TEST: HLA Typing for A, B, C (Class I) HISTOCOMPATIBILITY ANTIGENS

HLA Typing for DR, DQ (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 and Next Generation Sequencing (NGs) technologies, DNA-based tissue typing techniques have become routine in the laboratory. With NGS the targeted nucleotide sequence of each loci is determined and then matched to HLA database (IMGT) to produce ultra-high resolution HLA typing. Therefore, typing with NGS substantially decreases ambiguity rates when compared to other current methods (SSO & SSP). 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:

10mL whole blood collected in lavender top EDTA tubes (two 5ml tubes). Specimen should be delivered to the laboratory within 72 hours at room temperature. Peripheral blood specimens that are clotted, have not been collected in EDTA, or frozen are not acceptable.

METHOD:

Next Generation Sequencing

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: 10 business days