



2012 Research Funded by the Arabian Horse Foundation -Project Summaries-

Cerebellar Abiotrophy Project

- **Cecilia Penedo, PhD/University of California, Davis – Veterinary Genetics Laboratory (VGL)**

This is a continuation of a project which the Foundation has been supporting since 2008. In February 2011, the Penedo group published a paper in the journal, Genomics, describing the identification of a mutation associated with cerebellar abiotrophy (CA). Of the four genes located in the CA region, two of them (MUTYH and TOE1) have some brain involvement and partially overlap one another. Because this mutation is tied to more than one gene, the VGL is conducting further study of the two candidate genes, MUTYH and TOE1. Part of this ongoing work includes “expression studies” to help evaluate the functional aspects of these two genes and determine what effect this mutation has on them. Obtaining this information will help researchers gain a better understanding of what initiates the degeneration of Purkinje cells and allow for final confirmation of the causative mutation for CA. More detailed information on the CA Research Project and the development of the CA DNA test can be found at <http://www.thearabianhorsefoundation.org/news.html>

Genetic Mapping of Equine Metabolic Syndrome and Cushing’s Disease

- **Samantha Brooks, PhD/Cornell University**

This is a continuation of a project which the Foundation has been supporting since 2010. Funding for this year will support whole genome sequencing for a candidate horse of particular interest in the study. This information is expected to lead to a further understanding of the genetic component of these conditions and greatly advance the project forward. Owners are being recruited to participate through the contact information for their referring veterinarians as submitted to the Animal Health Diagnostic Center. Sample kits from over 150 horses have been collected to date for genetic mapping. Data on these horses includes DNA, brief health and diet histories, body measures, photos and parentage information. Preliminary association analysis for these samples has been completed and several significant loci have been located. These results are preliminary and much work is needed to investigate genes in these regions, identify functional markers, and validate these markers in larger groups of horses, and in additional breeds. For more info: http://www.ansci.cornell.edu/brooks/met_description.html

Testing the Effectiveness of a Melanoma Vaccine in Horses (co-sponsorship with The Morris Animal Foundation)

- **Jeffrey Phillips, DVM, PhD/University of Tennessee**

This study is directed at determining if the vaccine currently used to treat melanoma in dogs is safe and effective for treating melanoma in horses. This therapy has the potential to not only treat, but also prevent the development of equine melanoma. As such, the information gained from this study has the potential make a significant contribution to improving the health of Arabian horses.

2011 Project Update - last year, the Foundation funded a co-sponsorship with the Morris Animal Foundation for a genetic based study on melanoma (project lead - Molly McCue, DVM, PhD/University of Minnesota). This project has been successful in identifying a group of grey horses that have a decreased incidence of melanoma. When sample collection and DNA analysis is complete, researchers will classify melanoma patients into risk categories based on genetic predispositions. The ultimate goal for this work is to provide veterinarians with information to help them identify horses at greater risk for developing melanoma. The increased monitoring of at-risk horses will allow for earlier detection and treatment, when there are more therapy options available.

Donation to rebuilding fund from fire damage at the Equine Reproduction Laboratory (ERL)

- **Colorado State University**

Last year the CSU ERL was destroyed by fire. In addition to this facility being one of the top equine reproduction labs in the world, there is also a long standing relationship between CSU and the Arabian horse community. As such, the Arabian Horse Foundation is proud to show the support of the Arabian horse community by providing some financial support for the rebuilding effort.

The Arabian Horse Foundation thanks our donors for their ongoing support of important equine health research projects. For more information about the Foundation and becoming a donor, please visit <http://www.thearabianhorsefoundation.org>.