Jonathan Augustin

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Education

- **Johns Hopkins University** — Baltimore, Maryland
  Doctor of Philosophy - Neuroscience — *August 2014 - Present*
- **Maryville College** — Maryville, Tennessee
  Bachelor of Arts - Biochemistry — *August 2007 - May 2011*

Relevant Skills Summary

- **Languages**: R, Python, Bash, Julia
- **Biology**: Flow cytometry, Animal husbandry, in utero electroporation, Tissue culture, qPCR, RNA immunoprecipitation, immunofluorescence, smFISH, cryosectioning, Western Blot, cloning, protein purification, in vitro transcription, neurosphere culture
- **Bioinformatics**: scRNAseq, ATACseq, RNAseq
- **Platforms**: Linux, Windows, MacOS

Research Experience

- **Graduate Researcher - Johns Hopkins University** — Baltimore, MD
  PhD Candidate (Full-time) *Mentor: Dr. Loyal A. Goff* — *August 2014 - Present*
  - **Molecular Mechanisms of the lncRNA Pantr2**: Employed bioinformatics analysis and molecular biology assays to ascertain the molecular function of Pantr2 in corticogenesis. Demonstrated the in vivo relevance of these mechanisms using a Pantr2 knockout mouse line
  - **lncRNA cell type specificity**: Analyzed publicly available scRNAseq datasets to determine if lncRNAs are more cell type specific than mRNAs
  - **Universal cell cycle assignment in scRNAseq datasets**: Generated the Cortical Neurosphere scRNAseq data used as the "ground truth" dataset
  - **scRNAseq data analysis in Kabuki Syndrome iPSCs**: Performed scRNAseq analysis on Kabuki Syndrome patient derived iPSCs to determine differentially expressed genes and features compared to control iPSCs
- **Research Technician - University of Alabama at Birmingham** — Birmingham, AL
  Research Technician (Full-time) *Mentor: Dr. Hao Jiang* — *Nov 2011 - August 2014*
  - **The role of Dpy30 in hematopoiesis**: Used molecular biology techniques in immortalized cell lines to demonstrate the necessity for Dpy30 in hematopoiesis. Demonstrated the in vivo relevance of Dpy30 using a morpholino mediated knockdown of Dpy30 in developing zebrafish.
  - **MLL/Set1 complex interacts with Yamanaka factors**: Purified proteins of interest and performed in vitro Co-IP assays to demonstrate interactions between MLL/Set1 complex members and the Yamanaka reprogramming factors.

Publications

- **Pantr2, a trans-acting lncRNA, modulates the differentiation potential of neural precursors in-vivo**: **Augustin, JJ.**, Goff, LA. **(2022). Manuscript in Preparation**
- **Universal prediction of cell cycle position using transfer learning.**:
  Zheng, S., Stein-O'Brien, G., **Augustin, JJ.**, Slosberg, J., Carosso, GA., Winer, B., Shin, G., Bjornsson, BT., Goff, LA., Hansen, HD. **(2022). Genome Biology 23(41) ; doi: https://doi.org/10.1186/s13059-021-02581-y**
- **Precocious Neuronal Differentiation and Disrupted Oxygen Responses in Kabuki Syndrome.**:
  Carosso, G. A., Boukas, L., **Augustin, JJ.**, Nguyen, H. N., Winer, B. L., Cannon, G. H., Robertson, J. D., Zhang, L., Hansen, K. D., Goff, L. A., Bjornsson, H. T.**(2019). JCI Insight, 4(20). https://doi.org/10.1172/jci.insight.129375.**
- **Physical Interactions and Functional Coordination between the Core Subunits of Set1/Mll Complexes and the Reprogramming Factors.**:
  Yang, Z., **Augustin, J.**, Hu, J., Jiang, H.**(2015). PloS One, 10(12), e0145336.**
- **The DPY30 Subunit in SET1/MLL Complexes Regulates the Proliferation and Differentiation of Hematopoietic Progenitor Cells.**:
  Yang, Z.*, **Augustin, J.***, Chang, C., Hu, J., Shah, K., Chang, C.-W., Townes, T., Jiang, H. **(2014). Blood 124 (13): 2025–33.**

Conferences and Presentations

- **The long-noncoding RNA Pantr2 affects radial glia differentiation timing through regulation of Nfix and Rgcc expression** — Remote
  Society for Neuroscience: Global Connectome | **Poster** — *January 2021*

- **Control of cortical neurogenesis via the lncRNA Pantr2 and the cell cycle regulator Rgcc.** — Chicago, Illinois
  Society for Neuroscience Annual Meeting | **Poster** — *November 2019*

- **Control of cortical neurogenesis via the lncRNA Pantr2 and the cell cycle regulator Rgcc.** — Baltimore, Maryland
  4th Annual Excellence in Diversity Conference | **Poster** — *November 2019*

- **The lncRNA Pantr2 and its role in regulating corticogenesis** — Baltimore, Maryland
  4th Annual Excellence in Diversity Conference | **Talk** — *November 2019*

Honors and Awards

- Society for Developmental Biology Satellite Symposium Organizer: Machine Learning for Developmental Biology - **Fall, 2019**
- Oral Presentation Award: 4th Annual Excellence in Diversity Symposium at Johns Hopkins University - **Fall, 2019**
- Society for Neuroscience: Neuroscience Scholars Program Associate - **Spring, 2019**
- National Science Foundation: Graduate Student Research Fellow - **March, 2016**

Teaching and Mentorship

- **Teaching Assistant for Medical School Intensive Summer Course** — Baltimore, Maryland
  Provided supplemental instruction and graded coursework for students — *Summer 2020*

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  Provided supplemental instruction and graded coursework for students — *Summer 2019*

- **Baltimore Polytechnic Institute: Research Mentor** — Baltimore, Maryland
  Created and directed a research project for a high school research class — *Fall 2016-Spring 2017*

- **Medical Education Resources Initiative for Teens (MERIT) Mentor** — Baltimore, Maryland
  Mentored a high school student on a small summer research project — *Summer 2016*

References

- **Loyal A Goff, PhD** — Johns Hopkins Medical Institute
  Miller Research Building, Room 549 733 N. Broadway Ave. Baltimore, MD 21205 — *email: loyalgoff@jhmi.edu*

- **Seth Blackshaw, PhD** — Johns Hopkins Medical Institute
  Miller Research Building, Room 339 733 N. Broadway Ave. Baltimore, MD 21205 — *email: sblack@jhmi.edu*

- **Dionna Williams, PhD** — Johns Hopkins Medical Institute
  Miller Research Building, Room 849 733 N. Broadway Ave. Baltimore, MD 21205 — *email: dwill201@jhmi.edu*

- **Rachel Green, PhD** — Johns Hopkins Medical Institute
  Preclinical Teaching Building, Room 714 725 N. Wolfe Street. Baltimore, MD 21205 — *email: ragreen@jhmi.edu*

- **Kaspar Hansen, PhD** — Johns Hopkins School of Public Health
  Welch Library, Room 111 725 N. Wolfe Street Baltimore, MD 21205 — *email: khansen@jhsph.edu*