BLOODCENTER of WISCONSIN™

PARTIAL D ANALYSIS

BloodCenter of Wisconsin offers tests to detect Partial RHD alleles.

BACKGROUND:

The Rh D polypeptide is a highly immunogenic protein present on the red cell surface of approximately 85% of Caucasians, >90% of Africans and nearly 100% of Asians. Some of the more than 200 *RHD* alleles lead to a reduced or partial expression of D antigenic epitopes on the red cell surface.[1] Patients with these aberrant alleles may be mistyped by serology because many of the alleles do not react equally with all anti-D typing reagents.

Typically, partial D alleles are suspected when an Rh-positive patient has an apparent anti-D or when anti-D cannot be ruled out during an antibody investigation. It is important to identify partial D alleles to determine whether the anti-D is an alloantibody or autoantibody. Appropriate blood products can be administered with information on the presence or absence of a partial D type.[2] In addition, partial D alleles are common in African Americans and therefore, chronic transfusion of patients with Sickle Cell disease can be effectively managed with knowledge of their partial D status. Moreover, Rhce variant alleles, common in African American transfusion recipients, are often linked to partial D alleles that are at risk of making anti-D. Molecular analyses are used to identify common partial D alleles.

The Partial D Analysis is not suitable to resolve a patient's Rh D status (e.g. when the historical and current Rh D phenotypes do not match). For these cases, please order 'Rh D DISCREPANCY ANALYSIS'.

REASONS FOR REFERRAL:

- A partial D type is suspected.
- Antibody investigation suggests the presence of an allo/auto-anti-D.
- Patient's red cells express an Rhce variant (partial D allele linkage).

METHOD:

Allele-specific amplifications are performed by PCR to identify *RHD* polymorphic regions leading to the expression of the following Partial D alleles: DII, DIII, DIV, DVa/DVa-like, DBS, DVI, DVII, DAR(Weak D-Type 4.2), DAU, DBT, DFR, DHMi, DNB, D_{HAR} (Rh33), and $dCce^{S}$(r'S).[3] The amplified products are then evaluated by gel electrophoresis.

LIMITATIONS:

New variant alleles or hybrid alleles that possess polymorphisms within the region targeted by the oligonucleotide primers may not be identified with this assay. The presence of nonfunctional alleles can obscure the presence of a partial D allele.

PO Box 2178
Milwaukee, WI 53201-2178
Location/Sample Deliveries:
638 N. 18th St. Milwaukee, WI 53233-2121
p800-245-3117 | f414-937-6202 | www.bcw.edu

SPECIMEN REQUIREMENTS:
5 ml EDTA anticoagulated blood collected and shipped at room temperature.

SHIPPING REQUIREMENTS:
Place the specimen and the test requisition form into plastic bags and seal. Insert into a Styrofoam container; seal and place into a sturdy cardboard box, tape securely and ship by an overnight carrier. Ship the package in compliance with your overnight carrier guidelines. Please notify the laboratory if shipping on Friday, Saturday or the day before a holiday. (Call 800-245-3117, ext. 6250). Label with the following address:

Client Services/Immunohematology Reference Laboratory
BloodCenter of Wisconsin
638 N. 18 Street
Milwaukee, WI 53233
800-245-3117, ext. 6250

TURNAROUND TIME: 7-10 days

CPT CODES: 81479

REFERENCES:

1. Flegel WA. Molecular genetics and clinical applications for RH. Transfusion and Apheresis Science 2011;44:81-91.
2. Flegel WA, Wagner FF. Molecular biology of partial D and weak D: implications for blood bank practice. Clinical Laboratory 2002;48:53-9.
3. Prager M. Molecular genetic blood group typing by the use of PCR-SSP technique. Transfusion 2007;47: 54S-59S.

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