

# INFECTIOUS DISEASE

## Grayson-Jockey Club Research Archives



*All the types of infectious diseases that affect horses are too numerous to name. Through research proper treatments are found, as well as determining how they are transmitted and how to contain outbreaks in the horse population.*

*Grayson is proud to have funded the following infectious disease projects:*

### Passive Immunization of Foals with RNA-Ab Against R equi

Baylor College of Medicine, *Principal Investigator: Jeroen Pollet*  
*CO-PIs: Amadeo Biter, Cristina Poveda, Texas A & M: Noah Cohen, Luc Berghman, Angela Bordin, Raquel Rubia Rech*

This project reviewed delivery of the genetic code for a protective antibody against *Rhodococcus equi* into the lung cells of newborn foals by inhalation therapy to rapidly protect them against infection.

Year: 2020 TOTAL - \$77,022

### Anti-PNAG Plasma for Preventing R. equi Foal Pneumonia

Texas A&M University, *Principal Investigator: Noah Cohen*  
*CO-PIs: Angela Bordin, Susanne Kahn*

Transfusion of plasma is the only licensed product for preventing *Rhodococcus equi* pneumonia, and this study was designed to demonstrate development of a plasma product superior to that available currently.

Year: 2020 TOTAL - \$90,268

### Uncovering The Blood B Cell Immune Response To EHV-1

Cornell University, *Principal Investigator: Tracy Stokol*  
*Co-PIs: John Parker, Charles Danko, Iwijn De Vlaeminck, Maria Julia Felipe, Mridusmita Saikia*

The purpose of this study was to identify changes in B cell immunity after EHV-1 vaccination by sequencing individual blood B cells and generate a sequencing database to uncover new antibodies against EHV-1.

Year: 2019 TOTAL - \$101,462

### Investigating Metabolic Stress And Viral Hepatitis

Cornell University, *Principal Investigator: Sabine Mann*  
*Co-PIs: Thomas Divers, Joseph Wakshlag, Tracy Stokol, Josh Ramsay (WA ST), Stephen Reed (Rood and Riddle), Drs. Yarbrough/Nordberg (McGaughey & Pletcher), Dr. Cheney (Northrop)*

This project studied metabolic pathways and hepatic viral infection to find a relationship with maladaptation to training syndrome/high Gamma-glutamyl transferase to help improve the health and performance of race horses.

Year: 2018-2019 TOTAL - \$117,333

### Host Factors Involved In EHM Pathogenesis And Latency

Michigan State University, *Principal Investigator: Gisela Soboll Hussey*

*Co-PIs: Lutz Goehring, Patty Weber, Dr. Luyendyk, Lila Zarski, Jessica Prenni (CSU)*

This study was for the development of tools to protect horses from EHV-1 infection, compare the immune responses in old and young horses to identify the mechanisms causing clinical EHM.

Year: 2018-2019 TOTAL - \$125,998

### AMPK Agonists And Insulin Dysregulation In Horses

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

*Co-PIs: James Belknap, Laura Dunbar, Mauria Watts*

This project directly impacts the treatment of equine metabolic syndrome by assessing the efficacy of two drugs, metformin and acetylsalicylic acid, in the treatment of equine insulin dysregulation.

Year: 2018-2019 TOTAL – \$112,034

### Host-Directed Control Of R. Equi Foal Pneumonia Part II

Texas A & M University, *Principal Investigator: Angela Bordin*

*Co-PIs: Londa Berghaus, Courtney Brake, Magnus Hook, Kelsey Hart and Glennon Mays (U of GA),*

This was the second phase of a 4 year project that began in 2016, and proposed the use an inhaled product applied directly into the lungs to increase immune responses to protect foals against *Rhodococcus equi*, a bacterium that causes severe pneumonia in foals.

Year: 2018-2019 TOTAL - \$229,034

### Epidemiology Of Drug-Resistant R. Equi At Horse Farms

University of Georgia, *Principal Investigator: Kelsey Hart*

*Co-PIs: Laura Huber, Noah Cohen (Texas A&M), Nathan Slovis (Hagyard Equine Medical)*

This study was set up to determine if isolates of *Rhodococcus equi* highly resistant to antibiotics are widespread at horse breeding farms in Kentucky.

