

Graduate Women in Science Travel Award Report  
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Mentor: Dr. Willis Li

The generous funding I received from the Graduate Women in Science enabled me to travel to San Diego and attend the 52<sup>nd</sup> Annual *Drosophila* Research Conference. The meeting was held over five days, during which it was filled with talks, poster sessions and workshops. It is the principal conference in the fruit fly field, thus drawing researchers internationally and resulting in a massive gathering of thousands of attendees each year.

Plenary speakers included Nobel Prize winners and other renowned scientists, who have made seminal contributions to their respective fields and whose work I was familiar with. I was thrilled by the rare opportunity to hear about cutting edge research directly from the leaders in the field. Since I currently study epigenetics and development, I found some of the relevant plenary talks to be especially fascinating. These included the presentations on the overlapping and distinct functions of the core histone H3 and variant histone H3.3 in physiology and transcriptional activation by Dr. Kami Ahmad from Harvard Medical School, miRNA regulation of the *Hox* locus during development by Dr. Eric Lai from Sloan Kettering Institute and the control of cell shape and contraction in the early embryonic cellularization process by Dr. Eric Wieschaus from Princeton University.

The platform sessions covered various topics such as development, chromatin and RNA biology, stem cell, evolutionary genetics, neurogenetics, immunology, human disease models and functional genomics. I attended two sessions that were pertinent to my work in the lab and five additional off-topic ones. The wide range of subjects presented allowed me to gain more knowledge on cellular processes related to my projects, as well as expand my horizons by learning additional aspects of the *Drosophila* model system. Since my poster focused on the activation of zygotic genes during early embryogenesis, I attended the “Pattern Formation” section. The majority of speakers presented their work dissecting mechanisms by which maternal gradients confer the unfathomably strict spatial-temporal regulation of multiple target zygotic genes, a topic that has long perplexed the field. I also attended the “Chromatin and Epigenetics” session, which was relevant to my second project. I found it to be more diverse than the former session, with presentations encompassing the recruitment of DNA repair pathway components in eu/heterochromatin, identification of novel histone post-translational modifiers, and transvection by homologous pairing and dosage compensation, to name a few. Among platform sessions on domains unfamiliar to me, I found one titled, “*Drosophila* Models of Human Disease” to be particularly intriguing. I was awed by the genetic manipulations that mimic prostate cancer, leukemia, epilepsy and cardiac dysfunction, enabling the identification of molecular mechanisms leading to pathogenesis and useful therapeutic compounds using *Drosophila*.

The poster sessions gave me the opportunity to present my work in a large public arena for the first time. My poster was among four that described Zelda, a recently discovered general transcription factor imperative for the maternal-to-zygotic transition in early embryogenesis. It was an invaluable experience for me to interact with other authors who are investigating the same biological phenomenon and whose work we cited in our manuscript. Our study demonstrating STAT as a novel general transcription factor in conjunction with Zelda precipitated a discussion on the cooperative and specific roles these two transcription factors play during early embryogenesis. I was able to receive insightful feedback and helpful critiques from numerous people that were beneficial and will improve my work. It was also exciting and highly informative to browse the hundreds of posters on various other subjects. I am extremely grateful to GWIS for allowing me to participate in this meeting and to my mentor for the opportunity to conduct research in his lab.