

# HLA High Resolution Panel by NGS

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**Versiti offers a single test for expanded high resolution genotyping of Class I HLA-A, -B, and -C loci and Class II HLA-DRB1, -DRB3/4/5, -DQA1, -DQB1, -DPA1, and -DPB1 loci by next generation DNA sequencing (NGS). DNA sequencing is universally regarded to be the gold standard for identification of HLA alleles. Historically, sequence based typing of HLA genes has focused on the exons that encode the Antigen Recognition Domain (ARD) of the HLA molecule.**

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By sequencing regions beyond the ARD of HLA genes that govern compatibility, all common allele combinations can be resolved and new alleles are more readily identified. Additionally, studies are ongoing that indicate donor selection for hematopoietic cell transplant (HCT) using NGS based HLA typing facilitates unrelated donor selection and may improve patient outcomes.<sup>1,2</sup>

## Indications for testing:

- The HLA High Resolution Panel by NGS provides typing for all transplant relevant loci of the HLA region in a single orderable with fewer ambiguities versus Sanger based methods.
- HLA matching is important for successful allogeneic hematopoietic cell transplantation.

## Test method:

PCR and Direct DNA Sequencing

The informative class I and II HLA exons and introns of an individual sample are amplified using the polymerase chain reaction (PCR) with locus-specific primers. The nucleotide sequences for each HLA locus are determined using a Next Generation Sequencing platform where the PCR products for each sample are fragmented and barcoded prior to sequencing on the instrument using reversible dye-labeled terminators. Output sequences are assembled and HLA types are assigned based on known reference alleles using validated software. HLA types are reported for each locus by trained and certified histocompatibility experts.

## Assay sensitivity and limitations:

Some rare allele combinations and alleles whose sequences differ outside the included HLA regions may not be completely resolved by this technique.

## Reporting of results:

HLA genotypes are reported following current WHO nomenclature guidelines.

## Specimen requirements:

4 buccal swabs or 14 ml EDTA (lavender top) whole blood or 2-5 ml EDTA bone marrow or high quality DNA (3-4ug at 25ng/ul)

**Pediatric:** 3-4 buccal swabs or 5 ml EDTA (lavender top) whole blood

Contact the laboratory for instructions if submitting cord blood.





SHIP

#### Shipping requirements:

Place the room temperature specimen and requisition into plastic bags, seal and place in an insulated container. Seal the container and place in a sturdy cardboard container and tape securely. Ship the package in compliance with your overnight carrier guidelines. Address the package to:

Versiti Client Services  
Histocompatibility Laboratory  
638 N. 18th St.  
Milwaukee, WI 53233-2121  
800-245-3117, ext. 6250

#### CPT Codes/Billing/Turnaround time:

**Test Code:** 2300

**CPT codes:** For recommended CPT codes, visit the [versiti.org/test-catalog](https://www.versiti.org/test-catalog)

**Turnaround time:** 7 days

#### References:

1. Improved Accuracy of clinical HLA genotyping by next-generation-sequencing affects unrelated donor search results for hematopoietic stem cell transplantation. Allen ES, et.al. Human Immunology 79, 2018: 848-854.
2. Direct HLA genetic comparisons identify highly matched unrelated donor-recipient pairs with improved transplantation outcome. Vazirabad I, et.al. Biology of Blood & Marrow Transplant. In Press. Published Online December 2018.



ORDER

#### Required forms:

Please complete all pages of the [requisition form](#).