BattLab
Quality Veterinary Diagnostics
from disease to optimal health

LABOKLIN
LABORATORY FOR CLINICAL DIAGNOSTICS

Special Issue:
Genetic News Cats

Dear cat friends,

we have a lot of great news for you!

Our latest newsletter contains lots of interesting information about the new coat colours and colour variations in cats, as well as the latest cat tests from Labogen.

We hope you enjoy our newsletter and wish you a pleasant read!

The colour variant gold or sunshine is a modification of the tabby pattern, which is described for Siberian cats, Kurilian Bobtail and Toy Bob. A mutation in the CORIN gene causes an increase of the pheomelanin band of the single hairs as well as a colour enhancement of the pheomelanin in some areas. Purebred animals are characterised by a lightening of the tabby markings, a cream to white area around the nose extending to the chest and a pink nose without the dark border typical of tabby cats. The colour variant can only be expressed if the cat has the genotype AA ("sunshine") or Aa ("dark sunshine") at the agouti locus. In addition, another mutation was discovered, which leads to an even stronger colour modification and is

called "extreme sunshine". Extreme sunshine cats have a strong lightening of the tabby markings, a pale cream belly and the same pink nose without the dark line seen in sunshine cats. The inheritance is according to the allelic series: N > wbeSib > wbSib.

New: Coat colour Copal in the Kurilian Bobtail

A mutation in the MC1R gene (E locus) in the Kurilian Bobtail breed causes the coat colour of kittens born with brown tabby fur with a warm reddish tone to change during their first year of life. Eumelanin disappears and adult cats show an apricot coat very similar to red cats.

New at Labogen: Coat colour gold in British Shorthair

The gold colour variant is a modification of the tabby pattern, in this case specifically in the British Shorthair breed. A mutation in the CORIN gene causes an increase of the pheomelanin band of the individual hairs as well as a displacement of the eumelanin to the tip of the hair. Purebred animals are characterised by a lightening of the tabby markings and a gold colouration of the coat, which can range from golden tipped to a copper-coloured phenotype with a red-gold coat and cream markings on the belly and upper paws ("countershading"). The colour variant can only be expressed if the cat simultaneously has the genotype A/A or A/a for agouti.

New genetic test: Skeletal dysplasia in the British Shorthair breed

A mutation in the LTBP3 gene was found in the British Shorthair breed, which causes skeletal dysplasia (= is a congenital disorder of the bone and cartilage tissue). First symptoms like a paralysis of the hind legs could be observed in affected kittens already at the age of 8 weeks. Further symptoms such as a curvature of the spine (lordosis and scoliosis), myelopathy and reduced intestinal motility appeared at the age of 10 weeks. X-rays showed a deformity of the spine. Affected kittens showed increasing paralysis of the legs, deformation of several thoracic vertebral bodies, narrowing of the spinal canal, compression of the spinal cord tissue and coprostasis. Due to the severity of the symptoms, the affected kittens had to be euthanised.

Factor XII deficiency

Coagulation factor XII is involved in the intrinsic cascade of blood clotting. Two different mutations have been described in the factor XII gene that cause FXII deficiency. Homozygous affected cats have a strongly reduced FXII activity, whereas in heterozygous affected cats only a moderately reduced FXII activity is measurable. FXII deficiency prolongs the activated partial thromboplastin time (aPTT) in plasma without

increasing the bleeding tendency in affected cats. Factor XII deficiency follows an autosomal recessive inheritance pattern.

New: MDR-1 gene defect in the cat (all breeds)

The MDR1 gene defect correlates with a disorder of drug metabolism and thus hypersensitivity to various pharmaceuticals such as antiparasitics (e.g. ivermectin), antibiotics, cytostatics or even painkillers and anaesthetics.

The symptoms after administration of these drugs are manifold and range from breathing difficulties, movement disorders, lethargy, and dilated pupils to life-threatening convulsions, among others. The inheritance of the MDR1 gene defect is autosomal recessive, but even in heterozygous animals, an impaired transport of the affected substances and a reduced metabolism of the active compounds or a lower tolerance cannot be ruled out.

New at Labogen: Coat pattern tabby for all cats

Genetic testing for tabby allows a distinction to be made between a mackerel tabby coat pattern and the blotched or classic tabby coat pattern. Mackerel tabbies are characterised by vertical stripes with regular spacing, blotched tabbies by a broad, less regular dark pattern on a light background. Responsible for the arrangement of the dark colour patterns are different variants of the taqpep gene. To be able to express the alleles of the tabby locus, the cat must have the genotype AA or Aa at the A-locus. Mackerel Tabby is inherited dominant over Blotched Tabby.

New: Coat marking Ticked for all cats

Ticked is a coat pattern in the cat in which the individual hairs show banding, but the cat itself has no pattern. Two different variants on the DKK4 gene can lead to the expression of the phenotype. To be able to express the alleles of the ticked locus, the cat must have the genotype AA or Aa at the A-locus. The tabby locus can only be expressed in cats which are N/N at the ticked locus.

If you have any further questions, please do not hesitate to contact the Labogen team by e-mail at labogen@laboklin.com or by phone +49 (0) 971 / 72 02 505.

We hope you liked the newsletter. Please let us know what you think about it and in the meantime, we are preparing our next issue for you.

Your Labogen team