Year: 2018-2019 TOTAL - \$117,990

### Cytotoxic T-Cell Immunity to Equine Herpesvirus Type 1

Cornell University, *Principal Investigator: Doug Antczak*

*Co-PIs: Rebecca T. Ingram; Julia Kydd; Brian Rudd; Donald Miller;*

*Nikolaus Osterrieder, (Freie U Berlin); Gisela Sobel Hussey, (MI ST)*

The goal of this research was to develop critically needed knowledge about how the horse immune system responds to equine herpesvirus type1 vaccination and infection.

Years: 2017- 2018 TOTAL - \$133,103

### Anticoagulants As Thromboprophylaxis For EHV-1 Infection

Cornell University, *Principal Investigator: Tracy Stokol*

*Co-PIs: Priscila Serpa; Marjory Brooks; Thomas Divers; SallyAnne Ness; Gail Babcock;*

*Mark Papich (NC State)* This study was set up to block blood clotting with drug to attempt to prevent abortion and neurological disease from occurring in horses infected with EHV-1.

Year: 2017 TOTAL - \$116,818

### **EHV-1 And Latency**

Ludwig Maximilians University, *Principal Investigator: Lutz S. Goehring*

*Co-PIs: Carlos E Medina Torres; Kaspar Matiasek; Josh Slater; Ana Maria Ulloa;*

*Gisela Soboll-Hussey (MSU)*

Years: 2016-2017 TOTAL - \$107,862

This project studied about EHV–1 latency locations; about prevalence in horse populations, and if different latency stages exist in hopes of finding 'stages' which would allow interventional strategies.

### **A Novel Vaccine Against Equine Strangles**

Texas A & M University, *Principal Investigator: Noah Cohen*

*Co-PIs: Angela I. Bordin; Michelle C. Coleman; Courtney Brake (U of GA);*

*Gerald B. Pier & Colette Cywes–Bentley (Harvard)*

Years: 2016-2017 TOTAL - \$119,155

A study of a concept for a vaccine to protect horses against the disease known as Strangles with good preliminary data suggesting this vaccine will be safe and effective.

### **Host-Directed Control Of R. Equi Foal Pneumonia Part I**

Texas A & M University, *Principal Investigator: Angela Bordin*

*Co-PIs: Noah Cohen; Steve Giguere; Londa Berghaus; Magnus Hook;*

*Courtney Brake & Glennon Mays (U of GA)*

This project is a 4 year grant completed in two phases which preposed the use an inhaled product applied directly into the lungs to increase immune responses to protect foals against *Rhodococcus equi*, a bacterium that causes severe pneumonia in foals.

Years: 2016-2017 TOTAL - \$189,189

### **Fitness And Persistence And Of Drug Resistant R. Equi**

University of Georgia, *Principal Investigator: Steeve Giguere*

*Co-PIs: Noah Cohen (Texas A&M); Jose Vazquez–Boland (U of Edinburgh)*

The purpose of this study was to determine if drug-resistant *Rhodococcus equi* can persist in the environment and if resistant strains were more likely to cause disease than susceptible strains.

Years: 2016-2017 TOTAL - \$95,498

### **IGGS(T) Antibodies Identify Foals at Risk for R. Equi**

University of Kentucky, *Principal Investigator: David Horohov*

This project involves the validation of a new test for *Rhodococcus equi* infections in foal.

Year: 2016 TOTAL - \$62,407

### **Validation of Stall-Side Strangles Diagnosis Using Lamp**

University of Pennsylvania, *Principal Investigator: Ashley Boyle*

The aim was to validate a stall–side test that could be used for fast, sensitive, accurate, and cost efficient diagnosis of strangles (*S. equi*) carriers (a highly infectious equine respiratory disease).

[LAMP means loop– mediated isothermal nucleic acid amplification.]

