Australian Red Cross Lifeblood

Anti-D Quantitation – Information Sheet

Updated November 2019 Version 2.0

Anti-D quantitation is available offered nationally. This testing is performed in our Sydney and Perth Red Cell Reference laboratories using Astoria Pacific Analysers. Testing is batched and routinely performed 2-3 days per week. The assay is a registered Class 3 in-house IVD and all standards, reagents and controls for the assay are prepared in house, with samples being diluted prior to testing.

The Astoria Pacific is a continuous flow semi-automated analyser which uses a bromelain methyl cellulose method. Dilutions of patient serum/plasma are tested against a pool of R_1R_1 K- bromelain treated cells. The presence of concomitant antibodies may affect the results as the cells used may not be a full phenotype match. The methyl cellulose acts as a potentiator to enhance agglutination which takes place at 37°C. The mixture is then pumped into a 15°C cooler box where agglutinins are removed and the remaining free cells are lysed by the addition of triton. The absorbance of this lysate is measured by photometers and transferred to the analyser software which uses the calibration curve and dilution factor to calculate a result in IU/mL. The assay uses an inverse chemistry, whereby the higher the antibody level, the fewer cells remain in the reaction chamber. The resultant lysate reads as a higher absorbance resulting in a higher peak in the software. An international WHO standard of known concentration is tested to generate the calibration curve.

Clinical Indications

Antibody screening should be performed in all pregnant women to identify those with clinically significant red cell alloantibodies. Where an antibody is detected, its specificity must be identified, and if clinically significant, the level should be monitored by antibody titration or quantitation where available.

Referral to the Lifeblood for anti-D quantitation is recommended where either it appears the mother has immune anti-D or it is not clear whether it is immune or passive, for example, when it is not known or not recorded that RhD Ig has been administered. Quantitation of anti-D against the international anti-D standard is more likely to provide a reproducible result and greater correlation with the potential severity of HDFN than titration. In addition, quantitation is able to more accurately than titration detect smaller rises in anti-D level which may be of use to the treating physician. Lifeblood will provide guidance on the significance of the results and recommended repeat testing based on the clinical information known to us. Refer to the Australian and New Zealand Society of Blood Transfusion '*Guidelines for Transfusion and Immunohaematology Laboratory Practice'* November 2016 for more information.

Sample Requirements

- A minimum of 1mL of serum or plasma is required for testing. It is preferable the sample is separated prior to sending to prevent haemolysis in transit. Serum from SST or gel tubes must not be provided
- Serum/plasma samples should be received at Lifeblood within 7 days of collection. If shipment is delayed, serum/plasma samples can be frozen within 7 days of collection.
- Samples must be labelled with the date of collection
- Samples must be labelled with a minimum of 2 identifiers (3 identifiers preferred)
- Samples must be provided with completed Red Cell Reference Laboratory request form that shows a minimum of 3 identifiers and include the tests requested and the referring organisation's contact details.
- The identifiers on the sample must match the request form exactly

- Please provide clinical information on the request form such as anti-D titration result, any other antibodies present and titration results, due date or weeks pregnant, if RhD Immuoglobulin has been administered and when, previous pregnancies, partner's Rh phenotype if known, transfusion dates and any other relevant clinical information, e.g. potential sensitising events or a rise in titration.

Samples should be packaged with a cold ice-brick and sent to either the NSW or WA Red Cell Reference Laboratory, via the address below as soon as possible following collection. Where there is a delay in transport (more than 12 hours from collection) the sample should be refrigerated.

NSW Red Cell Reference Laboratory Australian Red Cross Lifeblood Dock A – Blood In, 17 O'Riordan St Alexandria NSW AUSTRALIA 2015 Ph: +61 2 92342189 Fax: +61 2 92342193 Email: redcellreferenceenquiriesNSW @redcrossblood.org.au	WA Red Cell Reference Laboratory Australian Red Cross Lifeblood 290 Wellington St Perth, Western Australia AUSTRALIA 6000 Ph: +61 8 94212864 Fax: +61 8 9421 2375 Email: redcellreferenceenquiriesWA @redcrossblood.org.au

Reporting

The expected turnaround time from receipt of sample to reporting is up to 5 days. PDF reports will be provided via a secure portal (SecureSend) using the supplied email addresses. Due to strict data security compliance, reports will only be provided by fax in urgent scenarios.

Enquiries

Please contact the Red Cell Reference laboratories in Sydney or Perth using the contact details above for further information.