Flat-Coated Retriever DNA Bank at Animal Health Trust: An Investment in the Future

The Animal Health Trust (AHT) is a British not-for-profit organization that provides specialized veterinary services, as well as performing ground-breaking research. The AHT maintains DNA Banks for various breeds of dogs and is currently storing DNA from blood of the Flat-Coated Retriever (FCR) for current and future investigations. The FCR DNA Bank is maintained by Dr. Cathryn Mellersh, who grew up with Flat-Coated Retrievers. The AHT prepares and stores the DNA for free in exchange for being able to use the DNA in their research. For example, they are currently studying goniodysgenesis in FCRs. The AHT also makes the DNA freely available to researchers outside the AHT. For example, Dr. Ostrander's study (aimed at mapping the gene that predisposes FCRs to histiocytic sarcoma) benefits enormously from this resource.

With the canine genome now fully mapped and sequenced, the stage is set for mapping and isolating the genes responsible for many genetic disorders. Finding the genes allows the development of genetic tests to determine which dogs carry which genetic defects. There are already dozens of genetic disorders for which tests are available in a variety of different breeds (e.g., progressive retinal atrophy, narcolepsy, von Willebrand's disease). These tests allow breeders to make more informed decisions about which dogs to breed and ultimately to reduce the frequency of dogs affected by disease.

For the genetic tests now offered commercially, there is a straightforward cause-and-effect relationship between the defective gene and the disease. However, some traits are more complicated. For instance, several different genes might have additive effects in determining disease status (as is probably the case for hip dysplasia and patellar luxation). In other cases, the presence of a defective gene might increase a dog's susceptibility or predisposition to disease (as is the case for cancer). The good news is that even these more complex traits are amenable to genetic analysis, though it is more difficult and thus takes longer. Efforts are already underway - supported by the FCR Foundation - to identify genes involved in patellar luxation and malignant histiocytosis. In the same way that you can now send blood to a testing service to determine if your black dog is a carrier of the genetic information for liver coat color, you may some day be able to have blood tested to determine whether your dog carries the genetic information associated with a high incidence of malignant histiocytosis.

You might wonder what will happen to the information acquired if a new test is developed, and your dog's DNA is tested in the course of that research. You will be informed privately of the test results, but what you do with that information is entirely up to you. At no time will information about particular dogs be released to anyone except the owners. If and when the results are published, individual dogs will not be identified. Your dog will be tested for free if its DNA is used in research that leads to a new test, whereas other owners will be required to pay to have their dogs tested.

Some have expressed concern that genetic testing will cause all dogs with "bad" genes to be excluded from our breeding pool, at high cost to the traits we desire in terms of conformation, temperament and working ability. However, this need not - indeed, should not - be the case. To do so would significantly reduce the size of our already small gene pool. The vast majority of genetic defects are due to recessive mutations; a dog must inherit a copy of the defective gene from both parents in order to be affected. We can continue to include carriers of disease genes in our breeding programs, as long as we do not mate two carriers to each other. By mating carriers to non-carriers, we can slowly but surely eliminate genetic defects without significantly reducing genetic diversity and without losing the traits that make us love these dogs so much.

The value of having a DNA Bank cannot be overstated. The research it allows is critical to maintaining and improving the health of our breed. By having your dog's DNA banked at the AHT, you can ensure its participation in research studies, both within your dog's life time and long after your dog has passed away. What a wonderful legacy for your dog to leave behind!

Any Flat-Coated Retriever with a 5-generation pedigree can contribute to the Bank. It matters not whether the dog is old, young, neutered, intact, healthy or sick. The more DNA samples that are banked, the better the chances that researchers will be able to establish links between diseases and genes. If you want to participate, but are unable to track down your dog's pedigree, please contact FCR-Cancer-Support@yahoogroups.com.