



# Grayson-Jockey Club Research Foundation

## 2024 Funded Projects

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Grayson-Jockey Club Research Foundation has authorized expenditure of \$2,455,164 to fund 11 new projects and thirteen continuing projects at 14 universities as well as three career development awards. The 2024 slate of research brings Grayson's totals since 1940 has provided more than \$42.3 million to underwrite more than 437 projects at 48 universities.

### NEW PROJECTS

#### **Diet Nonstructural Carbohydrates Alter Ovarian Functions**

*Elaine Carnevale, Colorado State University*

This study will review how feeding nonstructural carbohydrates (grains and sugars) to older mares can alter cell function and metabolism in ovarian follicles, impairing ovulation, oocyte and embryo viability, and fertility.

#### **Equine Tendinopathy: Advanced Imaging and Tenex Efficacy**

*Brad Nelson, Colorado State University*

This study will enhance our knowledge of equine tendon repair by comprehensive clinical imaging, while simultaneously assessing a novel tendon therapy, improving veterinary and industry understanding.

#### **Shining a Light on the Black Box of Early Pregnancy Loss**

*Amanda de Mestre, Cornell University*

This study will determine how common genetic disorders of the early equine embryo occur as well as identify how they present to veterinarians and key factors that increase their risk.

#### **Ketodoxapram as a Treatment For Atrial Fibrillation**

*Annelies Decloedt, Ghent University*

This study is to determine if Ketodoxapram is a promising novel treatment method for horses with atrial fibrillation.

#### **Adiponectin as a Clinical Biomarker For Laminitis Risk**

*Melody A de Laat, Queensland University of Technology*

The aim of this project is to improve early detection of the painful foot disease laminitis, this project will evaluate the value of a promising biomarker for the condition called adiponectin.

### **Role of C1q in Rhodococcal Infection**

*Angela Bordin, Texas A&M AgriLife Research*

Examining the effects of complement in preventing *Rhodococcus equi* infection, a cause of severe pneumonia in foals, for future design of vaccines and more efficacious hyperimmune plasma products.

### **Novel Protein Targets for *R. equi* Serology and Vaccines**

*Noah Cohen, Texas A&M AgriLife Research*

This study will use a novel method for the first systematic evaluation of a large number of proteins to identify targets for developing a simple blood test and vaccines for rhodococcal foal pneumonia.

### **Insulin Dysregulation: Placental Changes and Foal Health**

*Elaine Norton, University of Arizona*

This study investigates the role of equine metabolic syndrome on placental function and foal health and metabolic outcomes in order to develop effective treatment and management regimens.

### **Polyacrylamide for Joint Therapy—Critical Things Unknown**

*Bruno C. Menarim, University of Kentucky*

Examining the osteoarthritis treatment, polyacrylamide hydrogel and how the treatment characterizes the changes in the inflammatory response within the joints.

### **Novel Method for Diagnosis of Nocardioform Placentitis**

*Shavahn Loux, Louisiana State University*

This project is designed to create a sensitive and specific diagnostic test for Nocardioform Placentitis.

### **Risk Assessment for Proximal Sesamoid Bone Fracture**

*Peter Muir, University of Wisconsin—Madison*

This study will save the lives of racehorses by establishing screening using fetlock standing computed tomography for diagnosis of horses with a high risk of serious injury for personalized care.

## CONTINUING PROJECTS

### **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 toward 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.

### **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.

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## 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.

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## EHV-1 PROJECTS

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FM Area Foundation

## A Novel DNA Vaccine Platform To Control EHV-1 and EHV-4

Bettina Wagner, Cornell University

The goal of this project is to develop an effective DNA vaccine for equine herpesvirus to protect horses against infection and disease and to prevent EHV outbreaks in the US.

## Use Of Nucleic Acid Vaccines To Protect From EHV-1/EHM

Gisela Soboll Hussey, Michigan State University

This proposal is to develop a novel mRNA-based equine herpesvirus (EHV) vaccine that protects horses from EHV-1 myeloencephalopathy and will also likely cross-protect against other equine herpesviruses.

## CAREER DEVELOPMENT AWARD WINNERS



**Storm Cat Career Development Award:** **Rebecca Bishop**, University of Illinois Urbana-Champaign

Faculty supervisors: Dr. Annette McCoy, and Dr. Pamela Wilkins

“Multiomic Investigation of Peritoneal Fluid in Colic”

**Elaine and Bertram Klein Career Development Award:** **Rebecca Legere**, Texas A & M University

Faculty supervisor: Dr. Noah Cohen

“Passive immunization against Rhodococcus equi using MRNA”

**Special Career Award Honoring Nancy C. Kelly:** **Lauren Hughes**, University of Minnesota

Faculty supervisor: Dr. Molly McCue

“Genetics of Pituitary Pars Intermedia Dysfunction Risk”