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UK Gluck Center Develops Novel EAV Test

Researchers at the University of Kentucky (UK) Gluck Equine Research Center have developed a novel test to determine the likelihood of long-term equine arteritis virus (EAV) carrier state in stallions.

Gluck Center faculty members Udeni Balasuriya, BVSc, MS, PhD; Ernie Bailey, PhD; and Peter Timoney, MVB, PhD, FRCVS, Frederick Van Lennep Chair in Equine Veterinary Science, created the test for the genetic basis for a specific haplotype, a group of genes inherited from one parent. Their work was funded by a USDA Agriculture and Food Research Initiative grant.

Outbreaks of equine viral arteritis, which is caused by the virus, can result in significant economic losses to the equine industry due to pregnancy loss in mares, death in young foals, and establishment of the carrier state in stallions. The virus is maintained in the equine population between breeding seasons by persisting in the carrier stallion.

“It is gratifying to see how Drs. Balasuriya and Bailey’s work has led not only to a better understanding of the origin and development of this important disease, but also to a new test that can be used to identify those animals at risk for persistent infection,” said David Horohov, PhD, chair of the Department of Veterinary Science, director of the Gluck Equine Research Center and Jes E. and Clementine M. Schlaikjer Endowed Chair.

Stallions possessing the susceptible haplotype, consisting of four specific nucleotide changes in the CXCL16 gene, are more likely to remain long-term carriers of the virus in their reproductive tract than horses that possess the resistant haplotype. Stallions that are resistant and initially shed the virus in their semen following infection were found, in most cases, to clear the virus from the reproductive tract within months following infection. Stallions possessing even one copy of the susceptible haplotype are at greater risk for becoming long-term shedders of EAV.

“Since surgical castration can be resorted to in stallions that are confirmed carriers of EAV, this test can help identify those horses that may spontaneously clear themselves of the virus, thus avoiding the loss of a valuable breeding animal,” said Kathryn Graves, PhD, director of the Genetic Testing at Gluck, the Gluck Center’s genetic testing laboratory.

In addition, the test indicates which horses have the susceptible haplotype and, therefore, are at higher risk for becoming carriers if infected with EAV. In these cases, the risk of infection and becoming a carrier can be prevented through vaccination and appropriate management practices.

It is important to emphasize that all colts and stallions negative for antibodies to EAV should still be vaccinated against EAV in accordance to the manufacturer’s recommendations, irrespective of their genetic makeup for the CXCL16 gene.

The new test is available at the Genetic Testing at Gluck for $100, and the test can be done from a mane or tail sample. More information, including a submission form, is available at http://www2.ca.uky.edu/gluck/AGTRL.asp.

Jenny Evans, MFA, is the interim executive director of the UK Gluck Equine Research Foundation and senior marketing and promotion specialist at the UK Gluck Equine Research Center.