GSBS Office of Career Development

Career Connections

A monthly newsletter highlighting career & funding opportunities

Heather Tsong

6th Year, Genetics and Epigenetics PhD Program

1. Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31, PA-25-422)

Title: "*WIPI2B/ATG-18 phosphorylation regulates neuronal autophagosome biogenesis in vivo.*"

Opportunity Details: The NIH F31 enables promising predoctoral students to obtain individualized mentored research training from faculty sponsors while conducting biomedical research.

Finding New Approaches to Tackle Neurodegeneration and Disease in Aging Brains

Driven by her passion in neurobiology, Heather Tsong dove headfirst into the many topics, perspectives, and methods of neuroscience research by completing eight-week research rotations in three different laboratories as a first-year graduate student. Through these rotations, she learned that while she fit into a variety of different labs, the critical aspects for her success were the lab environment and the mentorship style of her research mentor. She joined the lab of Andrea Stavoe, PhD, as the lab's first PhD graduate trainee. Tsong credits the hands-on attention of Dr. Stavoe, the small lab size, and open communication,

as critical components of her successes thus far in her graduate training.

Tsong's thesis focuses on a cellular recycling pathway known as autophagy. This pathway supports cellular health and function by recycling cellular waste. Due to the long life of neurons in the brain, they are prone to acute buildups of cellular waste. Thus, neuronal autophagy is a critical pathway responsible for the health and longevity of cells in the brain. As individuals age, autophagy function decreases, leading to disease and degradation of the brain. Tsong is investigating how a key protein in the autophagy pathway, WIPI2B, may play a key role in restoring autophagy function in neurons. She investigates how WIPI2B and other proteins that modify WIPI2B impact autophagy in aged neurons, in hopes of identifying new approaches to improving brain health.

Time and Feedback Are Critical for Fellowship Success

Tsong and Dr. Stavoe identified the F31 fellowship as a key step for her in demonstrating that she was capable of independent and quality research. Establishing a track record of successful funding provides opportunities for future success. Tsong pulled together a qualified team of researchers, including an additional mentor, Neal Waxham, PhD, an expert in neuronal cell culture and proteins, to support her fellowship research and development. She emphasizes that starting early and creating a plan that includes both time for writing and ample time for feedback and revisions are keys to a successful fellowship.

> *"Mapping out a timeline and implementing personal deadlines ensures that all parts of the application will be ready in time for submission."*

Tsong utilized existing courses at the graduate school to help her with developing her application. The Scientific Writing course gave her ample time and structured peer feedback on the research strategy portion of her proposal. She took the NIH Fellowship Proposal Development Course in the next semester to receive guidance and structured feedback on the non-scientific portions of her training plans. Tsong credits both courses with helping her create documents that were scientifically sound and accessible to other scientists outside her specific field.

Overcoming the Tabula Rasa (Blank Slate) To Communicate Science

Tsong reflected on the difficulty of having sound scientific ideas but being unable to get started on writing them down when asked about the most challenging aspect of her fellowship writing process. She emphasized that getting her thoughts on to paper was the biggest hurdle. Sentences that made sense in her head or in discussions with peers and mentors did not always have the same impact when written down. Her own perfectionism stopped her from getting started on her drafts. She received advice from others at the graduate school that perfection was the enemy of completion. Inspired by this advice, she split her writing sessions between generating ideas on paper and structuring those ideas

into impactful and cohesive paragraphs. She found that by stepping away from her document after an "idea session" she created distance between herself and her writing that allowed her to come back later and revise those ideas into a cohesive structure. She encourages other students that struggle with writer's block and overcoming a blank page to follow a similar approach. She asked herself two questions during her revisions: 1) What was she truly trying to communicate, 2) Is that communication effective? Once she was satisfied with her drafts, she utilized feedback from her mentor Dr. Stavoe, fellowship co-sponsor Dr. Waxham, and others from her lab and the graduate school to refine her writing.

> *"It takes some time for me to formulate my thoughts, organize them, commit them to paper, and then clean them up. [...] [It's critical to] start early and have a plan."*

Tsong is excited to use the knowledge she gained while developing this research proposal for the rest of her career. She wants to continue her work in research focused on neurodegeneration or aging. Whether her next career step lands her in academics or a scientific industry position, Tsong knows that the writing and communication skills she refined during this fellowship process will be critical for her to communicate future discoveries with others.

Left: Tsong, far right, poses with the Stavoe lab.

Bottom: Tsong, back right, enjoys a meal with the Stavoe lab.