



# Genindexe

La génétique à votre service

## Progressive Atrophy of the Retina (rdAC-PRA)

### What is rdAC-PRA ?

The late appearance of the degeneration of the photoreceptors or rdAC-PRA get the cats of Abyssinian and Somali's race. This genetic disease provokes the degeneration of the cells of the retina of the eye : at the early stage of the disease only sticks are got, later, the degeneration of cones provokes then the complete blindness of the cat.

Cats have a normal vision for the birth. The age of appearance of the clinical symptoms is generally from 1.5 to 2 years. At the final stage of the disease, we observe a complete degeneration of the photoreceptors and a total blindness of the animal, generally at the age of 3-5.

### Mutation and mode of transmission :

The transfer of the gene CEP290, responsible for the rdAc-PRA, was recently published by the group of Kristina Narfström of the University of Missouri-Columbia. The rdAc-PRA is passed on according to a mode recessive autosomic. There are thus three possibilities :

A cat can possess two normal copies of the gene (+ / + or normal homozygote), this means that it does not carry the transfer and will not develop the rdAc-PRA. Moreover, the animal cannot also pass on the transfer in its descent. A cat can possess an affected copy by the gene CEP290 and a copy without the transfer or normal. He is said "carrier" or "heterozygote" (+/- or carrier heterozygote). He will not be affected by rdAc-PRA, but he will pass on statistically the abnormal copy of the gene in 50 % of his descent.

The cats which are going to develop this shape of PRA possess two affected copies by the gene CEP290 (-/- or homozygote affected), they will always pass on an affected copy by the gene in all their descent.

### DNA test interest :

With the help of a genetic test, the responsible mutation can't be directly detected. This method allows a very big precision and can be made at any age. It offers the possibility of making the distinction enter not only the healthy and reached animals, but also to identify the carriers (heterozygotes). It is an essential information to control the disease in the race, indeed the carriers are capable of spreading the transfer in the population, but cannot be identified by means of the only clinical symptoms.

### Expression of results and meaning :

In genetics the code to indicate the normal copy (allèle) of a gene is "+" and on the contrary the code to indicate the copy (allèle) affected by a gene is "-".

So, after a screening test GSDIV, the status of a cat can be or:

- + / + **Homozygote normal - not carrier of GSDIV, will never pass on the transfer**
- + / - **Heterozygote - Carrier of GSDIV, the probability of transmission of the transfer is 50 %**
- / - **Moved homozygote - Affected by GSDIV, passes on the transfer in 100 % of the cases**

To optimize the organization of your reproduction, please consult the chessboard of crossing below :



		Father						
		Not carrier		Carrier		Affected		
		+	+	+	-	-	-	
Mother	Not carrier	+	+/+	+/+	+/+	+/-	+/-	+/-
		-	+/+	+/+	+/+	+/-	+/-	+/-
	Carrier	+	+/+	+/+	+/+	Carrier	Carrier	Carrier
		-	+/-	+/-	Carrier	Affected	Affected	Affected
	Affected	+	+/-	+/-	Carrier	Affected	Affected	Affected
		-	Carrier	Carrier	Carrier	Affected	Affected	Affected