

Education

- **University of California, Berkeley Berkeley, CA, 2018-present**
Helen Wills Neuroscience Institute PhD Program
Co-advised by Linda Wilbrecht, Psychology, and Markita Landry, Chemical Engineering
- **The University of Chicago, Chicago, IL, 2012-2016**
Bachelor of Arts with Honors, Biological Sciences with specialization in Neuroscience, June 2016
Cumulative GPA: 3.85/4.00: Dean's List
- **Barrington High School, Barrington, RI, 2008-2012**
Diploma, June 2012
Cumulative GPA: 4.18/4.33: Highest Honors

Research Experience

Graduate Student Researcher

Wilbrecht & Landry Labs, University of California Berkeley, summer 2019-present
Rotation Student in Feldman, Adesnik, and Isacoff Labs, fall 2018-spring 2019

- Optimizing single-walled carbon nanotubes to fluorescently indicate dopamine fluctuations *in vivo*
- Investigating dopamine-mediated structural & functional plasticity *in vivo* during learning in awake, behaving mice through fiber photometry and two-photon imaging
- Elucidating differences in neural plasticity & learning abilities before and after puberty in mice through a brain-machine interface task (collaboration with the Carmena lab)

Laboratory Technician

Sheffield Lab, University of Chicago Dept. of Neurobiology, fall 2017 – summer 2018

- Performed viral injections & cannula insertion surgeries on mice; microtome slicing & immunostaining on mouse brain tissue
- Created virtual reality (VR) environments for animal behavior using ViRMEn software
- Established & administered contextual fear conditioning paradigms for head-fixed mice navigating VR
- Commanded two-photon microscopy to image pyramidal cells/axons in CA1 of awake, behaving mice
- Pioneered an investigation into dopaminergic modulation of CA1 place cell formation

Independent Researcher

Kell Group, Goethe University Frankfurt, Dept. Of Neurology, fall 2016 – summer 2017

- Designed psychophysical experiment to assess the learning ability of the human visual system
- Programmed neurobehavioral software to implement experiment
- Directed experiment, collected and analyzed data
- Edited the first informational video detailing cognitive neuroscience's Theory of Practopoiesis

Teaching Assistant

University of Chicago Research in the Biological Sciences Program, summer 2016

- Demonstrated biological research techniques like plating, streaking, preparing gels
- Instructed and guided advanced high school students in research methods
- Supported and directed independent research projects for high school students

Statistical Analyst

Gershon Lab, University of Chicago Dept. of Psychiatry & Behavioral Neuroscience, summer 2015 – spring 2016

- Analyzed genetic data from patients with psychoses for the Chicago branch of the national B-SNIP (Bipolar-Schizophrenia Network on Intermediate Phenotypes) project
- Programmed computational software to impute missing patient genotypes with statistical accuracy using human genome data from the 1000 Genomes Project
- Generated data to indicate single nucleotide polymorphism risk factors for psychosis
- Investigated assortative mating in patients with psychosis

Research Assistant

Dulawa Lab, University of Chicago Dept. of Psychiatry & Behavioral Neuroscience, fall 2014 – fall 2015

- Tagged and tailed mice for genotype identification, monitored litters, and weaned mice
- Ran polymerase chain reactions and gel electrophoresis to determine genotypes for study
- Scored behavioral videos of mice with knocked-out BTB-D3 gene for OCD-like behavior
- Administered gait and grip behavioral testing of BTB-D3 KO mice

Research Assistant

Kauer Lab, Brown University Dept. of Molecular Pharmacology, Physiology, and Biotechnology, summer 2014

- Perfused, fixed, and sliced mouse organs including brain and spinal cord for experimentation
- Prepared mouse brain slices for observation and experimentation

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- Toed, tailed, and extracted DNA from mice pups; monitored birth and death of pups
- Ran polymerase chain reactions and gel electrophoresis to determine genotypes

Summer Intern

Foundation for Biomedical Research, Washington, D.C., summer 2013

- Structured proposal for funding nationwide science outreach program, Sci-Inspire
- Researched child cognitive sociology and specific science foundations to better tailor engagement
- Gathered and organized information on leading professionals in the brain research field for TV program

