

# Poster 200: Robust, reliable non-sequencing intermediate/high resolution HLA typing for epitope matching by LinkSeq genotyping.

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for the Genome Canada Transplant Consortium

## **Introduction:**

- Clinical implementation of epitope matching for transplantation requires a rapid and reliable assay to define critical donor alleles with high resolution. We evaluated whether the LinkSeq HLA SABR qPCR-SSP assay, which provides results in 90 minutes, could serve this purpose

## **Methods:**

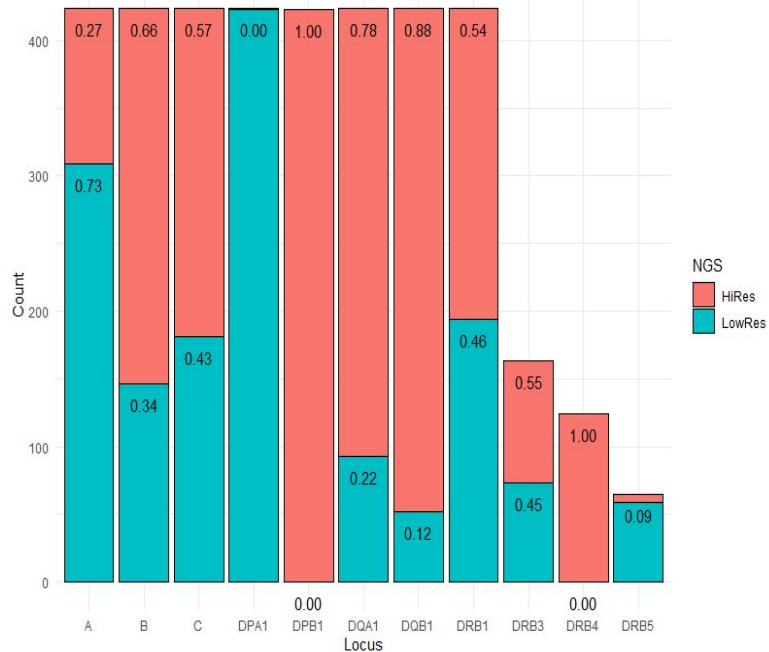
- 211 deceased donors from 2018 / 2019 were HLA typed at all 11 gene loci in parallel by the LinkSeq HLA SABR qPCR-SSP assay and by NGS (Omixon) to provide unambiguous sequence-level typing
- Assay performance was assessed by the percentage of high resolution (HR) alleles defined in the allele string based on common alleles (Epitope Matching Ready)
- Compared the antibody-verified eplets of all common alleles included in each allele string (Epitope Compatibility)

# Results

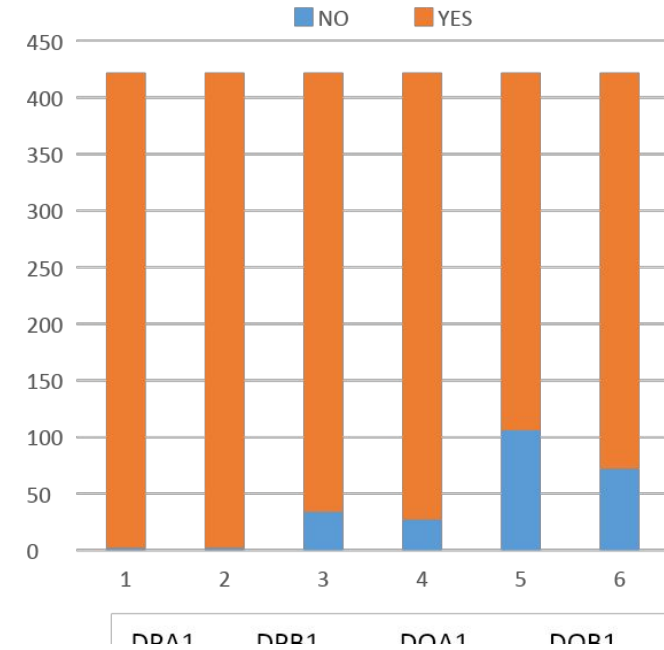
## 1. Example of an Allele String:

