Example Abstract Format

Title (center)

Authors (underline presenting author)

Affiliations

Text: Times font, 11 point, maximum 400 words, to fit on one standard page (A4 / 8.5” x 11”)

Example below. You may add 1 or 2 key references or funding source below text.

Single Nucleotide Polymorphism Characterization of Major Histocompatibility Complex Haplotype Diversity in Standardbred Horses

Lucia Younger, Annette McCoy1, Donald Miller, Molly McCue2, James Mickelson2, Douglas F. Antczak

Baker Institute for Animal Health, College of Veterinary Medicine, Cornell University Ithaca NY, USA

1College of Veterinary Medicine, University of Illinois at Urbana-Champaign, Urbana IL, USA

2College of Veterinary Medicine, University of Minnesota, St. Paul MN, USA

Identification of Major Histocompatibility Complex (MHC) haplotypes remains challenging because of the expected high, but unknown, level of diversity within any given species and the difficulty of determining polymorphism across the approximately 4 million base pair extent of the MHC. In the horse, the MHC has been characterized using various methods including serology and microsatellites. Here we explored MHC haplotype diversity in the equine Standardbred breed using 670K SNP chip data from 297 Standardbred horses. Single Nucleotide Polymorphisms (SNP) in the MHC region were extracted and analyzed using the bioinformatic software SHAPEIT. This allowed identification of haplotype-specific SNP patterns and phasing of MHC SNP-based haplotypes in MHC heterozygous horses. We found a total of 80 unique haplotypes comprised of 47 class I and 20 class II blocks. Twenty-five MHC homozygous horses were identified that each carried only one of six common haplotypes. Intra-MHC microsatellite testing is underway to determine the relationship between SNP-based and microsatellite-based MHC haplotypes. Thus far, tests performed on DNA from 31 of the horses identified 17 microsatellite haplotypes, 8 of which had previously been described in Standardbreds, and complete correlation between SNP and microsatellite haplotypes. SNP-based MHC typing holds promise for characterization of polymorphism of the equine Major Histocompatibility Complex. Understanding the amount of diversity in the MHC has many applications in respect to the evolution and physiology of the horse.