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Investigation of Bladder Cancer in the Shetland Sheepdog June 2008, Updated August, 2009

Background: In early 2006, the Ostrander Laboratory at the National Human Genome Research Institute at NIH in collaboration with the Purdue Comparative Oncology Program at Purdue University and the Department of Small Animal Clinical Sciences at Michigan State University began a study on the genetic susceptibility to transitional cell carcinoma (TCC) of the urinary bladder in dogs. TCC is a devastating disease with genetic underpinnings and their ultimate goal is to identify the genetic variants responsible for susceptibility to this disease.

Dr. Elaine Ostrander and her collaborators will be looking across all the dog's chromosomes to find regions of the genome that may be responsible for susceptibility to TCC. The initial genetic analysis was begun using two closely related breeds, the Scottish Terrier and West Highland White Terrier. The researchers now feel that the addition of an unrelated breed, such as the Shetland Sheepdog, will add valuable data to the research on the genetic susceptibility to TCC. Shetland Sheepdogs are four and one half times more likely to be diagnosed with TCC than other dogs, making them the third most likely of all breeds to get TCC (VMDB, 2006). Too many Shelties die each year as a result of this terrible disease.

Statistical tools will be used to evaluate the data between the affected and unaffected Shelties and to compare the data from Shelties to that collected from the Scottish Terriers and West Highland White Terriers. Of key interest will be the determination of the variant responsible for this disease in the Sheltie and whether different breeds have the same or similar genetic variants responsible for susceptibility to TCC.

Participation: The Ostrander Lab is soliciting blood samples from two groups of dogs.

Group 1: Shetland Sheepdogs with a diagnosis of TCC (bladder cancer)

Group 2: Shetland Sheepdogs age eight and older that currently have no known cancers. Ideally, dogs in this group should not be closely related, i.e., no parents or grandparents in common.

If your dog meets one of these criteria, please contact **Donna Viglietti, Ostrander Lab Samples Manager, for a sampling kit by phone (301-451-9390) or email (dog_genome@mail.nih.gov)**. Each kit contains a one page consent form, a pair of vials for collecting 5-10 cc of blood at your veterinarian's office, and instructions for handling the blood. The collection kit comes in a small cardboard mailer tube that protects the blood vials. A return address label is included so that the forms and blood can be sent

back to the lab conveniently. Blood can be mailed at room temperature without cold packs.

All genetic and contact information collected for each dog will remain confidential. Specifically, your participation in the study, your dog's pedigree, health information you provide, and any data we get from your dog's DNA sample will not be disclosed to any breeders, Club personnel, the AKC, or the AKC Canine Health Foundation.

Thank you in advance for your time and effort. The sample you provide will be instrumental in helping to identify the genomic mutations associated with TCC. Determining the genetic cause of this disease is a necessary first step in developing strategies to prevent the cancer and develop therapies for affected dogs. As always, our work would not be possible without your participation and dedication to this wonderful breed and its health. Please contact Donna Viglietti by phone or email with any questions or concerns you may have.

Update! As of August 14, 2009, the researchers have received DNA samples from 40 Shelties with bladder cancer and 45 Shelties in the control group. Sheltie owners have done a great job in answering the call for sample donations thus far, yet more donations are still needed. We thank you for your enthusiastic response and hope we can count on your continued participation to enable this study to progress. **Keep up the good work!**