

TEST: HLA Typing for DR (Class II) HISTOCOMPATIBILITY ANTIGENS

PRINCIPLE

Historically, the established method for the determination of HLA antigens has been the lymphocytotoxicity test. However, with the advent of PCR technologies, DNA-based tissue typing techniques have become routine in the laboratory. The PCR process is used only as an amplification step to acquire the needed target DNA. The HLA typing process then requires a post-amplification step to discriminate between the different alleles. The Micro SSP DNA typing discriminates between the different alleles during the PCR process; this shortens the post-amplification time to a simple gel electrophoresis detection step. The Micro SSP results are either positive or negative; the lymphocytotoxicity assay reaction scale can be complicated and affected by cross-reacting groups (CREGs).

HLA typing is used clinically to match organs (kidney) and tissue (bone marrow) for purposes of transplantation. HLA antigens are also known to have a strong association with immune responsiveness and disease susceptibility. The strongest association has been with the HLA-B27 antigen and certain arthritis, such as ankylosing spondylitis, Reiter's Syndrome and anterior uveitis. Also, couples with shared HLA antigens may have a history of recurrent abortion.

SPECIMEN REQUIREMENTS:

Collect 10mL blood by standard venipuncture technique **in lavender top EDTA tubes**. Specimen should be delivered to the laboratory immediately or stored overnight at room temperature. Shipment to the laboratory should be by same day or overnight courier at room temperature. Peripheral blood specimens that are clotted, have not been collected in EDTA, or frozen are not acceptable.

MEHTOD: Polymerase Chain Reaction (PCR)

REFERENCES:

1. Terasaki, P.I., Bernoco, F., Park, M.S., Ozturk, G., and Iwaki, Y. Microdroplet testing for HLA-A, -B, -C and -D antigens. *American Journal of Clinical Pathology* 69:103-120, 1978.
2. Slater, R.D. and Parham, P. Mutually exclusive public epitopes of HLA-A,B,C Molecules. *Human Immunology* 26:85-89, 1989.
3. Bodmer J., Marsh S., Albert E., Bodmer W., Bontrop R., Charron D., Dupont B., Erlich H., Mach B., Mayr W., Parham P., Sasazuki T., Schreuder G., Strominger J., Svejgaard A. and Terasaki P. Nomenclature for factors of the HLA system, 1995. *Human Immunology* 43:149-164, 1995

Turnaround Time: One Week