Publications and Presentations

- **Published paper in *Translational Psychiatry*:** Alliey-Rodriguez, et al. "NRXN1 is associated with enlargement of the temporal horns of the lateral ventricles in psychosis". *Translational Psychiatry* 9(230). 17 September 2019.
- **Paper submitted August 2019 to *Cortex*:** Klinger, Nikolic, & Kell. "Quickly fading afterimages: hierarchical adaptations in human perception".
- **Presented poster:** Klinger, et al. "Engagement in visual processing speeds recovery from color adaptation". International Conference for Cognitive Neuroscience. Amsterdam, Netherlands: August 5-8, 2017.
- **Published supplement:** Thompson, et al. "Behavioral and Molecular Effects of Putative OCD Risk Gene BTBD3". *Biological Psychiatry*, 81(10): 15 May 2017.
- **Author on poster:** Alliey-Rodriguez, et al. "BSNIP1 Phenotypes: 36 Genome-Wide Significant Associations". American College of Neuropsychopharmacology Annual Conference. Hollywood, FL: December 4-8, 2016.
- **Author on poster:** Thompson, et al. "Identifying mechanisms underlying behavioral effects of putative OCD risk gene BTBD3". Society for Neuroscience Annual Conference. San Diego, CA: November 12-16, 2016.
- **Author on poster:** Thompson, et al. "Identifying the effect of putative OCD risk gene BTBD3 on behavior in mice". Society for Neuroscience Annual Conference. Chicago, IL: October 17-21, 2015.
- **Presented poster:** Klinger, et al. "Imputed Single Nucleotide Polymorphism Risk Factors for Bipolar Disorder and Schizophrenia". University of Chicago Undergraduate Research Symposium. Chicago, IL: October 14, 2015.
- **Presentation:** Klinger, Madeline. "Imputed Single Nucleotide Polymorphism Risk Factors for Bipolar Disorder and Schizophrenia". Conte Center REU 2015 Symposium. Chicago, IL: August 20, 2015.
- **Author on poster:** Thompson, et al. "Effect of putative OCD risk gene BTBD3 on behavior and neuronal activation in mice". Society of Biological Psychiatry Annual Conference. Toronto, Canada: May 10-12, 2015.

Awards & Honors

- **National Science Foundation Graduate Research Fellowship Honorable Mention, 2018**
- **Howell Murray Alumni Association Award Recipient, 2016:** the highest honor awarded to a graduating University of Chicago senior, for outstanding contributions to the University through co-curricular activities. Awarded to <1% of each graduating class
- **Phi Beta Kappa Honor Society:** member, inducted June 2016; awarded to <10% of each graduating class
- **German Academic Exchange Service Research Grant Awardee** (Deutscher Akademischer Austauschdienst, DAAD), 2016: proposed an independent research project to study the theory of prapoptosis at Goethe University in Frankfurt, Germany; competitively selected to receive funding October 2016 – July 2017
- **German Academic Exchange Service (DAAD) Language Study Awardee, 2016:** competitively awarded a two-month intensive language course in German at the Goethe-Institut in Göttingen, Germany
- **Fulbright U.S. Student Program Semifinalist & Alternate, 2016:** proposed an independent research project at the Max Planck Institute for Brain Research in Germany; competitively selected as an Alternate awardee
- **Conte Center Research Experience for Undergraduates Awardee, 2015:** selected from a nationally competitive application as one of ten students to receive a summer stipend and position in research
- **University of Chicago Dean's List, 2012-2016:** continuously maintained GPA of 3.25 or higher
- **Monica Gilman Memorial Scholarship, 2012:** awarded to outstanding female scholar-athlete with intent of studying and improving healthcare
- **Holy Cross Book Award Recipient, 2011:** awarded for outstanding scholarship, concern for others, and commitment to school and community
- **National Honor Society:** member, inducted Fall 2011
- **Nation Merit Scholar Commended Student, 2011**

Leadership and Activities

Sexual Violence/Sexual Harassment (SVSH) Prevention Training Facilitator
University of California Berkeley PATH to Care Center, fall 2019

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- Leading mandatory presentations for all new graduate students on prevention of SVSH
- Disseminating information on confidential university resources for survivors of SVSH

PATH to Care Center Student Advisory Board Graduate Assembly Representative
University of California Berkeley Graduate Assembly, fall 2018-present

