

## **Inherited Polyneuropathy in Leonberger Dogs: Genetic Studies**

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**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. 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. This polyneuropathy causes rear limb weakness, loss of bark, and breathing difficulties 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.

# Inherited Polyneuropathy in Leonberger Dogs: Genetic Studies

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## General Information

### INTRODUCTION

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 to develop a DNA based screening test for affected and carrier dogs.

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.

### How to begin

1. Complete the Individual Dog Questionnaire and Consent for each dog..
2. For each litter 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 Leonberger Polyneuropathy.
3. Collect blood from each dog.
4. Send all materials to the University of Minnesota address at the bottom of this page.

### 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 5-10 mL of whole blood in a purple-topped (EDTA) tube(s).
- Gently rock the tubes a few times to distribute the anticoagulant. Do not spin.
- If the samples are being held before shipment, refrigerate and gently rocked once a day.

#### **Tissue (deceased dogs)**

- Place a 1/2" x 1/2" skin punch into a clean plastic bag.

#### **Labeling and Forms**

- Label the sample with the following: Dog's registered name or call name, and the owner's last name.

#### **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 arrive within 5-7 days of being drawn (US Mail, UPS, or FedEx).
- If need be, we can pay for shipping costs. Please contact us for details.

There is no financial compensation for participation in this study. Participation in this study is voluntary and at any time you can instruct us to stop using your dog's DNA in the study. Once a DNA based test is potentially developed, we will let you know the status of your dog. **If you have any questions please call or email.**

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Registered Name _____	Call name _____
LCA# (or other reg.) _____	Birth Date _____
Male / Female - - Intact / Neutered	
Owner: name _____	Alternate _____
Street address _____	Contact _____
City, State, Zip _____	_____
Phone (day) _____	_____
Phone (eve) _____	_____
Fax _____	_____
E-mail _____	_____

Has this dog been diagnosed as being affected with polyneuropathy and laryngeal paralysis. Yes No  
If yes, indicate how and by whom (biopsy, nerve conduction study, etc). If available, please attach a copy of the biopsy report.

## Symptoms

### Laryngeal Paralysis

Changes in bark quality: Yes No	Age first noticed: _____
Difficulty breathing/swallowing: Yes No	Age first noticed: _____
Has your dog had a tieback surgery? Yes No	Age at time of surgery: _____

Please feel free to elaborate on your answers to the above questions:

**Symptoms (continued)**

**Polyneuropathy**

Exercise intolerance: Yes No

Age first noticed: \_\_\_\_\_

High-stepping or hitched gait: Yes No

Age first noticed: \_\_\_\_\_

Muscle atrophy: Yes No

Age first noticed: \_\_\_\_\_

If yes, which limbs are involved:

Front Right

Front Left

Rear Right

Rear Left

Please feel free to elaborate on your answers to the above questions:

**Does your dog have a history of:**

Chronic liver disease: Yes No

Diabetes: Yes No

Heart disease: Yes No

Hypothyroidism: Yes No

Spinal Disc Disease: Yes No

Seizures: Yes No

Dog your dog have any other medical conditions or additional symptoms:

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Veterinarian(s) name, addresses, and phone number:

Please list any littermates registered and call names and whether or not they are affected with polyneuropathy.

Please list other related dogs that are possibly affected with polyneuropathy (registered name if known):

Please circle your response to the following;

- I am / am not willing to provide additional blood samples if needed for research.
- I will / will not consider donation of a tissue sample upon the death of this dog, and will discuss this decision with my veterinarian so that a notation is placed in the file.

I submit this sample and pedigree for the purpose of DNA research; I agree to a phone interview or questionnaire if needed; I agree for my Veterinarian to be contacted if necessary; I understand that the identity of dogs and owners participating in the research will not be revealed; and I have supplied complete and accurate information, to the best of my knowledge.

Signed (Owner): \_\_\_\_\_ date \_\_\_\_\_

Signed (Principal Investigator ): \_\_\_\_\_ date \_\_\_\_\_