

Neonatal Cerebellar Cortical Degeneration (NCCD)

Affected breeds: Beagle

NCCD is a degenerative neurological condition which develops from as early as 3 weeks of age. Affected puppies have an unstable gait, poor balance and jerky movement. Affected puppies are often euthanized due to poor quality of life.



The mutation is recessive, which means that dogs which carry the mutation ("CARRIERS") are normal but will pass the mutation on to an average of 50% of their offspring. Puppies which inherit two copies of the mutation will develop NCCD ("AFFECTED").

This test is particularly useful for breeders:

- To identify carriers among their breeding stock so that they can avoid CARRIER X CARRIER mating combinations which would risk AFFECTED puppies.
- To conclusively confirm NCCD

This test will be reported as:

CLEAR : no evidence of the NCCD mutation

CARRIER : carries one copy of the defect, which will be passed to 50% of offspring

AFFECTED : carries two copies of the defect, and will have NCCD

The genetic status of dogs can be used to predict breeding outcomes when different combinations are mated:

CLEAR X CLEAR = 100% CLEAR

CARRIER X CLEAR = 50% CARRIER, 50% CLEAR

CARRIER X CARRIER = 25% AFFECTED, 50% CARRIER, 25% CLEAR

References

Forman OP, De Risio L, Stewart J, Mellersh CS, Beltran E. Genome-wide mRNA sequencing of a single canine cerebellar cortical degeneration case leads to the identification of a disease associated SPTBN2 mutation. BMC Genet. 2012;13:55. Published 2012 Jul 10. doi:10.1186/1471-2156-13-55