

LAMINITIS

Grayson-Jockey Club Research Archives

A disease where the tissues that attach the hoof to the underlying coffin bone become damaged and inflamed. It not only leads to loss of performance but is second only to colic as the biggest cause of premature death in horses. There are three "types" of laminitis:

Endocrine - generally occurs secondary to equine metabolic syndrome and pituitary pars intermedia dysfunction (PPID, equine Cushing's disease).

Sepsis - develops following a systemic illness such as colitis, metritis, pneumonia, grain overload, etc.

Supporting-limb - develops after a musculoskeletal injury in the opposite limb, as the horse bears excessive weight on the supporting limb.



Grayson is proud to have funded the following projects in finding answers to Laminitis.

Sirolimus For The Control Of Insulin Dysregulation

University of Pennsylvania, *Principal Investigator: Andrew Van Eps*

CO-PIs: Darko Stefanovski, Mary Robinson Jeaneen, Amanda Adams (University of Kentucky), Maggie Grieter (University of Kentucky), Rachel Stocker-Parks Seth Hatfield (University of Kentucky), Francois Bertin (University of Queensland), KulpDemia de Tonnere (University of Queensland)

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.

YEARS: 2022-2023 TOTAL- \$ 216,569

Understanding And Preventing Supporting Limb Laminitis

University of Pennsylvania, *Principal Investigator: Andrew Van Eps*

CO-PIs: H. Galantino-Homer, Julie Engiles, Darko Stefanovski, Matthew Ford, Jennifer Macklin, Lynne Cassimeris- Lehigh University, Teresa Burns - The Ohio State University, Mauria Watts- The Ohio State University

We aim 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.

Years: 2021-2022 TOTAL - \$ 148,181

AMPK Agonist Combination Therapy and ID in Horses

The Ohio State University, *Principal Investigator: Teresa Burns*

Co-PI: Laura K. Dunbar

By completing this work, this study was designed to characterize a combination therapy to improve equine insulin resistance that is administered orally and well tolerated.

Years: 2020-2021 TOTAL - 151,121

Endocrinopathic Laminitis: Pathophysiology and Treatment

The Ohio State University, *Principal Investigator: James Belknap*

Co-PIs: Teresa Burns, (Heads Lab); Mauria R. Watts; Andrew van Eps (UN of Queensland)

The purpose of this study was to determine if continuous digital hypothermia is effective and therefore indicated in the management of endocrinopathic laminitis, the most common form of the disease.

Years: 2017-2018 TOTAL - \$116,148

Prevention of Supporting Limb Laminitis

University of Queensland, *Principal Investigator: Andrew Van Eps*

Co-PIs: Dean Richardson (Cornell), James Belknap & Mauria Watts (Ohio State)

This study was set up to show the potential efficacy of a novel pneumatic boot to prevent lamellar changes leading to supporting limb laminitis and may provide an effective clinical preventive.

Years: 2015-2016 TOTAL - \$188,169

Events Affecting Laminar Adhesion in Equine Sepsis

The Ohio State University, *Principal Investigator: James Belknap*

Co-PI: Mauria Watts, Andrew Van Eps (UN of Queensland), Scott Napper (UN of Saskatchewan)

This project looked into providing targets for pharmaceutical therapies to either replace or augment continuous digital hypothermia.

Years: 2014-2015 TOTAL - \$165,391

Weight Bearing; Perfusion and Bioenergetics in Laminitis

University of Queensland, *Principal Investigator: Andrew Van Eps*

Co-PIs: Dean Richardson (Cornell), James Belknap & Mauria Watts (Ohio State)

This research was designed to confirm the cause of supporting limb laminitis and to test potential therapeutic interventions.