- Representing graduate students' needs regarding prevention of and healing from SVSH
- Informing organizational change to advocate on behalf of student survivors of SVSH

Wellness Fund Advisory Committee Graduate Assembly Representative

University of California Berkeley Graduate Assembly, fall 2018-present

- Representing graduate students' interest in health and wellness on the UC Berkeley campus
- Allocating funding for wellness initiatives and programs
- Advocating for graduate student mental health

Co-Founder and President

Active Minds: University of Chicago Chapter, spring 2014 – spring 2016

- Initiated new University programming and events to better support students with mental illness
- Advocated of behalf of nationwide organization to reduce the social stigma of mental illness
- Connected University students to resources available on campus for mental health

Resident Assistant

University of Chicago Maclean Residence Hall, fall 2014 – spring 2015

- Supported, advised, and assisted residents with academic and personal issues
- Served as mentor and peer leader to facilitate the transition to college living for undergraduates
- Planned and directed activities and trips on and off campus to strengthen sense of community
- Ensured sense of safety and comfort for all students living in residence hall

Discussion Facilitator (fall 2013 – spring 2016), Cohort Participant (winter-spring 2013)

University of Chicago Emerging Minds Project, winter 2013-present

- Directed discussions on current racial and cultural issues and their societal impact
- Brainstormed ways to improve awareness of social injustice among the campus community
- Engaged community members to share perspectives and gain insight to the social justice movement

Orientation Leader

University of Chicago Orientation Program, fall 2013, fall 2015

- Facilitated discussions on campus civility, diversity, and safety for incoming undergraduates
- Organized and supervised orientation activities on and off campus
- Served as reliable and knowledgeable source of information on campus resources

Vice President, Assistant Music Director (fall 2013-spring 2014), member (fall 2012-spring 2014)

University of Chicago Unaccompanied Women A Cappella

- Attended 2.5-hour rehearsals twice per week
- Transcribed and arranged multiple pieces for rehearsal and performance
- Edited other arrangements and helped lead and structure rehearsals
- Performed multiple times per quarter, on and off campus

Volunteer Tutor

Strive Tutoring, autumn 2012-spring 2013, winter-spring 2014

- Supervised academic progress of 5th-6th grade student
- Outlined weekly homework plans and encouraged effort

Skills & Achievements

- Experience with electrophysiological in vitro recording from brain tissue
- Proficient in mouse craniotomy and viral injection surgeries, behavioral training, and *in vivo* two-photon microscopy
- Proficient in mouse perfusion, tissue slicing, and tissue fixation
- Proficient in German, CEFRL level B1, from Goethe-Institut Göttingen, Göttingen, Germany, 2016
- Understanding of statistical analysis using SPSS software
- Proficient in programming and administering psychophysical experiments
- Basic knowledge of programming with varying levels of experience in R, MATLAB, Python, Gtool, Plink 1.90, IMPUTE2, and Presentation by Neurobehavioral Systems
- Proficient in breeding, genotyping, and caring for mice
- Proficient in basic biological and chemical laboratory skills
- Proficient in typing and Microsoft Office

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Broader Interests & Aspirations

- Tackling the “hard problem” of consciousness
- Distinguishing between self-awareness in humans and other types of animal consciousness
- Mapping the process of thought, cognition, and conceptualization from a neurobiological approach
- Elucidating possible networks and mechanisms for the storage and creation of knowledge and memories
- Tracing genetic implications for cognitive disorders
- Exploring the intersection of genetics and neuroscience

References

- **Dr. Elliot Gershon, MD** - supervisor, summer 2015-summer 2016
Foundation Fund Professor of Psychiatry and Human Genetics
The University of Chicago Department of Psychiatry and Behavioral Neuroscience
egershon@yoda.bsd.uchicago.edu
- **Dr. Jason Maclean, PhD** - professor, fall 2015
Associate Professor
The University of Chicago Department of Neurobiology
jmaclean@uchicago.edu
- **Dr. Mark Sheffield, PhD** - supervisor, fall 2017-present
Assistant Professor
The University of Chicago Department of Neurobiology
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- **Dr. Danko Nikolic, PhD** - supervisor, fall 2016-summer 2017
Research Fellow, Frankfurt Institute for Advanced Studies
Associate Professor, University of Zagreb
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