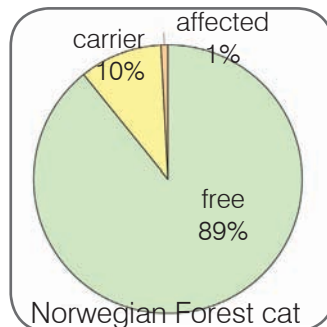
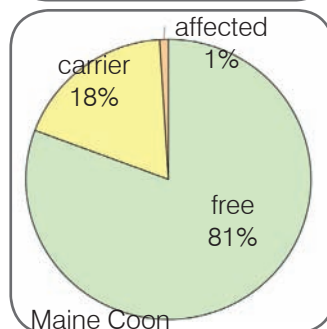
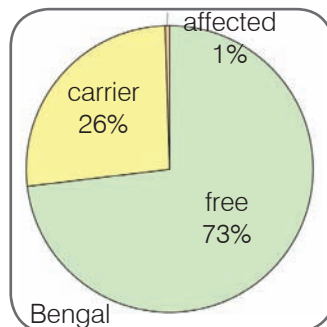


# GENETIC NEWS

## Update on Pyruvate Kinase deficiency in cats and dogs

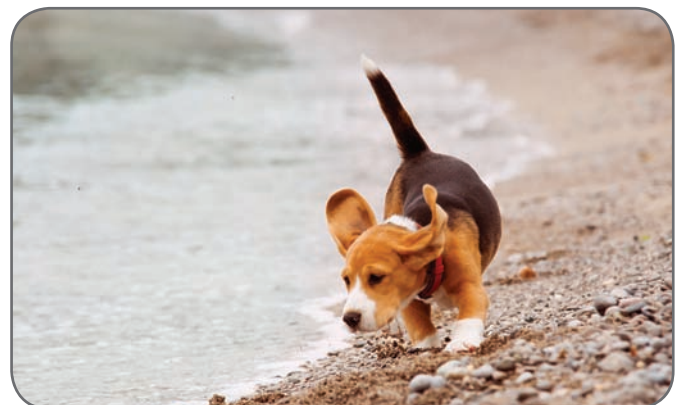


The Pyruvate Kinase (PK) deficiency is caused by the absence of the enzyme pyruvate kinase in the red blood cells. This enzyme is responsible for creating energy in erythrocytes by means of glycolysis. Due to the impaired glycolysis in red blood cells, their life span is shortened greatly, causing a chronic, regenerative haemolytic anaemia. The number of red blood cells in affected animals can range from a normal count to severely reduced. Suspect is an increased number of juvenile erythrocytes with a normal red blood cell count. Affected animals may, apart from recurrent and common symptoms of anemia such as **pale mucous membranes, weakness, and fatigue, develop severe „hemolytic crises“ with jaundice and fever.**



Since, unfortunately, there is no specific treatment for PK deficiency, prevention through selective breeding is very important. By breeding animals whose genotype is known the number of affected animals born can be reduced. If a diseased animal displays severe anemia, blood transfusions can be lifesaving. Therefore, the implementation of a blood group determination is very important as well. Also, it is important that both stress and risks of infections are obviated in affected animals as these may trigger hemolytic crises.

The causative mutation for Pyruvate Kinase deficiency, originally discovered in the breeds **Abyssinian** and **Somali**, has now, according to the latest literature, been associated with corresponding symptoms in the following breeds: **Angora, Egyptian Mau, Bengal, European Shorthair, La Perm, Maine Coon, Norwegian Forest Cat, Ocicat, Savannah, Siberian and Singapura.** The analysis of our data from 2013 showed that the mutation is, especially, in the breeds Bengal, Maine Coon and Norwegian Forest cat with 26%, 18% and 10% carrier animals, respectively, and 1% affected animals quite widespread (see picture). Additionally, individual heterozygous and homozygous affected animals were determined in the breeds.



In **dogs** several causative mutations for Pyruvate Kinase deficiency have been discovered, each breed specific, but resulting in the same symptoms. We can perform genetic tests for this disease in the breeds: **Basenji, Beagle, Labrador Retriever, Pug, and West Highland White Terrier.**

### Shortened running time for a number of tests

Since long running times for samples can, not only, be annoying, but also a serious problem under certain circumstances (eg. if a breeding license is pending), we are constantly striving to make the processing of samples as efficient as possible. In two areas we were able to shorten our running times significantly in the recent months:

- DNA Profile: The previous time of two to three weeks was successfully reduced through technical innovations, as well as, through a large degree of automation. So that, in the future, you can expect to obtain the results from your sample usually after only two weeks. In addition, the panel of investigated microsatellites has been expanded from 19 to 22. Thereby, creating a higher level of certainty of the paternity testing.
- OPTIGEN test: Since summer 2013, we are officially an OPTIGEN agency. Through this close cooperation, the running times for these tests have been reduced from the previous six weeks to about three weeks.



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### 25 year success story for LABOKLIN

As you can see from our logo, LABOKLIN is celebrating a special anniversary this year: 25 YEARS LABOKLIN

LABOKLIN was launched in 1989 as a veterinary laboratory with the departments: Bacteriology and Clinical Chemistry. Over the years, we expanded by adding the departments Pathology and Labogen (Molecular Biology). In every department LABOKLIN offers a practically complete range of services for veterinarians and pet owners. We owe this success story to our customers, in short too you. Therefore, we would like to take this opportunity to extend a large **THANK YOU** to you. We hope continue our success in your best interest.

### Spring is coming - what you should be thinking about now

The tick season has begun again. Do not forget to include **flea and tick prophylaxis** in your prevention program for your animals, if you discontinued this over the winter.

The tick bite itself, seldomly, raises cause for concern. However, ticks, if they are infected themselves, transfer, among other tick borne diseases, borreliosis, babesiosis, and anaplasmosis. In the specimens investigated in our laboratory about 15% of the ticks, or every seventh tick, carry the causative agent for Lyme disease. After an infection via a tick bite, the Borellia spirochetes spread throughout the body of the animal and cause, sometimes not until years later, anything from joint pain and fever to paralysis and heart problems. Discuss the necessary steps for successful prophylaxis with your local vet!