GROUP	ALLELES	ANTIGEN
DQB1*02	DQB1* 02:01:01:01; DQB1* 02:01:01:02e-02:01:37e, 02:02:02e-02:02:03e, 02:02:05e, 02:02:06:02e-02:02:12e	DQ2
	DQB1* 02:04e-02:61e, 02:63e-02:76e, 02:78e-02:79e, 02:81e-02:83e, 02:85e-02:142e, 02:145e-02:155e, 02:157e-02:169e	-

## 2. Assay Performance : HR vs LR



## 3. Number of Strings which Carry the Same Eplets as the Common Alleles



Majority of the HLA-DQA and HLA-DQB alleles (>90%) typed by the LinkSeq assay are compatible for Epitope Matching

# Conclusion

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- The LinkSeq HLA SABR qPCR-SSP assay provides HLA typing results for all 11 gene loci in 90 minutes
- Eplets can be
- In the current state, this assay is able to fulfill or be very close to the epitope matching requirements in HLA Class II loci without obtained high resolution typing
  - 100% in DPA/B
  - >90% in DQA/B
- This provides the opportunity for prospective epitope matching in clinical transplantation



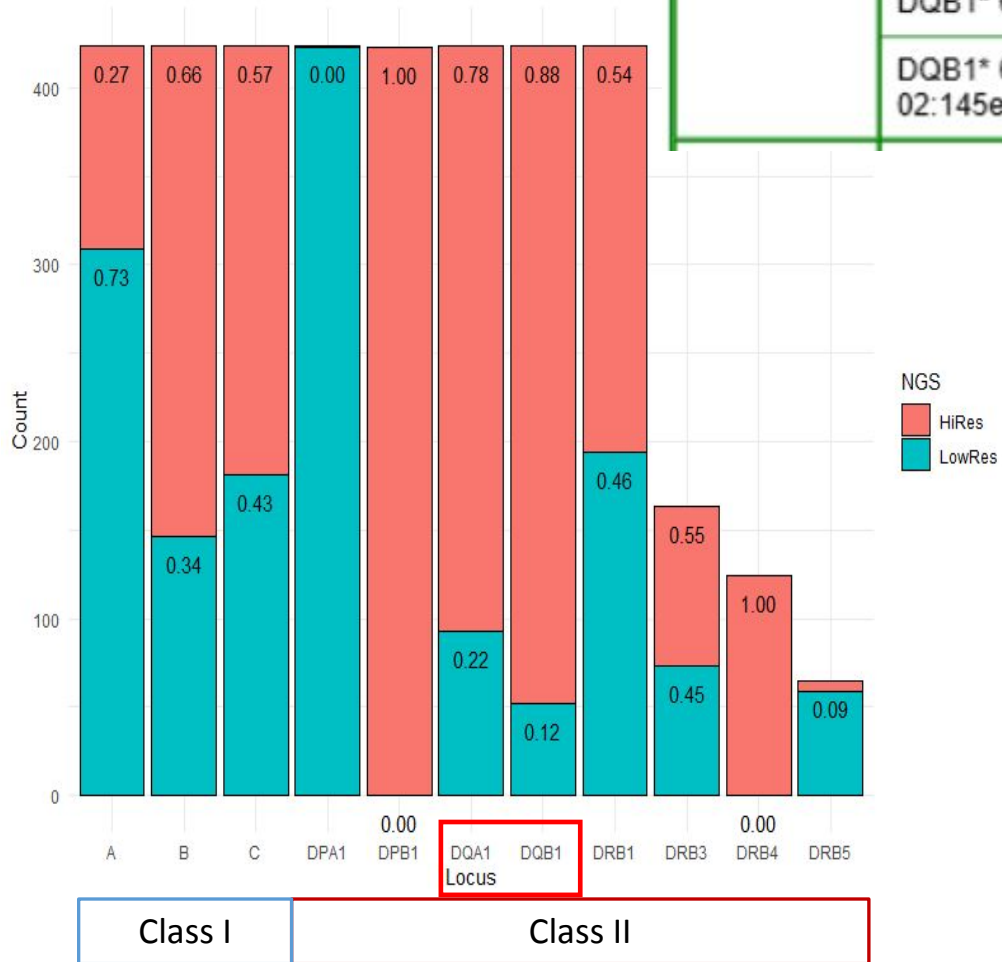


# Results

An Example of an Allele String:

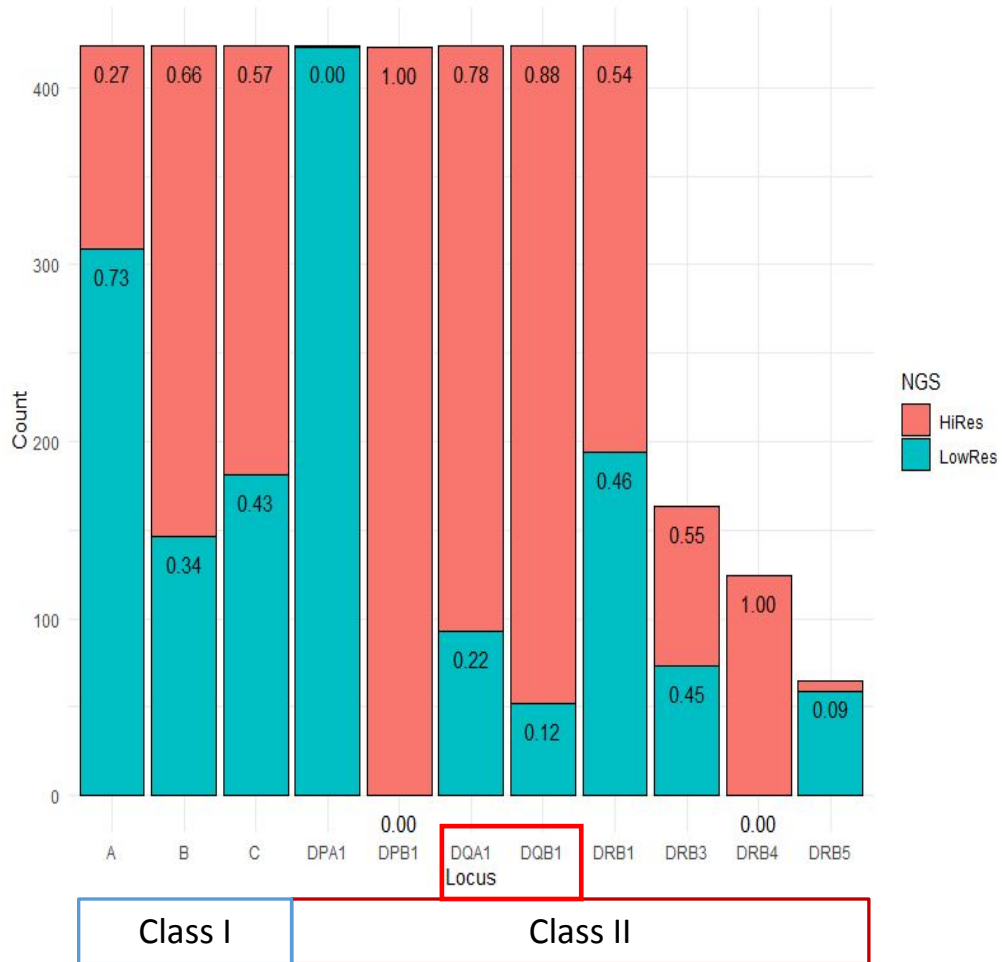
## i. Assay Performance : HR vs

GROUP	ALLELES	ANTIGEN
DQB1*02	DQB1* 02:01:01:01; DQB1* 02:01:01:02e-02:01:37e, 02:02:02e-02:02:03e, 02:02:05e, 02:02:06:02e-02:02:12e	DQ2
	DQB1* 02:04e-02:61e, 02:63e-02:76e, 02:78e-02:79e, 02:81e-02:83e, 02:85e-02:142e, 02:145e-02:155e, 02:157e-02:169e	-

