Student Research Conference Abstract
Evolution in a Malaria Parasite: Allele Frequency Changes Over Decades

Evolutionary theory proposes that coevolution of parasites and their hosts should lead to an escalating "arms race", resulting in rapid evolutionary change in the parasite. This project is the first to thoroughly test this hypothesis for a malaria parasite, important pathogens of humans and wildlife. I am examining changes in allele frequencies for five microsatellite genetic markers for *Plasmodium mexicanum*, a parasite of the western fence lizard, over a 32-year period from stored blood samples taken at a site in northern California. Studies on changes in allele frequencies for malaria parasites are rarely conducted in wild populations due to the necessity of a long-term study, and have never before been conducted for a malaria parasite of nonhumans. Microsatellites markers are highly polymorphic and therefore useful in genetic studies at the population level. Although these markers are noncoding presumed to be neutral in effect, evidence suggests that they are linked to coding loci that have relevance for the biology of the parasite. The number of generations of the parasite produced within the time frame of this study should therefore reveal changes in allele frequencies of these neutral markers that must be linked to rapidly evolving portions of the parasite genome.