

Updated 2016

Patent Ductus Arteriosus

Patent ductus arteriosus (PDA) is a congenital anomaly of the heart which causes fluid build-up in the lungs, exercise intolerance and possibly death if left untreated. During normal fetal development, the ductus allows most of the blood in the pulmonary artery to by-pass the lungs and go into the aorta. In normal animals, the ductus should close shortly after birth. Dogs with a PDA can be successfully treated surgically.

PDA is one of the most common congenital cardiac defects in dogs. It also occurs in humans. A characteristic “machinery” murmur is usually heard by a veterinarian on physical examination. In one retrospective study (Ackerman, 1978) of 537 dogs with PDA, Miniature and Toy Poodles, Pomeranians, and Shetland Sheepdogs were identified as being of high risk for PDA. Although PDA is considered to be an inherited defect in most affected dogs, the mode of inheritance is complicated and not well understood. Additional information on PDA is well-presented at the links below:

<http://www.gopetsamerica.com/dog-health/patent-ductus-arteriosus.aspx>

Ackerman N, Burk R, Hahn AW, et.al. Patent ductus arteriosus in the dog: a retrospective study of radiographic, epidemiologic, and clinical findings. *Am J Vet Res*, 1978; 39:1805-10.

Shetland Sheepdog Patent Ductus Arteriosus Study*

(1st posted, 2012)

Dr. Kathryn Meurs of North Carolina State University is a veterinary cardiologist and the director of the NCSU Veterinary Cardiac Genetics & Holter Laboratories. In addition, she is the Associate Dean of Research at NCSU. Dr. Meurs is interested in studying the genetics of PDA in Shetland Sheepdogs.

Dr. Meurs suspects that PDA is caused by a polygenic trait. At this time, she does not believe that the presence of an affected puppy in a litter is reason to spay/neuter the sire, dam, or other puppies in the litter. She does recommend not repeating the breeding or breeding to closely related dogs.

For the study, DNA samples are needed from normal Shelties as well as Shelties that have been diagnosed with PDA. For more information about the study and for submission forms see below:

* As of February, 2014 Dr. Meurs has received DNA samples from 4 affected and 9 normal Shelties. Samples from more Shelties are still needed. No new samples have been submitted from Shelties since then which in Dr. Meurs words “Maybe, (a good thing) it is decreasing in prevalence!” This study is still active and more samples are needed. Dr. Meurs is appreciative of the ASSA’s assistance in spreading the word about her work.

Shetland Sheepdog Patent Ductus Arteriosus Study

We are very interested in studying the genetics of the congenital heart defect Patent Ductus Arteriosus (PDA) in Shetland Sheepdogs to try to identify a genetic mutation for this defect.

We are currently looking for DNA samples from:

1. Shetland Sheepdogs who **DO NOT** have a patent ductus arteriosus (PDA) and have been cleared by a cardiologist ideally by echocardiogram
2. Shetland Sheepdogs who **DO** have a PDA that has been diagnosed by a cardiologist

Sample collection

Please ask your veterinarian or a veterinary technician to pull a blood sample into an **EDTA** tube. Most veterinary hospitals have these readily available.

1. Blood drawn into a Standard EDTA Tube does not need to be refrigerated.
2. Blood draw volume should be 1 to 2 ml, if possible.
3. Please label tube well, with dog's call name and family last name and send the samples to our lab via the address above.

Blood drawn does not need to be mailed back with ice packs or be shipped overnight. However, if possible please try to send the sample within a few days by standard mail. Until the blood can be mailed, it is a good idea to refrigerate it (i.e., if the blood was drawn late Saturday and cannot be mailed until Monday, it's a good idea to refrigerate it between Saturday and Monday).

Questions? Contact Info: Kate_meurs@ncsu.edu

Please return the form on page 2 with your sample and mail to:

NCSU - College of Veterinary Medicine
ATTN: Veterinary Cardiac
Genetics Laboratory
Research Bldg. 460
1060 William Moore Dr.
Raleigh, NC 27607

Thank you very much for your submitting a sample, we greatly appreciate it!

Shetland Sheepdog Patent Ductus Arteriosus (PDA) Study

Dog Name:

Gender:

Birthdate:

Owner Name:

Complete Address:

Phone Number:

E-mail:

Has your dog been diagnosed with a patent ductus arteriosus (PDA) ?

Has your dog been cleared by a cardiologist of not having a patent ductus arteriosus (PDA) ?

If this dog has been used for breeding, has it produced any puppies that were diagnosed with a PDA?

Date (if ever) of Last Echocardiogram, please include a copy of the echocardiogram if possible:

If possible could you please include a Xerox copy of a pedigree?

THANK YOU!!!!!!!!!!!!