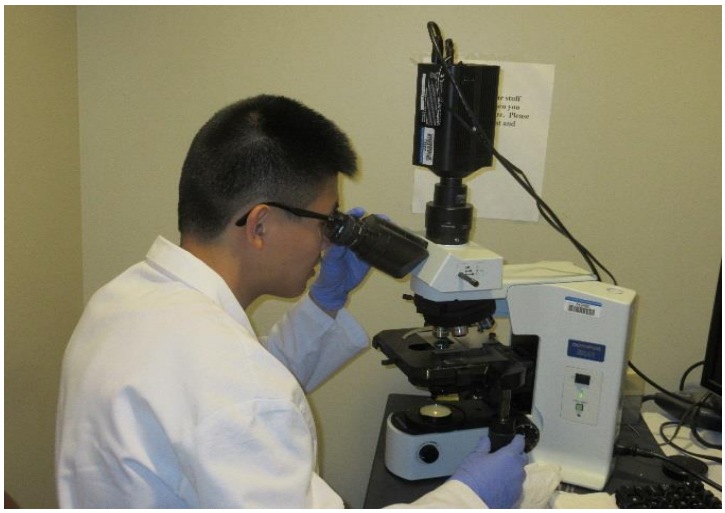

Factor H Mutant Mouse: A Model of Atypical Hemolytic Uremic Syndrome
Kevin Sun (COL 2018)
Advisor: Wenchao Song

This summer I worked in Dr. Wenchao Song's lab, investigating a potential mouse model for the disease atypical hemolytic uremic syndrome (aHUS), a disease in which small blood vessels clot. Although aHUS is extremely rare, classified as an orphan disease, it is especially devastating and current treatment is limited. The disease is caused by the dysregulation of the complement system, a specific branch of the immune system that operates in the blood and the liver. We found a gene called factor H that is mutated in 40% of cases of aHUS. The lab used gene targeting to introduce this specific mutation into a mouse line, and found that the mouse displayed many molecular and physiological markers of the disease. This is significant due to the fact that mouse models are crucial to the development and testing of therapeutics in the first stages of drug development. I personally was involved in the mice genotyping, performing Western blots, recording and calculating mortality rates, dissecting organs, and organ imaging, including the kidney, spleen, liver, and lung. Additionally, I helped perform behavioral studies quantifying the neurological symptoms of these mutant mice. This experience in Dr. Song's lab has been invaluable in teaching me conceptual biology, as well as specific hands-on laboratory techniques, both of which are essential to my future as a researcher and physician. It has been thrilling to see how abstract lessons in biology and chemistry classes translate into tangible and important scientific procedures and techniques in the lab. I want to specifically thank Yoshiyasu Ueda for taking me under his wing and allowing me to contribute to this ongoing project, as well as the help of Xiaoxu Wang in teaching me new techniques.