

## Hereditary Ataxia (HA)

**Affected breeds:** Old English Sheepdog, Gordon Setter

HA is a degenerative neurological condition which develops from as early as 3 weeks of age. Affected puppies have a progressively unstable gait, poor balance and jerky movement.

The mutation is recessive, which 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 Hereditary Ataxia



### **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 Hereditary Ataxia

### **This test will be reported as:**

**CLEAR** : no evidence of the Hereditary Ataxia 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 develop Hereditary Ataxia

### **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**

Agler, C., Nielsen, D. M., Urkasemsin, G., Singleton, A., Tonomura, N., Sigurdsson, S., Tang, R., Linder, K., Arepalli, S., Hernandez, D., Lindblad-Toh, K., van de Leemput, J., Motsinger-Reif, A., O'Brien, D. P., Bell, J., Harris, T., Steinberg, S., & Olby, N. J. (2014). Canine hereditary ataxia in old english sheepdogs and gordon setters is associated with a defect in the autophagy gene encoding RAB24. PLoS genetics, 10(2), e1003991. <https://doi.org/10.1371/journal.pgen.1003991>