

Abstract

HLA and KIR genes are highly polymorphic regions within the human genome. Protein products of these genes play a critical role in hematopoietic stem cell transplantation. Genetic HLA match is a major barrier to engraftment and influences the outcome of this therapy. Therefore it is necessary to genotype donors and recipients selected for hematopoietic stem cell transplantation. Today HLA-A, HLA-B, HLA-C, HLA-DRB1 and HLA-DQB1 genes are tested by modifications of polymerase chain reaction or by sequence-based typing methods on the level of high- or low-resolution. Donors registered in bone marrow registries are selected on the basis of a 10/10 match.

Donors KIR genotype leads to a better outcome, to relapse-free survival and overall survival in treatment of patients with acute myeloid leukemia. A better protection against relapse is achieved by Cen-B/B donor haplotype. Therefore KIR typing by polymerase chain reaction is used and the genotype is compared with the IMGT/KIR database by an online B-content calculator. Donors are divided in groups according to their genotype and their influence on the success of treatment for acute myeloid leukemia.

The study of polymorphic systems and the development of genotyping donors and recipients significantly improve the outcome of hematopoietic stem cell transplantation and subsequent treatment.

Key words:

HLA, KIR, hematopoietic stem cell transplantation, HLA typing, KIR typing