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A Comparative Study of HLA-A Typing by Serology versus Polymerase Chain Reaction-Sequence Specific Primers.

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The level of polymorphism of the human major histocompatibility complex (HLA), has made tissue typing a complex problem. HLA class I genes have generally been determined by serological method. Tissue typing by this means is restricted by the requirement for viable cells, and the limited availability of specific allo-antisera or monoclonal antibodies. Recently, DNA typing methods are becoming more widely used as an alternative to serological typing. We describe sequence-specific primer (SSP) combinations for use in a one-step polymerase chain reaction (PCR) typing system to determine HLA-A locus specific alleles from genomic DNA. Thirty two PCR mixtures for assigning HLA-A alleles were used and amplifed DNA fragments were subjected to 2% agarose gel and stained with ethidium bromide. The results of 21 control cells correlated well with the data which were previously reported. Among 30 serologically defiend Korean samples, 85% of concordance were determined with serological typing. This technique therefore enables any laboratory which has the facility for PCR to perform tissue typing.

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Detection of HLA B-27 Gene Using Polymerase Chain Reaction in Ankylosing Spondilitis

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HLA-B27 gene, one of the HLA Class I molecule, is strongly associated with ankylosing spondylitis. It has been most frequently used as a disease-correlat ed HLA gene by clinicians. In most laboratories, conventional HLA-B27 typing is still performed by cell cytotoxicity test or fluorescence serology with specific antibodies. These methods, however, are labor intensive and take high regeant cost. In this study, more convinient and rapid DNA typing method for the determination of HLA-B27 gene was developed by using Polymerase Chain Reaction (PCR) technique. Genomic DNAs were extracted by phenol/chloroform procedure and amplified with B-27 alllele specific primers. Four HLA-B27 cell lines (HOM-2, JESTHOM, WT24 and BTB) were used for the control experiment. The results of control cell and B-27 positive samples were correlated well with the data which was performed by serological method. All of B27 positive PCR products were confirmed on southern blot hybridization using biotinylated probe. This study shows that the PCR technique is a practical tool than serological method for the determination of the HLA-B27 gene in routine clinical laboratory work.