

# Gastric Cancer Study Update

## July 2013

***Thank you for your continued support***

The McNeil Comparative Oncology Laboratory greatly appreciates the enthusiasm of the Belgian Breed Clubs for Gastric Cancer research. Our goal is to determine the gene(s) that increase the risk of gastric cancer in particular breeds. This discovery would improve our ability to prevent, diagnose and effectively treat stomach cancer in dogs. We would not have been able to get this far without your help and the help of our canine friends.

***We have moved!***

Last year we moved our lab to Tufts University in Massachusetts. This has created some confusion in sample submissions since our old information was still posted in many locations. I think that we have tracked most of these down, but please spread the word that we have changed sites.

***Our Bank of Samples is growing***

We have established a Canine Gastric Cancer Database and Sample Repository that includes now nearly 900 dogs, including about 200 with stomach cancer. Most of these samples were collected since 2009 with the help of a grant from the Canine Health Foundation. Dogs are included in the repository if they have a diagnosis of gastric carcinoma or if they are an older dog representing one of several breeds with an increased risk of stomach cancer. Our numbers of the Belgian breeds as of this spring are provided in the table below.

Breed	Confirmed GC	Suspected GC	Other Cancer	“Healthy”	Total
<b>Belgian Malinois</b>	0	1	4	24	29
<b>Belgian Sheepdog</b>	14	4	19	85	122
<b>Belgian Tervuren</b>	40	8	23	141	212

In analyzing our data, we found that the average age at death due to stomach cancer is about 10 years old in the Belgian breeds. This is significantly younger than 13 years, which is the average age at death of dogs that were collected as healthy dogs and did not get stomach cancer. This suggests that the potential longevity of these breeds is affected by stomach cancer.

***Are all Belgian Breeds at risk for stomach cancer?***

It is clear, based on data from a national database (the veterinary medicine database or VMDB) that both Belgian Sheepdogs and Tervuren have an increased risk of stomach

cancer. The risk in Belgian Malinois is less clear. While we have heard stories of Malinois with possible stomach cancer, we do not yet have a biopsy confirmed case. It is likely that the risk in Malinois may be lower than in the Sheepdogs and Tervuren. We are particularly interested in getting samples from Malinois with confirmed stomach cancer.

### ***Genotyping is underway***

We have been collaborating with the laboratory of Elaine Ostrander at the National Human Genome Research Institute to conduct a genome wide association study to investigate the causative mutation(s) of gastric cancer in high-risk breeds. This research involves comparing more than 100,000 different genetic markers in dogs with and without stomach cancer to find which markers are seen more commonly in dogs with stomach cancer compared to those without. We have an encouraging genetic location for Tervuren. However, we need to do additional studies to confirm this. False positive results are sometimes seen when the affected dogs share genetic markers for reasons other than stomach cancer. This means that:

### ***We still need more dogs!***

We are still in urgent need of blood samples from dogs diagnosed with gastric cancer and healthy dogs over the age of 8 years.

We are asking for a 6ml blood sample from healthy dogs and 5-generation pedigree at time of enrollment. For affected dogs we ask that a 6ml blood sample, 5-generation pedigree and, if available, diagnostic confirmation of gastric cancer (biopsy report, ultrasound report, etc) be submitted at time of enrollment. For dogs that are affected by gastric cancer, we are also asking owners to strongly consider submitting tumor samples to the study. These can be taken at time of surgical biopsy or post mortem. Please contact us at 517-636-4715 for more information about tumor tissue donation.

We would like to remind owners that you will not receive an individual result regarding your dog from these studies. We intend to provide updates to the participating breed clubs regarding the progress of the genomic studies. However please be advised that it research is slow and often depends on our ability to obtain grant funding for the study. We are currently between grants, which mean that resources are scarce.

Thank you again for your continued support of this research! Our current and future progress would not be possible with out the enthusiastic support of the breed clubs and their members.