Platelet Antibody Screen

Versiti offers screening of patient sera for platelet-reactive antibodies by flow cytometry.

Serologic tests to detect platelet-reactive antibodies have evolved to include a variety of assays each with specific advantages and disadvantages.[1] To achieve maximum sensitivity and specificity in detection and identification of platelet antibodies requires a combination of the various assays available. In some clinical conditions a screening assay is used to obtain rapid results.

Platelets express HLA Class I and ABO antigens and 26 platelet-specific antigens.[5] Antibodies directed against these antigens are implicated in immune platelet disorders including neonatal alloimmune thrombocytopenia (NATP),[6] post-transfusion purpura (PTP),[7] and platelet transfusion refractoriness.[8] The platelet antibody screen allows rapid detection of serum antibodies associated with these disorders. In addition, alloantibodies that recognize "labile" epitopes may be detected with the intact platelet targets used in flow cytometry.[9] These antibodies are not detected by methods such as antigen capture ELISA.

Related tests:

Platelet Autoantibodies - ELISA for detection of platelet glycoprotein-specific antibodies, both bound to patient platelets and in patient plasma.

Platelet Antibody Identification - Standard and modified antigen capture ELISAs for identification of alloantigen and glycoprotein targets

Indications for testing:

- Rule out platelet alloantibodies associated with PTP.*
- Detect platelet alloantibodies in patients refractory to platelet transfusion.*
- Detect maternal antibodies directed against fetal platelet antigens.*
- Detect alloantibodies to labile epitopes missed by antigen capture ELISA.

* *Profiles are offered for evaluation of PTP, refractoriness to platelets and NATP. The Platelet Antibody Screen alone is not sufficient to rule out these conditions.*

Test method:

Flow cytometry. Immunofluorescence by flow cytometry is a highly sensitive method for detection of circulating platelet antibodies.[2,3,4] Serum samples are tested against isolated group O donor platelets typed for the following antigens: HPA-1a/b, -2a/b, -3a/b, -4a, -5a/b. Platelet autoantibodies and antibodies against some HLA Class I antigens can also be detected. Antibody binding to donor platelets is detected using fluorescent-labeled polyclonal antibodies specific for human IgG and IgM.

Assay sensitivity and limitations:

Antibodies against some low frequency platelet antigens (HPA-6b, HPA-9b, etc.) will not be detected since platelets expressing these antigens are not available. The platelet antibody screen is not designed to identify the platelet alloantigen specificity of antibodies detected or to detect ABO blood group antibodies.

Reporting of results:

Positive - Platelet-reactive antibodies detected.

Negative - No platelet-reactive antibodies detected.

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Specimen requirements:

5mL refrigerated serum.

SHIP

Shipping requirements:

Place the specimen and a completed test requisition in plastic bags, seal, place in a Styrofoam container and surround with cold packs. Seal the Styrofoam container, place in a sturdy cardboard box and tape securely. Ship the package in compliance with your overnight carrier guidelines. Send to:

Versiti Client Services
Platelet and Neutrophil Immunology Laboratory
638 N. 18th Street
Milwaukee, WI 53233
800-245-3117, ext. 6250

ORDER

Required forms:

Please complete all pages of the requisition form.

CPT Codes/Billing/Turnaround time:

Test code: 5543

CPT code: For recommended CPT codes, visit the versiti.org/test-catalog

Turnaround time: 2-4 days

References:

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2. Curtis BR, Edwards JT, Hessner MJ, Klein JP, Aster RH. Blood group A and B antigens are strongly expressed on platelets of some individuals. Blood 96: 1574-1581, 2000.
4. Curtis BR, Ali S, Aitman TJ, Ebert DD, Glazier A, Aster RH. Maternal isoimmunization against CD36 (glycoprotein IV): description of four cases of neonatal isoimmune thrombocytopenia and brief review of the literature. Transfusion 42: 1173-1179, 2002.
5. Metcalfe P, et al. Nomenclature of human platelet antigens. Vox Sang 2003;85:240-245.
6. Davoren A, Curtis BR, Aster RH, McFarland JG. Human platelet antigen-specific alloantibodies implicated in 1162 cases of neonatal alloimmune thrombocytopenia. Transfusion 44:1220-1225, 2004.
7. McFarland JG: Post-transfusion purpura. In: Transfusion Reactions, Popovsky MA (ed), Bethesda MD: AABB Press, 2001.
8. Curtis BR, Gottschall JL, McFarland JG. Platelet immunology and alloimmunization. In Rossi's Principles of Transfusion Medicine, TL. Simon, WH. Dzik, E. Snyder, CP. Stowell, RG Strauss (eds.), Lippincott Williams & Wilkins, Philadelphia, 3rd ed., pp. 203-217, 2002.
9. Harrison CR, Curtis BR, McFarland JG, Huff RW, Aster RH. Severe neonatal alloimmune thrombocytopenia caused by antibodies to human platelet antigen 3a (Baka) detectable only in whole platelet assays. Transfusion 43:1398-1402, 2003.

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