



# WHIPPET MYOSTATIN PROJECT

9 May 2007

In late June of 2006, a small group of whippet owners and breeders contacted the National Institutes of Health's Ostrander Lab (the Dog Genome Project) regarding the increasing frequency of apparently double-muscled whippets in various whippet lines. That letter triggered a study to determine whether or not the double-muscling we were seeing was the result of a myostatin mutation.

Double-muscling occurs in other mammals, including cattle, sheep, mice, and humans, and is caused by mutations in the gene governing myostatin production. On May 1, the Ostrander Lab's study was published in the Public Library of Science's Genetics journal and confirmed that a myostatin mutation does exist in whippets and is the cause of the double-muscled pups.

Myostatin is a growth factor responsible for controlling the development of muscle fibers. When the myostatin-producing gene is unable to function properly, excess muscling develops. Inheriting two copies of the mutation (one from each parent) results in a whippet with almost twice the amount of normal muscling. Although whippets with one copy of the mutation may, on average, be more muscular than whippets not carrying the mutation, there is no real way to tell whether a whippet carries the gene just by its appearance.

Over the course of the study, we learned that double-muscled whippets exist in several unrelated lines in North America and Europe and, although this problem is now small, it appears to be growing. Because of the geographically wide-spread occurrence of double-muscled whippets, an international group of concerned whippet owners and breeders has been formed to work together towards a common goal: the development of a test which will allow whippet fanciers to identify carriers of the mutation.

We will also be developing a database so that whippet owners worldwide can share information about their dogs and how the mutation affects them.

We are grateful to those whippet owners and breeders who participated in the initial study. With the continued support of the whippet community, we hope that we will be able to achieve our goal of test development for this problem.

The Whippet Myostatin Project will provide updates on our progress as they come available.

For more information about the Ostrander Lab's study, please refer to the following webpages:

NHGRI Researchers Explore Genetics of Canine Speed: <http://www.genome.gov/25521028>

Mosher DS, Quignon P, Bustamante CD, Sutter NB, Mellersh CS, et al. (2007) A Mutation in the Myostatin Gene Increases Muscle Mass and Enhances Racing Performance in Heterozygote Dogs. PLoS Genet. In press. <http://dx.doi.org/10.1371/journal.pgen.0030079.eor>

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