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## **Change Notification UK National Blood Services No. 02 - 2017**

### **Chapter 17 – Section 17.4 & Chapter 18 – Section 18.2.2**

**Applies to the Guidelines for the Blood Transfusion Services in the United Kingdom – 8<sup>th</sup> Edition 2013**

**Please amend Sections 17.4 and 18.2.2 as follows:**

#### **17.4 HNA antibody detection methods**

There are several techniques for the detection of HNA-reactive antibodies. These techniques can be divided into non-specific (where intact granulocytes are used, e.g. granulocyte immunofluorescence test, granulocyte agglutination test) and specific assays (where glycoprotein capture, or purified glycoproteins or recombinant antigens are used, e.g. monoclonal antibody immobilisation of granulocyte antigen test). Laboratories should use tests with adequate sensitivity for the detection and identification of HNA-reactive antibodies. It is recommended that more than one technique is used to detect HNA-specific antibodies.

The combination of chosen technique(s) and the composition of the cell panel cells (if applicable) must ensure:

- The detection of clinically significant HNA-reactive alloantibodies to the antigens of the HNA-1, HNA-2, HNA-3, HNA-4 and HNA-5 systems.
- The detection and identification of HNA-reactive antibodies in samples containing a mixture of both HNA and HLA-reactive antibodies, including antibodies to HNA-3 system antigens, which is expressed on both granulocytes and lymphocytes.
- The identification of the individual HNA specificities in samples containing mixtures of alloantibodies against several HNA antigens (e.g. masking of certain HNA specificities by composition of the panel).
- Techniques should be available to detect cytotoxic and non-cytotoxic anti-lymphocyte antibodies and thereby aid the distinction between granulocyte-specific, lymphocyte-reactive and HLA Class I and Class II antibodies.

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- Assays for the detection of granulocyte antibodies, which utilise glycoproteins isolated from human cells, soluble recombinant antigens attached to a solid phase or recombinant cell lines expressing HNA should be used in parallel with established human granulocyte based tests, either in house or at a reference laboratory, while further data on the performance of these tests is gathered. An antibody specificity determined on the basis of reactivity with a single recombinant antigen or single isolated membrane glycoprotein should be viewed as indicative rather than definitive. Further work should be undertaken to confirm the antibody specificity using other sources of the implicated antigen. In addition, the existing advice that, wherever possible, a patient or donor with suspected HNA specific alloantibodies should either be genotyped to determine if they are negative for the allele encoding the implicated antigen or be phenotyped to ensure the absence of the antigen, should be followed (17.5.2).

Where granulocyte-specific antibodies are detected, which appear to have allo-specificity, but the specificity cannot be determined, the samples should be referred to a reference laboratory for further antibody specificity investigations. However, laboratories should make all reasonable efforts to screen against the widest possible range of HNA antigens.

### 18.2.2 HPA antibody detection methods

- There are several techniques for the detection of HPA-reactive antibodies. These techniques can be divided into non-specific (where intact platelets are used, e.g. platelet immunofluorescence test, solid phase adherence assay) and specific assays (where glycoprotein capture, or purified glycoproteins or recombinant antigens are used, e.g. monoclonal antibody-specific immobilisation of platelet antigen assay). Laboratories should use tests with adequate sensitivity for the detection and identification of HPA-reactive antibodies.
- The combination of chosen technique(s) and the composition of the cell panel cells (if applicable) must ensure:
  - the detection of clinically significant HPA-reactive alloantibodies in the HPA-1, HPA-2, HPA-3, HPA-5 and HPA-15 systems
  - the identification of HPA-reactive antibodies and their specificity in samples containing a mixture of HPA and HLA-reactive antibodies
  - the identification of the specificities in samples containing mixtures of alloantibodies against several HPA antigens (i.e. avoiding the masking of certain HPA specificities by the composition of the panel).
- Where HPA-reactive antibodies are detected but the specificity cannot be determined, the samples should be referred to reference laboratory for antibody specificity investigations. However, all reasonable efforts should be made to screen against the widest possible range of HPA antigens.
- Assays for the detection of platelet antibodies, which utilise glycoproteins isolated from human cells, soluble recombinant antigens attached to a solid phase or recombinant cell lines expressing HPA should be used in parallel with established human platelet based tests, either in house or at a reference laboratory, while further data on the performance of these tests is gathered. An antibody specificity determined on the basis of reactivity with a single recombinant antigen or single isolated membrane glycoprotein should be viewed as indicative rather than definitive.

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Further work should be undertaken to confirm the antibody specificity using other sources of the implicated antigen. In addition, the existing advice that, wherever possible, a patient or donor with suspected HPA specific alloantibodies should either be genotyped to determine if they are negative for the allele encoding the implicated antigen or be phenotyped to ensure the absence of the antigen, should be followed (18.3.2).

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