

INTRODUCTION TO HLA

The HLA (human leucocyte antigen) system encodes for the major histocompatibility complex (MHC) proteins in humans. These integral cell membrane glycoproteins are responsible for the regulation of the human immune system. Studies have demonstrated that HLA is critical for disease defense, protection from cancers and organ transplant rejections. In addition, HLA can be potential biomarkers of susceptibility to some diseases or drug adverse reactions.

There are two classes of MHC, i.e., MHC class I and MHC class II. The HLA gene complex is located on a 3.6 Mb region within chromosome 6p21. They are the most polymorphic gene family found in the human genome, with more than 10,000 different HLA alleles reported to date, thus the capacity to mount an immune response can be dramatically different between individuals within a cohort selected from a single population. Thus, investigating the polymorphism is necessary and challenging and indispensable for transplant matching.

