



Gabrielle Botselle

# Helping Horses

## Live More Healthful Lives

by Kate Riordan

Helping our horses to live longer, more healthful lives is a topic that we can all agree upon in terms of importance. And since 2004, the world's largest non-profit foundation dedicated to funding research studies to protect, treat and cure animals—the Morris Animal Foundation—has organized meetings of equine researchers, research funding agencies, veterinarians and others to determine the best way it could contribute to the advancement of horse health. From those meetings came a plan to unite researchers from around the world to collaborate on what could be one of the boldest equine research endeavors to date: the Equine Consortium for Genetic Research (ECGR). The results of this research could change everything.

Even though the Morris Animal Foundation may be most closely associated with dogs, cats, wildlife and the wonderfully effervescent actress Betty White, who has been the iconic representative for the Foundation for 40 years, the Foundation has also supported humane equine health research since 1959. Their current Equine Health Initiative is part of an ongoing program to fund animal health studies worldwide.

Over the past 48 years, Morris Animal Foundation has provided nearly \$7.5 million in financial support for 237 equine health studies. People are often surprised to discover that the Foundation is the largest non-profit, non-governmental source of humane animal health studies in the world.

The equine studies funded by the Foundation have provided scientific answers to problems that have plagued the horse industry for decades. For instance, through a collaborative effort, Morris Animal Foundation contributed to the discovery of the cause, treatment and vaccine development to prevent the deadly disease known as Potomac Fever. Other successful studies include: treatment for a type of cancer in horses that affects the eye; development of a test to detect combined immunodeficiency (CID) carriers in Arabian horses; a study of the effectiveness of acupuncture treatments for pain

relief and recovery time for injured horses; a study of a specific drug on the healing process in horses that have undergone colic surgery; and studies of the heritable “tying-up” condition in Thoroughbred horses. Another research success was a series of Foundation-funded, multi-institutional studies that provided important genetic information in the development of the equine genome.

It was this last project that gave direction to the first program of the Equine Health Initiative. Of the many applications submitted for funding, it was the ECGR that was chosen as most relevant and scientifically sound.

“People have asked why we’re starting this initiative with a genetic research study,” said Deborah Tatum, Director of the Equine Health Initiative. “For centuries, horsemen have used genetics to determine what visual attributes a foal will have, whether it’s color, height, length of back or sometimes athletic potential. But relatively recently, it’s interesting to note that veterinarians, breeders and owners increasingly recognize that genetic factors have a major impact on the health and well-being of horses, just as they do in humans and all other species.

“What we haven’t studied until now, however, is how genes impact the health of the horse,” Tatum continued.”

Tremendous advances in human medical diagnostics and treatment have been made possible by huge investments in basic science and molecular technologies such as the human genome project, which has had a significant effect on the understanding and treatment of diseases. The recent sequencing of the horse genome can expect to have a similar impact, directed by the results of the ECGR. The project will be led by University of Minnesota professors Dr. James Mickelson and Dr. Stephanie Valberg, who have assembled a highly collaborative group that has the expertise to translate the project’s knowledge into practical solutions for problems facing equine veterinarians and horse owners around the world.

“All health, performance and disease traits in horses are fundamentally influenced by a subset of the approximately 20,000 genes that comprise the equine genome,” said Patty Olson, DVM, PhD, CEO and President of the Morris Animal Foundation. “Over the past 10 years, researchers have established an excellent collaborative network for equine genome research. As a result, scientists are prepared to use the horse genome sequence to identify specific gene mutations and patterns of gene expression that impact both highly heritable and genetically complex diseases. This important study is expected to develop new methods for accurately diagnosing and treating specific forms of equine diseases by their unique genetic signatures.”

The ECGR, a five-year study, will be conducted by 18 elite equine research institutions in nine countries, allowing scientists around the world to study genetic processes that contribute to equine diseases that impact reproduction, fertility, performance and developmental and acquired orthopedic disorders. This research will ultimately lead to the development of targeted drugs and vaccines, improved diagnostic tools, advanced treatments and progressive medical procedures.

Initially, the ECGR will study naturally occurring disorders. These studies include polysaccharide storage myopathy (PSSM), a devastating form of hereditary muscle disease; recurrent exertional rhabdomyolysis (RER—tying-up), which is a painful muscle disorder; recurrent airway obstruction (RAO—heaves), a chronic, disabling, asthma-like disease; osteochondrosis dissecans (OCD), a developmental orthopedic disease; pasture laminitis, a condition that consists of the breakdown of the connection between the sensitive laminae (layers of bone) on the inside of the hoof and the hard outer layer of the hoof; and sarcoids, which are the most common skin tumors occurring in horses.

“By studying and understanding these genetic factors, we can greatly enhance the health, performance and well-being of all horses,” said Tatum.

For more information, or to learn about ways to donate to the Morris Animal Foundation, visit [www.morrisanimalfoundation.org](http://www.morrisanimalfoundation.org) or call (800) 243-2345. ■



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*Opposite: The goal of the Morris Animal Foundation’s Equine Consortium for Genetic Research is to benefit the health of all horses, regardless of age, breed or discipline.*

*Below: Director of the Morris Equine Health Initiative Deborah Tatum with actress and longtime supporter Betty White.*



Courtesy Morris Animal Foundation

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