

## Von Willebrand Disease Type 1 (vWD1)

**Affected breeds:** Bernese Mountain Dog, Coton de Tulear, Dobermann, German Pinscher, Kerry Blue Terrier, Manchester Terrier, Papillion, Pembroke Welsh Corgi, Poodle (Miniature, Standard, Toy), Schipperke

Von Willebrand Disease is an inherited condition in which an important clotting factor present in the blood – called von Willebrand factor – is either missing or not working properly. There are three types of this disease – Types 1, 2 and 3. Type 1 is the least severe and affected dogs are unlikely to bleed spontaneously. They will however possibly be prone to excessive bleeding when undergoing surgery or if injured and bleeding. It is for this reason that it is advantageous that the genetic status of these dogs is known.



vWD1 is caused by a recessive genetic mutation. This means that dogs which carry the mutation ("CARRIERS") will pass the mutation on to an average of 50% of their offspring. CARRIERS have a reduced level of normal vW factor in their blood but do not seem to be prone to increased bleeding. Puppies which inherit two copies of the mutation are at risk of excessive bleeding ("AFFECTED"). Dogs which do not carry the mutation are "CLEAR".

### **This test is particularly useful for breeders:**

- To identify carriers among their breeding stock so that they can avoid CARRIER X CARRIER, AFFECTED X CARRIER, or AFFECTED X AFFECTED mating combinations which would risk AFFECTED puppies.
- To conclusively confirm vWD1 in an affected dog

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

**CLEAR** : no evidence of the vWD1 mutation  
**CARRIER** : carries one copy of the defect, which will be passed to 50% of offspring  
**AFFECTED** : carries two copies of the defect, causing vWD1

### **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**

DNA encoding canine von Willebrand factor and methods of use  
United States of America Patent  
PATENT NO 6074832