Year: 2016 TOTAL - \$22,330

### **Steroid / Neurosteroid Dynamics in Critically Ill Foals**

The Ohio State University, *Principal Investigator: Ramiro Toribio*

*Co-PIs: Katarzyna Dembek; Stephen Reed (Rood & Riddle); Nathan Slovis (Hagyard); Kelsey Hart (UN of GA)*

This study proposed to elucidate the importance of stress hormones as well as hormones that affect neurological function in the development and progression of diseases of newborn foals.

Years: 2015-2016 TOTAL - \$ 101,518

### **A Guinea Pig Model of Rhodococcus equi Pneumonia**

Texas A&M University, *Principal Investigator: Angela Bordin*

*Co-PIs: Noah Cohen; David McMurray; Jeffrey Cirillo; Canaan Whitfield-Cargile; Courtney Brake; Ellen Alexander*

This novel studied was to determine is a guinea pig model of R. equi pneumonia would help to better understand the disease in foals, and evaluate novel approaches for controlling and preventing R. equi pneumonia.

Years: 2015-2016 TOTAL - \$21,221

### **Inhibition Of Type-I Interferon Response By EHV-1**

University of Kentucky, *Principal Investigator: Thomas Chambers*

*Co-PIS: David Horohov; Udeni Balasuriya; Fatai Oladunni; Stephanie Reedy*

This project explored the mechanism of equine herpesvirus-1 blockage of an immune defense pathway and its relationship to equine herpesviral myeloencephalopathy, a serious condition affecting horses.

Years: 2015-2016 TOTAL - \$133,931

### **MicroRNAs as Novel Biomarkers or Insulin Resistance**

Colorado State University, *Principal Investigator: Tanja Hess*

*Co-PIs: Jason Bruemmer; Bridget McIntosh; Rebecca Splan (VA Tech)*

In an effort to improve the diagnosis, management and treatment of the many horses and ponies who suffer from metabolic disorders related to insulin dysregulation, an investigation of the ability of novel, small, gene-regulating molecules called microRNAs were used as convenient and accurate biomarkers for equine insulin resistance.

Years: 2015 TOTAL - \$35,008

### **Role of Biofilm in Infectious Endometritis in the Horse**

Colorado State University, *Principal Investigator: Ryan Ferris*

*Co-PIs: Brad Borlee; Grace Borlee*

This project was designed to obtain a better understanding of the role of bacterial biofilm in conferring protection to the host immune system and antibiotics is crucial to development of therapeutic protocols for treatment of endometritis in mares. (Biofilm: A matrix which provides a 'protective' blanket' for the wall of the uterus.)

Years: 2015 TOTAL - \$22,485

### Etiology of IAD and Performance in Racehorses

Purdue University, *Principal Investigator: Laurent L. Couetil*

*Co-PIs: Kathleen Ivester; Sandra Taylor; George Moore; Rose Raskin; Gena Hammac; Jyothi Thimmapuram; Donna Griffey; Anisa Dunham*

Years: 2014-2015 TOTAL - \$98,811

### Anhidrosis in Foals Treated With Macrolides

University of Florida, *Principal Investigator: Robert MacKay*

*Co-PIs: Chris Sanchez, Martha Mallicote, Amy Stieler, James Burrow, Julia Conway*

This project was set up to do a simple test to show that impaired sweating is the cause of overheating not only in foals given erythromycin but also in some foals treated with azithromycin, clarithromycin, and even the exciting new antibiotic, gamithromycin.

Years: 2014-2015 TOTAL - \$142,533

### Platelet Inhibitors Potential Antithrombotics for E

Cornell University, *Principal Investigator: Tracy Stokol*

*Co-PIs: Marjory Brooks; Bettina Wagner; Gerlinde Van de Walle; Thomas Divers;*

*Sally Ness; Christine DeLeonardis*

This study researched for evidence of platelet and coagulation activation during the acute phase of EHV1 infection and that horses demonstrating more profound activation response would have more severe fever. Part of the study was to compare the inhibitory effects of 4 antiplatelet drugs on EHV1 induced platelet activation.

