

The Major Histocompatibility Complex (MHC) is a protein that plays an important role in the immune response to pathogens of all jawed vertebrates. There are different classes of MHC, and the MHC Class I genes encode for transmembrane glycoproteins that are involved in surface antigen presentation in nucleated cells. Holstein dairy cattle can have up to six different alleles for the MHC Class I gene per individual, though these alleles are usually not all expressed. The goal of this experiment is to determine whether the same alleles are expressed in different tissues in the Holstein body or if the allelic expression differs between tissues. Using cloning, sequence specific primer, and pyro-sequencing methods I determined the expressed alleles for multiple cows at different tissue sites, focusing on the comparison of dorsal soft palate and blood, as well as teat skin and mammary gland. At this point the data is inconclusive, with some trials supporting the hypothesis of similar allelic expression across tissues and some trials rejecting it. Flaws in the available methods as they apply to this project have also complicated my results. My research is still ongoing, and further research between now and the research conference may help to clarify my results.