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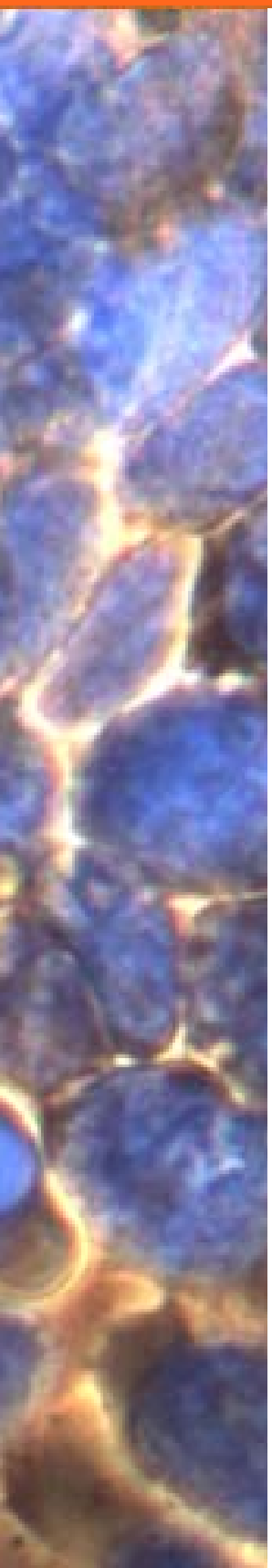
Blood Research Institute

Diagnostic: Platelet Typing



In Brief

Improved DNA-based diagnostic assay to identify platelet-specific alloantigens involved in immune thrombocytopenias or platelet mismatch of mom and fetus during pregnancy.

Description

Typing for platelet-specific alloantigens is important for the diagnosis of immune thrombocytopenias, especially neonatal alloimmune thrombocytopenia (NATP). NATP occurs in about 3,000 infants annually in the US, and about 10 million platelet transfusions are given each year.

Typed platelet donors are needed for some patients requiring platelet transfusions, and platelet typing may also be useful in assessing the risk of thrombosis. This technology is based on the identification of DNA sequences that encode immunogenic platelet glycoprotein polymorphisms and covers DNA-based typing for alloantigens of the HPA-1, 3, 4 and 5 systems (listed below).

Human Platelet Antigen	Common Name
HPA-1a HPA-1b	PL^{A1} PL^{A2}
HPA-3a HPA-3b	Bak^{a} Bak^{b}
HPA-4a HPA-4b	Pen^{a} Pen^{b}
HPA-5a HPA-5b	Br^{a} Br^{b}

Benefits

- No additional need for antibodies or platelets of known phenotypes
- DNA-based typing can be done with readily available reagents on any DNA sample
- More accessible assay compared to traditional serological typing techniques

Publication

McFarland, J.G., Blanchette, V., Collins, J., Newman, P.J., Wang, R.O., and Aster, R.H. Neonatal alloimmune thrombocytopenia due to a new platelet-specific alloantibody. *Blood*. 1993; *81*(12), pp.3318-23. PMID: 8507868.

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