The Jefcoate lab uses murine stem cells and mice to study a plethora of topics relating to adipogenesis, obesity and diabetes, but is looking into working with osteogenesis as well. Under the direction of Dr. Michele Larsen, the affect of dioxin (specifically, 2,3,7,8-Tetrachlorodibenzodioxin or TCDD) on two murine stem cell lines (C3H10T1/2 and BMS2) via cell culture was studied. Taking cells from the initial plating to harvesting for proteins provided a good foundation in the practice of cell culture. The results of adding differentiation stimulants and dioxin to these cells by running protein assays and western blots were analyzed. After exploring adipogenic stimulation with Dr. Larsen, the investigation moved on into stimulating osteogenesis. As the lab hadn't worked with osteogenesis much in the past, the antibody conditions for osteogenesis western blots was now optimized. The results show some intriguing affects of the stimulants that the lab is now looking into.

While assisting several of the graduate students and post-docs with their research, I observed mouse tissue collection and soon began doing cardiac punctures and retrieving various organs. I also observed intraperitoneal cavity and gavage injection treatment of mice and assisted with Blood PAH extraction and reverse phase HPLC. In addition to learning valuable technical skills, working in the Jefcoate lab was a great education in the day to day functioning of a lab. This experience provided invaluable insight into the grant procedure, how experiments are planned, and what graduate school is like.