## Von Willebrand disease (vWD)

Von Willebrand factor (vWF) plays an important role in primary haemostasis. It is essential for platelet adhesion and platelet aggregation, as it acts to 'glue' platelets to the subendothelium, neighbouring platelets and fibrin to initiate clot formation.

## Clinical signs

In animals lacking active von Williebrand factor, spontaneous bleeding tends to occur from mucous membranes lining the nose, mouth, urinary, reproductive, and intestinal tracts. Petechial haemorrhages are rarely seen in vWD, and are more likely to be associated with thrombocytopenia.

## Animals affected

Von Willebrand disease has been described in over 50 breeds of dogs, but is most prevalent in the Doberman Pinscher, Pembroke Welsh Corgi, Shetland Sheepdog, Airedale Terrier, and Scottish Terrier. The disease also occurs in pigs and rabbits, but is considered rare in cats and horses.

It is inherited as an autosomal trait and is categorized into three types based on the amount and composition of the molecule.

- **Type I vWD**: This is due to a deficiency in the amount of vWf. The composition of vWf is normal. This is the most common type in Dobermans, and most other dog breeds.
- **Type II vWD**: This is characterised by an abnormal vWf composition. The bleeding is more severe than in Type I. It has been reported in German Pointers and horses.
- **Type III vWD**: This is the most severe form of vWD and is characterised by an almost complete absence of vWf. This has been reported in Shetland Sheepdogs, Chesapeake Bay Retrievers, Scottish Terriers, Dutch Kooikers, cats and pigs.

## Diagnosis of vWD

Most animals with vWD have normal platelet counts, and normal PT and aPTT. The buccal mucosal bleeding time can be used to assess for vWD, but this test is not sensitive or specific for vWD, as other causes of platelet dysfunction and thrombocytopenia can prolong bleeding time. Specific vWf assays should be performed to confirm the disease. The most commonly used assays include vWf quantification, and PCR tests for breeds where the genetic mutation is known.

The collection protocol for vWf quantification can be found online on our website. There are several requirements to ensure an accurate result, and therefore reading the protocol thoroughly before collection is advised. Results will indicate if the patient is likely to show clinical disease, or act as a carrier of the disease.

## Other factor deficiencies

There are several other factor deficiencies that can cause congenital coagulopathies in animals. These can usually be recognised by prolonged PT, aPTT or both. The most common are Haemophilia A (factor VIII deficiency) and Haemophilia B (factor IX deficiency). The current factor deficiencies that can be tested for in Australia are: Factors II, V, VII, VIII, X, XI and XII for dogs only. The same collection protocol applies for these tests as for vWf testing.

Please don't hesitate to contact us at ASAP if you wish to discuss coagulation factor testing further with a clinical pathologist.