UK NEQAS
International Quality Expertise

Histocompatibility & Immunogenetics

Reporting of HLA-DQA and -DPA Antibodies in UK NEQAS for H&I Scheme 3 – HLA Antibody Specificity Analysis

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Introduction

UK NEQAS for H&I offer two HLA antibody EQA schemes covering HLA antibody detection and HLA antibody specification. Scheme 3, our HLA antibody specification scheme, assesses participants' ability to correctly determine the specificity of HLA antibodies in 10 samples annually. The scheme currently requires participants to report any HLA-A, B, Cw antibodies detected, with elective registration for assessment at DRB, DQB and DPB. Reporting of antibodies to HLA-DQA and -DPA is optional and not assessed.

An analysis of the data submitted for DQA and DPA antibodies in 2020-21 and 2021-22 was performed.

Analysis

In 2020-21, 45/64 (70%) participants submitted data for DQA antibodies (20/23 (87%) of UK&I labs). 3 (2%) DQA specificities reached consensus present, 24 (18%) consensus absent, 79 (61%) were reported as negative by all labs and 24 (18%) did not reach consensus (Figure 1).

In 2020-21, 24/64 (38%) participants submitted data for DPA antibodies (6/23 (26%) of UK&I). 0 DPA specificities reached consensus present, 8 (11%) consensus absent, 30 (43%) were reported a negative by all labs and 32 (46%) did not reached consensus (Figure 1).

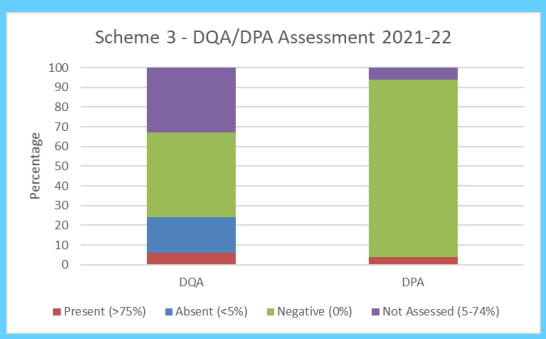

Figure 1: DQA and DPA Antibody Assessment in 2020-21

In 2021-22, 25/65 (38%) participants submitted data for DQA antibodies (9/24 (37.5%) of UK&I). 8 (6%) DQA specificities reached consensus present, 23 (18%) consensus absent, 56 (43%) were reported as negative by all labs and 43 (33%) did not reach consensus (Figure 2).

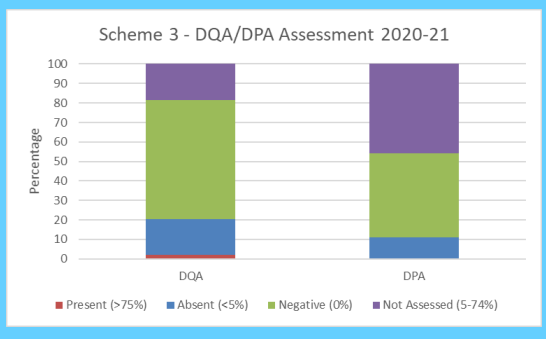

Figure 2: DQA and DPA Antibody Assessment in 2021-22

In 2021-22, 19/65 (29%) participants submitted data for DPA antibodies (8/24 (33.3%) of UK&I). 3 (4%) DPA specificities reached consensus present, 0 consensus absent, 63 (90%) were reported a negative by all labs and 4 (6%) did not reached consensus (Figure 2).

The DQA/DPA specificities that reached consensus present were DQA1*04:01, 05:01, 05:03, 05:05, 06:01 and DPA1*02:01, 02:02, 04:01.

From the 20 samples distributed 2020-2022 (Table 1):

- 3/20 reached consensus positive for both DQB and DQA specificities; 1/20 was positive for both DPB and DPA specificities.
- 11/20 samples had at least one report of a DQA antibody, but consensus was not met; for DPA this was 7/20 samples.
- 3/20 samples were consensus negative for both DQB/DQA, and 4/20 samples were consensus negative for both DPB/DPA.
- There were no instances of DQA or DPA antibodies being consensus present when DQB or DPB antibodies were consensus negative.

Table 1: DQ and DP Antibody Assessment in 2020-21 and 2021-22

Results that reached consensus positive are highlighted in red, those that were consensus negative in green, and those that did not reach a consensus result in purple.

Sample ID	Antibody Consensus 2020-21				Antibody Consensus 2021-22			
	DQB	DQA	DPB	DPA	DQB	DQA	DPB	DPA
1	Pos	Pos	Pos	None	Pos	None	None	Neg
2	Neg	Neg	None	None	Pos	Pos	Neg	Neg
3	None	Neg	None	None	Pos	None	None	Neg
4	Neg	Neg	None	Neg	Pos	None	None	Neg
5	Pos	None	None	Neg	Pos	None	Pos	Pos
6	Neg	Neg	Neg	Neg	Pos	None	Neg	Neg
7	Pos	None	Pos	None	Pos	Pos	None	Neg
8	Pos	None	Pos	None	None	Neg	None	Neg
9	None	Neg	None	None	Pos	None	Pos	None
10	None	None	Neg	Neg	Pos	None	None	Neg

In both sets of data there were a large proportion of DQA/DPA specificities classed as 'not assessed' i.e. reported by 5-74% of participants. Figure 3 shows the range in percent of participants reporting these antibodies (DQA average 28.7%, DPA average 27.7%), which highlights that the majority of DQA/DPA specificities fall short of the 75% consensus level and are reported by a minority of participants.

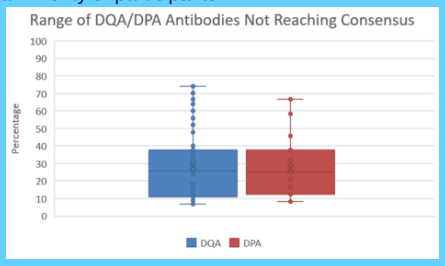

Figure 3: The Range in Percentage for Not Assessed Antibodies

Comment

The trends identified may be reflective of the difficulties in resolving the presence of DQA/DPA from DQB/DPB antibodies as well as differing policies on the reporting and clinical significance awarded to DQA/DPA antibodies.

In a recent survey conducted by UK NEQAS for H&I, 63% of UK&I laboratories reported considering antibodies to DQA in clinical transplant compatibility assessment, whilst 44% considered DPA antibodies. With the increasing interest in the clinical relevance of these antibodies the need for formal assessment of their characterisation should be considered.

NEQAS encourage all labs to report results for DQA/DPA antibodies with the intention that these antibodies will be assessed in the future.

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