

MAPPING GENETIC RISK FACTORS FOR OSTEOSARCOMA AND HEMANGIOSARCOMA IN LEONBERGERS

CALL FOR MORE SAMPLES - September 13, 2016

With support from the Leonberger Health Foundation and in collaboration with several laboratories in the United States and Europe, Professor Kerstin Lindblad-Toh's groups at Uppsala University in Sweden and Broad Institute in the US aim at identifying genetic risk factors that predispose Leonbergers to Osteosarcoma (OSA) and Hemangiosarcoma (HSA). Thanks to Leonberger owners and clubs who submitted samples to our participating centers, we have made significant progress in collecting and characterizing samples from healthy and OSA/HSA-affected Leonbergers, and we have generated genomics data needed to look for genetic risk factors predisposing to these diseases. In the case of OSA, preliminary genome-wide association analyses of genotyped Leonberger cases and controls are promising in identifying genome-wide significant markers, but including more samples in the analysis will definitely strengthen the analysis. In the case of HSA, preliminary analyses did not reveal any genome-wide significant associations, which we attribute to the smaller sample size of HSA cases and the fact that many of them were not pathologically confirmed to be HSA. While we will do the best we can with the data we have, it is critical that we receive more confirmed HSA case samples as soon as possible.

Therefore, our research would greatly benefit from receiving more samples for Leonbergers diagnosed with OSA and HSA, especially those with a confirmed diagnosis, and also samples for healthy controls. Since our two groups are in constant communication and share samples and data, we invite the senders to ship the samples to the center located most conveniently to them (see addresses below). Samples should be accompanied by the consent form appropriate for each center (see next pages) and any additional information or medical records (if available).

Swedish Agricultural University
Animal breeding and genetics
ATTN: Susanne Gustafsson
Leonberger OSA/HSA
Box 7023
S-750 07 Uppsala
SWEDEN

(Please, notify us at Susanne.Gustafsson@slu.se that a sample is on its way)

OR

Broad Institute
Attn: Michele Koltoonian 6112-A
Leonberger OSA/HSA
415 Main Street
Cambridge, MA 02142
USA

(Please, notify us at dog-info@broadinstitute.org that a samples is on its way)

Corresponding consent forms:

- Consent Form for UppsalaUniversity/SLU Sweden (pages 2-3)
- Consent Form for Broad Institute US (pages 4-5)

**WE THANK LEONBERGER OWNERS, CLUBS AND ORGANIZATIONS FOR THEIR
CONTINUED SUPPORT AND INTEREST IN OUR RESEARCH.**

Biobank consent form

Informed consent

The Swedish University of Agricultural Science and Uppsala University is performing research on various diseases and traits in dogs. The purpose is to identify the underlying genes, which could improve diagnoses and breeding strategies and in the future to reduce disease rates in affected breeds. By submitting a blood sample or other tissue sample from your dog, you will contribute to our research. Participation in the study is voluntary. By signing this consent form you agree to storage of owner information; that the sample and information from medical records may be used by the Swedish University of Agricultural Sciences (SLU), Uppsala University and its collaboration partners; and that we, if needed, might contact you for additional information regarding your dog. Samples and information are stored in our canine biobank. For questions concerning personal information, contact the SLU at: registrator@slu.se

Thank you for participation!

All information about You and Your dog will be treated according to the Public Access to Information and Secrecy Act.

Information about the dog (to be completed by the owner before submission to the sampler/veterinarian)

* Reg. No.:	* Breed:	
* Registered name:	Chip or Tattoo:	
The dog's name:	* Date of birth:	Coat colour:
* Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	* Neutered or spayed <input type="checkbox"/> Yes <input type="checkbox"/> No	Date: _____
Additional health information (diseases etc)		

Owner (Or patient label)

* First name:	* Surname:	* Country:
* Street:	* Postal code	* City:
e-mail:	Phone Home: Cell phone:	
Attachments	Copy of Pedigree info <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Copy of medical record <input type="checkbox"/> Yes <input type="checkbox"/> No	
_____	_____	_____
City & date	Signature	Printed name

Sampling information (to be completed by the veterinarian/sampler)

Date of sampling:	Type of sample:
Dog ID (reg no, chip and/or tattoo):	Collected for project: _____
Sample:	Sampler's name:
	<input type="checkbox"/> Control <input type="checkbox"/> Case Diagnostic code: _____

Additional information about the dog

Cryptorchid Yes No

Weight _____ kg

Normal weight Under normal weight Overweight

Additional health information

Name of vet:	Phone: Fax:
Address:	Postal code, city and country:
e-mail:	Case record No:

I declare that I have confirmed the identification of the dog (chip and/or tattoo) stated above.