Year: 2014 TOTAL - \$63,368

### R. equi Pneumonia: Can a Novel Vaccine Protect Foals?

Texas A&M University, *Principal Investigator: Noah Cohen*

*Co-PIs: Suresh Pillai; Michelle Coleman; Joana Rocha; Courtney Brake; Waithaka Mwangi; Robert Alaniz; Steeve Giguère (UN of GA)*

This proposal was set up to evaluate the ability of a vaccine to protect foals against infection with R. equi as an essential next step in our efforts to develop a vaccine against R. equi. and subsequently other infections such as Strep equi, the causative agent of strangles.

Year: 2014 TOTAL - \$74,067

### Assessment of a Rhodococcus Equi Vaccine in Foals.

University of Edinburgh, *Principal Investigator: Jose Vazquez-Boland*

*Co-PIs: Mariela Scotti; Iain MacArthur; Macarena Sanz; & David Horohov (UN of KY); John Prescott (UN of Guelph)*

This study was to determine if protection against this bacterium Rhodococcus equi could be achieved by targeting it with a vaccine to prevent infection when still at its initial "colonization" stages in the airways before the bacteria become established in the lung.

Year: 2014 TOTAL-\$62,106



### Evaluation of a Rapid Test for Salmonella

Colorado State University, *Principal Investigator: Paul Morley*

*Co-PIs: Nathan Slovis; Brandy Burgess; Kristy Pabilonia; Christina Weller; Justine Elam (Hagyard)*

Years: 2013-2014 TOTAL - \$57,424

### Development of Alternative Models to Study EHM

Michigan State University, *Principal Investigator: Gisela Soboll Hussey*

*Co-PIs: Lutz Goehring; Andras Komaromy; Anthony Pease; Stephen Hussey; J. Prenni & C. Broccardo (CO State); Nik Osterrieder, Freihe (UN Berlin); Josh Slater (Royal Vet LONDON)*

Years: 2013-2014 TOTAL - \$129,267

### Molecular Determinants of EHV-1 Fusion and Spread

University of North Carolina Wilmington, *Principal Investigator: Arthur Frampton*

*Co-PI: Jekaterina Barsova*

Years: 2013-2014 TOTAL - \$78,500

### Gallium: An Alternative to Macrolides Against R. equi EPM

Texas A&M University, *Principal Investigator: Noah Cohen*

*Co-PIs: M. Keith Chaffin; Nathan Slovis- (Hagyard Equine Med.); Steeve Giguère (UN of GA)*

