

# DNA Tests Approved for CHIC number for Great Pyrenees

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The Board of Directors of the GPCA, on the recommendation of the Health Committee, has approved three DNA tests that qualify as optional screening for a CHIC number. This certification by the Canine Health Information Center of the Orthopedic Foundation for Animals (OFA) is part of the public information available online through the OFA site. It is a valuable reference for anyone planning to breed or buy a dog.

## **WHAT** are they?

The three approved DNA tests are for Canine Multifocal Retinopathy (an eye disease), Glanzmann's Thrombocytopenia (a bleeding disorder) and Renal Dysplasia (a kidney disease.) Since most Pyr owners have never heard of these diseases, why do they concern the GPCA? The simplest answer is probably that these tests provide another way to assure the continued good health of the breed as a whole. However, for the breeders who have discovered any of these genetic diseases in their dogs, DNA testing offers the chance to eliminate the disease without discarding years of breeding programs.

## **WHO** should test?

While these diseases are presently considered rare in the breed, the truth is – we don't really know! In the case of each disease, breeders with affected dogs began looking for answers, found (or helped develop) available tests, and encouraged others to test as well. Affected dogs as well as carriers were found in Show, Livestock and Pet Great Pyrenees from various breedings and in multiple states.

If you have had an affected dog in your kennel, you probably know it and at least know about the testing. Sadly, a number of breeders who do know about affected pups have not bothered with further testing. This can allow the specific disease to spread further in the breed. So if you have produced an affected pup, related breeding stock should be tested. If you have heard about, or suspect, a related dog that is affected – even if you yourself haven't produced an affected pup – your breeding stock should be tested. In particular, dogs used at public stud would offer breeders a better sense of security if they can show clear DNA tests.

## **WHEN** do you test?

The Renal Dysplasia test can be done with mouth swabs, so can be done at any age after a pup has stopped nursing. The other two require that blood be drawn at your vet's. Relevant tests should be done before breedings take place – reputable breeders check hips and patellas, so necessary DNA swabs can be done at the same time.

### **WHY** do I need to know this?

Not all dogs that carry the mutated genes will show symptoms. This is both good and bad news. The good part is that even dogs considered genetically “affected” – that is, they are homozygous for the mutation (they carry two copies of the allele) – may show no symptoms and live normal life spans. The bad news is that these apparently healthy dogs, when bred, can spread the disorders further throughout the breed. The percentage of symptomatic dogs is unknown for these disorders, which makes it harder for breeders and owners to understand why they should be concerned. Their dog is apparently healthy, so why the fuss? When affected pups are symptomatic, two of these diseases lead to early death and considerable pain.

### **HOW** do I continue breeding if my dogs are carriers or affected?

With DNA testing, it is possible to breed even an affected dog, and come up with clear pups in two generations – IF BREEDING TO CLEAR PARTNERS. Here’s how.

This table shows the results of breeding affected, carrier and clear dogs to each other.

<b>Parent 1 Status</b>	<b>Parent 2 status</b>		
	<b>Normal (no mutation)</b>	<b>Carrier (heterozygous)</b>	<b>Affected (homozygous)</b>
<b>Normal</b>	All Normal	½ Normal ½ Carrier	All Carriers
<b>Carrier</b>	½ Normal ½ Carrier	¼ Normal ½ Carrier ¼ Affected	½ Carrier ½ Affected
<b>Affected</b>	All Carriers	½ Carrier ½ Affected	All Affected

Do be aware that the above chart ONLY applies to conditions affected by a single gene such as the conditions discussed here or dwarfism. IT DOES NOT APPLY TO MULTI-GENE CONDITIONS SUCH AS HIP DYSPLASIA.

### **WHERE** do I get DNA testing for these conditions?

To find a lab that tests for Canine Multifocal Retinopathy or Glanzmann’s Thrombocytopenia go online to [http://www.offa.org/dna\\_alltest.html](http://www.offa.org/dna_alltest.html) for the list of labs that specifically test for these diseases for Great Pyrenees.

For Renal Dysplasia testing, go to [www.dogenes.com](http://www.dogenes.com) and either order online or print out and mail a form to receive the testing kit.

Over the years, responsible breeders have made great strides in reducing the incidence of conditions such as hip dysplasia by careful attention to available testing and breeding only x-ray cleared dogs. As a multi-factoral disease, there is no available DNA test, so it takes years of commitment and generations of testing to produce dogs with a high probability of being free of hip dysplasia.

With single-gene testing, such as is available for these three conditions, breeders can either be confident that their breeding stock is free of them, or – with attention to breeding the proper combinations – can be free of them within two or three generations.