

Cytokines

Human Recombinant MIP-1 beta (CCL4)

Macrophage inflammatory protein-1
beta

Catalog # 78090
78090.1

5 µg
25 µg



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Product Description

Macrophage inflammatory protein-1 beta (MIP-1 beta), also known as CCL4, is a member of the 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 encountering 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 naïve (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 at 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 CADPSES VWQ EYVYDLELN
Predicted Molecular Mass:	7.6 kDa
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	E. coli

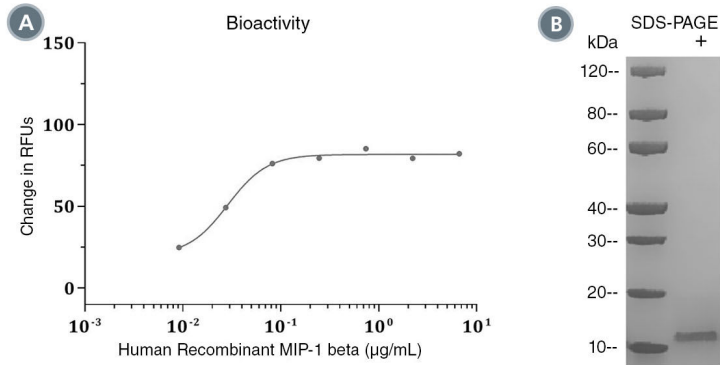
Specifications

Activity:	The specific activity is $\geq 1 \times 10^4$ units/mg ($EC_{50} \leq 0.1 \mu\text{g/mL}$) as determined by Ca^{2+} mobilization assay in CHO-K1/ $\text{G}\alpha 15/\text{hCCR5}$ cells (human $\text{G}\alpha 15$ and human CCR5 stably expressed in CHO-K1 cells).
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte 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. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. As a general guide, do not store at $2 - 8^\circ\text{C}$ for more than 1 week or at -20°C for more than 2 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 Ca^{2+} in CHO-K1/ $\text{G}\alpha 15/\text{hCCR5}$ cells (human $\text{G}\alpha 15$ and human CCR5 stably expressed in CHO-K1 cells). Ca^{2+} mobilization was measured using a fluorometric assay method. The EC_{50} is defined as the effective concentration of the growth factor at which Ca^{2+} mobilization is at 50% of maximum. The EC_{50} in the above example is less than $0.1 \mu\text{g/mL}$.

(B) $1 \mu\text{g}$ 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, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

- Barczyk A et al. (2014) Increased expression of CCL4/MIP-1 β 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 USA* 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.

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