

## Glanzmann Thrombasthenia (GT) in Great Pyrenees Dogs

A bleeding disorder called Glanzmann thrombasthenia (GT) was recognized and described in a Great Pyrenees dog in 1996.<sup>1</sup> GT has been recognized for many years in humans and is due to a congenital/inherited membrane defect in platelets. Platelets are small, circulating cytoplasmic fragments that are the first line of defense in stopping the flow of blood from injured blood vessels. An important aspect of platelet function is their ability to stick to each other and plug holes in damaged vessels until blood clotting and tissue repair can occur. The platelets of people and dogs with GT are defective in their ability to stick to each other. Therefore, these individuals are at increased risk for spontaneous hemorrhage, and they are also at high risk for excessive hemorrhage as a result of injury or surgery. The type of spontaneous bleeding that occurs with GT includes excessive gingival bleeding during tooth eruption, nose bleeds, and superficial skin bleeds. Young dogs less than 18 months of age are especially prone to excessive, spontaneous bleeding. The Great Pyrenees dog described in 1996 bled excessively during tooth eruption as a puppy and also had nose bleeds until the age of 23 months. She continued to have minor bruising and skin hemorrhages throughout her life. A major obstacle to identifying other dogs with GT was the necessity of performing highly specialized functional and biochemical diagnostic tests and also the necessity of patients being on the premises during these studies. Initially the disease could not be diagnosed without bringing the dog to the testing facility. In addition, carriers of the disease could not be readily identified by these methods. In early 1999, the canine gene that encodes for one of the proteins defective on the platelet surface in GT was sequenced and the molecular basis for the disease was determined.<sup>2</sup> By using DNA testing, affected and carrier animals can now be identified by simply submitting a blood sample through the mail. By using DNA testing, families of Great Pyrenees dogs carrying the mutation for GT have been identified in Illinois, Indiana, California, and Florida, and individual dogs have been identified in Oklahoma, Minnesota, Missouri, and Mississippi. Carrier detection is vital in controlling spread of inherited defects and DNA testing is the only reliable method of detecting these animals.

**1. Boudreaux MK, Kvam K, Dillon AR, Bourne C, Scott M, Schwartz KA, Toivio-Kinnucan M. Type I Glanzmann's Thrombasthenia in a Great Pyrenees Dog. *Veterinary Pathology* 33:503-511, 1996.**

**2. Lipscomb DL, Bourne C, Boudreaux MK: Two genetic defects in alpha IIb are associated with Type I GT in a Great Pyrenees dog: a 14-base insertion in exon 13 and a splicing defect of intron 13. *Veterinary Pathology* 37:581-588, 2000.**

Specimen requirements: At least 1ml EDTA whole blood (purple top tube). Do not cross contaminate samples during collection particularly if more than one dog is collected at the same time. Label all specimens clearly. Protect the tubes to prevent breakage during shipping. All methods of shipping are acceptable. Blood samples do not require ice.

Ship to: Hemostasis Laboratory, Peter W. Christopherson  
166 Greene Hall  
Auburn University, AL 36849-5519

Fee for testing: \$125.00 (payment options listed below)

Make checks payable to: Auburn University, Department of Pathobiology

Credit Card payments accepted by phone: 334-844-2690

Wire transfers: Email [chrispw@auburn.edu](mailto:chrispw@auburn.edu) for wire transfer instructions



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 Department of Pathobiology  
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 PH: 334-844-2797 Fax: 334-844-2652  
 Email: [chrispw@auburn.edu](mailto:chrispw@auburn.edu)

<b>OFFICE USE ONLY</b>	
Accession # _____	
Rec'd _____	Assigned _____

## HEMOSTASIS LABORATORY

SAMPLE DATE: \_\_\_\_\_ AGE AT TIME OF SAMPLING OR DATE OF BIRTH: \_\_\_\_\_

ANIMAL NAME: \_\_\_\_\_ BREED: \_\_\_\_\_ SEX:      MALE      FEMALE

ANIMAL REGISTRATION NUMBER (if applicable): \_\_\_\_\_

NAME OF SIRE (if applicable): \_\_\_\_\_

REGISTRATION NUMBER OF SIRE (if applicable): \_\_\_\_\_

NAME OF DAM (if applicable): \_\_\_\_\_

REGISTRATION NUMBER OF DAM (if applicable): \_\_\_\_\_

PERTINENT HISTORY: \_\_\_\_\_

OWNER'S INFORMATION	VETERINARIAN'S INFORMATION (BILLING INFORMATION)
NAME: ADDRESS: CITY/TOWN: PROVINCE: POSTAL CODE: COUNTRY: PHONE:	REFERRING VETERINARIAN: CLINIC: ADDRESS: CITY/TOWN: PROVINCE: POSTAL CODE:                      COUNTRY: PHONE:                                      FAX: EMAIL: FAX RESULTS:                      EMAIL RESULTS:

RESULTS (if you would like the results sent to additional emails and/or faxes please list below):

EMAIL 1: \_\_\_\_\_ FAX 1: \_\_\_\_\_

EMAIL 2: \_\_\_\_\_ FAX 2: \_\_\_\_\_

SPECIMEN REQUIREMENTS: EDTA WHOLE BLOOD (1ML)  
 TURNAROUND TIME FOR RESULTS: TYPICALLY 4 TO 5 WORKING DAYS UPON ARRIVAL  
 HARD COPIES OF REPORTS AVAILABLE UPON REQUEST