

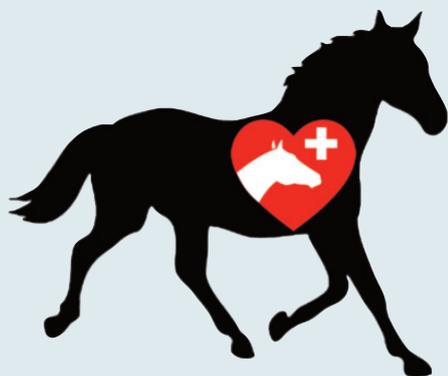


Grayson-Jockey Club Research Foundation

# RESEARCH SPOTLIGHT

Spring Edition 2023

## 2023 FUNDING FOR EQUINE RESEARCH



The board of directors of Grayson-Jockey Club Research Foundation announced that it has authorized expenditure of \$1,498,077 to fund 12 new projects and nine continuing projects at 13 universities as well as two career development awards. The 2023 slate of research brings Grayson's totals since 1983 to more than \$34.1 million to underwrite 426 projects at 45 universities.

“The Grayson Foundation is dedicated to tackling a variety of equine health challenges, which is clearly reflected in our selected projects for this year,” said Jamie Haydon, president of Grayson. “Our research projects and career development awards wouldn't be possible without the kindness of our donors, and we thank them for their understanding of the significance of equine veterinary research.”

Below is an alphabetical list by school of the new projects:



### NEW PROJECTS FOR 2023

#### **Transcriptomic Response To Osteoarthritis**

*Lynn Pezzanite*

*Colorado State University*

This study will highlight the role that cells of the immune system play to contributing to disease progression of osteoarthritis towards the goal of developing treatments for each stage of disease.

#### **Efficacy of Recombinant Equine Lubricin for Osteoarthritis**

*Heidi Reesink*

*Cornell University*

This study will assess efficacy of recombinant equine lubricin (rEqLub) in mitigating equine joint disease and identify gene and protein pathways affected by rEqLub in equine joints.

#### **Treatment Of Meniscal Injury With Mesenchymal Stem Cells**

*Aimee Colbath*

*Cornell University*

This study will determine whether intra-articular mesenchymal stem cells lead to improved meniscal healing, providing an immediate impact on how veterinarians treat equine meniscal disease.



## **Stem Cell Neotissue Implants for Equine Tendon Healing**

*Mandi J. Lopez*

*Louisiana State University*

This study will determine if viable neotissue implants generated from stem cells will augment current therapies to treat debilitating tendon injuries in equine athletes and companions.

## **Gallium Nitrate to Treat Bacterial Endometritis in Mares**

*Dale Kelley*

*Oklahoma State University*

This study proposes to develop new, safe, and efficacious antimicrobial strategies to treat antimicrobial resistance.

## **A VapA mRNA Vaccine for R. equi Pneumonia**

*Noah Cohen*

*Texas A&M University*

This grant evaluates an mRNA vaccine administered intramuscularly to foals to protect against pneumonia caused by the bacterium *Rhodococcus equi*, a major cause of disease and death in foals worldwide.

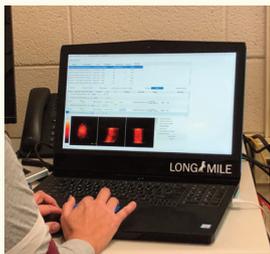
## **Genomics of Thoroughbred Stallion Subfertility**

*Terje Raudsepp*

*Texas A&M University*

The proposed project aims to identify candidate genes and regulatory variants underlying impaired acrosome reaction and subfertility in Thoroughbred stallions using multi-platform genomics.

## **PET MRI Sport Horse Fetlock**



*Mathieu Spriet*

*University of California-Davis*

This study will compare  $^{18}\text{F}$ -NaF Positron Emission Tomography with Magnetic Resonance Imaging for assessment of fetlock injuries in sport horses.

## **Validation of Biomarkers for Equine Neurodegeneration**

*Carrie J. Finno*

*University of California-Davis*

It is expected that this study will improve the diagnosis of spinal cord disease in horses.

## **Antibiotic Effects On Uterine Microbiome And Resistome**

*Igor Canisso*

*University of Illinois*

This is a study of uterine microbiome and resistome of mares resistant and susceptible to endometritis treated with post-mating antibiotics.

## **Nanoparticle Vaccines for Equine Rotavirus B**

*Feng Li*

*University of Kentucky*

The vaccine candidate developed from this project will help the equine industry to control and prevent equine rotavirus B infection in future foaling seasons.



