

Cardiomyopathy and Juvenile Mortality (CJM)

Affected breeds: Belgian Shepherd (Malinois)

CJM causes sudden death in hitherto health puppies at approximately 6-8 weeks of age. Postmortem examination shows a pale and enlarged heart – so-called “cardiomyopathy” - and this leads to sudden and fatal heart failure.



CJM 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 CJM (“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 CJM in an affected dog

This test will be reported as:

CLEAR : no evidence of the CJM mutation

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

AFFECTED : carries two copies of the defect, causing CJM

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

Gurtner, C.; Hug, P.; Kleiter, M.; Köhler, K.; Dietschi, E.; Jagannathan, V.; Leeb, T. YARS2 Missense Variant in Belgian Shepherd Dogs with Cardiomyopathy and Juvenile Mortality. Genes 2020, 11, 313.