

# **Genes-4U**

## **Platelet Glycoprotein Ia G1648A (HPA-5a/5b)**

(Human Platelet Antigen 5a / 5b)

Platelet Glycoprotein Ia occurs in two different antigenic forms, also known as Human Platelet Antigen 5a (about 90% in Caucasians, 95 % in Japanese) or 5b (about 10% in Caucasians, about 5 % in Japanese). The basis for this phenotypic polymorphism is the G1648A polymorphism of the Platelet Glycoprotein Ia gene. Transfusion of HPA-5 – mismatched platelets, either by platelet transfusion or in utero, can cause alloimmunization and, on subsequent transfusion of incompatible plasma or thrombocytes, cause thrombocytopenia (1, 2). In bone marrow transplantations, of five HPA systems studied, HPA-5 mismatching was the only one found to have a significant effect on the disease-free survival rate of recipients following transplantation in the HLA-A, -B, -C, and -DR allele-matched donor-recipient pairs (3).

### **References**

(1) Ohto H. et al. Anti-HPA-5b-induced neonatal alloimmune thrombocytopenia: antibody titre as a predictor. Collaborative Study Group. *Br J Haematol* 2000 Jul;110(1):223-7 (PMID: 10931003)

(2) Warkentin T.E. et al. Thrombocytopenia caused by passive transfusion of anti-glycoprotein Ia/IIa alloantibody (anti-HPA-5b). *Blood* 1992 May 1;79(9):2480-4 (PMID: 1571561)

(3) Juji T. et al. Human platelet alloantigen (HPA)-5a/b mismatch decreases disease-free survival in unrelated bone marrow transplantation. *Tissue Antigens* 1999 Sep;54(3):229-34 (PMID: 10519359)