

CURRICULUM VITAE

Shaurita D. Hutchins, M.S.

Position: Researcher II
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EDUCATION

Master of Science in Biological Sciences, 2010 – 2012
Mississippi College, Clinton, Mississippi

- Dean's List, American Society for Microbiology

Bachelor of Science in Biology Premed, 2006 – 2010
Xavier University of Louisiana, New Orleans, Louisiana

- Dean's List, Student Government Association President, Peer Dean

RESEARCH EXPERIENCE

Researcher III, 2015 – Present
Department of Psychiatry and Human Behavior
University of Mississippi Medical Center, Jackson, Mississippi

- Planned and performed experiments related to the study of the role of SNPs in psychiatric disorders.
- Implemented memory efficient genomics pipelines using Python and Bash scripting.
- Performed complex data analysis on large data sets of over 1 TB.
- Developed a Python library which employs object-oriented principles and emphasizes modernized algorithms for orthology inference.
- Designed a Python CLI which parallelizes commands and simplifies PBS job submissions for existing tools.
- Redesigned and refactored Python code while implementing multiprocessing to improve scalability and increase the speed of a computational pipeline six-fold.
- Integrated testing techniques to improve the robustness of computational workflows.
- Built, deployed, and maintained a lab website on a NGINX server.
- Participated in and won hackseq18, an international hackathon focused on genomics, while competing with a team of diverse programmers.
- Founded and organized a bioinformatics working group to hold seminars and journal discussions for faculty, students, and staff.

Researcher II, 2013 – 2013
Cancer Institute
University of Mississippi Medical Center, Jackson, Mississippi

- Performed experiments related to the study of Geminin in ovarian and breast cancer metastases.
- Conducted experiments such as western blots, immunofluorescence analysis, extraction and purification of DNA and protein, transfections, chromatin purification and immunoprecipitation, PCR, and ELISA.
- Maintained primary cell culture lines, bred mice, and oversaw the mice colonies.

Student Research Assistant, 2009 – 2010
Department of Biology
Xavier University of Louisiana, New Orleans, Louisiana

- Assisted in research involving tumor angiogenesis.
- Managed the environment and status of the chick embryos.
- Prepared chick embryos for injection by using a small electric saw to expose the outer membrane.

Student Research Assistant, Summer 2009

*Department of Biochemistry
Tulane University School of Medicine, New Orleans, Louisiana*

- Conducted research on monoclonal antibody 5B2 and its binding properties.
- Prepared lab reagents and performed assays such as ELISA and BCA.

TEACHING & MENTORING EXPERIENCE

Researcher II, 2015 – 2019

University of Mississippi Medical Center, Jackson, Mississippi

- Taught undergraduate, graduate, and medical students molecular biology techniques.
- Served as a resource for students as they completed projects during their rotations and during the summer.
- Introduced students to the basics of data management.

Private Tutor, 2013 – 2015

Jackson, MS

- Assisted students preparing for ACT and PRAXIS exams.
- Identified, modified, and designed resources to meet the specific needs of students.
- Helped multiple students who had failed high school competency exams achieve their goal of passing.

Teaching Assistant, 2010

*Chemistry 1010 Lab
Xavier University of Louisiana, New Orleans, Louisiana*

- Assisted the assistant professor by grading course assignments.
- Guided students through experiments and course assessments.
- Prepared and delivered a lecture for the course.

Drill Instructor, 2007 – 2008

*Chemistry 1010/1020
Xavier University of Louisiana, New Orleans, Louisiana*

- Delivered timed quizzes to students and monitored students during quizzes.
- Graded quizzes and worked through answers for the class.
- Tutored students on upcoming quiz content.

HONORS AND AWARDS

- Winner of hackseq18, a hackathon focused on genomics, at the University of British Columbia in 2018.
- Leadership Key Award at Xavier University of Louisiana in 2010.
- Minority Access to Research Careers Scholar at Xavier University of Louisiana from 2008 to 2010.
- Alpha Epsilon Delta at Xavier University of Louisiana in 2008.
- Gold and White Leadership Award from Xavier University of Louisiana in 2008.
- Howard Hughes Biomedical Honor Corps Scholar at Xavier University of Louisiana from 2006 to 2010.

