

To all Standard Poodle owners and breeders:

DNA samples are needed for a groundbreaking, well-funded, international study that has already made significant progress toward finding the genes that cause Addison's Disease in Standard Poodles.

Based in Sweden, this research is a collaboration between Dr. Kerstin Lindblad-Toh of MIT's Broad Institute - currently a guest professor at the University of Uppsala, Sweden - Dr. Åke Hedhammar of the Swedish University of Agricultural Science in Uppsala, and Dr. Anita Oberbauer of UC Davis.

Though not yet definitive, these researchers say their DNA microarray data thus far suggests a complex trait with multiple loci, or gene regions, indicated for the disease. This is consistent in both Swedish and American Poodles. They believe that the data support a complexly inherited trait and that breeders should use that knowledge when making breeding decisions.

This means that the disease is almost certainly a polygenic trait (controlled by more than one gene) though they do not yet know how the genes interact. It is most likely not an autosomal recessive as previously thought, although it is definitively an inherited disease. Environmental contribution to the disease is as yet unknown, but the disease is not random; it is genetic.

Additionally, there is ongoing research at the University of Utah's Lark Lab on Addison's in Portuguese Water Dogs. Dr. Gordon Lark and his colleagues found definitively that multiple genes are involved for Addison's in that breed. They have now been comparing the DNA of Nova Scotia Duck Tolling Retrievers and, most recently, the DNA of Standard Poodles, to that of PWDs to see if the suspect gene regions are similar.

Dr. Kevin Chase of the Lark Lab analyzed exhaustive health and pedigree data from the Poodle Health Registry and other private sources. He reportedly found Addison's to be much less frequent in Standard Poodles than earlier studies have shown and far less frequent than in PWDs. This means that with careful selection, it is possible to reduce the frequency of Addison's Disease in our breed.

While in recent years protocol called for spaying and neutering producers and offspring of Addisonians, researchers from both the Swedish study and the Lark Lab say this is not recommended. It is also best, Dr. Lark says, to breed high risk dogs to very unrelated dogs to improve the chances of breaking up the set of genes that cause the disease.

The scientists from both the Swedish team and the Lark Lab explicitly advise that breeders proceed on the assumption that this is a polygenic trait. Earlier methods of assessing risk are therefore no longer applicable.

Dr. Lark says that breeders can do more damage to the gene pool by the wholesale removal of producers or offspring of Addisonians from that gene pool than they will by very selectively breeding them. As with any serious polygenic disease, however, it is extremely important to breed with care and with as much knowledge of the lines as possible.

Dr. Jerold Bell writes about polygenic disease in the following article, entitled

Managing Polygenic Disease, and he uses hip dysplasia as an example:

<http://www.vin.com/proceedings/Proceedings.plx?CID=TUFTSBG2003&PID=5115&O=Generic>

Applying Dr Bell's breeding advice to Addison's Disease, breeders can follow the same strategy they employ to avoid hip dysplasia and thereby improve their risks:

- Affected dogs should not be bred.
- A dog with close and/or multiple Addisonian relatives should not be bred to another with similar risks.
- Only very high quality dogs with close Addisonian relatives should be bred.
- High risk dogs should be bred sparingly and only to those with very few Addisonians in their lines.
- Producers and offspring of Addisonians should be replaced with a lower risk offspring or parents of the same quality.
- In addition to numbers of related Addisonians, breeders should consider each affected dog's age of onset, severity of onset and any extreme environmental exposure to determine different levels of risk when assessing depth and breadth of pedigree.

In order for breeders to make the safest breeding choices possible, ALL Addison's Disease must be publicly reported. For Standard Poodles, the best and most reliable method of tracking most health issues is the Poodle Health Registry, www.poodlehealthregistry.org.

Health issues and test results, good and bad, are also included in the PHR's online database at www.phrdatabase.org. There, breeders can research the pedigrees of their own dogs and prospective mates in order to make the most informed decisions possible. Pet owners can review pedigrees when deciding to adopt puppies.

Blood and serum samples from Standard Poodles are requested by both UC Davis and the Lark Lab. These are necessary for new technology, which offers a more efficient and accurate way to analyze DNA than ever before. Samples from any Addison's affected dogs are requested, as well as from dogs that are most likely unaffected, which means healthy, older dogs. Any healthy dog 8 years old and over is a good candidate, preferably those with no parent, offspring or sibling with Addison's. This requires a visit to the vet, but the process is very simple and brief for those who worry about their dogs' reaction to stress. Many veterinarians will do this for free when it is for research purposes.

Additionally, adrenal gland tissue samples from both affected and older healthy Standard Poodles are also needed by UC Davis. They will use these to compare the DNA findings with the actual expression of genes so they can better understand how the disease progresses and how the different loci may interact to yield the disease. If in the near future your poodle is euthanized and you would like his or her tissue to help this crucial cause, you can discuss this with your veterinarian prior to such an occurrence. The vet can then put a note in your dog's file with instructions so that it won't be necessary to discuss at a more emotional time.

To send a Standard Poodle sample to the Lark Lab, you can contact me at ngtessier@gmail.com. Any samples sent to the Lark Lab will also be sent to UC Davis after they are compared to PWD samples. To send samples directly to UC Davis, and for more information, go to:

<http://cgap.ucdavis.edu/ST%20kit%20request.htm>

Summary:

- A recent, significant study on Addison's Disease has data that supports a complexly inherited trait, not an autosomal recessive mode of inheritance.
- DNA and tissue samples from Addisonians and older healthy dogs are urgently needed to complete this research. Go to <http://cgap.ucdavis.edu/ST%20kit%20request.htm> for more information, or email ngtessier@gmail.com.
- Breeders should proceed with the assumption that Addison's is a polygenic disease.
- Breed high risk dogs to highly unrelated dogs with lower risk.
- Do not remove producers or offspring of Addisonians from the gene pool; instead, replace them with high quality offspring or parent with lower risk.
- Assess both the status of direct ancestors as well as all lateral relatives when considering a breeding.
- Note ages of onset, severity of onset, and environmental conditions and events for every individual Addisonian.
- Publicly report all cases of Addison's Disease, preferably to the Poodle Health Registry at www.poodlehealthregistry.org.

Much thanks goes to the Poodle community in anticipation of your generous support!

Natalie Green Tessier
Poodles de Grenier

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