanford University, Stanford, CA

- **Workshop Coordinator**, NeuWrite West science writing group (*2014-present*)
- **Workshop Coordinator for "Writing the Lay Abstract**," NeuWrite West and the Biosciences Grant Writing Academy (*Summer 2017*)
- **Contributor, Stanford Gender in Science** web resource (*2014*)
- **Member,** Women in Science and Engineering (*2013-present*)
- **Member**, Association for Women in Science, Palo Alto chapter (*2013*)

University of North Carolina at Chapel Hill, Chapel Hill, NC

- ***Girls on the Run*** **Volunteer Coach**, character development and training program for girls (*2010-2012*)