Platelet Antigen Genotyping

Versiti offers a platelet antigen genotyping panel for 8 alloantigen systems. Typing for single systems is also available.

Immune-mediated platelet disorders such as Neonatal Alloimmune Thrombocytopenia (NAT), PostTransfusion Purpura (PTP) and Platelet Transfusion Refractory (PTR) are associated with the development of platelet-specific antibodies. Since 1994, the Platelet and Neutrophil Immunology Laboratory has identified platelet alloantigens using allele-specific amplification. This technology is used on samples obtained prenatally for early and rapid determination of the fetal platelet antigen type. It is also used to confirm antibody specificity in cases involving low frequency or "new" platelet alloantigens and for samples having platelet counts that are too low for serologic typing procedures.

Indications for testing:

NAT Evaluation: For determination of maternal/paternal platelet alloantigen incompatibilities, and early rapid determination of the fetal platelet genotype on prenatal samples. The laboratory evaluation is helpful clinically in determining the need for antenatal treatment and/or route of delivery of infant.

Confirmation of Platelet Antibody Specificity: Genotyping can be used in PTP and PTR cases to confirm the specificity of platelet-specific antibodies present in the patient's serum. Genotyping is particularly helpful in confirming antibody specificity in cases involving low frequency or "new" platelet alloantigens.

Samples with Low Platelet Counts: In contrast to standard serologic platelet typing tests, genotyping does not require that blood samples contain adequate numbers of platelets since it utilizes DNA isolated from leukocytes or other cells.

Test method:

DNA is isolated from leukocytes, amniotic fluid, cultured amniocytes or chorionic villi, amplified by PCR followed by fluorescent allele - specific hydrolysis probes, and then analyzed by real-time polymerase chain reaction (PCR).

Assay sensitivity and limitations:

New variant alleles that possess polymorphisms within the region targeted by the oligonucleotide primers may not be identified with these assays.

Specimen requirements:

Fetal Samples (one of the following):

1 ml cord EDTA whole blood
2 ml EDTA (lavender top) whole blood
7-15 ml amniotic fluid
5 x 10^6 cultured amniocytes
2 T25 flasks of cultured amniocytes

Other Samples:

3-5 ml EDTA (lavender top) whole blood

SHIP

Shipping requirements:

Ship on an ice pack or at room temperature. Protect specimens from freezing by wrapping them in a paper towel. Insert specimens and the test requisition form into plastic bags, and seal. Place in an insulated container, then into a sturdy cardboard box and tape securely. Ship in compliance with your overnight carrier guidelines. Please contact your carrier for current biohazard shipping regulations.

versiti™

Send to:

Versiti Client Services
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:

5519 – HPA-1
5523 – HPA-2
5520 – HPA-3
5521 – HPA-4
5522 – HPA-5
5524 – HPA-6
5209 – HPA-9
5215 – HPA-15
5600 – Panel

CPT code:

81105 – HPA-1
81106 – HPA-2
81107 – HPA-3
81108 – HPA-4
81109 – HPA-5
81110 – HPA-6
81111 – HPA-9
81112 – HPA-15
81105, 81106, 81107, 81108, 81109, 81110, 81111, 91112 – Panel

Turnaround time: 7 days

References:

1. Lyman S, Aster RH, Visentin GP, and Newman PJ. Polymorphism of human platelet membrane glycoprotein IIb associated with the Baka / Bakb alloantigen system. Blood 1990; 75:2343-2348.
2. McFarland JG, Aster RH, Bussel JB, Gianopoulos JG, Derbes RS, and Newman PJ. Prenatal diagnosis of neonatal alloimmune thrombocytopenia using allele-specific oligonucleotide probes. Blood 1991; 78:2276-2282.
3. Newman PJ, Derbes RS, and Aster RH. The human platelet alloantigens, PIA1 and PIA2, are associated with a Leucine 33/Proline 33 amino acid polymorphism in membrane glycoprotein IIIa, and are distinguishable by DNA typing. J Clin Invest 1989; 83:1778.
4. Santoso S, Kalb R, Walka M, Kiefel V, Mueller-Eckhardt C, and Newman PJ. The human platelet alloantigens Bra and Brb are associated with a single amino acid polymorphism on glycoprotein Ia (integrin subunit α2). J Clin Invest 1993; 92:2427-2432.
5. Skogen B, Bellissimo DB, Hessner MJ, Santoso S, Aster RH, Newman PJ, and McFarland JG. Rapid determination of platelet alloantigen genotypes by polymerase chain reaction using allele specific primers. Transfusion 1994; 34:955-960.
6. Wang R, Furihata K, McFarland JG, Friedman K, Aster RH, and Newman PJ. An amino acid polymorphism within the RGD binding domain of platelet membrane glycoprotein IIIa is responsible for the formation of the Pena /Penb alloantigen system. J Clin Invest 1992; 90:2038-2043.

versiti™