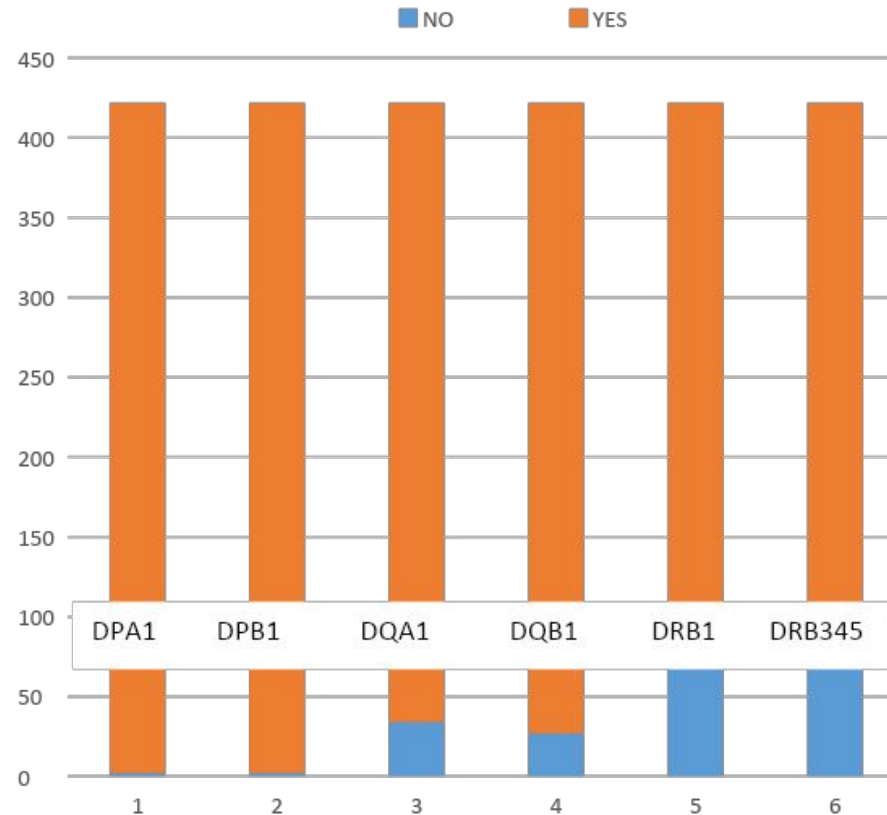


# Results

## i. Assay Performance : HR vs LR



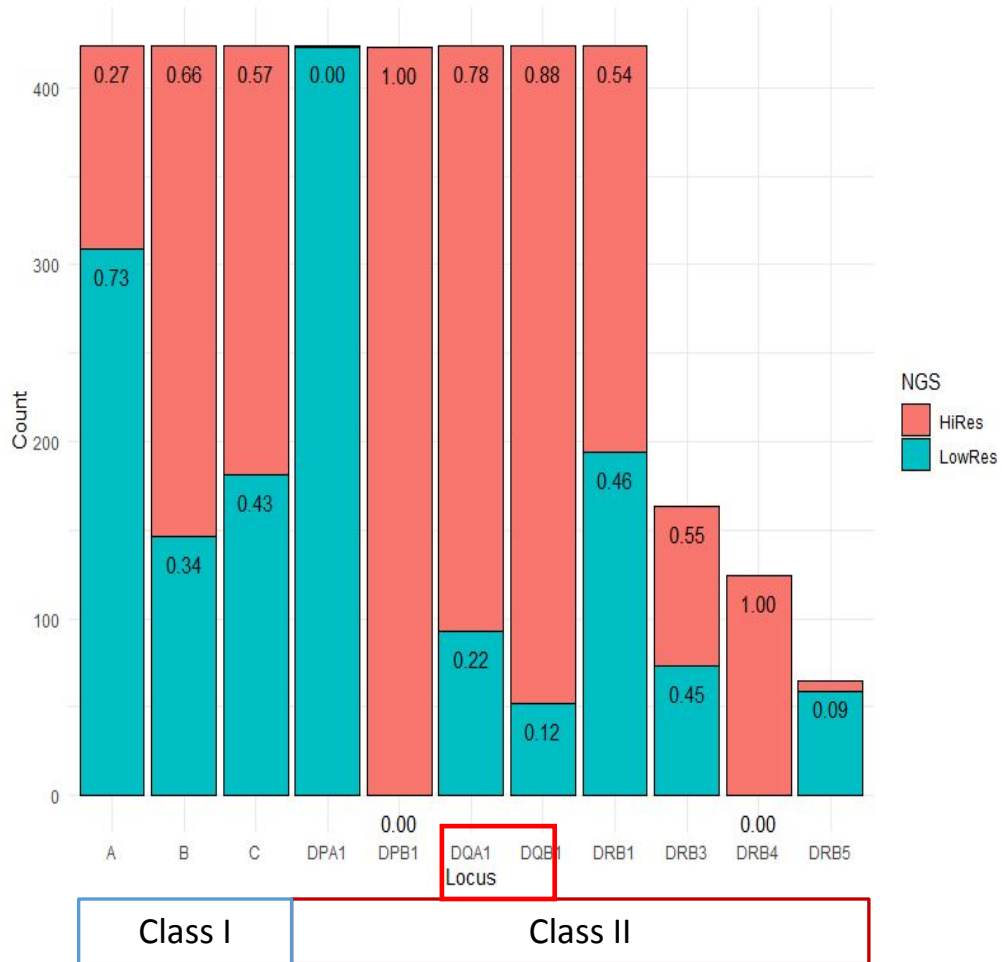
## ii. Number of Strings which Carry the Same Eplets in the Common Alleles