TECHNICAL SKILLS

Linux (openSUSE, Ubuntu), Windows OS
Python, R, Bash, JavaScript, PHP
Big Data Manipulation, RNA-seq & WGS Analysis

Operating Systems
 Programming Languages
 Bioinformatics

PUBLICATIONS

1. Ogawa LM, **Hutchins SD**, Gilmore RA, Lynch LJ, Schimmel JL, Vallender EJ. Dopamine D4 receptor genetic variation in rhesus macaques: Functional and behavioral consequences (in preparation)
2. Ogawa LM, **Hutchins SD**, Rando JM, Johnson AM, Ling B, Vallender EJ. Functional consequences of a CCR5 regulatory polymorphism in Chinese–origin rhesus macaques. (in preparation)
3. Vallender EJ, Gilmore RA, **Hutchins SD**, Zhang X, Mahajan GJ, Athey AJ, Overholser JC, Jurjus G, Dieter L, Rajkowska G, Stockmeier, et al. Gene expression in the prefrontal cortex associated with impulsivity. (in preparation)
4. Zhang X, **Hutchins SD**, Vallender EJ. Genetics effects on mu opioid receptor ligand biased signaling. (in preparation)
5. Zhang X, Gilmore RA, **Hutchins SD**, Vallender EJ. Stress induced alteration in gut microbiota composition of rhesus macaques (in preparation).
6. Zhang X, **Hutchins SD**, Blough BE, Vallender EJ. Ligand bias effects on mu opioid receptor second messenger signaling pathways in rhesus macaques (submitted April 2019, Psychopharmacology)
7. Gilmore RA, **Hutchins SD**, Zhang X, Vallender EJ. MicrobiomeR: An R Package for Simplified and Standardized Microbiome Analysis Workflows. *Journal of Open Source Software*, 4(35), 1299. 2019

CONFERENCE PRESENTATIONS

1. Gilmore RA, **Hutchins SD**, Grande B, Lin S. beRi: A Suite of Command Line Tools for Managing R (2019). BioIT World Conference and Exposition, Boston, MA.
2. Zhang X, Gilmore RA, **Hutchins SD**, Vallender EJ. Effects of genetic polymorphism on ligand-biased signaling: Mu-opioid receptor (2019). College on Problems of Drug Dependence, San Antonio, TX.
3. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Ligand bias effects on mu opioid receptor second messenger signaling pathways in rhesus macaques (2019). The Mississippi Academy of Sciences 83rd Annual Meeting, Hattiesburg MS.
4. Vallender EJ, Gilmore RA, **Hutchins SD**, Zhang X, Mahajan GJ, Athey AJ, Overholser JC, Jurjus G, Dieter L, Rajkowska G, Stockmeier CA. Gene expression in the prefrontal cortex associated with impulsivity (2019). NIDA Genetics Consortium Meeting, Bethesda, MD.
5. Zhang X, **Hutchins SD**, Vallender EJ. Comparison of second messenger GPCR signaling pathway profiling in Mu opioid receptors between rhesus macaque and human (2018). School of Graduate Studies in the Health Sciences Research Day, Jackson, MS.
6. Vallender EJ, Gilmore RA, **Hutchins SD**, Zhang X, Mahajan GJ, Athey AJ, Overholser JC, Jurjus G, Dieter L, Rajkowska G, Stockmeier CA. Gene expression in the prefrontal cortex associated with impulsivity (2018). College on Problems of Drug Dependence, San Diego CA.
7. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Interactions between genetics and ligands in Mu-opioid receptors bias the downstream signaling pathways (2018). The Mississippi Academy of Sciences 82nd Annual Meeting, Hattiesburg MS.
8. Zhang X, Gilmore R, **Hutchins SD**, Mahajan G, Athey A, Overholser J, Jurjus G, Dieter L, Benghuzzi H, Stockmeier C. Differential Gene Expression in the Prefrontal Cortex Associated with Suicide (2017). XXV World Congress of Psychiatric Genetics, Orlando FL.
9. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Interactions between genetics and ligands in Mu-opioid receptors bias the downstream signaling pathways (2018). The Mississippi Academy of Sciences 82nd Annual Meeting, Hattiesburg MS.
10. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Biased signaling of the NF κ B in Mu-Opioid Receptors polymorphisms (2017). UMMC Neuroscience Research Day, Jackson MS.
11. Zhang X, Gilmore R, **Hutchins SD**, Vallender EJ. Ligand bias in OPRM1 receptors (2017). The Mississippi Academy of Sciences 81st Annual Meeting, Hattiesburg MS.
12. Zhang X, **Hutchins SD**, Gilmore RA, Vallender EJ. Environmental change induced stress mediate microbiome expression (2016). UM/UMMC Research Day, Jackson MS.
13. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Mu opioid receptor ligand bias on GPCR signaling pathways (2016). 2016 Annual Meeting of Society for Neuroscience, San Diego, CA.

14. Zhang X, **Hutchins SD**, Gilmore R, Vallender EJ. Activation of GPCR signaling pathways in human origin Mu opioid receptors (2016). School of Graduate Studies in the Health Sciences Research Day, Jackson, MS.