Purpose

Every year, thousands of people of all ages are diagnosed with leukemia and other life-threatening diseases. Many of them will die unless they get a bone marrow or cord blood transplant from a matching donor. Seventy percent of people do not have a donor in their family and depend on the Be The Match Registry® operated by the National Marrow Donor Program® (NMDP), to find a match to save their life.

This document serves as a reference on HLA typing standards and costs for adding a typical donor to the Be The Match Registry. Public and private organizations are welcome to utilize this information in the development of medical policies pertaining to HLA typing for the purposes of joining the national registry.

HLA matching impacts transplant outcomes

Human leukocyte antigen (HLA) typing is used to match patients and donors for marrow or cord blood transplants. HLA genes encode proteins — or markers — found on most cells in the body. The immune system uses these markers to recognize which cells belong in the body and which do not.

The outcomes of related and unrelated marrow and cord blood transplants are strongly affected by the degree of HLA matching between the transplant recipient and the donor or cord blood unit. The widespread use of DNA-based tissue typing has increased the accuracy and specificity of HLA typing, which allows for more precise HLA matching between donors and patients.

HLA matching plays an important role in engraftment, graft-versus-host disease (GVHD) and overall survival. Several large-scale studies have demonstrated that more precise HLA matching between donor and recipient significantly:

- Improves overall transplant survival
- Reduces the incidence and severity of both acute and chronic GVHD
- Improves rates of engraftment

Typing requirements for registry members

When registering newly recruited donors with the Be The Match Registry, the NMDP requires HLA-A, B and -DRB1 typing on donor samples at a minimum of intermediate resolution using DNA-based methods. Higher resolution DNA-based methods are preferred and additional loci such as HLA-C and -DQB1 should be submitted if obtained. Low-resolution typing or typing at HLA-A and -B only will not be accepted except in rare circumstances and only upon NMDP prior approval.

Intermediate resolution is defined as a result that includes a subset of alleles sharing the digits in the first field of their allele name and that excludes some alleles sharing digits. The laboratory may report allele-level results or utilize an NMDP allele code to report exact allele combinations. Laboratories performing these tests must be accredited by the American Society of Histocompatibility and Immunogenetics (ASHI) or the European Federation for Immunogenetics (EFI) for this specialty and the techniques utilized.

An individual only needs his or her tissue typed once for the purpose of joining the registry.

- Tissue typing is similar to blood typing, in that an individual’s tissue type and blood type do not change.
- Further testing is required if a donor is identified as a potential match for a searching patient.

The chance that two siblings will inherit identical HLA is 1 in 4. Given the size of US families, 30% of patients will have a sibling who matches and is able to donate. The other 70%, or approximately 10,000 people per year, need unrelated donors to donate their healthy marrow.
Cost to add new registry members

The **total direct cost** to add one new member to the Be The Match Registry is **between $75 and $125**. Individuals already tissue typed for a friend or family member can contact the NMDP if they want to have their results added to a donor registry.

Billing codes for molecular HLA typing

Intermediate-resolution HLA typing is performed using molecular pathology techniques. The American Medical Association indicates that billing for HLA typing should utilize CPT code series 81370 – 81383.

References