

35% OF NORMAL MALE NON-TRANSFUSED BLOOD DONORS HAVE APPARENT HLA ANTIBODIES REACTIVE BY LABSCREEN SINGLE ANTIGEN BEADS



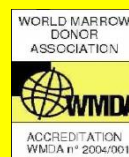
Welsh Blood Service
Gwasanaeth Gwaed Cymru

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Accredited Medical Laboratory
Reference No: 1274
Since 1995



Introduction

Naturally occurring antibodies are formed without a recognised sensitisation event and are pre-existing in a patient's circulation - such as ABO blood group antibodies. 'Naturally occurring' HLA antibodies detectable by Luminex xMAP technology may impact on the assessment of the clinical importance of antibodies in transplant and other patients.

We have determined whether "naturally occurring" HLA antibodies could be detected in our local normal non-transfused male blood donors.

Patients and Methods

150 consenting non-transfused (determined by interview and questionnaire) male blood donors were tested using LABScreen Mixed (Mixed) kits (One Lambda Inc.) for HLA Class I (CI) and Class II (CII) antibodies. All donors were HLA typed by PCR-SSP at the first field level. Other donor information was obtained from their records.

Donors who had intermediate (>1.44) or positive (>1.63) results following Mixed testing were retested using LABScreen Single Antigen (SA) kits (One Lambda Inc.) - positive threshold MFI >499 - for HLA CI and/or CII HLA antibodies dependent on the Mixed findings.

Comparisons were made using Yates' chi-square or Fisher's exact tests as appropriate.

Results

79 donors were retested on SA kits following Mixed testing - 53 of these were positive (see Table). 22 had CI antibodies, 24 possessed CII antibodies and 7 had both CI and CII antibodies.

Overall, MFI values ranged between 500 and 9,678. Specificity distribution ranged from 19 donors having a single specificity to 5 donors having >5 specificities with a ranking of B>A>DR>DQ>DP>C>DR51>DR52>DR53. There were HLA-B antibodies in 19 donors and DR53 antibodies in 2 donors.

| Luminex Mixed | | | Luminex SA | | |
|---------------|----------------|----|---------------|----------------|----|
| CI Reactivity | CII Reactivity | N | CI Reactivity | CII Reactivity | N |
| Neg | Neg | 71 | NT | NT | 0 |
| Pos | Neg | 12 | Neg | NT | 5 |
| | | | Pos | NT | 7 |
| Neg | Pos | 35 | NT | Neg | 16 |
| | | | NT | Pos | 19 |
| Pos | Pos | 21 | Neg | Neg | 3 |
| | | | Pos | Neg | 9 |
| | | | Neg | Pos | 2 |
| | | | Pos | Pos | 7 |
| Int | Neg | 6 | Neg | NT | 1 |
| | | | Pos | NT | 5 |
| Neg | Int | 2 | NT | Pos | 2 |
| Int | Pos | 3 | Neg | Neg | 1 |
| | | | Pos | Neg | 1 |
| | | | Neg | Pos | 1 |

Pos – positive, Neg – negative, Int – intermediate, NT – not tested

Some antibodies were directed toward uncommon antigens, e.g. A80, B76, Cw18. The 53 SA positive donors (35.3%) fell to 35 (23.3%) using a positive threshold of MFI >999.

The correlation of specificities detected here was compared to the 2008 study of Morales-Buenrostro *et al.* (Transplantation, **86**, 1111). R-values ranged from 0.5 for HLA-C to 0.1 for DR.

There was no association between the presence of CI or CII antibodies and donors' HLA-A, B, C, DR, DQ types, ABO/Rh (D) blood groups, age or CMV status. Similarly, there was no relationship between the incidence of HLA antigens in the local population and the frequency of individual antibody specificities.

Comment

This study, although giving a lower antibody incidence than others, amply confirms the LABScreen reactivity of apparently HLA non-sensitised healthy male blood donors.