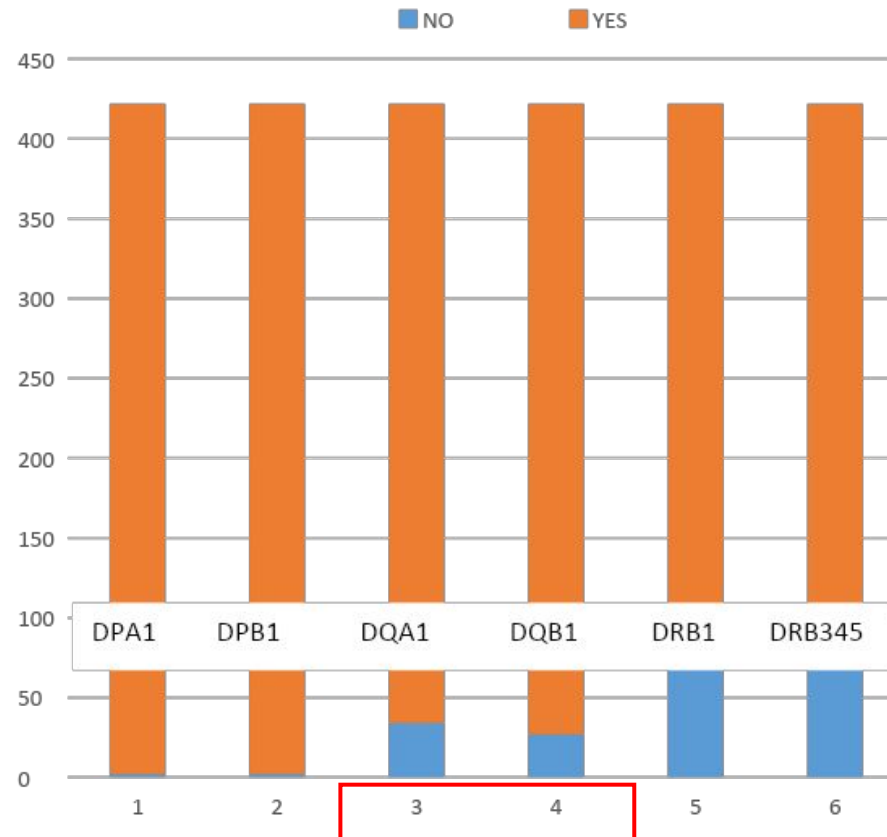
Majority of the HLA-DQA and HLA-DQB alleles (>90%) typed by the LinkSeq assay are compatible for Epitope Matching

# Results

## i. Assay Performance : HR vs LR



## ii. Number of Strings which Carry the Same Eplets in the Common Alleles



Majority of the HLA-DQA and HLA-DQB alleles (>90%) typed by the LinkSeq assay are compatible for Epitope Matching

# Acknowledgements

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Vince Benedicto – Medical Technologist  
Jenny Tran – PhD student

