



THE COTON DE TULEAR CLUB OF THE UNITED KINGDOM

Society Registration No: 2049

BREED HEALTH SURVEY

GENETIC DNA TESTING RECOMMENDATIONS FOR BREEDERS

The following information is for guidance purposes only

When looking at the following information, we would ask you to bear in mind the recent Genetic Research Update which is available for viewing on our website, where we provided details of the test results on CMR2, BNAt and PH1 carried out by Genomia and Animal Genetics. Further information on these conditions and other DNA test can be found on the following websites:

Genomia: <http://www.genomia.cz/en/coton/>

Animal Genetics: <http://www.animalgenetics.eu/Canine/Canine-disease>

The following information is provided to offer guidance and recommendations to breeders to assist them in following good breeding practice and our recommendations for the future health of our breed.

Breeding Strategies using the CMR Test:

Breeders should be striving at all time to be producing puppies that are Clear of CMR2 by breeding from parents who have tested Normal/Clear. However, we do recognise there could be incidences where a dog's test results show it is a carrier. If breeders wish to keep such a dog for their breeding stock (as they feel that it represents a good example of the breed), we would recommend they ensure the other parent has tested Normal/Clear before proceeding.

We have sourced the following table from Optigen which we hope will explain this more clearly.

<u>Expected results for breeding strategies using CMR test</u>			
<u>Parent 1</u>	<u>Parent 2</u>		
	<u>Normal/Clear</u>	<u>Carrier</u>	<u>Affected</u>
<u>Normal/Clear</u>	<u>All = Normal/Clear</u>	<u>1/2 = Normal/Clear</u> <u>1/2 = Carrier</u>	<u>All = Carrier</u>
<u>Carrier</u>	<u>1/2 = Normal/Clear</u> <u>1/2 = Carrier</u>	<u>1/4 = Normal/Clear</u> <u>1/2 = Carrier</u> <u>1/4 = Affected</u>	<u>1/2 = Carrier</u> <u>1/2 = Affected</u>
<u>Affected</u>	<u>All = Carrier</u>	<u>1/2 = Carrier</u> <u>1/2 = Affected</u>	<u>All = Affected</u>

As you can see from the above table, if a breeder only uses parents who are both Normal/Clear then all puppies will be Normal/Clear. However, if one parent is a carrier then 50% of the puppies may be carriers. All other breeding is at a higher risk of producing affected puppies and in turn could have a detrimental effect on the future health of our breed.



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As we have a small gene pool we do not recommend breeders exclude dogs whose test results show they are carriers as this could reduce the gene pool and may be detrimental to the continued health of our breed in the future. This is also the recommendation of the Animal Health Trust (in collaboration with the Kennel Club) and some Genetic Research Companies. Breeders should therefore ensure any dog whose test show they are carriers are only mated with clear dogs.

To demonstrate this further we have put together the following scenario.

Scenario Clear/Carrier mating

	Parent 1	Parent 2	Puppies from that mating
1st Mating	Clear	Carrier	½ Clear ½ Carrier
Breeder keeps a puppy from this mating which has tested clear.			
	Parent 1	Parent 2	Puppies from that mating
Mating from that puppy	Clear	Clear	All Clear

According to animal genetic research companies, and as you can see from the above scenario, if we continue to follow good breeding husbandry CMR2 could be eradicated in the UK within a few generations.

Recommendations

1. If a breeder is uncertain about the CMR2 status of the parents in a proposed mating, they should consider the information above and seriously consider confirming their status so that they are contributing positively to the removal of the condition from the UK population
2. We would recommend breeders who wish to keep a puppy from a mating between Carrier and Clear parents, as breeding stock, should first carry out DNA testing before considering mating that puppy. Should the puppy's test result show positive for CMR2 then every effort should be made to ensure that it is mated with a Clear dog.
3. Puppies sold as pets from a mating between Carrier and Clear parents do not need to be tested prior to being sold. However new owners, who later show an interest in breeding, should be made aware their puppy could potentially be a carrier of CMR2 and breeders should offer guidance to the owners before a mating takes place.
4. To ensure our dogs in the UK remain healthy we would recommend breeders who import dogs ensure those dogs have received all relevant DNA tests and appropriate certificates have been received before carrying out any mating with UK dogs.

Testing all breeding stock for CMR2 is only one aspect of that first-class husbandry and one way in which all breeders can contribute to its removal from the population in the UK.



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We would also recommend and encourage:

1. Breeders carry out annual eye testing on their breeding stock and puppies with vets who have been appointed by the British Veterinary Association to carry out such tests and issue certificates under the Eye Scheme. Copies of such examinations should be provided to the new puppy buyer in their sales pack.
2. Breeders should encourage their puppy buyers to continue with annual eye examinations as such examinations will pick up any other eye abnormalities throughout the life of the dog.

Details of Veterinary practices belonging to the BVA Eye Testing scheme can be found by clicking the link below:

<https://www.thekennelclub.org.uk/tags?tag=Eye+Scheme>

BNAt and PH1

Although there have been a small number of recorded cases of BNAt and PH1, there is insufficient information on which to give further advice at present.

Other Tests

We are aware that some breeders also test for vWD Type 1, Malignant Hyperthermia and DM, but there have been no reported DNA results for these conditions.

The club, through its Breed Health Coordinators, will continue to monitor future DNA results and should we see an increase in the recording of any condition we will advise accordingly.

Notes:

CMR2	=	Canine Multifocal Retinopathy Type 2
BNat	=	Bandera's Neonatal ataxia
PH1	=	Primary Hyperoxaluria Type 1
vWD 1	=	Von Willebrand disease
DM	=	Degenerative Myelopathy