

### Juvenile Epilepsy in Lagotto romagnolos - Gene test available

Lagottos suffer from benign juvenile epilepsy (Jokinen et al. J Vet Intern Med 2007;21:464–471) in their puppyhood. Seizures in puppies begin at 5 to 9 weeks of age and usually resolve spontaneously by 8 to 13 weeks. However, there are also some adult-onset cases in the breed too. Dogs with the most severe seizures have also signs of neurologic disease between the seizures, including generalized ataxia and hypermetria. Lagotto's autosomal recessive disorder, with simple or complex focal seizures and cerebellar lesions, represents a new epileptic syndrome in dogs.

Recently, we have discovered the gene that causes the disease. We offer now a DNA-test, which can distinct dogs that are healthy and free of the mutation, healthy carriers, or dogs who are homozygous for the mutation and become affected. It is recommended to test Lagottos before breeding decisions are made. We recommend to test also new-born litters.

Test can be made either from blood sample or from buccal swabs. If you need, we can send you buccal swabs free of charge for the test. Full description of the test as well as sampling instructions can be found from our web site [www.canigen.com](http://www.canigen.com).

If you have any questions e.g. about sampling or the test, feel free to contact our customer service at [info@canigen.com](mailto:info@canigen.com), [elina.vuorenmaa@canigen.com](mailto:elina.vuorenmaa@canigen.com) or by phone + 358 41 549 4874.

Test can be ordered directly from us. Just follow the ordering instructions at: [www.canigen.com](http://www.canigen.com).

**Price for the gene test is 85€ per dog (including VAT). If you order test simultaneously for 5 or more dogs we can grant a discount of 15%.**

You will get test result within 2-4 days after we have received the sample and payment. You can get the test result and certificate via ordinary mail and/or e-mail.

Kind regards,

Elina Vuorenmaa  
Geneticist  
HT Diagnostics

In the box below, please find more information about the juvenile epilepsy in Lagotto romagnolos and its genetic testing. Additional information and ordering instructions can be found from [www.canigen.com](http://www.canigen.com), by email from [info@canigen.com](mailto:info@canigen.com) or by phone + 358 41 549 4874.

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HT Diagnostics is a Finnish university spin-out, which specializes in canine DNA diagnostics. We offer gene tests for breeders to be used to detect familial diseases and tests to improve immune defense system. We also offer gene tests for parental testing. Our tests are used by dog owners, breeders as well as veterinarians. For more information, visit:  
[www.canigen.com](http://www.canigen.com)

## Fact box

### Benign Familial Juvenile Epilepsy in Lagotto Romagnolo Dogs

Jokinen et al. (2007) described recently a new epileptic syndrome in the lagotto breed of dogs. (<http://www.koirangeenit.fi/dmndocuments/lagottojuttu.pdf>). Clinical studies indicated that these dogs suffer from inherited benign juvenile epilepsy, which resembles idiopathic childhood epilepsies with benign outcomes in human. Clinical and diagnostic evaluations of affected dogs including electromyography, electroencephalography, and other testing indicated that seizures in puppies begin at 5 to 9 weeks of age and usually resolve by 8 to 13 weeks. There are some adult-onset cases in the breed too. Dogs with the most severe seizures also have other neurologic signs such as generalized ataxia and hypermetria. Routine laboratory screenings of blood, urine, and cerebrospinal fluid did not reveal abnormalities. Electromyography, brainstem auditory-evoked potentials, and magnetic resonance imaging (MRI) remain normal in analyzed dogs. However, most affected puppies and adult cases revealed epileptiform activity in the electroencephalogram (EEG). Histopathologic examination shows cerebellar lesions in two studied lagottos. Pedigree analysis suggests an autosomal recessive mode of inheritance.

We have studied the genetics of the juvenile epilepsy in lagottos and have recently identified the causative gene (not published yet). If a dog carries one copy of the mutations it can transfer the gene defect to approximately 50% of its offsprings. If the dog has two copies of the mutation it transfers the defect to all of its offsprings. It is recommended that dogs that are homozygous for the lagotto epilepsy mutation are withdrawn from breeding programs. Normal and carrier dogs can be used but it is advised to choose mutation-free partners for carriers.

Gene test for lagotto epilepsy is now available and the instructions for ordering can be found in [www.canigen.com](http://www.canigen.com).

#### The results are reported as follows:

**NORMAL:** The dog carries two copies of the normal gene and has therefore no increased risk of getting epilepsy.

**CARRIER:** The dog carries one mutant and one normal copy of the epilepsy gene and do not develop the disease but can transfer the defect to approximately 50% of its offsprings.

**SICK:** The dog carries two mutant copies of the epilepsy gene and will likely develop the disease in early puppyhood or as an adult.

#### Reference:

Jokinen T, Metsahonkala L, Bergamasco L-A, Viitmaa R, Syrja P, Lohi H, Snellman M, Jeserevics J, and Cizinauskas S. Benign Familial Juvenile Epilepsy in Lagotto Romagnolo Dogs, J Vet Int Med, 21(3):464-71,2007.

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