## **An Efficacious EPM Vaccine is on the Way**

*Sharon Witonsky*

*Virginia Maryland CVM*

This study plans to identify potential MHC class I CD8 and MHC class II CD4 protective epitopes for an efficacious vaccine against EPM, due to *Sarcocystis neurona*.





## SECOND YEAR PROJECTS

### **Persistence Of Antimicrobial Resistance In Horse Farms**

*Laura Huber,  
Auburn University*

This project will determine the effect of antimicrobial pressure on multidrug resistant -R. equi persistence in the soil of horse breeding farms in a 5 year period.

### **Immunomodulation And Exosomes To Enhance Tendon Healing**

*Sushmitha Durgam,  
The Ohio State University*

This study aims to characterize M1 and M2 macrophage-derived inflammatory factors and assess their impact on superficial digital flexor tendon tenocyte activities while examining the potential of extracellular vesicles/exosomes to enhance tendon healing.

### **Trained Immunity In Foals**

*Angela Bordin,  
Texas A&M University*

This project will study how giving oral live bacteria protects foals against infection by Rhodococcus equi, the cause of severe and debilitating pneumonia in foals, for future development of a vaccine.

### **Does Antibiotic Treatment Change The Microbial Resistome**

*Paul Morley,  
Texas A&M University*

This research will compare four antibiotic treatments to these protocols that can be selected to treat bacterial infections while also lessening the risks for promoting antibiotic resistance.

### **Equine Placentitis: New Approaches To An Old Problem**

*Pouya Dini,  
University of California-Davis*

The goal of this study is to identify pathogens involved in placentitis and investigate their interaction with the placenta using bioinformatics and in vitro studies to develop better diagnostic and treatment methods.

Funded by  JOHN WILLIAM POPE FOUNDATION

### **Motion Of The Proximal Sesamoid Bones On Uneven Footing**

*Susan Stover,  
University of California-Davis*

This study proposes to determine how hoof conformation, shoeing, and uneven racetrack surfaces could contribute to fetlock breakdowns.



### **Influence Of Vitamin D And Cortisol In R. Equi Infection**

*Kelsey Hart,  
University of Georgia*

This study will investigate how blood levels of cortisol and vitamin D are related to the development and progression of Rhodococcus equi pneumonia in foals after natural exposure.

### **Fentanyl Matrix Patches In Horses**



*Rachel Reed,  
University of Georgia*

The aim is to show that fentanyl administered via patches placed on the skin is well absorbed and represents a promising means of providing clinically relevant continuous pain relief to horses.

### **Sirolimus For The Control Of Insulin Dysregulation**

*Andrew Van Eps,  
University of Pennsylvania*

This study will evaluate the drug sirolimus (a potent suppressor of insulin production) for the treatment of insulin dysregulation (the most important cause of laminitis) in horses.





Current EHV-1 protocols have been developed from Grayson research and potential future vaccines will be developed from current Grayson research. Grayson is always working to address the health of all horses.

**JOIN US TODAY!**



## CAREER DEVELOPMENT AWARDS

The 2023 career awards bring a total of 32 career awards by the foundation with more than 92% of recipients continuing in a research career.

*The Storm Cat Career Development Award, inaugurated in 2006, is a \$20,000 grant in 2023 designed as an early boost to an individual considering a career in equine research.*

*It has been underwritten annually by Mrs. Lucy Young Hamilton, a Grayson-Jockey Club Research Foundation board member whose family stood the retired champion stallion*

*Storm Cat at Overbrook Farm.*

*We congratulate the 2023 recipient:*

### **Shun “Shune” Kimura**

*University of Georgia*

*Mentor - Dr. Kelsey A. Hart*

*His project is, “Immune and Metabolic Targets in Equine*

*Systemic Inflammatory Response Syndrome (SIRS).”*



*The Elaine and Bertram Klein Development Award is a competitive program intended to promote development of promising investigators by providing a one-year salary supplement of \$20,000.*

*This program is restricted to one award per year and is named in memory of a renowned horsewoman and her late husband, a Thoroughbred owner and breeder. The first grant was funded in 2015 for \$15,000 with a donation by the Klein family.*

*We congratulate the 2023 recipient:*

### **Bethanie L. Cooper**

*North Carolina State University*

*Mentor - Dr. Mary Katherine Sheats*

*Her project is, “MARCKS Protein as a Therapeutic Target in Equine Asthma.”*



“The track record of Grayson’s career development awards in supporting up-and-coming equine researchers is undeniable, and we are thrilled to extend grants to two deserving recipients this year,” said Dr. Johnny Mac Smith, who serves as a consultant for the research advisory committee and is the A. Gary Lavin Chair of the foundation.



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