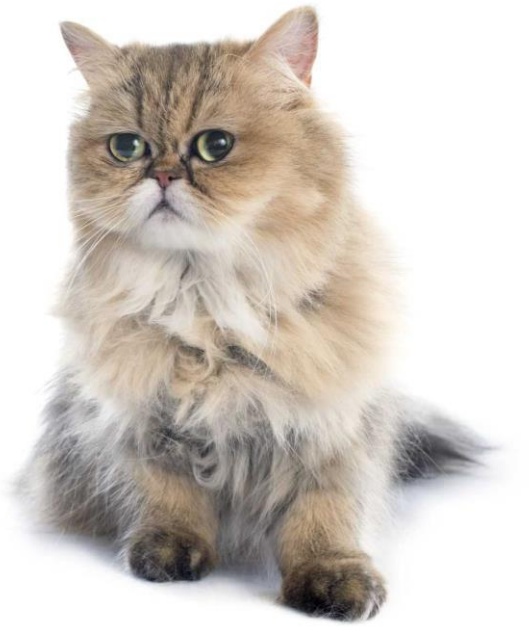
Persian Progressive Retinal Atrophy

About the disease



Persian cats have a form of early-onset progressive retinal atrophy (PRA) that is inherited in an autosomal recessive fashion. Onset of photoreceptor loss is around 5 weeks of age with severe loss by 16 weeks of age, meaning most affected cats are blind by 16-17 weeks of age. Cats that carry the mutant gene have normal vision.

The mutation responsible for Persian PRA has recently been discovered by Dr. B. Gandolfi and Prof. Leslie Lyons, University of Missouri. Work undertaken by Dr Chris Helps at Langford Veterinary Services has shown that around 4-5% of the UK/European Persian cats tested were carriers of the Persian PRA mutation.

Rah H, Maggs DJ, Blankenship TN, Narfstom K, Lyons LA. 2005. Early-Onset, Autosomal Recessive, Progressive Retinal Atrophy in Persian Cats. *Invest. Ophthalmol. Vis. Sci*. 46:1742-1747.

About the test

At the Molecular Diagnostic Unit, we have developed a PCR-based pyrosequencing assay to quickly and accurately identify the genetic mutation known to cause PRA in Persian and related breeds.

This assay will allow owners and breeders to identify Carrier cats and will enable them to inform breeding programmes to reduce Persian PRA in their kittens.

Reception Hours
Mon-Fri 9am - 5pm

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University of BRISTOL

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Interpretation of results

A **Normal** result on the Persian PRA genetic assay means that the cat does not have the genetic mutation. It is possible that some cats may go on to develop retinal atrophy due to other, as yet unidentified, genetic mutations.

A **Carrier** result on the Persian PRA genetic assay means that the cat carries one copy of the genetic mutation. This cat is a Carrier of Persian PRA.

An **Affected** result on the Persian PRA genetic assay means that the cat carries two copies of the genetic mutation and will be affected by Persian PRA.

Each certificate we issue will specify whether the cat is Normal, Carrier or Affected for the Persian PRA mutation.

The gene test will help breeders decide whether or not to use cats for breeding. There is a 25% probability of two Carrier (Heterozygous) cats producing Affected (Homozygous) kittens. Breeding Carrier and Normal cats will produce around 50% Normal and 50% Carrier kittens.

This strategy can be used as part of a breeding programme to gradually eliminate the defective gene from the affected populations.

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FAQs

What breeds are at risk?

Persian, Himalayan, Exotic Shorthair and Chinchilla. Other breeds with Persian ancestry may also be affected.

What are the genetics of breeding?

	Carrier	
	+	-
Carrier +	+/+ Affected	+/- Carrier
Carrier -	+/- Carrier	-/- Normal

Autosomal Recessive
Persian PRA is inherited as an autosomal recessive trait, meaning that two copies of the defective gene are required in a cat to produce the disease.

Carrier cats (those with a single copy of the defective gene; Heterozygous) have normal vision. However, breeding from two Carrier cats has a 25% chance of producing Affected kittens and a 50% chance of producing more Carrier cats.

Therefore, it is NOT recommended to breed two Carrier cats together, since this can produce Affected kittens.

What do I do with a Carrier?

	Carrier	
	+	-
Normal -	+/- Carrier	-/- Normal
Normal -	+/- Carrier	-/- Normal

Breeding is still possible
It is possible to continue to use Carrier cats in breeding programmes to retain important breeding lines and to avoid reducing the size of the gene pool.

As long as Carrier cats are mated to Normal cats no Affected kittens will be produced. This mating is likely to produce kittens that are Carriers, which can be identified by genetic testing and, if necessary, future matings arranged with Normal cats.