Year: 2013 TOTAL - \$40,100

### The Interaction Between Anthelmintic Treatment and Vacci EPM

University of Kentucky, *Principal Investigator: Martin Nielsen*

*Co-PIs: Thomas Chambers; David Horohov; Stephanie Reedy; Holli Gravatte;*

*Alejandra Betancourt; Jennifer Bellaw; Stine Jacobsen*

Year: 2013 TOTAL - \$60,466

### Liposomal Gentamicin for the Treatment of R. Equi

University of Georgia, *Principal Investigator: Steeve Giguère*

*Co-PIs: Alexandra Burton; Robert Arnold*

Years: 2012-2013 TOTAL - \$92,320

### Vitamin D and Innate Immunity in the Horse

University of Georgia, *Principal Investigator: Mary Hondalus*

*Co-PIs: Steeve Giguère; Kimberly Goldbach*

Year: 2012 TOTAL - \$49,942

### Do NSAIDs Affect the Immune Response of Horses to Vaccination?

University of Kentucky, *Principal Investigator: David Horohov*

*Co-PIs: Thomas Chambers; Allen Page; Whitney Zoll*

Year: 2012 TOTAL - \$54,776

### Determinants of Immune Protection Against Babesia Equi

Washington State University, *Principal Investigator: Robert Mealey*

*Co-PI: Donald Knowles*

Years: 2011-2012 TOTAL - \$150,000

### Molecular Characterization of EHV-1

University of Kentucky, *Principal Investigator: Udeni Balasuriya*

*Co-PIs: R. Frank Cook; Yanqiu Li; Pamela Henney; Peter Timoney; Kathryn Smith*

Years: 2010-2011 TOTAL - \$95,361

### Rapid PCR Diagnosis of Equine Botulism

University of Pennsylvania, *Principal Investigator: Raymond Sweeney*

*Co-PIs: Amy Johnson; Robert Whitlock; Susan McAdams*

Years: 2010-2011 TOTAL - \$33,665

### Toxins TCD A, B of C Difficile

University of Kentucky, *Principal Investigator: Sergey Artiushin*

*Co-PIs: John Timoney; Sridhar Velineni; Sridhar Velineni*

Year: 2010 TOTAL - \$45,855

### Prevention of EHV-1 Myeloencephalitis

Oklahoma State University, *Principal Investigator: Lara Maxwell*

*Co-PIs: Richard Eberle; Jerry Ritchey; Charles MacAllister; Dianne McFarlane*

Years: 2009-2010 TOTAL - \$104,431

### Cell Signaling/Receptor Molecules for EHV-1

University of North Carolina Wilmington, *Principal Investigator: Arthur Frampton*

