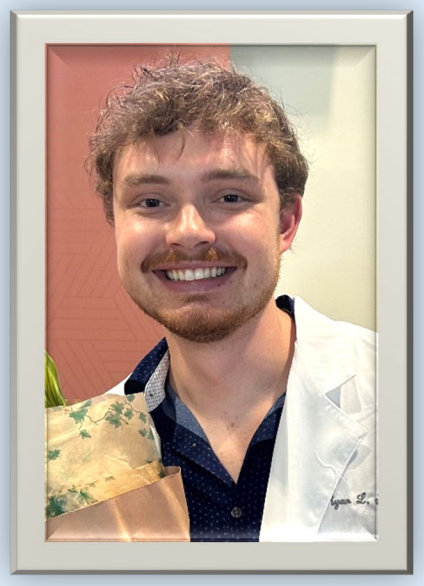
GSBS Office of Career Development

Career Connections

A monthly newsletter highlighting career & funding opportunities



Ryan Sloan

4th Year, Microbiology & Infectious Diseases Program

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

Title: "*Transcriptional regulation of essential tissues by pioneer factor FoxA in schistosome parasites.*"

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

Interest in Unique Model Systems Leads to a Passion for Developmental Biology and Human Health

When Ryan Sloan began his PhD journey, he decided to explore labs with diverse model systems to study key biological questions. From bacteria to parasitic flatworms, he discovered human disease can be modeled in a wide variety of organisms. When Sloan joined Jayhun Lee, PhD's lab, he discovered a true passion for developmental biology by utilizing parasitic flatworms. These flatworms, called schistosomes, cause the disease schistosomiasis. This parasitic infection affects more than 250 million people worldwide,

and only one drug is currently available for treatment. With drug resistance a growing issue, and treatment only affecting adult flatworms, novel approaches to treat and prevent parasitic infection are needed. Schistosomes develop, reproduce, and infect their human hosts by relying on a population of stem cells—cells that can grow and divide into many different cell types. Sloan's research focuses on understanding the function of these stem cells in producing cell types that are vital for schistosome growth and survival. His thesis investigates how a protein, FoxA, controls stem cell growth and division to support parasitic growth. By understanding how stem cells contribute to schistosome infections, scientists can better understand how parasites survive in human hosts. Ultimately, Sloan's work may lead to new ways to treat schistosomiasis.

Organization is the Key to Fellowship Success

Sloan's passion for science led him to pursue a research fellowship through the NIH F31 program. He knew that by supporting himself with a fellowship, he could not only boost his scientific career but also free up extra lab funding for experiments. He started early in his graduate career to leave plenty of time to coordinate people on his application and submit a high-quality proposal.

> *"You have to coordinate with many people to prepare and submit the application. This includes your advisor, anyone you get feedback from, your co-mentor (if you have one), the grant office, Sponsored Projects Administration, and anyone you asked for a letter of recommendation or support. […] I was very intentional about organizing my application materials [and] communicating with others."*

He acknowledges that submitting an application early in your graduate career may feel overwhelming. Sloan developed his proposal while also preparing for and completing his candidacy exam. He found it was doable by setting specific writing timelines and taking advantage of the many resources at both the Graduate School and his department to complete the application. Sloan utilized both the Graduate School's NIH Fellowship Proposal Development Course and his grants administrators to keep himself on track with required documents and application instructions. He recommends utilizing tools such as reference managers as well to ensure there is no scrambling for training or scientific documents as the deadline approaches.

> *"The non-research components make up most of the application and have a large impact on the score, especially the training plan, so it is important not to neglect them. […] The application, while mostly on the student, is really a team effort. I felt very supported while completing the applications […] My mentors and peers were great at helping to review my materials and to keep me motivated. [The Graduate School] is also very supportive and has many resources available to students."*

When it comes to getting feedback on your proposal, Sloan recommends being intentional about selecting who reviews your application. While he recommends having others read your documents, including both lab members and peers in adjacent fields, he cautions that casting too wide of a net can result in conflicting or confusing feedback. He focused on a full review by only a few key individuals involved in his training and a set of trusted peers. He also received structured and individualized feedback on his nonscientific documents through the fellowship development course. His strategy resulted in diverse but actionable feedback on the critical documents in his proposal.

Funding and Mentorship Key Pillars of Research Success

When asked about the key components of his PhD journey that have contributed most to his success, Sloan reflected on the impacts his fellowship and mentorship of other students have had on his development as a scientist. Scientific communication, specifically writing, was an area of growth for him. The process of developing an F31 fellowship significantly improved his writing ability. A track record of independent funding will also support his continued career in biomedical research. By starting early, Sloan has set himself up for building on his funding success.

Sloan also discovered that mentorship of others in the lab is a highlight of his research. He emphasized that learning how to be a mentor to others is just as important as establishing a good relationship with your own research mentor. He has sought opportunities to mentor both rotation students and visiting undergraduate scholars. Sloan found the experiences rewarding for both himself and his mentees. Mentorship is also a key skill for his future career leading a research team. Sloan looks forward to continuing to develop his mentorship and communication abilities as he continues his research at the Graduate School and beyond.

Sloan, right, poses with the Lee lab at McGovern Medical School.