_____ Place	_____ Date	STAMP
_____ Signature		
_____ Printed name		

Send the sample to SLU as soon as possible after sampling. Avoid sending the sample on a Friday (it is better to store the sample in the refrigerator over the weekend).

The collection is in accordance to the following ethical permission (Dnr C12/15, prof Jens Häggström, SLU). Updated version March 1, 2015.

* = mandatory

The Dog Genome Project



HELP US FIGHT DOG DISEASES!



What are we doing?

The world of dog owners, veterinarians, oncologists and dog geneticists is about to change! The Canine Genome Sequencing Project (based at the Broad Institute of Harvard and MIT in Boston) has sequenced the dog genome. Now, we are using this important new resource to find genes for dog diseases such as cancers, diabetes, kidney failure, as well as other diseases.

We are searching for regions of the genome that differ between healthy dogs and sick dogs to allow carrier testing. Ultimately, we will identify the defective genes causing these diseases, improving treatments in dogs and in people with similar diseases.

What can you do?

- **If you have a healthy dog** (especially a dog 8 years or older), we would really appreciate a blood sample and your dog's registration number **OR** pedigree information.
- **If your dog has been sick**, please ask your veterinarian to draw a blood sample and send it to us together with the clinical information (such as pathology and histology reports) and your dog's registration number **OR** pedigree information.

It is NOT necessary to shave the dog!

Information for Veterinarians:

Please collect ~5 ml of blood in EDTA tube(s) and ship to the address at the bottom of this page, along with the signed consent form on the reverse side of this flyer. Please let us know to expect the sample.

Unfortunately, we are unable to reimburse for the cost of shipping or veterinary expenses, and we greatly appreciate your assistance with our research.

More details on blood collection: http://www.broadinstitute.org/mammals/dog/vet_info.html

Please send samples to:

c/o Michele Koltookian
Dog Genome Project
Broad Institute of MIT and Harvard
7 Cambridge Center, 6112-a
Cambridge, MA 02142

Fax: (617) 714-8956 (let us know to expect blood samples)
Email: dog-info@broadinstitute.org
Website: <http://www.dogDNA.org>

Broad Institute Blood/Tissue Sample Release Form

Research Statement:

We would like to obtain a blood/tissue sample from your dog. The sample will help us to explore canine genetic issues including patterns of genetic diversity between and within breeds, and in disease states.

What are the risks involved with a blood sample?

A blood draw may cause a slight momentary discomfort to your dog as the needle is inserted. There is a small possibility that some bruising might be seen around the draw site. This should cause your dog only marginal, short-term discomfort and not have any major consequences. If your dog becomes aggressive and/or bites during the blood sampling process, the Canine Genome Project and the Broad Institute are not liable in any way for any resultant physical harm or property damage. Compensation is not available in the unlikely event of physical harm to your dog resulting from the blood draw procedure.

Who will have access to the information and specimen?

No information about you, or the identity and health information of your dog will be made available to the public. No DNA information of your dogs will be made available to you, or to the public. Only the Broad Institute and collaborators on the respective studies will have access to the samples. Any studies utilizing your dog's blood/tissue sample will occur with the understanding that none of your dog's unique identifiers (name, AKC number, etc.) will be distributed or published.

Dog Owner's Statement:

I have read the information provided above and have had an opportunity to ask questions regarding the procedures involved. I am the owner or the agent for the owner of the dog described below and I have the authority to execute this release. I give my permission for my contact information to be stored and for you to recontact me regarding my dog's health. My signature below indicates I voluntarily agree to give my dog's blood and/or tissue specimen for this study and that this blood and/or tissue was collected by licensed veterinary personnel.

Is it okay to share samples with our research collaborators? Yes No

Is it okay to contact your vet for health questions and updates about your dog? Yes No

Would you like to be notified of updates via email? Yes No

Owner's Signature: _____ **Date:** _____

Owner's Name(printed): _____

Email Address: _____ Phone #: _____

Street Address: _____

City, State, Zip: _____

Vet Contact Info: _____

Dog's Registered Name: _____

Registration Organization and number: _____

• Dog's Call Name: _____ • Dog Breed: _____

• Birth Date: _____ • Variety/Coat Color: _____ • Pedigree attached? yes | no

• Dog Gender (*circle one*): Male | Male(Neu) | Female | Female(Sp) • Year of Sp/Neu _____

**Which diseases has this dog had?
(now and in the past)**

Disease

Date of Diagnoses

Do you know of any diseases in related dogs?

Please send samples to:

c/o Michele Koltookian, Broad Institute of MIT and Harvard, 7 Cambridge Center, 6112-a, Cambridge, MA 02142, USA,

Email: dog-info@broadinstitute.org