

Analysis of non-consensus antibodies observed in the ASHI-PT survey

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BACKGROUND

- Participation in the ASHI proficiency testing (PT) program is required for accreditation.
- Solid phase single antigen (SPS) testing for HLA antibody identification is graded based on participant consensus (>89%).
- The aim of this study is to examine our reported but non-consensus specificities, relating MFI to the % of participating labs reporting the same specificities.

METHODS

- ASHI reports for PT performed from 10/2020 to 12/2023 (7 PT surveys, including samples AC-525 to AC-559) were reviewed.
- We correlated MFI values of reported but non-consensus specificities to the % of participating labs reporting the same specificities.
- Our lab has removed the fluorescence divider on the Luminex™ FLEXMAP 3D™. As such, specificities with > 20,000 MFI were excluded from the correlation analysis.

RESULTS

- We reported 247 class I and 75 class II non-consensus antibodies from 10/2020 to 12/2023 (Table 1). Graded performance was good for all samples.
- For specificities < 20,000 MFI, there was a strong correlation between MFI and % of labs reporting the same specificities (Figure 1).

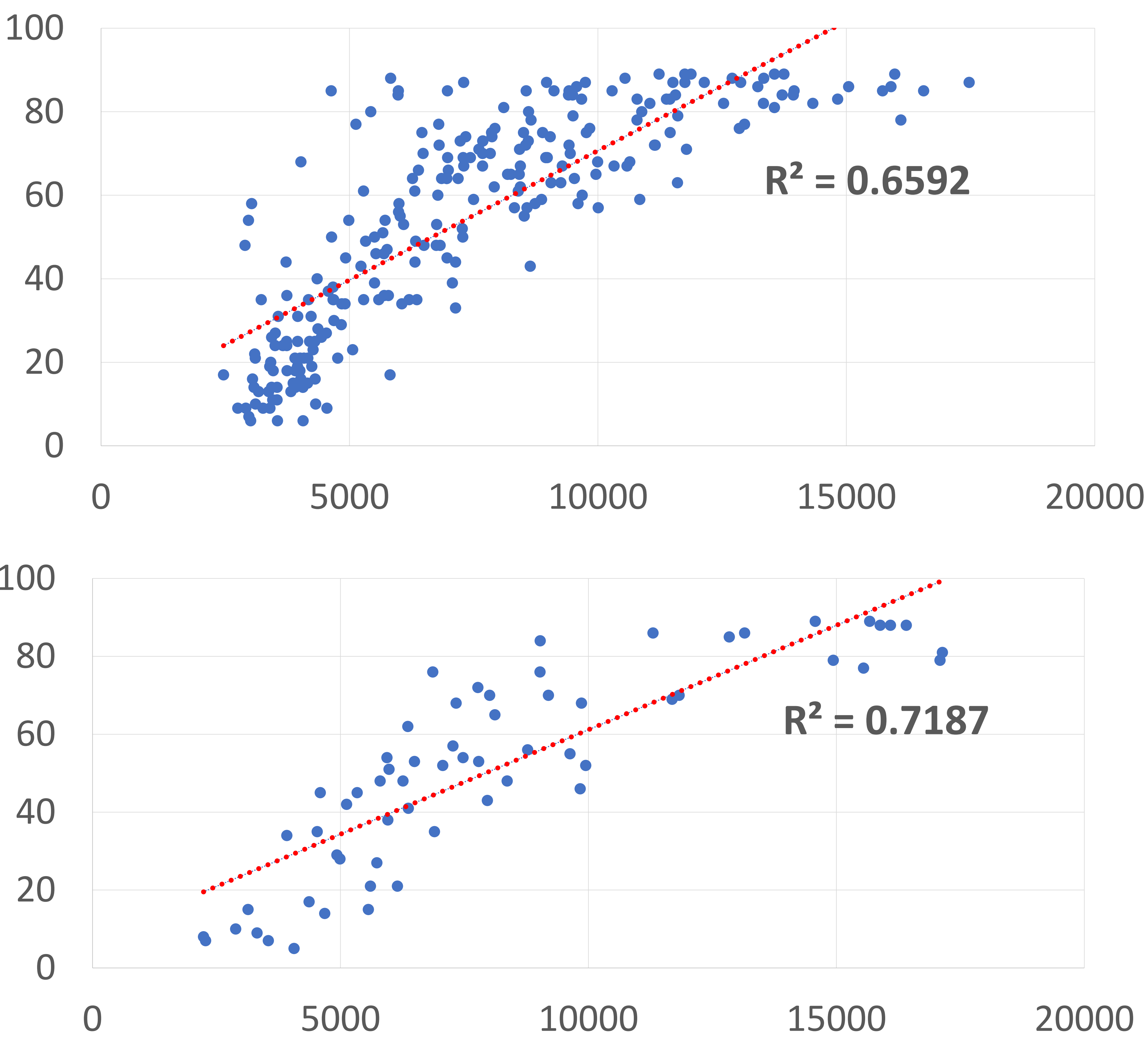


Figure 1: Correlation between maximal MFI values of reported class I (top) and class II (bottom) specificities that did not reach consensus and % of labs that also reported them (Data from all PT surveys combined)

	A	B	C	DRB1	DQB1	DPB1	Total
AC2-2020	16	12	6	1	5	3	43
AC1-2021	5	29	4	4	1	1	44
AC2-2021	7	22	7	4	0	6	46
AC1-2022	10	15	10	2	0	16	53
AC2-2022	27	26	15	4	2	4	78
AC1-2023	4	11	4	4	2	0	25
AC2-2023	7	8	2	1	4	0	22
Total	76	123	48	20	14	30	311

Table1: Anti-HLA specificities reported by our lab that did not reach consensus

- Correlation was strongest for HLA –DP (R2 = 0.88) and HLA-A (R2 = 0.78) specificities. It was weakest for HLA-C specificities (R2 = 0.49).
- All specificities where the % of participating labs reporting was < 20% had low-level MFIs (< 6,000 MFI).

CONCLUSION

- We found a strong positive correlation between the % of labs reporting our non-consensus specificities and our MFI values. More importantly, we have not reported specificities that other labs have not also reported. Surprisingly, many specificities of all HLA loci were present at > 10,000 MFI that did not reach consensus.
- This type of analysis highlights another dimension to quality improvement through PT, helping to identify areas for improvement and potential adjustments to thresholds. Indeed, PT can be leveraged for more than lab accreditation and used to enhance lab practices.