Cytokines

Human Recombinant MIP-1 beta (CCL4)

Macrophage inflammatory protein-1 beta

Catalog #	78090	5 µg
	78090.1	25 µg

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Product Description

Macrophage inflammatory protein-1 beta (MIP-1 beta), also known as CCL4, is a member of CC family of chemokines and is most closely related to CCL3 or MIP-1 alpha. MIP-1 beta is predominantly synthesized by activated CD8+ T cells, specifically the perforin-low memory CD8+ T cells (Kamin-Lewis et al.). MIP-1 beta signals through CCR5 which is the major coreceptor required for entry of certain strains of HIV-1 into permissive cells and it is known that HIV-1-specific CD8+ T cell clones that exhibit cytotoxic T lymphocyte (CTL) activity secrete MIP-1 beta upon encounter with sensitized target cells (Menten et al.). MIP-1 beta attracts a variety of immune cells to sites of microbial infection. In vitro experiments show that human MIP-1 beta tends to attract CD4+ T lymphocytes, preferentially of the naive (CD45RA) phenotype (Schall et al.). In addition to its chemotactic functions, MIP-1 beta induces the release of proinflammatory cytokines, mast cell degranulation, and NK cell activation (Schall et al.). It has been shown that there is an increased expression of MIP-1 beta in CD8+ and CD4+ T cells on the site of inflammation in sarcoidosis patients (Barczyk et al.).

Product Information

Alternative Names:	ACT-2, Immune activation protein 2, LAG-1, Lymphocyte activation gene 1 protein, MIP-1b, Protein H400, SCYA2, SCYA4, Small-inducible cytokine A4, T-cell activation protein 2
Accession Number:	P13236
Amino Acid Sequence:	APMGSDPPTA CCFSYTARKL PRNFVVDYYE TSSLCSQPAV VFQTKRSKQV CADPSESWVQ EYVYDLELN
Predicted Molecular Mass:	7.6 kDa
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	E. coli

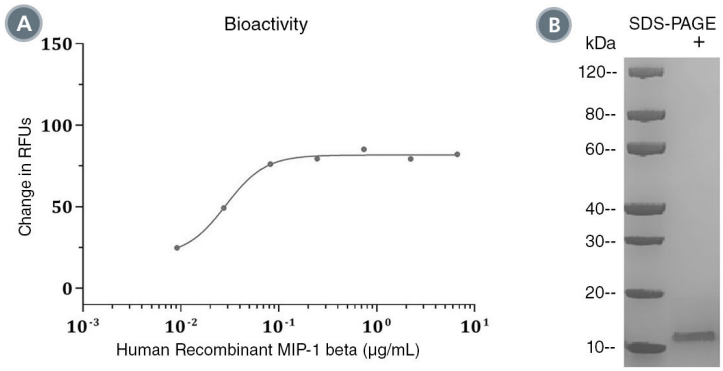
Specifications

Activity:	The specific activity is ≥ 1 x 10^4 units/mg (EC50 ≤ 0.1 µg/mL) as determined by Ca2+ mobilization assay in CHO-K1/Gα15/hCCR5 cells (human Gα15 and human CCR5 stably expressed in CHO-K1 cells).
Purity:	≥ 95 %
Endotoxin Level:	Measured by kinetic limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Resuspend the product in sterile water or phosphate-buffered saline to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 2 weeks or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant MIP-1 beta (CCL4) was tested by its ability to mobilize Ca2+ in CHO-K1/Gα15/hCCR5 cells (human Gα15 and human CCR5 stably expressed in CHO-K1 cells). Ca2+ mobilization was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which Ca2+ mobilization is at 50% of maximum. The EC50 in the example above is less than 0.1 µg/mL.
(B) 1 µg of Human Recombinant MIP-1 beta (CCL4) was resolved with SDS-PAGE under reducing (+) conditions and visualized by Coomassie Blue staining. Human Recombinant MIP-1 beta (CCL4) has a predicted molecular mass of 7.6 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Barczyk A et al. (2014) Increased expression of CCL4/MIP-1β in CD8+ cells and CD4+ cells in sarcoidosis. Int J Immunopathol Pharmacol 27(2): 185–93.
Kamin-Lewis R et al. (2001) Perforin-low memory CD8+ cells are the predominant T cells in normal humans that synthesize the beta-chemokine macrophage inflammatory protein-1beta. Proc Natl Acad Sci U S A 98(16): 9283–8.
Menten P et al. (2002) Macrophage inflammatory protein-1. Cytokine Growth Factor Rev 13(6): 455–81.
Schall TJ et al. (1993) Human macrophage inflammatory protein alpha (MIP-1 alpha) and MIP-1 beta chemokines attract distinct populations of lymphocytes. J Exp Med 177(6): 1821–6.