Utilizing extended antibody panels for delisting antigens for highly sensitized patients

Crystal Y Usenko, Debra K Doherty, and Sara Gallegos
Baylor Scott and White, Temple, TX

INTRODUCTION

- Unacceptable antigens listed in UNOS are done at both the serological and allele level in our laboratory.
- The serologic antigen is only listed if all of the alleles on the panel are also above the unacceptable threshold.
- Highly sensitized patients were tested by the extended panel and the antigens delisted to open potential offers for low-risk alleles. The high-risk alleles were entered as unacceptable, and the change in cPRA recorded.
- A survey of the delisted antigens and the added alleles was compiled and the utility of the extended panel assessed.

PATIENT DEMOGRAPHICS and TESTING STRATEGY

- In this study, patients with a cPRA >50% were tested by the extended panel.
  - 50% male/50% female
  - Race: 36% EUR, 33% AFA, 22% HIS, and 3% API and NAT
- No change in UA antigens were observed in patients with a cPRA <99%.
- Most patients with a cPRA >99% had a history of previous transplant.

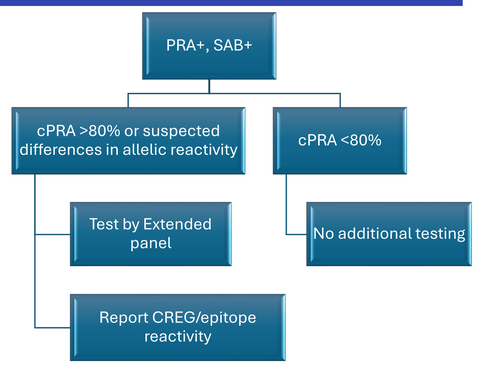


Figure 1: Standard testing procedure for the laboratory

CHANGE IN CPRA

- Allelic differences were observed in 53% of patients that resulted in changes to unacceptables listed in UNET.
- There was not a significant change in cPRA (<0.001%) for any patient that was updated. As such, patients did not lose priority points by delisting antigen-level unacceptable antigens.

RESULTS

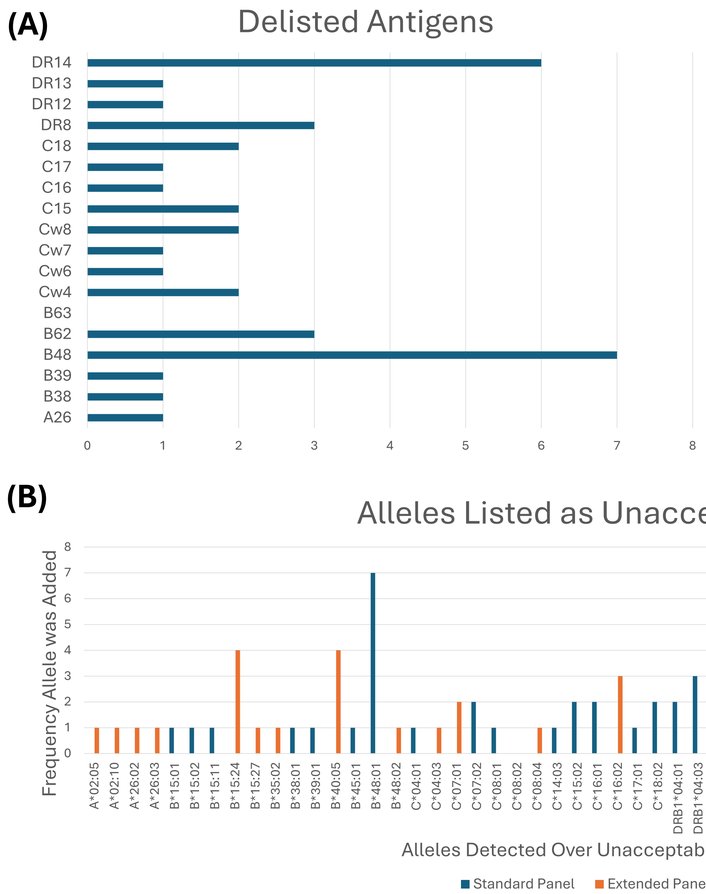


Figure 2. (A) The most commonly delisted antigens were B48 and DR14. B62 was also frequently delisted as an UA due to B*15:24, which has a different Bw4/Bw6 association. DR8 was also more frequently delisted due to allelic differences. **(B)** The alleles listed in UNOS were counted, with B*48:01 as the most commonly listed allele. Only one patient had antibodies to B*48:02, but not B*48:01.

