

## RESEARCH UPDATE 1

*Ongoing and recent projects funded by Grayson-Jockey Club Research Foundation*

### **Dr. Robert Mealey describes his project on the dread disease piroplasmosis at Washington State University**

#### **The Threat---**

The spread of equine piroplasmosis caused by the blood parasite *Theileria equi* in the United States poses a significant threat to equine health and a tremendous economic problem for the equine industry. The current situation combined with the presence of multiple species of ticks that can spread the parasite puts the U.S. at risk of becoming an endemic region. The economic costs associated with preserving the health of infected horses as well as controlling the spread of disease by restriction of domestic and international movement of horses is substantial.



#### **Project Goals---**

We have shown that treatment can be an effective means of eliminating the parasite from infected horses. Due to the U. S. requirement of importing horses free of transmission risk, treatment of infected horses with the goal of removing transmission risk is the management strategy most likely to be used. The goal of this project is to determine if treated horses are susceptible to re-infection, and to identify the immune responses that are involved in protecting horses against re-infection.

#### **What Is Being Learned---**

We have been able to identify the specific immune cells that the parasite invades in the horse, and data are still coming in regarding the immune responses in treated horses and their susceptibility to re-infection. The results of this research will determine if treatment and clearance results in rigorous protective immunity.

***This knowledge will be invaluable in preventing future outbreaks,*** and for informing policy decisions with respect to domestic movement, import, and export of successfully treated horses. Importantly, these studies will help define the protective immune responses that could lead to a vaccine, greatly facilitating the resolution of the current issue presented by piroplasmosis in horses in the U.S. and around the world.