



MIP-1 α (MACROPHAGE INFLAMMATORY PROTEIN 1, ALPHA)

The Singulex MIP-1 α assay provides supreme sensitivity and a broad dynamic range for accurate quantification of MIP-1 α concentrations in plasma, further enhancing the cytokine's diagnostic utility for inflammatory disorders .

BIOLOGY AND DISEASES

Macrophage Inflammatory Protein-1 alpha (MIP-1 α) is a chemokine involved in the chemotaxis of monocytes and lymphocytes. This protein is expressed by mast cells, T-, B-cells, neutrophils, fibroblasts and monocytes. As a member of the C-C chemokine subgroup, MIP-1 α is an important mediator of the host defense system. During pathogen invasion, MIP-1 α acts as a chemo-attractant to induce the migration of monocytes, natural killer cells and cytotoxic T-cells to the site of infection. In addition, MIP-1 α stimulates the proliferation of other cytokines such as IL-1, IL-6 and TNF- α . As a result of its pro-inflammatory properties, MIP-1 α has been associated with the pathogenesis of HIV, gram-positive sepsis and the development of inflammatory responses following trauma-induced hemorrhage.

THERAPIES

MIP-1 α has received intense research interest due to its role in the host inflammatory response. Its ability to recruit leukocytes and macrophages to destroy tumor cells has potential value in anti-cancer treatments. In preclinical and clinical studies, MIP-1 α has demonstrated excellent potency as a vaccine adjuvant for HIV and leukemia. Other therapeutic interventions are looking to lessen the extent of inflammatory responses by reducing the circulating level of MIP-1 α following trauma-induced hemorrhage.

UNMET NEED

The extensive involvement of MIP-1 α in leukocyte chemotaxis and regulation of hematopoiesis ensures that MIP-1 α will remain an attractive therapeutic target. Preliminary data suggests that MIP-1 α is a potential diagnostic marker for cancer, HIV and other inflammatory disorders. However, studies performed with currently available ELISA technology have difficulty detecting significant differences in MIP-1 α concentrations between healthy and diseased subjects. Therefore, it is important to have a high sensitivity assay that can establish baseline MIP-1 α concentration in healthy subjects and monitor small concentration changes during disease progression.

SINGULEX ANSWER

Singulex's MIP-1 α assay, optimized for use on the Erenna System, enables quantification of low concentrations of plasma MIP-1 α . The Singulex assay has an LLoQ of 1.9 pg/mL and a reading range of 0.21-1000 pg/mL, allowing accurate measurements over a broad spectrum of sample concentrations.

This assay will allow investigators to:

1. Accurately measure changes in plasma MIP-1 α concentrations to evaluate the effectiveness of vaccine treatments designed to combat cancer or HIV.
2. Design robust clinical and preclinical studies when MIP-1 α is used as a therapeutic endpoint.
3. Understand how MIP-1 α concentrations change in patients as they transition from a healthy to diseased state.

ERENNA TECHNOLOGY ACCESS PROGRAM.

Through the Erenna Technology Access Program (ETAP), Singulex offers an interactive, results-driven solution to biomarker challenges faced by the pharmaceutical industry during product development. Singulex assists the development programs of our ETAP collaborators by developing customer-driven assays and access to a menu of fully-validated assays. Participants in ETAP gain access to the Singulex Erenna Immunoassay System, our proven expertise developing high-value immunoassays and our world-class customer support. Together with Singulex, our ETAP collaborators are expanding the utility of protein biomarkers and using them as tools to measure disease progression, drug efficacy and toxicity.

TABLE 1: Analytical sensitivity of the Singulex MIP-1 α assay.

Lower Limit of Detection (LoD)	0.21 pg/mL
Lower Limit of Quantification (LLoQ)	1.9 pg/mL
Reading Range	0.21-1000 pg/mL

Erenna[®] System



TABLE 2: MIP-1 α assay low-end standard curve data.

[MIP-1 α] pg/mL	Detected Events	Std Dev	CV
37.0	5139	106	2%
12.35	1011	56	6%
4.12	289	25	9%
1.37	140	12	8%
0.46	100	17	17%
0.00	87	8	9%

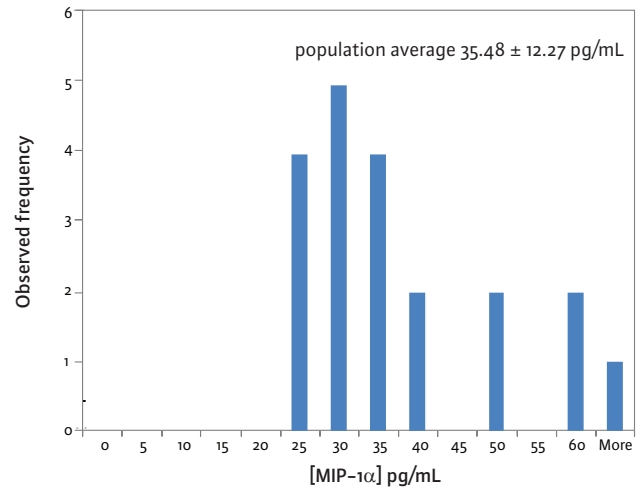


FIGURE 1: Plasma MIP-1 α concentration in healthy human subjects.

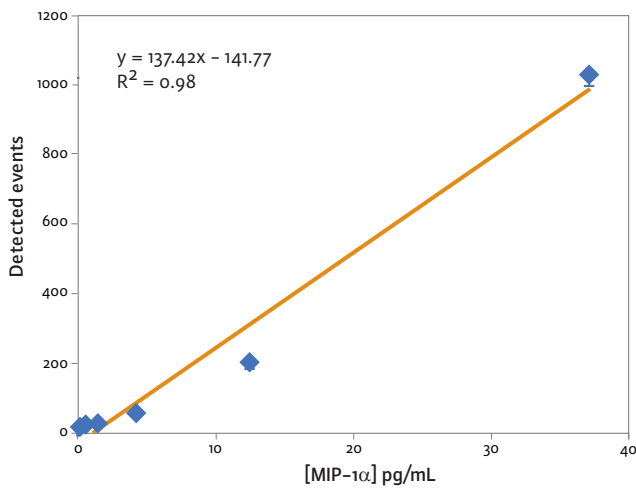


FIGURE 2: MIP-1 α low-end standard curve signal.

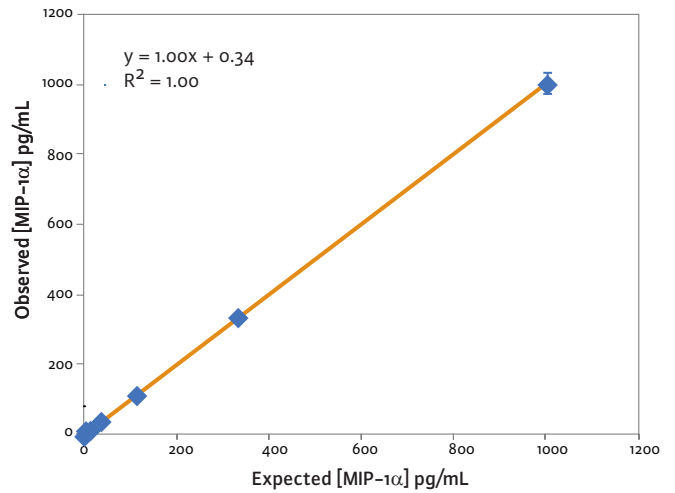


FIGURE 3: MIP-1 α assay curve fit.

These standard curves are for representational purposes only. A standard curve must be run with each assay.

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