Years: 2009-2010 TOTAL - \$77,578

### Botulism, Real-Time PCR Test

University of Pennsylvania, *Principal Investigator: Robert Whitlock*

*Co-PIs: Raymond Sweeney; Susan McAdams; Amy Johnson*

Year: 2009 TOTAL - \$21,600

### Development of an Equine In Vitro Respiratory Model to Study Virus-Host Interactions

Colorado State University, *Principal Investigator: Gisela Soboll*

*Co-PIs: Gabriele Landolt; D. Paul Lunn*

Years: 2008-2009 TOTAL - \$97,480

### The Neurologic EHV-1 Marker: Correlation or Causation?

Cornell University, *Principal Investigator: Nikolaus Osterrieder*

Years: 2008-2009 TOTAL - \$97,534

### **Neuropathogenesis of EHV-1 Infection in Horses**

Colorado State University, *Principal Investigator: Lutz S. Goehring*

*Co-PIs: D. Paul Lunn; Alan Schenkel*

Years: 2008-2009 TOTAL - \$92,231

### **R. Equi Pneumonia: Does the Magnitude of Airborne Exposure Predict Disease Development?**

Texas A & M University, *Principal Investigator: Noah Cohen*

*Co-PIs: Craig Carter (UN of KY); Morgan Scott; M. Keith Chaffin*

Years: 2008-2009 TOTAL - \$137,798

### **Molecular Epidemiology of EAV: 2006 Occurrence in the United States**

University of Kentucky, *Principal Investigator: Udeni Balasuriya*

*Co-PI: Peter Timoney*

Year: 2008 TOTAL - \$31,967

### **Efficacy of Valacyclovir Against Neuropathogenic EHV-1**

Oklahoma State University, *Principal Investigator: Lara Maxwell*

*Co-PIs: Brad Bentz; Charles MacAllister; Richard Eberle; Jerry Ritchey*

Years: 2007-2008 TOTAL - \$74,375

### **Control of Rhodococcus equi pneumonia Using Gallium**

Texas A & M University, *Principal Investigator: M. Keith Chaffin*

*Co-PIs: Noah Cohen; Ronald J. Martens*

Years: 2007-2008 TOTAL - \$153,286

### **Enhancing Interferon Gamma Expression in Foals**

University of Kentucky, *Principal Investigator: David Horohov*

*Co-PIs: C. Meranmt; C. Breathnach*

Years: 2007-2008 TOTAL - \$154,821

### **Tetramers for Precise Measurement of Immunity to EHV-1**

Colorado State University, *Principal Investigator: D. Paul Lunn*

*Co-PIs: Gisela Soboll; Julia Kydd; Nick Davis-Poynter ; Klaus Osterreider*

Years: 2006-2007 TOTAL - \$116,641

### **Biology of Neuropathogenic Strains of Equine Herpesvirus-1**

University of Kentucky, *Principal Investigator: George Allen*

*Co-PI: David Azbill*

Years: 2006-2007 TOTAL - \$60,000



### Rapid Diagnostic Assay for Streptococcus Equi

University of Kentucky, *Principal Investigator: John Timoney*

Years: 2006-2007 TOTAL - \$88,198

### Detection of Antibodies to EAV by Microsphere Immunoassay

University of Kentucky, *Principal Investigator: Udeni B. R. Balasuriya*

*Co-PI: Peter Timoney*

Year: 2006 TOTAL - \$24,702

### Sequencing the Rhodococcus Equi Genome

University of Bristol, *Principal Investigator: Jose Vazquez-Boland*

*Co-PIs: John Prescott; Julian Parkhill; Wim Meijer; Julian Davies; Shinji Tkaj; Iain Sutcliffe*

Years: 2005-2006 TOTAL - \$50,000

### Evaluation of a Rapid MRSA Test for Horses

University of Guelph, *Principal Investigator: Scott Weese*

Years: 2005-2006 TOTAL - \$26,750

### Immune Response of Young Foals Exposed to Rhodococcus

University of Kentucky, *Principal Investigator: David Horohov*

*Co-PI: Duane Chappell*

Years: 2005-2006 TOTAL - \$145,382

### Gallium Therapy to Control Rhodococcus Equi Pneumonia

Texas A & M University, *Principal Investigator: Ronald Martens (Visiting Professor)*

