

CLINICAL SPECIFICATIONS

PLATELET GLYCOPROTEIN

Function:

Platelet glycoprotein receptors are important to platelet function at both the early adhesion phase and the later stages of thrombus formation. Polymorphisms that regulate expression or activity could influence risk for adverse outcomes in any disease that compromises hemostasis.² Platelet glycoprotein complex IIb/IIIa is expressed on different lineages of fetal progenitor cells and is involved in regulation of hematopoiesis.³

Antibodies Appear:

Arterial Thrombosis²
 Autoimmune Thrombocytopenia^{4,5}
 Cardiovascular Disease²
 Coronary Artery Disease²
 Systemic Lupus Erythematosus⁵

Known Cross-Reactions: Leukocyte integrin Mac-1,⁶ HIV¹

Clinical Significance:

Autoantibodies against platelet glycoproteins (anti-GP) are found in the majority of patients with autoimmune thrombocytopenia (AITP)^{4,5} as well as in thrombocytopenia associated with systemic lupus erythematosus (SLE).⁵ AITP is an autoimmune disorder characterized by autoantibodies against platelet membrane glycoproteins, most commonly the glycoprotein IIb-IIIa and Ib-IX complexes; level of anti-GP antibodies were found to be related to the activity of the disease, suggesting a significant role in the pathogenesis of AITP.⁵ The autoantibodies produced against platelet glycoproteins are able to bind to platelet membranes, initiating pathways that result in dysfunction and destruction of platelets, which may result in petechiae, ecchymosis, and bleeding in some patients.⁴

References:

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2. Bussel, et al. Platelets: new understanding of platelet glycoproteins and their role in disease. *Am Soc Hematol*, 2000; 2000(1):222-240.
3. Cassens, et al. Platelet glycoprotein complex Ia/IIa antibodies cause neonatal alloimmune thrombocytopenia but do not inhibit megakaryopoiesis and platelet recovery after allogeneic cord blood stem cell transplantation. *Bone Marrow Transplantation*, 200; 28:803-806.
4. Hamidpour, et al. Detection of anti-platelet glycoprotein antibodies using MAIPA method. *J Paramedical Sci*, 2010; 1(3):17-21.
5. Lipp, et al. Antibodies against platelet glycoproteins and antiphospholipid antibodies in autoimmune thrombocytopenia. *Eur J Haematol*, 1998; 60:283-288.
6. Simon, et al. 7E3 monoclonal antibody directed against the platelet glycoprotein IIb/IIIa cross-reacts with the leukocyte integrin Mac-1 and blocks adhesion to fibrinogen and ICAM-1. *Arterioscler Thromb Vasc Biol*, 1997; 17(3):528-535.