TEST: DETECTION OF THE PLATELET-SPECIFIC ANTIGEN-1a (HPA-1a) GENE POLYMORPHISM BY PCR

PRINCIPLE:

The human platelet alloantigens (HPA) system is important in the diagnosis of neonatal alloimmune thrombocytopenic purpura (NAITP). This is a severe neonatal disease caused by alloantibodies against fetal platelet antigens inherited from the father, which are not present in the mother, and which can cross the placenta and cause destruction of neonatal platelets. This can lead to cerebral bleeding in the neonate. There are five HPA systems, with HPA-1 being the most prevalent (75-85% of cases).

The HPA-1 system is a biallelic system (either **a** or **b**), characterized by the presence of thymidine or cytosine at base 196, respectively, which results in a leucine-to-proline substitution at position 33 of the protein. HPA-1a allele is a common allele, while HPA-1b is rare one. HPA-1a negative mothers carrying HPA-1a positive fetus are in risk to develop anti-HPA-1a antibodies associated with neonatal alloimmune thrombocytopenia.

SPECIMEN COLLECTION AND PREPARATION:

10mL whole blood collected in lavender top EDTA tubes (two 5ml tubes). Specimen should be delivered to the laboratory within 72 hours at room temperature. Peripheral blood specimens that are clotted, have not been collected in EDTA, or frozen are not acceptable.

METHOD:

Polymerase chain reaction (PCR) and reverse hybridization.

REPORTING RESULTS:

The results are reported as follows:

Results	Represents:
POSITIVE (NORMAL)	HPA-1a/a
HETEROZYGOUS	HPA-1a/b
NEGATIVE	HPA-1b/b

REFERENCES:

1. Forsberg et al. *Transfusion* 1995;35:241-46
2. Ouwehand G et al. *Arch Dis Fetal Neonatal Ed* 2000;82:F173-F175

Turnaround time: 10 business days