Graduate Women in Science Travel Award Report – Spring 2010

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The Graduate Women in Science (GWIS) Travel Award funded my travel to attend the 2010 Days of Molecular Medicine meeting from May 20-22 in Stockholm, Sweden. It was the 10th meeting in the series, and was focused on the application of systems biology to study cancer and metabolic disease, as well as developing therapies and strategies to treat these diseases. The conference was held at the Karolinska Institutet, a renowned medical university in Europe that selects the laureates of the Nobel Prize in Physiology and Medicine, with support from Massachusetts General Hospital and Cell Press. I was one of 30 MD/PhD trainees who received travel awards from the conference organizers, and the GWIS travel award was instrumental in supplementing my travel to Stockholm.

The meeting consisted of: sessions on specific topics, such as "Innovative Technologies in Systems Biology" and "Systems Level Approaches to Cancer"; luncheon poster sessions; dinner receptions (one at the Moderna Museet and one at the City Hall of Stockholm – where the Nobel Prize banquets take place); and an advice session for trainees pursuing physician-scientist careers. Many of the conference speakers are leaders in their fields, including Michael Snyder of Stanford, Lewis Cantley of Harvard, Tak W. Mak of the University of Toronto, and Scott W. Lowe of the Howard Hughes Medical Institute & Cold Spring Harbor Laboratory. Furthermore, with less than 200 attendees, the meeting allowed for lots of one-on-one interaction with other researchers across the career spectrum, from students to lead investigators.

Though I perform cancer research, systems biology was a new concept to me. The conference illustrated how systems biology can be used to uncover common molecular pathways between cancer and diabetes, as increasing epidemiological links between the two diseases are being realized. Just as importantly, a critical aspect of my training as an MD-PhD student is to consider the clinical applications of basic science research, and this conference of scientists and physician-scientists contained many valuable examples of such research.

This meeting provided my first opportunity to present my research at an international conference. Under the tutelage of Edward Brown and Kelley Madden, my own research focus is the effect of chronic stressor exposure on breast tumor growth and metastasis. I presented my poster entitled, "Evidence for Sympathetic Nervous System Regulation of Breast Cancer Pathogenesis". Our data showed increased levels of the proinflammatory and proangiogenic cytokine interleukin-6 after beta-adrenergic receptor stimulation of the breast cancer cell line MDA-MB-231. This effect was inhibited by a beta-blocker. In addition, staining orthotopically grown MDA-MB-231 tumors for tyrosine hydroxylase demonstrated the presence of sympathetic nerves in the tumors, revealing a mechanism of sympathetic nervous system regulation of these tumors.

I am grateful to have participated in the Days of Molecular Medicine meeting and to have learned from such a variety of researchers. I am thankful to GWIS, the conference organizers, and my advisor Edward Brown for funding my travel to the meeting.