

Musladin-Lueke Syndrome

Affected breeds: Beagle

Musladin-Lueke Syndrome (MLS), also known as “Chinese Beagle Syndrome”, is a severe inherited disease comprising defects of the skin and joints. Typically affected dogs are of short stature and have thick, taut skin and restricted joint movement. Affected dogs also have short outer toes which give them a stiff tip-toe gait. They have broad heads and wide-set, slanted eyes. The severity of the MLS characteristics varies between individuals. Affected dogs are described as having a pleasant personality.

MLS is caused by a recessive genetic mutation. This means that dogs which carry the mutation (“CARRIERS”) are healthy but will pass the mutation on to an average of 50% of their offspring. Puppies which inherit two copies of the mutation will suffer from MLS (“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 diagnose MLS

This test will be reported as:

CLEAR : no evidence of the Musladin-Lueke Syndrome mutation

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

AFFECTED : carries two copies of the mutation and will develop MLS

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

Bader HL, Ruhe AL, Wang LW, Wong AK, Walsh KF, Packer RA, Mitelman J, Robertson KR, O'Brien DP, Broman KW, Shelton GD, Apte SS, Neff MW (2010) An ADAMTLS2 founder mutation causes Musladin-Lueke Syndrome, a heritable disorder of beagle dogs, featuring stiff skin and joint contractures. PLoS ONE 5(9).