

# MIP-1 $\beta$ siRNA (m): sc-45996

## BACKGROUND

Chemokines are members of a superfamily of small inducible, secreted, pro-inflammatory cytokines. Members of the chemokine family exhibit 20 to 50% homology in their predicted amino acid sequences and are divided into four subfamilies. In C-C (or  $\beta$ ) subfamily, the first two cysteines are adjacent. C-C chemokines are chemoattractants and activators for monocytes and T cells. C-C subfamily members include macrophage inflammatory protein (MIP)-1 $\alpha$ , MIP-1 $\beta$ , MIP-2, MIP-3 $\alpha$ , MIP-3 $\beta$ , MIP-4, HCC-1, MIP-5 (or HCC-2), RANTES, MCP-1/2/3 (and the murine homologs JE and MARC), I-309, murine C10 and TCA3. Research has shown that MIP-1 $\beta$  is more selective than MIP-1 $\alpha$ , primarily attracting CD4<sup>+</sup> T lymphocytes, with a preference for T cells of the naive phenotype. MIP-1 $\alpha$  is a more potent lymphocyte chemoattractant than MIP-1 $\beta$  and exhibits a broader range of chemoattractant specificities. It has been suggested that CD8<sup>+</sup> T lymphocytes are involved in the control of HIV infection *in vivo* by the release of HIV-suppressive factors (HIV-SF). MIP-1 $\alpha$  has been identified as one of the major HIV-SFs produced by CD8<sup>+</sup> T cells, along with MIP-1 $\beta$  and RANTES. Recombinant human MIP-1 $\alpha$  acts as an inhibitor of different strains of HIV-1, HIV-2 and SIV infection in a dose-dependent manner.

## REFERENCES

1. Zipfel, P.F., et al. 1989. Mitogenic activation of human T cells induces two closely related genes which share structural similarities with a new family of secreted factors. *J. Immunol.* 142: 1582-1590.
2. Widmer, U., et al. 1993. Genomic cloning and promoter analysis of macrophage inflammatory protein MIP-2, MIP-1 $\alpha$ , and MIP-1 $\beta$ , members of the chemokine superfamily of proinflammatory cytokines. *J. Immunol.* 150: 4996-5012.
3. Schall, T.J., 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: 1821-1826.
4. Ugucioni, M., et al. 1995. Actions of the chemotactic cytokines MCP-1, MCP-2, MCP-3, RANTES, MIP-1 $\alpha$  and MIP-1 $\beta$  on human monocytes. *Eur. J. Immunol.* 25: 64-68.

## CHROMOSOMAL LOCATION

Genetic locus: Ccl4 (mouse) mapping to 11 C.

## PRODUCT

MIP-1 $\beta$  siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MIP-1 $\beta$  shRNA Plasmid (m): sc-45996-SH and MIP-1 $\beta$  shRNA (m) Lentiviral Particles: sc-45996-V as alternate gene silencing products.

For independent verification of MIP-1 $\beta$  (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45996A, sc-45996B and sc-45996C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$  C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$  C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

MIP-1 $\beta$  siRNA (m) is recommended for the inhibition of MIP-1 $\beta$  expression in mouse cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

MIP-1 $\beta$  (B-7): sc-393441 is recommended as a control antibody for monitoring of MIP-1 $\beta$  gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MIP-1 $\beta$  gene expression knockdown using RT-PCR Primer: MIP-1 $\beta$  (m)-PR: sc-45996-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60 $^{\circ}$  C and the extension temperature should be 68-72 $^{\circ}$  C.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.