Pacific Biomarkers
The Value of Expertise

IL-6 sR (Interleukin 6 Soluble Receptor)

Analyte: Interleukin 6 soluble receptor

Specimen Type: Serum, Inquire for additional option(s)

Optimum Volume: 0.1 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
1 week	2 years	2 years

Reporting Units: ng/mL

Method: ELISA

Biological or Clinical Significance:

Interleukin 6 (IL-6) is a multifunctional cytokine that has a major role in initiation and promulgation of the inflammatory and immune responses. It is produced by a wide variety or cell types including T cells, monocyte/macrophages, fibroblasts, hepatocytes, vascular endothelial cells, cardiac myxomas, bladder cell carcinomas, myelomas, astrogliomas, and glioblastomas. The effects of IL-6 on different cell types are numerous and varied. These activities include: Stimulation of production of acute phase response proteins by hepatocytes and other cells, driving B cell differentiation and antibody secretion; enhancement of differentiation of cytotoxic T cells; action as a growth factor for mature thymic or peripheral T cells, myelomas, hybridomas, plasmacytomas, keratinocytes, and mesangial cells; colony-stimulating activity on hematopoietic cells; induction of neuronal cell differentiation; and induction of maturation of megakaryocytes. Elevated IL-6 levels have been reported to be associated with a variety of diseases, including autoimmune diseases, mesangial proliferative glomerulonephritis, psoriasis, and malignancies such as plasmacytomas and myelomas.

The biological activities of IL-6 are initiated by binding of the cytokine to a high-affinity receptor complex consisting of two membrane glycoproteins: An 80 kDa component receptor that binds IL-6 with low affinity (IL-6R) and a signal-transducing component of 130 kDa (gp130) that does not bind IL-6 by itself, but is required for high-affinity binding of the IL-6 by the complex. Both components or the receptor complex, IL-6R and gp130, have been cloned, sequenced, and expressed. An ELISA method for gp130 has been validated for assay at PBI.

A soluble form of the IL-6R with a molecular weight of approximately 50 kDa has been found in the urine of healthy adult humans, in the culture medium conditioned by the growth of a human myeloma cell line, in culture supernates from PHA-stimulated human PBMC and HTLV-1-positive T cell lines, and in the serum of HIV-seropositive blood donors. This soluble form of the receptor apparently arises from proteolytic cleavage of membrane-bound IL-6R. Soluble forms of human and mouse IL-6R have also been constructed by insertion of terminal codons into the regions of the IL-6R cDNA encoding the external portions of the receptors and prior to the transmembrane domains. These soluble receptors have been expressed in COS7 and CHO cells and have been shown to bind to IL-6 in solution and to augment the activity of IL-6 as a result of the binding of the IL-6/IL-6sR complex to membrane-bound gp130. The regulation in vivo of the shedding of the soluble IL-6R and the function and significance of these soluble receptors in biological fluids is not currently well understood. It has been suggested,

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however, that pathological states involving elevated levels of IL-6 might also be associated with increased production of soluble IL-6R.

Principle of Test Method:

The IL-6sR immunoassay is a solid phase ELISA designed to measure human IL-6sR in cell culture supernates, serum, plasma, and urine. The assay employs a quantitative sandwich enzyme immunoassay technique.

References:

1. Kenis G, Teunissen C, De Jongh R, Bosmans E, Steinbusch H, and Maesa M. Stability of Interleukin 6, Soluble Interleukin 6 Receptor, Interleukin 10 and CC16 in Human Serum. Cytokine 2002; 19:228-235.