

*BloodCenter of Wisconsin  
Histocompatibility Laboratory offers DNA-based  
haplotyping to qualify potential bone marrow donors for HLA typing.*

## BACKGROUND:

HLA matching is important for successful allogeneic hematopoietic stem cell transplantation (HSCT). Better outcomes are obtained using HLA-identical siblings compared with unrelated donors. Screening for HLA-matched siblings using standard HLA typing methods can be expensive and time consuming, and often does not provide sufficient information to establish genotypic identity with the recipient. The use of alternative genetic markers such as short tandem repeats (STRs) located throughout the HLA region on chromosome 6 provides an inexpensive and informative alternative to HLA typing for screening families for genotypically HLA identical siblings. STR screening also allows detection of many recombinants without complete family HLA typings.

Criteria for selection of unrelated donors for HSCT include matching for the alleles of each HLA locus. Graft versus host disease (GVHD) remains a potentially life-threatening complication even after HLA-identical unrelated transplant. Matching for STRs in unrelated, HLA identical unrelated transplants is associated with lower risks of acute graft versus host disease and mortality.

## METHOD:

PCR. STRs are typed by PCR amplification of characterized STR loci followed by size analysis using capillary electrophoresis.

## REASONS FOR REFERRAL:

- Haplotype analysis of samples from a recipient and siblings identifies family members likely to be HLA identical.
- Rapid identification of HLA genotypic identity, haplotypes, and recombinants without full family workup.
- Optimize selection of HLA-matched unrelated donors.

## LIMITATIONS:

STR marker analysis should not be considered a substitute for HLA typing. Results obtained using STR analysis must be confirmed by appropriate HLA typing. While STR analysis will identify siblings who are HLA genotypically identical, it will not detect those who are phenotypically identical. In rare cases of equivocal STR results, confirmatory HLA typing should be performed.

SPECIMEN REQUIREMENTS:

4 buccal swabs or 14 ml EDTA (lavender top) whole blood

SPECIMEN REQUIREMENTS (PEDIATRIC):

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

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:

Client Services/Histocompatibility Laboratory  
BloodCenter of Wisconsin  
638 N. 18 St.  
Milwaukee, WI 53233-2121  
800-245-3117, ext. 6250

TURNAROUND TIME: 5-7 days

CPT CODES: 81265