*Co-PIs: Noah Cohen; M. Keith Chaffin; Lawrence Bernstein*

Year: 2005 TOTAL - \$49,796

### New Tools for Detection of Leptospira in Horses

University of Kentucky, *Principal Investigator: Sergey Artiushin*

*Co-PI: John Timoney,*

Year: 2005 TOTAL - \$34,892

### EHV-1 Vaccines for Generation of Cytotoxic Lymphocytes

Colorado State University, *Principal Investigator: D. Paul Lunn*

*Co-PI: S. Marulasiddappa*

Years: 2004-2005 TOTAL - \$95,650

### Vaccine Potential of a Riboflavin-Requiring Strain of R. Equi

Harvard School, *Principal Investigator: Mary Hondalus*

*Co-PI: Hugh Townsend*

Years: 2004-2005 TOTAL - \$116,757

### Are Mares a Source of Rhodococcus Equi for Their Foals?

Texas A & M University, *Principal Investigator: Noah Cohen*

*Co-PIs: Nathan Slovis; George Mundy*

Years: 2004-2005 TOTAL - \$87,013

### Inhibition of Endotoxin with Adenosine Receptor Agonists

University of Georgia, *Principal Investigator: Thomas Murray*

*Co-PIs: James Moore; Michel Vandenplas*

Years: 2004-2005 TOTAL - \$77,462

### Genetic Determinants of Equine Herpesvirus-1 CNS Disease

University of Kentucky, *Principal Investigator: George Allen*

*Co-PI: Nick Davis-Poynter*

Years: 2004-2005 TOTAL - \$60,000

### Production of Antibodies to Selected Equine Cytokines

University of Kentucky, *Principal Investigator: David Horohov*

Years: 2004-2005 TOTAL - \$79,100

### Systemically Immunogenic Surface & Secreted Proteins of S. Equi

University of Kentucky, *Principal Investigator: John Timoney*

*Co-PI: Sergey Artiushin*

Year: 2004 TOTAL - \$42,450

### Molecular Epidemiology & Evolution of Sarcocystis Neurona, Agent of EPM

Michigan State University, *Principal Investigator: Linda Susan Mansfield*

*Co-PIs: Thomas S. Whittam; A. Mahdi Saeed*

Years: 2003-2004 TOTAL - \$52,455

### IL-12 as an Adjuvant in a DNA Vaccine for Rhodococcal Pneumonia

Washington State University, *Principal Investigator: Diana Stone*

*Co-PI: Steve Hines; Travis McGuire; Melissa Hines*

Years: 2003-2004 TOTAL - \$91,063

### Response of Foals to Vaccination Against West Nile Virus

University of California – Davis, *Principal Investigator: W. David Wilson*

*Co-PI: Judy E. Mihalyi*

Year: 2003 TOTAL - \$21,281

### Mucosally Immunogenic Surface Expressed Proteins of Streptococcus Equi

University of Kentucky, *Principal Investigator: John Timoney*

*Co-PIs: John Walker; Sergey Artiushin*

Year: 2003 TOTAL - \$46,500

### Respiratory Immune Response of Young Foals

Louisiana State University, *Principal Investigator: David W. Horohov*

*Co-PI: Dale Paccamonti*

Years: 2002-2003 TOTAL - \$129,930

### Equine Genes, Microarrays and Responses to Gram-Positive Toxins

University of Georgia, *Principal Investigator: Michel Vandenplas*

*Co-PIs: L. H. Pratt; M. M. Cordonier-Pratt; J. N. Moore; A. Gingle; D. J. Hurley*

Years: 2002-2003 TOTAL - \$76,000

### Role of Streptococcus Bovis Exotoxins in Equine Laminitis

University of Missouri, *Principal Investigator: Philip Johnson*

*Co-PIs: Andria Cogswell; Nat Messer; John Kreeger*

Years: 2002-2003 TOTAL - \$98,150

### Development of a Refined Equine Model for Equine Protozoal Myeloencephalitis

The Ohio State University, *Principal Investigator: William Saville*

*Co-PIs: R. W. Stich; S. M. Reed; M. J. Oglesbee*

Years: 2001-2002 TOTAL - \$101,384

### Identification of Immunogenic Proteins Unique to Streptococcus Equi

University of Kentucky, *Principal Investigator: John Timoney*

*Co-PI: John Walker*

Years: 2001-2002 TOTAL - \$90,250

### Practical Equine DNA Vaccination: Mucosal Vectors and the "Prime/ Boost" Strategy

University of Wisconsin, *Principal Investigator: D. Paul Lunn*

*Co-PIs: Chris Olsen; John Timoney; David Watkins*

Years: 2001-2002 TOTAL - \$89,650

### Role of DI Particles in Persistent EAV Infection of Stallions

University of California – Davis, *Principal Investigator: N. James MacLachlan*

*Co-PIs: Udeni Balasuriya; Jodi Hedges*

Years: 2000-2001 TOTAL - \$67,101

### Development and Testing of Genetic Vaccines for Vesicular Stomatitis

Colorado State University, *Principal Investigator: Richard A. Bowen*

Years: 2000-2001 TOTAL - \$48,020

### Development of BCG Expressing VapA as a Vaccine Against R. Equi

Harvard School, *Principal Investigator: Mary K. Hondalus*

*Co-PIs: Barry Bloom; Mary Rose Paradis*

Years: 2000-2001 TOTAL - \$101,630

### Pathogenesis of Equine Protozoal Myeloencephalitis

Washington State University, *Principal Investigator: Debra Sellon*

*Co-PIs: Donald Knowles; Carol Wyatt; Melissa Hines*

Years: 2000-2001 TOTAL - \$104,976

### Pathogenesis of Vesicular Stomatitis in Horses

University of Georgia, *Principal Investigator: Elizabeth Howerth*

*Co-PIs: David Stallknecht; P.O.E. Mueller*

Years: 1999-2000 TOTAL - \$57,405

Characterization of the Pyrogenic Mitogen of Streptococcus Equi

University of Kentucky, *Principal Investigator: John Timoney*

*Co-PIs: Sergey Artiushin; Abhineet Sheoran*

Years: 1999-2000 TOTAL - \$57,182

### DNA Vaccination Against Rhodococcus Equi Pneumonia

University of Guelph, *Principal Investigator: J.F. Prescott*

Years: 1999-2000 TOTAL - \$65,200

### Generation of Protective Immunity to Equine Herpes Viral Infection Using DNA

University of Wisconsin, *Principal Investigator: D. Paul Lunn*

*Co-PI: Chris W. Olsen*

Years: 1999-2000 TOTAL - \$79,817