



Allison Burns

DOCTORAL ASSISTANT • WEBMASTER FOR THE PHD ASSOCIATION

Brain Mind Institute, École polytechnique fédérale de Lausanne, Lausanne, Switzerland

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Summary

PhD student using both bioinformatic analysis and molecular techniques in order to learn more about the epigenetic mechanisms of memory formation. Webmaster for the Association of Doctoral Students in Life Sciences at EPFL. Established an student-run mentoring system to help ease the transition of new students into their PhD and life in Lausanne. Frequently attends R-Ladies Lausanne Meetings to discuss writing, testing and teaching R code.

Education

École Polytechnique Fédérale de Lausanne

PH.D. IN NEUROSCIENCE

Lausanne, Vaud, CH

In Progress

- Project: Effects of the splicing inhibitor, Isoginkgetin, on human Telomerase RNA

University of Oregon

M.SC. IN BIOINFORMATICS

Eugene, Oregon, US

2013

- Project: Testing the theory of Epigenetic Priming in Fear Memory Conditioning

University of Oregon

B.SC IN BIOLOGY, MINOR IN CHEMISTRY

Eugene, Oregon, US

2012

- Project:

Experience

École Polytechnique Fédérale de Lausanne

DOCTORAL ASSISTANT IN THE LAB OF JOHANNES GRÄFF

Lausanne, Switzerland

August 2016 - Present

- Project: Testing the theory of Epigenetic Priming in Fear Memory Conditioning
- Designed and performed experiments involving bioinformatic and bench techniques to study the effects HDAC inhibition on the epigenetic profiles and molecular mechanisms of memory formation in mice
- Advised other PhD students and postdocs on the best methods for sample and library preparation and aided in analysis of sequencing and photometry data
- Maintained and organized lab servers and managed computational needs for the lab
- Oversaw projects requiring both bench techniques and computational analysis for bachelor students and interns and advised thesis writing

Stowers Institute for Medical Research

BIOINFORMATICIAN/RESEARCH TECHNICIAN IN THE LAB OF PETER BAUMANN

Kansas City, Missouri, USA

January 2013 - July 2016

- Project: Effects of the splicing inhibitor, Isoginkgetin, on human Telomerase RNA
- Designed and performed experiments to study the mechanisms and effects of the splicing inhibitor, Isoginkgetin, on a global level, using computational tools, and at the Telomerase RNA Component (TERC) locus, using molecular biology techniques
- Performed tissue culture experiments, RNA sequencing preparation, western blotting and other basic laboratory techniques to help study the role of the exosome, TRAMP complex, NEXT complex and CBCA complex in human Telomerase RNA processing
- Analyzed RNA-sequencing data and genomic data, using the programming languages R and python, in collaboration with lab mates
- Taught new computational tools and analysis to graduate students and postdoctoral fellows

University of Oregon

UNDERGRADUATE RESEARCHER IN THE LAB OF WILLIAM E. BRADSHAW AND CHRISTINA M. HOLZAPFEL

Eugene, Oregon, USA

July 2010 - November 2012

- Project: Evolutionary genetics of geographical variation, seasonal development and circadian timing in the North American mosquito species, *Wyeomyia smithii*
- Focused on the evolutionary genetics of geographical variation, seasonal development and circadian timing in the North American mosquito species, *Wyeomyia smithii*
- Measured animal fitness in extreme light environments using timed light boxes and known seasonal day lengths
- Established inbred lines to reduce heterozygosity within mosquito populations in order to study how genetic differentiation has taken place in wild type animals.
- Performed alignments and analysis, using the program "Geneious" to study the evolutionary divergence of circadian clock genes in the mosquito, *Wyeomyia smithii*

Publications

1. Silva BA, **Burns AM**, Gräff J. (2019) A cFos activation map of remote fear memory attenuation. Psychopharmacology. <https://doi.org/10.1007/s00213-018-5000-y>.
2. Tseng CK, Wang HF, **Burns AM**, Schroeder MR, Gaspari M, Baumann A. (2015) Human telomerase RNA processing and quality control. Cell Reports. <http://doi.org/10.1016/j.celrep.2015.10.075>.

Teaching and Supervising

Exam invigilator, EPFL, Lausanne, Switzerland	2016-2017
Supervisor for Bachelor Students, EPFL, Lausanne, Switzerland	2017
Laboratoire intégré en sciences de la vie I, EPFL, Lausanne, Switzerland	2017-2018
Supervisor for Bachelor Students, EPFL, Lausanne, Switzerland	2018
Project Supervisor for Bachelor Thesis, EPFL, Lausanne, Switzerland	2018-2019
Laboratoire intégré en sciences de la vie II, EPFL, Lausanne, Switzerland	2018-2019

Extracurricular Experience

Association of Doctoral Students in Life Sciences, Webmaster & Coaching Organizer	2018 - Present
EDNE Neuroscience Student Association, Event Organizer	2019 - Present
R-Ladies Lausanne, Member	2018 - Present

Skills

Laboratory Techniques: Single Nuclei RNA-sequencing preparation, Bulk RNA-sequencing preparation, ChIP-sequencing preparation, Cell culture, RNA and protein isolation and quality control, Western blotting, RNAi knock-down, PCR, Cloning, Transfections, Transformations, Protein activity assays, Animal maintenance (mosquitoes and mice) and experimentation.

Computational Techniques: Bash(intermediate); R(advanced); Python(beginner); HTML(beginner); Webdesign; Version Control(Git); Data wrangling; Data visualization; Statistical analysis

Bioinformatic Analysis: Sequencing alignments(STAR and Tophat); Sequencing quality control; Bulk RNA-seq analysis; Single-cell sequencing analysis; Cell trajectory analysis; ChIP-seq analysis; Photometry and electrophysiology analysis.

Communication: Presented research talks at 4 internal symposia at the EPFL; Presented 3 posters at international conferences; Can explain complex computational analysis to colleagues not in the field; Taught second year bachelor students basic molecular techniques in an integrated lab course; Mentored two bachelor students for a short term project in the lab and one intern for a year-long project.

Leadership: Boardmember of the Association of Doctoral Students in Life Sciences (ADSV) at EPFL; Established a student-run mentoring system to help ease the transition of new students into their PhD and life in Lausanne.

References

Johannes Gräff, Ph.D.

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johannes.graeff@epfl.ch

Peter Baumann, Ph.D.

INSTITUTE OF MOLECULAR BIOLOGY, JOHANNES GUTENBERG UNIVERSITÄT MAINZ, MAINZ, GERMANY

peter@baumannlab.org

William E. Bradshaw, Ph.D., and Christina M. Holzapfel, Ph.D.

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