Hereditary Nasal Parakeratosis (HNPK)

Affected breeds:
Labrador Retriever

HPNK is an inherited defect which causes the nose to dry out. Signs of the condition begin to show from 6 – 12 months. Over time the surface of the nose becomes dry, encrusted and cracked, leading to chronic irritation and inflammation. Over time the nose depigmentizes, becoming paler in colour.
Although not life threatening, the condition is uncomfortable, and requires life-long treatment to ensure that painful cracks and infections do not develop.

HNPK 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 HNPK ("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 HNPK

This test will be reported as:
CLEAR : no evidence of the HNPK 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 HNPK

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
CLEAR X CLEAR	= 100% CLEAR

References
A mutation in the SUV39H2 gene in Labrador Retrievers with hereditary nasal parakeratosis (HNPK) provides insights into the epigenetics of keratinocyte differentiation. Jagannathan V, Bannoehr J, Plattet P, Hauswirth R, Drögemüller C, Drögemüller M, Wiener DJ, Doherr M, Owczarek-Lipska M, Galichet A, Welle MM, Tengvall K, Bergvall K, Lohi H, Rüfenacht S, Linek M, Paradis M, Müller EJ, Roosje P, Leeb T. PLoS Genet. 2013;9(10):e1003848. doi: 10.1371/journal.pgen.1003848. Epub 2013 Oct 3.