Spongy Degeneration with Cerebellar Ataxia subtype 2 (SDCA2)

Affected breeds: Belgian Shepherd (Malinois)

Spongy Degeneration with Cerebellar Ataxia subtype 2 (SDCA2) is a severe neurodegenerative disease found in the Malinois variety of the Belgian Shepherd. Affected puppies show a rapidly progressing ataxia (difficulty walking) accompanied by other progressive symptoms associated with neurodegeneration. Euthanasia is required at a young age.
Another subtype of this condition is also available for testing – SDCA1 - there are however other cerebellar ataxia conditions in this breed that are caused by other as yet unidentified mutations.

SDCA2 is caused by a recessive genetic mutation. This 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 SDCA2 ("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 SDCA2 in an affected dog

This test will be reported as:

CLEAR : no evidence of the SDCA2 mutation
CARRIER : carries one copy of the defect, which will be passed to 50% of offspring
AFFECTED : carries two copies of the defect, causing SDCA2

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

A SINE Insertion in ATP1B2 in Belgian Shepherd Dogs Affected by Spongy Degeneration with Cerebellar Ataxia (SDCA2)
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