Leonberger Study
C/O Dr. Ned Patterson DVM
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Canine Genomics Lab
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Hello,

Our canine genetics research laboratory at the University of Minnesota College of Veterinary Medicine is currently in the midst of a research project to attempt to define the basis for the condition in Leonbergers commonly called Inherited Polyneuropathy, or laryngeal paralysis. This disease is typically detected by a weakness and loss of bark in the affected dogs, hind limb weakness (along with a high-stepping gait) and eventual paralysis, and respiratory problems.

Our work so far strongly suggests that laryngeal paralysis / polyneuropathy has a genetic basis. However, individuals that carry the gene responsible for LP may not always show the clinical and physical signs. In many dogs it does not become apparent until later in life, after they have been bred.

In addition, such carriers of an LP gene can produce affected pups making this condition extremely difficult to eliminate by selective breeding alone. The goal of our molecular genetics research is to identify the LP gene itself and develop a simple DNA-based test to detect dogs genetically susceptible or clear of LP.

Our chances of success would be greatly enhanced by the inclusion of more dogs in our study and you may be in a position to help us. In addition to dogs known to be affected by LP, we are also just as interested in their parents, grandparents and littermates, which may be affected or unaffected themselves. We are also interested in obtaining samples from unrelated normal Leonbergers as well. We want to emphasize that your particaption would be completely confidential and that your being contacted now does not imply that we suspect any of your dogs or pedigrees of having problems with LP.

For our research study we need a simple blood sample in a green or purple-topped tube, as well as the completion of a short questionnaire and pedigree form from the submitted dogs, which we have attached.

Thank you in advance for any help you can provide. If you have any questions or concerns please feel free to reply to this email or call Ms. Katie Minor at 612-624-5322.

Sincerely,
Dr. Jim Mickelson, Dr. Ned Patterson,
Mr. Jay Volinski, and Ms. Katie Minor

INHERITED POLYNEUROPATHY IN LEONBERGER DOGS: GENETIC STUDIES

The University of Minnesota College of Veterinary Medicine Canine Genomics Lab and the University of California San Diego are investigating the basis of an inherited polyneuropathy in Leonberger dogs. We hope to use the results for to develop a DNA based screening test for affected dogs and carrier females.

Samples are needed from dog families with 2 or more generations that contain both affected and unaffected individuals. It is very important is to get samples from as many siblings as possible as well as both parents.

Project Scientific Summary:
Over the past few years, a distal, symmetrical polyneuropathy in Leonberger dogs associated with laryngeal paralysis has been identified by researchers at the University of California San Diego comparative neuromuscular diseases lab. In this study, we will try to map the chromosomal locus of the gene by use of a genome scan with microsatellite genetic markers. This will provide breeders and veterinarians with a non-invasive DNA test for definitive diagnosis, a selection method for designing matings that will not produce affected dogs, and ultimately enable the identification of the precise genetic defect.

Lay Summary:
Over the past few years, a polyneuropathy with laryngeal paralysis has been identified in related Leonberger dogs that causes weakness and loss of bark in the affected dogs. We will collect blood samples from the dogs for DNA isolation. We will employ a molecular genetic strategy to determine the inheritance pattern and locate the chromosomal position of the gene in affected pedigrees. This approach will lead to the development of a DNA screening test for affected dogs and carriers and the development of a testing program to control its propagation. The research will ultimately allow the identification of the polyneuropathy gene itself.

How To Begin:

1. Complete the Questionnaire / Owner Consent Form for each dog.

2. For each dog, supply a correctly formatted (sire on top, dam on bottom) 4 or 5 generation typed or computer-generated Pedigree. Please highlight any dogs that may be affected with exercise-induced collapse.

3. Collect blood from each dog.

4. Send all materials to the University of Minnesota address below:

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INSTRUCTIONS FOR BLOOD SAMPLE SUBMISSION

Blood samples can be drawn at the The University of Minnesota Veterinary Hospital at no charge, or by your Veterinarian. If done by your vet, please have them follow the instructions below.

Blood Sample:

- Submit 5 to 10 ccs of whole blood in a purple-topped (EDTA) tube(s). If 10-cc tubes are not available, use 5-cc or 3-cc tubes. The only common possible complication is a small blood clot that should resolve with time.

- Gently rock the tubes a few times to distribute the anticoagulant. Do not spin, extract serum, or anything further. Refrigerate the sample if it is being held for any time before shipping.

Labeling and Forms:

Label the sample with the following:

- Leonberger project
- Dog's registered name
- LCA / AKC number
- Call name
- Affected / Not affected status

Shipping:

- Pack the sample in a small padded container with a cold pack (most vets have these for shipping samples to labs).

- Ideally, ship the sample immediately to the mailing address below. Ship by overnight delivery (US Mail, UPS, or FedEx). Do not send on a Friday because no one may be available to accept the delivery on a Saturday, and the sample might become unusable by Monday.

- If the samples are held for a day or over the weekend, it must be refrigerated and gently rocked once a day.

- We can pay for shipping costs. Please contact us for details, should you desire us to do this.

There is not any compensation for participating in this study. Participation in this study is voluntary and at any time you can instruct us to stop using your dog's DNA information in this study. Once a DNA-based test is potentially developed, we will let you know the DNA status of your dog. If you have any questions, please call one of the numbers below:

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