

The University of Florida Equine Genetics Lab, a part of the Department of Animal Sciences at the Cancer and Genetics Research Complex, focuses on the use of genomics tools to study traits of health, conformation and performance. This work spans not only the mapping and identification of mutations causing traits of interest, but also the use of a variety of nucleic acid based techniques in genomic research. Under the guidance of Dr. Samantha Brooks, the laboratory has previously discovered genetic mutations and markers for coat colors, height, sarcoid tumors and two neurological conditions of the horse. These discoveries are not only important for the equine industry, but also for the research field in general as they provide a better understanding of biological pathways and predict gene function for various species that make use of the horse as a research model.

Currently, the lab is conducting several investigations: Laura Patterson-Rosa, DVM and Ph.D. student's research focuses on genetic components of a condition known as Anhidrosis, for which there are no effective treatments available. It more commonly affects sport horses, although it is not limited by sex, breed or age. Characterized by the inability to sweat in response to appropriate stimuli, it might lead to severe consequences, including multiple organ failure in response to hyperthermia and, in some instances, death. Samantha Lewis, Master's student, is finishing research on Equine Metabolic Syndrome, a disease similar to Type II Diabetes in humans, where conditions of obesity are linked to abnormal responses of insulin, the hormone that controls sugar levels in the blood. Her findings will provide better diagnostic methods and understanding of this concerning disease. Katelyn Palermo, Master's student, is researching copy number variant in the Latherin gene, a gene that was implicated in sweat and saliva pathways. Dr. Heather Holl, Post-Doc, is working on genomic assembly for the camel and Arabian Oryx, an antelope species that was extinct in the wild, but thanks to conservation efforts, there are now several thousand individuals in the world. Genomic knowledge will improve understanding of the biology of this endangered species as well as help with selection in order to maintain genetic diversity. Several other smaller studies are being conducted in the equine genetics lab, in order to provide the equine industry with better tools for diagnostics and selection.