

# 2006: A BANNER YEAR FOR CANINE HEALTH DISCOVERIES!

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*The AKC Delegates' Canine Health Committee has approved this article, and its distribution is encouraged.*

December 8, 2005, marked a significant milestone in the world of canine health research. Investigators published the completion of a high-quality genome sequence of the domestic dog in *Nature*. This research shed light on both the genetic similarities between dogs and humans and the genetic differences between dog breeds. Comparison among dogs also reveals the structure of genetic variation among breeds, which can now be used to unlock the basis of physical and behavioral differences, as well the genetic underpinnings of diseases common to domestic dogs and their human companions.

In 2006, there have been remarkable advances in canine genetic knowledge. Some of these discoveries have been funded by AKC CHF, and some of them haven't. There may even be some of which we are not aware. We are pleased, however, to provide *Perspectives* with several findings:

**Canine Equivalent of the Human Lafora Disease:** Researchers at the University of Missouri and the University of Toronto determined that mutations in the same gene which causes Lafora disease in people also causes myoclonic epilepsy in Miniature Wirehaired Dachshunds and Basset Hounds. Myoclonic epilepsy is a rare form of epilepsy characterized by jerking attacks. The jerks appear like an exaggerated startle. They may be precipitated by sudden noise or movement or may occur sponta-

neously.

**Updated Genetic Test Developed for Copper Toxicosis in the Bedlington Terrier:** Copper toxicosis is a hereditary disease in which failure of the liver to expel dietary copper leads to a build-up of this toxic metal causing illness and death. The research underlying this test was carried out jointly by a team led by Dr Mike Boursnell at the Animal Health Trust and at the University of Nottingham in the laboratory of Dr Paul Jones (Masterfoods Ltd.).

**Cause of Lethal Tick-Borne Disease Determined:** Researchers in Dr. Edward Breitschwerdt's laboratory at North Carolina State University have determined that the organism (*Rickettsia rickettsii*) that causes Rocky Mountain spotted fever in humans and canines is genetically identical.

**Merle Patterning Gene Identified:** Investigators in Dr. Keith Murphy's laboratory at Texas A&M University identified the genetic cause of the color pattern known as merle. Dogs heterozygous or homozygous for the merle locus exhibit a wide range of auditory and ophthalmologic abnormalities, which are similar to those observed for the human auditory-pigmentation disorder Waardenburg syndrome.

**Genetic Cause for Cataracts in the Boston Terrier and Staffordshire Bull Terrier:** Dr. Cathryn Mellersh at the Animal Health Trust, in collaboration with Dr. Kathryn Graves at the University of Tennessee, determined the mutation responsible for juvenile hereditary cataracts in these two breeds.

## MEDICAL NEWS

**Autosomal Recessive Hereditary Nephropathy in the English Cocker Spaniel:** Investigators in Dr. Keith Murphy's laboratory in collaboration with Dr. George Lees, both at Texas A&M University, have identified the genetic cause of this fatal kidney disease.

**Genetic Cause of Neonatal Encephalopathy Determined in Standard Poodles:** Drs. Dennis O'Brien and Gary Johnson at the University of Missouri, Columbia, have developed a genetic test for this disease of the brain that becomes apparent soon after pups are born. Visit [www.CanineGeneticDiseases.net/ataxia](http://www.CanineGeneticDiseases.net/ataxia) for additional information.

**Chromosomal Regions Determined for Additional Disorders:** Dr. Gary Johnson and his team at the University of Missouri, Columbia, have mapped the locus for Canine Fanconi Syndrome, an inherited adult-onset kidney disease, common in Basenjis. Investigators at Cornell University, led by Dr. Richard Goldstein, have significantly narrowed the search for the gene that causes Primary Hyperparathyroidism (PHPT), an inherited, late onset disease which causes a dog's blood calcium to abnormally increase, due to a tumor or abnormal function of one or more of the parathyroid glands, in the Keeshond.

To find out where these tests are being offered, please go to: [http://www.akcCHF.org/research/genetic\\_test.cfm](http://www.akcCHF.org/research/genetic_test.cfm) 