

**Equine Research Committee
Houston, Texas
2013**

1. **To approve the following proposals, as amended, for funding in the amount of \$297,980.00:**

“Focal Adhesion Molecules as Regulators of Maternal Recognition of Pregnancy in the Mare” at Colorado State University in the amount of \$69,503.00

Principal Investigator: Jason Bruemmer PhD

This study is focused on determining how a mare recognizes that she is pregnant and does not start cycling again. Although we know the embryo moves back and forth in the uterus between days 10 and 15 of pregnancy and this contact with the uterine lining appears to prevent recycling, we still don't know how during that movement the embryo transmits a signal to the uterine lining at the cellular and molecular level. This study is aimed at answering that question and the results may aid us in intervening and preventing early embryonic loss in mares.

Executive Committee Action: Approve

“Navicular Syndrome: Initial Pathological Changes Occur in the CPL's (Chondropulvinale Ligaments) and AVC's (Arteriovenous Complexes) of the Rostral Frog” at Michigan State University in the amount of \$23,495.00

Principal Investigator: Robert Bowker VMD, PhD

This study is looking at the tissues and blood supply at the rear of the horse's foot under the navicular bone where the researchers believe that microscopic changes occur in early navicular syndrome horses before actual damage is seen in the navicular bone and the associated ligaments that support it.

Executive Committee Action: Approve

“Identification of Aeroallergens Associated with Recurrent Airway Obstruction using Immunoproteomics” at Purdue University in the amount of \$40,878.00

Principal Investigator: Laurent Couetil DVM, PhD

Recurrent obstructive airway disease is a chronic respiratory disease similar to asthma in people. It is frequently occurs in adult horses and is believed to be an allergic reaction to inhaled particles in mold found in hay or barns. This study will use a new molecular method called immunoproteomics to measure the antibodies in lung mucus from affected horses and dust samples to identify the specific fungi that are causing the disease.

Executive Committee Action: Approve

“Suppression of Equine Type-1 Interferon Response by Equine Herpesvirus-1” at the University of Kentucky in the amount of \$44,847.00

Principal Investigator: Thomas Chambers PhD

Recent research funded by the QH Foundation has found that one of the ways Equine Herpes Virus-1 overcomes a horse’s immune system and gains entry into the horse’s body is by suppressing the horse’s interferon response which is one of the horse’s first lines of defense against viral infections. This study will focus on determining which segment of the interferon response is suppressed and will aid us in finding ways to overcome that suppression and protect our horses against respiratory infection, abortion and neurological disease caused by EHV-1

Executive Committee Action: Approve

“Molecular Diagnostic Assays for the Detection and Control of Contagious Equine Metritis” at the University of Kentucky in the amount of \$37,679.00

Principal Investigator: Sergey Artiushin PhD

Contagious Equine Metritis is a highly contagious venereal disease of horses that causes uterine inflammation, infertility and abortion in mares. Since there is no vaccine available, the disease is controlled by diagnostic testing, quarantine and antibiotic treatment of affected horses. The problem is that many positive horses are missed because current diagnostic protocols are cumbersome and therefore, some positive horses are missed. The goal of this study is to develop highly sensitive and easily conducted diagnostics assays to improve the identification of positive horses so they can be treated.

Executive Committee Action: Approve

“Optimizing Diagnostic Testing for Immune Mediated Myositis in Quarter Horses” at the University of Minnesota in the amount of \$34,640.00

Principal Investigator: Stephanie Valberg DVM, PhD

The Foundation’s support of genetic research has resulted in the development of genetic test for Polysaccharide Storage Myopathy (PSSM), Glycogen Branching Enzyme Deficiency, Malignant Hyperthermia and Hyperkalemic Periodic Paralysis (HYPP), yet we have not developed a test for Immune Mediated Myositis, which appears to be a heritable muscle inflammation disease that causes severe wasting of the topline muscles in QHs, especially cutting horses. This study is aimed at identifying the genes that predispose horses to this disease and to develop a diagnostic test to identify them.

Executive Committee Action: Approve

“Discovery of Genomic Copy Number Variants in Equine Cryptorchidism” at Texas AgriLife Research in the amount of \$27,044.00

Principal Investigator: Terje Raudsepp PhD

Cryptorchidism is a failure of one or both testicles to descend into the scrotum. It affects 2-8% of male foals with the highest incidence in QHs followed by Percherons, American Saddlebreds and ponies. The condition may affect fertility and is associated with increased costs and health risks due to the surgery needed to remove the undescended testicle. Cryptorchidism is a heritable condition in some mammals but has never been proven in horses. This research builds upon recent discoveries in men identifying the specific gene associated with Cryptorchidism. This study will examine 10 candidate genes in samples from 40 cryptorchid horses to determine if the gene can be identified in horses.

Executive Committee Action: Approve

“Age-Related Effects on Markers of Inflammation and Cartilage Metabolism in Response to an Intra-Articular Lipopolysaccharide Challenge” at Texas AgriLife Research in the amount of \$19,894.00

Principal Investigator: Jessica Lucia

Repeated joint trauma and stress that young horses experience during training can result in excessive production of joint enzymes that breakdown cartilage and can eventually lead to the development of osteoarthritis that may lead to early retirement. This study will determine age-related effects of joint inflammation and cartilage damage by measuring specific enzyme markers found within joint synovial fluid of horses following induction of inflammation.

Executive Committee Action: Approve

2. To approve the following proposal, not funded by Foundation Research Dollars:

“Custom Synthesis and Certification of a Reference Standard for Dermorphin” by the Racing Medication Testing Consortium in the amount of \$12,680.72

Principal Investigator: Dionne Benson DVM

Dermorphin is a drug isolated from the skin of South American tree frogs that has tremendous pain blocking ability. It affects the same brain receptors as morphine but is much more potent. There is no legitimate use for the drug and its use in race and performance horses is prohibited. Methods to detect and identify Dermorphin have been developed but there is no certified reference material to compare samples to. This project is aimed at supporting the development of a synthetic reference Dermorphin that will be provided to race horse testing laboratories for use as a reference testing standard. The committee unanimously supports the development of this test standard but because it is not research but rather development of a test reference, we believe it should not be funded with research dollars.

Executive Committee Action: Approve, work with private donor and RMTc.