Years: 2014-2015 TOTAL - \$82,125

Laminar Signaling in Supporting Limb Laminitis

The Ohio State University, *Principal Investigator: James Belknap*

Co-PI: Samuel Black (UN of MA)

Years: 2012-2013 TOTAL - \$131,740

Targeting 5-HT in Equine Laminitis

University of Georgia, *Principal Investigator: Thomas Robertson*

Co-PIs: Benjamin Brainard; James Moore; Robert Arnold; John Peroni

Years: 2012-2013 TOTAL - \$50,292

Digital Hypothermia in Laminitis: Timing & Signaling

The Ohio State University, *Principal Investigator: James Belknap*

Co-PIs: Andrew van Eps; Mauria Watts

Years: 2011-2012 TOTAL - \$88,522

Lamellar Energy Failure in Supporting Limb Laminitis

The University of Queensland, *Principal Investigator: Andrew van Eps*
Co-PIs: Simon Collins; Christopher Pollitt; Dean Richardson (UN of PA)
Years: 2011-2012 TOTAL - \$81,060

In Vivo Gene Transfer for Laminitis

University of Pennsylvania, *Principal Investigator: Dean Richardson*
Co-PIs: Jeffrey Mason; Andrea Phillips; James Wilson
Years: 2010-2011 TOTAL - \$70,865

Endotoxemia as Predisposing Factor for Laminitis

University of Tennessee, *Principal Investigator: Nicholas Frank*
Year: 2010 TOTAL - \$41,490

Effect of Digital Hypothermia on Inflammatory Injury in Laminitis

The Ohio State University, *Principal Investigator: James Belknap*
Co-PI: Mauria Watts
Years: 2008-2009 TOTAL – \$82,109

Transcriptomics and Proteomics of Equine Laminitis

University of Pennsylvania, *Principal Investigator: Hannah Galantino-Homer*
Co-PIs: Neal Rubinstein; James Orsini; Chris Politt (UN of Queensland Australia)
Years: 2008-2009 TOTAL - \$137,269

Efficacy of Lidocaine in the Treatment of Equine Laminitis

The Ohio State University, *Principal Investigator: James Belknap*
Co-PI: Samuel J. Black
Years: 2007-2008 TOTAL - \$80,747

Levothyroxine as a Treatment for Insulin Resistance

University of Tennessee, *Principal Investigator: Nicholas Frank*
Years: 2007-2008 TOTAL - \$56,876

Leukocyte & Vascular Function in Endotoxemia & Laminitis

University of Georgia, *Principal Investigator: Thomas Robertson*
Co-PIs: David Hurley; John Peroni; Thomas Krunkosky
Year: 2007 TOTAL - \$29,852

Use of Microarrays to Characterize Endotoxemia in Vivo

University of Georgia
Principal Investigator: Michel L. Vandenplas
Co-PIs: J. Moore; M. Cordonnier-Pratt; L Pratt
Year: 2005 TOTAL - \$22,745

Efficacy of Recombinant Equine Gonadotropins

University of California - Davis

Principal Investigator: Janet Roser

Co-PI: Irving Boime

Year: 2004 TOTAL - \$51,258

Ischemia-Reperfusion Injury in Equine Laminar Arteries

University of Georgia

Principal Investigator: Stephen Lewis

Co-PIs: John Peroni; Jon Graves; Tom Robertson

Years: 2003-2004 TOTAL - \$56,000

Role of Endothelin-1 in the Pathophysiology of Equine Laminitis

Louisiana State University, *Principal Investigator: Rustin Moore*

Co-PI: S. C. Eades

Year: 2003 TOTAL - \$53,430

Functional Analyses of Equine Laminar Arteries

University of Georgia

Principal Investigator: John Peroni

Co-PIs: Stephen Lewis; Jon Graves

Years: 2002-2003 TOTAL - \$44,089

Role of Endothelin and Nitric Oxide in Equine Laminitis

Louisiana State University, *Principal Investigator: Rustin Moore*

Co-PIs: Susan Eades; Ashley Holm; C.S. Venugopal; Julian Oliver

Years: 1999-2000 TOTAL - \$89,892