

Hyperuricosuria (HUU)

Applicable breeds: Bulldog, Dalmatian, Large Munsterlander, Russian Black Terrier, Weimaraner

Hyperuricosuria is a disease characterised by the excretion of uric acid in the urine. All Dalmatians carry the mutation which causes hyperuricosuria, and it is also present at lower levels in a number of other breeds, particularly those listed above. Hyperuricosuria is associated with a risk of developing bladder stones, which can be very painful and require surgery for removal.

This test will identify those individuals which have the genetic mutation associated with HUU, and are therefore at increased risk of bladder stones.

This test is particularly useful for breeders:

- to identify dogs with an increased risk of bladder stones due to the genetic mutation which leads to uric acid excretion
- To identify carriers among their breeding stock so that they can avoid CARRIER X CARRIER mating combinations which would risk AFFECTED puppies.

This test will be reported as:

CLEAR : no evidence of the HUU mutation

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

AFFECTED : carries two copies of the mutation, and is therefore at risk of bladder stones due to uric acid excretion

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

AFFECTED X AFFECTED = 100% AFFECTED

AFFECTED X CARRIER = 50% AFFECTED, 50% CARRIER

AFFECTED X CLEAR = 100% CARRIER

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

CARRIER X CLEAR = 50% CARRIER, 50% CLEAR

References

Bannasch D, Safra N, Young A, Karmi N, Ling GV (2008) Mutations in the *SLC2A9* gene cause Hyperuricosuria and Hyperuricemia in the Dog. PLoS Genetics 4(11): e1000246

Karmi N, Brown SS, Hughes B, McLaughlin B, Mellersch CS, Biourge V, Bannasch DL (2010) Estimated frequency of the canine Hyperuricosuria mutation in different dog breeds. Journal of Veterinary Internal Medicine 24: 1337-1342