

HANNAH DOLLISH

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EXPERIENCE

MAY 2017 – PRESENT

GRADUATE STUDENT RESEARCHER, LIGHT ALGORITHMS LABORATORY

DR. FABIAN-XOSÉ FERNANDEZ, UNIVERSITY OF ARIZONA

My current research combines molecular, cellular, behavioral and mass spectrometry to establish and investigate the circadian and seasonal role of melatonin in drosophila. Previously I worked with human subjects in collaboration with American Airlines to understand the short and long term health effects of circadian disruption in long-haul (>5 hours) airline pilots who crossed multiple time zones.

DEC 2016 – MAY 2017

ROTATION GRADUATE RESEARCHER, CAI LAB

DR. HAIJIANG CAI, UNIVERSITY OF ARIZONA

I was able obtain experience with optogenetics in addition to improving my technique and skills in rodent survival surgeries and profusions that I carried over from Grace Labs. I investigated the role of the Entorhinal Cortex and its projections as it relates to feeding behavior. I was able to use 2-photo microscopy and learned how to some immunofluorescence to look at system wide projections and correlated it to optogenetically induced behavior. I developed behavioral assays, along with finding the coordinates and injection volume as well as the protocol for stimulating the tagged neurons.

JUNE 2016 – DEC 2016

ROTATION GRADUATE RESEARCHER, FALK-SHERMAN LAB

DR. TORSTEN FALK, UNIVERSITY OF ARIZONA

My contributions here were in behavioral assays to look at how ketamine (chronic injections) could be used to help prevent the symptoms of L-DOPA Induced Dyskinesia (LID). I ran various behavioral assays and data analysis. I also administered IP injections of various pharmacological agents and gained the bases of my molecular training during my stay.

DEC 2011 – MAY 2016

UNDERGRADUATE RESEARCHER, GRACE LABS

DR. ANTHONY GRACE, UNIVERSITY OF PITTSBURGH

For 5 years I studied depression and addiction under Dr. Anthony Grace, Dr. Pauline Belujon and Dr. Millie Rincon-Cortez. I used electrophysiology to record from neurons in the Ventral Tegmental Area along with doing all of the behavioral assays to correlate with our findings. I also developed a novel object/social preference assay to obtain a behavioral effect for the changes in

dopamine neurons seen when ketamine is administered to treat acute amphetamine addiction. I was also in charge of giving the IP injections of various pharmacological agents, amphetamines and ketamine to the animals. I also contributed and assisted the lab manager with histology, tissue staining and various chemical and reagent preparations.

EDUCATION

MAY 2016 - PRESENT

PHD NEUROSCIENCE (IN PROGRESS), UNIVERSITY OF ARIZONA

4.0 GPA

Minor: Neuroscience

NSF GRFP Honorable Mention (2017)

AUGUST 2011 – MAY 2016

B.S NEUROSCIENCE, B.A. SLAVIC STUDIES, UNIVERSITY OF PITTSBURGH (MAIN)

3.2 GPA

GRE: Verbal 159, Quantitative 156, Writing 4.5

Minor in Chemistry

Certificate in Russian and East European Studies

Outstanding Attorney Award Regional and National I Mock Trial Tournament

Outstanding Witness Award Regional Mock Trial Tournament

SKILLS

- **Molecular:** ELISA, Melatonin Extraction, Slot Blot, Western Blot, Sample Preparation.
- **Computational:** Machine Learning (Matlab), R-Studio, Circadian Data Analysis, Photoshop.
- **Behavioral:** High Resolution Activity Monitoring, Melatonin Rhythms, Photoperiod Engineering, Various Rodent Parkinsonian Assays, Learned Helplessness in Rodents, Optogenetics, Social Assays in Rodents.
- **Imaging and Quantitation:** 2-Photon Microscopy, ELISA, Mass Spectrometry

ACTIVITIES

I have been a graduate teaching assistant for 4 years. During this time I learned the skills needed to develop and teach a class both online and in-person. I thoroughly enjoy teaching my students through in-person and online lectures for both the upper level systems class and the freshman intro to neuroscience class. I had the privilege to co-teach in the fall of 2020 with Dr. Ulises Ricoy the freshman class where I was heavily involved with content, exam and assignment development. In addition to being a TA I also do community outreach through a project I helped found with Dr. Stephen Cowen and Matthew Schmidt. The BRIAN Initiative is a community outreach program where we take an artificially created brain to classrooms, festivals and events to teach the public about how the brain works and what techniques we use to understand the brain and its functions, mainly through computational and electrophysiological demonstrations. BRIAN has been featured in the Science Village at the Tucson Book Festival for 3 years, as well as events with the SYSTEMS Coalition. I also mentor various undergraduates on campus to help them pursue a career in neuroscience as well as provide free tutoring for students

even after the move on from my class. I also am an avid runner and take advantage of the amazing Tucson weather to train year round for marathons. I also am a dedicated yogi and make sure I find time to practice during the week. Slightly less impressive but my most enjoyable past time is playing Pokémon and participating in complete battles and challenges internationally.

SCIENTIFIC CONTRIBUTIONS AND PUBLICATIONS

- Bartlett, M. J., Flores, A. J., Ye, T., Smidt, S. I., **Dollish, H. K.**, Stancati, J. A., ... & Falk, T. (2020). Preclinical evidence in support of repurposing sub-anesthetic ketamine as a treatment for L-DOPA-induced dyskinesia. *Experimental neurology*, 333, 113413.
- Giordano, K. R., Denman, C. R., **Dollish, H. K.**, Fernandez, F., Lifshitz, J., Akhter, M., & Rowe, R. K. (2020). Intracerebral hemorrhage in the mouse altered sleep-wake patterns and activated microglia. *Experimental neurology*, 327, 113242.
- Tubbs, A. S., **Dollish, H. K.**, Fernandez, F., & Grandner, M. A. (2019). The basics of sleep physiology and behavior. In *Sleep and health* (pp. 3-10). Academic Press.
- **Dollish, H. K.**, Figueroa, A., Janowski, A., Snyder, R. W., & Fernandez, F. (2019). 0266 Actigraphy-Based Measurement of Sleep and Diurnal Rhythms in Subjects with Age-Related Macular Degeneration. *Sleep*, 42, A109.
- Rincón-Cortés, M., Gagnon, K. G., **Dollish, H. K.**, & Grace, A. A. (2018). Diazepam reverses increased anxiety-like behavior, social behavior deficit, and dopamine dysregulation following withdrawal from acute amphetamine. *Neuropsychopharmacology*, 43(12), 2418-2425.
- Belujon, P., Jakobowski, N. L., **Dollish, H. K.**, & Grace, A. A. (2016). Withdrawal from acute amphetamine induces an amygdala-driven attenuation of dopamine neuron activity: reversal by ketamine. *Neuropsychopharmacology*, 41(2), 619-627.