

**MAJOR HISTOCOMPATIBILITY ANTIGENS also known as HLA MATCHING
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Immune complications after allogeneic transplantation are caused by differences in histocompatibility antigens between donor and recipient. The most important of these are encoded by genes within the major histocompatibility complex (MHC) on chromosome 6, and are called human leukocyte antigens (HLA). Genes that encode HLA antigens are highly polymorphic and tightly linked, with low recombination frequencies. They are inherited as a unit known as a haplotype — one from each parent. Unrelated individuals are extremely unlikely to be 'matched', or to have sequence identity, at HLA loci. Within a family, however, each sibling has a 1 in 4 chance of inheriting the same HLA haplotypes as his/her sibling — and therefore of having an HLA-matched donor. Conventional HLA typing of the recipient and donor involves characterization of the genes that encode the class I HLA-A and HLA-B antigens (by low- to intermediate resolution serological techniques), and of the HLA-DRB1 class II antigens (by high resolution molecular techniques). A potential donor with sequence identity to each of a patient's six HLA-A, HLA-B and DRB1 loci is referred to as '6/6 matched'. If the patient is mismatched with the donor at one of these antigens, the patient is considered to be a '5/6 match' with the donor. The importance of matching at additional HLA loci (HLA-C), along with high-resolution characterization of class I antigens, is being investigated in bone-marrow transplantation. As a source of haematopoietic progenitors for transplantation, cord blood has less alloreactivity than bone marrow, so grafts with limited HLA disparity (1–2 antigen mismatch) can be considered for transplantation. So, cord blood recipients will receive grafts that are 4/6–6/6 HLA matched (also designated 0–2/6 HLA mismatched).