Pacific Biomarkers
The Value of Expertise

MIP-1α (Macrophage Inflammatory Protein-1 alpha)

Analyte: Macrophage Inflammatory Protein-1 alpha

Specimen Type: Serum

Optimum Volume: 1.0 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
6 days	1 month	2.8 years

Reporting Units: pg/mL

Method: ELISA

Biological or Clinical Significance:

Macrophage Inflammatory Protein-1 alpha (MIP-1 alpha) is a member of the β or CC subfamily of chemokines and is also referred to as Chemokine (C-C motif) Ligand 3 or CCL3. Additional chemokine subfamilies, classified according to their cysteine motifs, include the alpha or CXC and the gamma or C subfamilies. Chemokines share from 20 to greater than 90 percent amino acid sequence identity. Most chemokines have been shown to possess chemoattractant activity and to play key roles in immunoregulatory and inflammatory processes.

Human MIP-1 alpha cDNA encodes a 92 amino acid (aa) residue precursor protein with a 22 aa residue signal peptide that is cleaved to generate the secreted mature protein. MIP-1 alpha has been shown to be produced by activated T cells, B cells, monocytes, mast cells, neutrophils, Langerhans cells, astrocytes, endothelial cells, fibroblasts and smooth muscle cells. The gene for MIP-1 alpha has been mapped to chromosome 17, along with all other human β chemokine genes.

Like other β chemokines, MIP-1 alpha is a monocyte chemoattractant. In addition, MIP-1 alpha has also been reported to have differential chemoattractant and pro-adhesive effects on T-lymphocytes, NK cells, cytotoxic T cells, B cells, basophils, and eosinophils. MIP-1 alpha has been identified as a stem cell inhibitor (SCI) that can inhibit the proliferation of hematopoietic progenitor cells both in vitro and in vivo (reference 1). Increased levels of MIP-1 alpha have been observed in multiple myeloma and chronic lymphocytic leukemia patients. MIP-1 alpha expression has also been observed in human plaques and can be released by activated platelets on the endothelium. It has been suggested that MIP1 alpha could play a role in plaque destabilization MIP-1 alpha, MIP-1beta, and RANTES have been implicated as the major HIV-suppressive factors produced by CD8+ T cells.

Principle of Test Method:

The MIP-1 alpha immunoassay is a solid-phase ELISA designed to measure human CA IX in cell culture supernates, serum, plasma, and urine. This assay employs the quantitative sandwich enzyme immunoassay technique.

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