ALLELIC DIFFERENCES

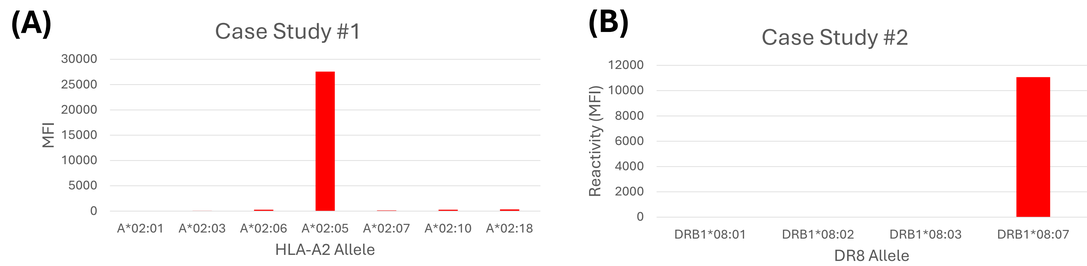


Figure 3. (A) In one case, the patient made strong antibodies to A*02:05 (28K MFI) but was negative for all other A2 alleles. Without additional testing, the risk to this DSA would not have been detected. **(B)** Similarly, strong antibodies to DRB1*08:07 (11K MFI) were detected on the extended panel; however, all other DR8 alleles were negative on both panels.

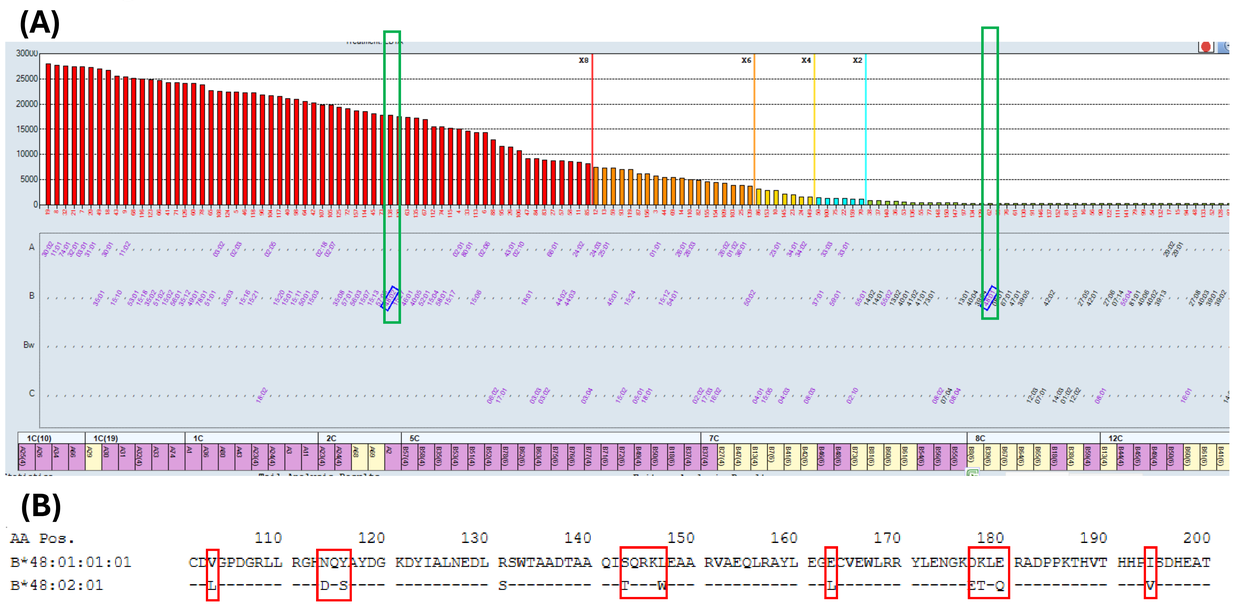


Figure 4. (A) Histogram of highly sensitized patient with antibodies to B*48:02 on the extended panel, but negative for B*48:01 (standard panel). **(B)** Alignments show multiple amino acid mismatches between alleles of B48.

CONCLUSIONS

- More than half of the patients tested had antigens delisted; however, no changes in cPRA were observed due to addition of allelic unacceptables.
- Few organ offers were received due to delistings. Most patients were highly sensitized (>99% cPRA).
- In the 6 months since antigens were delisted, no patient received a transplant for a previous unacceptable antigen.
- A second vendor panel will determine reactivity to A*02:05, but not DRB1*08:07, B*48:02, or C*16:02.
- Does the cost equal the benefit?
  - Double the cost of the standard panel alone.
  - Could be used for high cPRA patients occasionally or at the time of an organ offer to rule out donor-specific alleles as DSA.
  - Useful for tracking DSAs only present on the extended panel.

Additional Resources

1. Valenzuela, N. Georgetown lecture series. June 24, 2025
2. Morris, A.B. Georgetown lecture series. July 22, 2025
3. Chu, G.J., et al. HLA. 2026, Aug 1; 108(1)

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