Western Faculty Profile: Dr. Bryan Heit

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No conflicts of interest declared.

Abstract

Dr. Bryan Heit is an Assistant Professor in the Department of Microbiology and Immunology at the University of Western Ontario. Through his research he is investigating the role macrophages play in the development of inflammatory diseases such as atherosclerosis. Dr. Heit was interviewed for his professional and personal insights regarding the world of scientific research by Youngkyung Jung, a member of the Academic Affairs Committee, WURJHNS.

Background

Dr. Heit completed his undergrad in cellular, molecular, and microbial biology at the University of Calgary. His interest in immunology was largely in part to the excellence of his professors during his time at Calgary. His success with his senior thesis led to a masters and later PhD in physiology & biophysics at the same institution. He took up a position as a post-doctoral fellow in Toronto at SickKids.

The research Dr. Heit is involved with spans several different fields. Reflective of his PhD, it is a mixture of immunology and biophysics.

Currently his lab has been gearing up to do some gene expression assays on hearts of patients with cardiac diseases. It's an exciting, novel experiment investigating in vivo macrophage analysis. To lend some perspective on the clinical importance of this work, macrophage cells are responsible for atherosclerosis, a prevalent and taxing illness that serves as a gateway to more serious conditions. Currently, the animal models used to study this disease combined with collected samples from patient's hearts can be used to study the origin of the disease. To this end, Dr Heit's lab has busy with establishing experiment pipelines, ethics approvals, laser microdissection, RNA isolation and analysis.

Advice for undergraduates

Research positions are becoming increasingly competitive. A thorough knowledge of the research done at the lab is essential, as it indicates initiative. Ideally, the student's aspirations would correlate to their stage of education. A reasonable amount of knowledge regarding field of research they're interested in acquired through their studies is ideal, but a clear and obvious interest in pursuing research is key.

To pursue and excel at scientific research, both in a volunteer and later professional capacity, the individual be self-motivated. Grades are important for research scholarships. Otherwise they're not a deciding factor. Personality, degree of preparation for the interview and general knowledge are the most important factors in screening volunteer candidates.

Qualities of an excellent scientist

Good communication skills set the foundation for effective research. It doesn't matter if you're the smartest person on Earth, if you can't explain your ideas. Success as a scientist is impossible for those that cannot convey their findings to others.

Overcoming challenges

According to Dr. Heit, the most surprising aspect of research was the disparity between time spent in the lab and the time spent on administrative and managerial tasks.

The world as a student or even post doc and researcher are drastically different. For example, learning to teach is an acquired ability that isn't a standard part of what you learn as a graduate student. In addition, managing a lab and learning the balance between supporting your students without being overbearing is a subtlety and a learning curve. Research itself has its ups and its downs. The focused scope of many journals can be a challenge if your research is diverse. Conversely, moving forward with projects is easier if research is diverse, as

it lends more tools and perspectives. Complex projects are also harder to manage, especially when it comes to identifying novel connections between ideas, which is what science is really all about. However, this doesn't diminish the excitement of exploring the unknown and challenging traditional perspectives. It's akin to a blank slate for generations of scientists to fill.