GRADUATE WOMEN IN SCIENCE
2014 SPRING TRAVEL AWARD REPORT
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I am truly grateful to receive a Graduate Women in Science (GWIS) Travel Award to attend the 33rd Annual Meeting of the American Society for Virology at Colorado State University at Fort Collins from June 21-25, 2014. This meeting is the premier conference for me, where the main focus is viral pathogens. This year, the conference attracted at least 1300 of the leading virologists from around the world. Over 900 abstracts were submitted by meeting participants.

The conference was incredibly well organized, considering the number of different presentations that were given during the four-day meeting. There were many talks this year focused on the Middle East Respiratory Syndrome Virus (MERS-CoV), which is currently in the news because it is a recently identified virus that has been found to cause lethal infections in many different countries of the world. A surprisingly large number of presentations discussed the possibility of using electroporation of DNA viruses as a vaccine strategy, given its high immunogenicity over traditional needle-based administration methods. I enjoyed the morning sessions, where many of the leading experts in both virology and innate immunity gave extraordinary presentations that covered many subjects. I particularly enjoyed a talk given by Dr. Clodagh O'Shea, from the Salk Institute. Her talk outlined a novel method for using viruses as cancer treatments. This was very interesting because the system she described used different viral components to generate "designer vaccines" that specifically treat an individual rather than all patients in the same way. Though she is not a virologist, her presentation certainly generated the most buzz during the conference.

I was very fortunate to be selected to give an oral presentation during a session focused on novel strategies for vaccine and vaccine vector designs. My talk was titled, "Development of arenavirus vaccines based on codon-deoptimization." Arenaviruses are a family of negative-strand RNA viruses of which several members, including Lassa virus (LASV), are the etiological agents of lethal hemorrhagic fever in humans. There are currently no preventative or prophylactic therapeutics to combat arenavirus infections. To counteract arenaviruses, we focused our research on developing live-attenuated arenavirus vaccines by recoding the viral genome with the least frequently used codons. This strategy of codon deoptimization reduces viral protein expression and therefore viral infection. Using the prototypic arenavirus lymphocytic choriomeningitis virus (LCMV), we were able to generate a panel of recombinant LCMV that encode nucleoprotein displaying varying degrees of codon deoptimization (rLCMV/NPcd). Not only were we able to show lower levels of NP protein expression and functional activity after codon deoptimization, but were able to show that rLCMV/NPcd was safe to use in an *in vivo* mice model of infection and protected against a lethal challenge with wild-type LCMV. Thus, there is potential in the development of arenavirus vaccines based on codon deoptimization. My talk was well received from the audience and invited many thought-provoking questions.

The opportunity I was given to attend the ASV meeting was extremely beneficial for my advancement as a scientist and presenter. I am truly grateful for the support given to me by the GWIS travel award.