

FEATURE



Tufts University Genetics Conference Focuses on Canine Epilepsy

by Pamela C. Douglas, JD, President, Toby's Foundation

Tufts University recently held its third biennial conference, the Tufts' Canine and Feline Breeding and Genetics Conference with a Special Focus on Canine Epilepsy, on September 13 and 14, 2007 in Sturbridge, Massachusetts.

The important feature of this health conference, organized by Conference Director Dr. Jerold S. Bell, Department of Clinical Sciences, Tufts Cummings School of Veterinary Medicine, was that it had a special forum on canine epilepsy and brought together world-renowned geneticists and researchers in the field.

Discussion about canine epilepsy took place throughout the conference; an entire morning on the second day was devoted exclusively to the topic, with three lectures and a panel discussion. Dr. Anita Oberbauer, Department of Animal Science, University of California, Davis; Dr. Edward (Ned) Patterson, University of Minnesota College of Veterinary Medicine; and Dr. Dennis O'Brien, College of Veterinary Medicine, University of Missouri spoke on canine epilepsy and participated in the panel discussion along with Dr. Cathryn Mellersh, Animal Health Trust (AHT), United Kingdom, and others. Dr. Noriko Tonomura, Tufts Cummings School of Veterinary Medicine, Broad Institute of Harvard and Massachusetts Institute of Technology spoke on gene mapping. She said that the Broad Institute is interested in DNA samples from unrelated dogs for canine epilepsy research. Dr. Patterson shared details about the work that his lab has been doing to find the gene(s) responsible for canine epilepsy and on which breeds.

As a result of the conference Toby's Foundation is in direct contact with researchers who are working on finding the gene(s) responsible for canine epilepsy. With the development of the single nucleotide polymorphisms (SNPs) markers useful for finding disease genes, and an association approach being taken rather than just the familial approach, the timing and tools available have never been better. Thousands of SNPs have become available to researchers because of the Dog Genome Project. These SNPs can be used as genetic markers for mapping studies and are potentially more powerful than the marker technology previously used. Multigenerational families are no longer required, and SNP technology can be

used with affected and unaffected dogs, making all of our Australian shepherd blood samples (even with gaps in some families) far more viable and valuable than ever before.

Dr. Mellersh, who is well known by the Aussie community for her breakthrough work at the AHT on hereditary cataracts in Aussies, announced that she will soon begin research on canine epilepsy and will be part of a team of six European researchers working on this disease, including Dr. Hannes Lohi in Helsinki, Finland. This European canine epilepsy research project offers great potential for finding the gene(s) responsible for canine epilepsy in various breeds, including the Australian shepherd. Toby's Foundation asked for Aussies to be one of the breeds worked on by this renowned research team. Dr. Mellersh said that the breeds that "we ultimately choose to work on will be those with the best sample collections—breeds without sufficient samples from affected dogs will not be suitable." She expressed that the Australian shepherd is an ideal candidate for this European research as long as the researchers can obtain Aussie samples.

Several researchers emphasized the importance of quality samples being submitted from affected dogs. Dr. Patterson said that "to help these studies progress we encourage individuals to submit DNA of purebred dogs affected with epilepsy and their relatives to the various studies." Toby's Foundation has updated its recommendations for submitting blood samples based on the latest information and has posted these guidelines on www.tohysfoundation.org. Please urge any owner you know with an affected dog to submit blood samples on their dog.

We are in an exciting time! Several research institutions are moving forward with studies to identify the gene(s) responsible for canine epilepsy so a screening test can be developed. Your continued support is needed. Please visit www.tohysfoundation.org for current recommendations on submitting blood samples and donating funds for this important research.