



Grayson-Jockey Club Research Foundation 2022 Funded Projects

Grayson-Jockey Club Research Foundation has authorized expenditure of \$1,661,180 to fund 15 new projects at 16 universities, 10 continuing projects, and three career development awards worth \$20,000 each. Since 1983 to more than \$32.1 million to underwrite 412 projects at 45 universities with the 2022 slate.

NEW 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.

Evaluating EVs from Equine Fetally Derived MSCS

Fiona Hollinshead, Colorado State University

This project will be evaluating extracellular vesicles (EVs) from equine fetally-derived mesenchymal stem cells as an endometritis therapeutic.

Development Of A Palmar Osteochondral Disease Model

Chris Kawcak, Colorado State University

The goal of this proposal is to develop an experimental model of palmar osteochondral disease in horses to better study disease progression and facilitate development of improved treatment strategies.

Development Of A Vectored Vaccine To Equine Rotavirus A

Mariano Carossino, Louisiana State University

A novel viral vectored vaccine against equine rotavirus A (G3 and G14), the leading cause of foal diarrhea, will be designed and evaluated in mares and a neonatal mouse model as proof-of-concept.

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.

Pharmacokinetics Of Oral Mycophenolate Mofetil In Horses

Gwendolen Lorch, The Ohio State University

This proposal will evaluate the pharmacokinetics of orally administered mycophenolate mofetil as a safe, effective and inexpensive immunosuppressant drug for management of equine immune-mediated disease.

Novel Strangles Vaccine Using CD 40-Targeted Delivery

Luc Berghman, Texas A&M University

This project will be targeting bacterial components of *Streptococcus equi* spp. *equi* to the horse's immune surveillance cells (the APCs) that will result in a fast and strong immune response that will protect against strangles.

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.

Immunogenicity In Foals Of An Mrna Vaccine For R. Equi

Noah Cohen, Texas A&M University

This study proposes to develop an mRNA vaccine delivered by inhalation to protect foals against pneumonia caused by *Rhodococcus equi*.

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.

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.

CONTINUING PROJECTS

Asthma, Performance And Omega-3s In Racing Thoroughbreds

Laurent Couetil, Purdue University

The main purpose of the study is to investigate the variability of asthma severity in horses racing across the US, its effect on performance and determine if omega-3 PUFA supplementation is beneficial.

Mitigation Of Equine Recurrent Uveitis Through SOCs

Joseph Larkin, University Of Florida

This project seeks to design a topical eye drop, using a natural protein, which helps to prevent pain and blindness associated with equine recurrent uveitis.

Environmental Origins Of Equine Antimicrobial Resistance

Brandy Burgess, University Of Georgia

This study will elucidate how antimicrobial resistance and virulence determinants are shared among horses and hospital environment, as well as the role antimicrobial exposure plays at this interface.

Treatment Of Joint Injury With Mesenchymal Stromal Cells

Thomas Koch, University Of Guelph

This project deals with the evaluation of equine umbilical cord blood-derived mesenchymal stromal cells to treat joint injuries in horses.

Optimizing Bone Growth To Reduce Equine Fracture

Mariana Kersh, University Of Illinois Urbana-Champaign

Reduction in distal limb fractures through exercise in young horses would have a significant positive impact on horse welfare and the economics and public perception of the horse industry.

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Injury Prediction From Stride Derived Racing Load

Chris Whitton, University Of Melbourne

By studying patterns in bone fatigue accrual over time in racehorses, this project will help better, and earlier, identify horses at risk of limb injury, facilitating timely evidence based preventative strategies.

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Predicting Exercising Arrhythmias With Resting ECGs

Molly McCue, University Of Minnesota

This project will use at rest ECGs to identify horses with irregular heart rhythms at exercise that can cause sudden cardiac death (SCD), allowing for increased monitoring and improved understanding of SCD.



Understanding And Preventing Supporting Limb Laminitis

Andrew Van Eps, University Of Pennsylvania

The aim of this study is to make supporting limb laminitis preventable through analysis of archived model tissues, a multi-center limb motion study of horses at risk, and development of a prototype therapeutic device.

Diagnosis Of Incipient Condylar Stress Fracture

Peter Muir, University Of Wisconsin–Madison

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



CAREER DEVELOPMENT AWARD WINNERS

Storm Cat Career Development Awards

Rosemary Bayless, *North Carolina State University*, mentor - Dr. Katie Sheats

“Cell-Free DNA as a Biomarker in Equine Colic Patients.”

Sarah K. Shaffer, *University of California-Davis*, mentor - Dr. Susan Stover

“Linking Training to Stress-Reactions in Racehorse Bones.”

Elaine and Bertram Klein Career Development Award

Bruno C. Menarim, *Gluck Equine Research Center, University of Kentucky*, mentor - Dr. James MacLeod

“PPAR-γ Activation in the Treatment of Joint Inflammation.”