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MCP-1 siRNA (h): sc-43913

BACKGROUND

Eotaxin and the monocyte chemotactic proteins, MCP-1–5, form a subfamily of the C-C (or β) chemokines, which are characterized by a set of conserved adjacent cysteines. MCPs are produced by a variety of cells, including T lymphocytes, subsequent to their activation with cytokines such as IL-1, TNF α and IFN- γ . *In vitro* studies have shown that the MCP isoforms exhibit their chemotactic effects on different subpopulations of lymphocytes. MCP-1 is a potent basophil activator but does not affect eosinophils. MCP-1 levels are increased during infection and inflammation, which are both characterized by leukocyte infiltration. Two MCP-1 receptors, which differ in their carboxy-termini, have been identified.

REFERENCES

1. Charo, I.F., et al. 1994. Molecular cloning and functional expression of two monocyte chemoattractant protein-1 receptors reveals alternative splicing of the carboxyl-terminal tails. *Proc. Natl. Acad. Sci. USA* 91: 2752-2756.
2. Taub, D.D., et al. 1995. Monocyte chemotactic protein-1 (MCP-1), -2 and -3 are chemotactic for human T lymphocytes. *J. Clin. Invest.* 95: 1370-1376.
3. Weber, M., et al. 1995. Monocyte chemotactic protein MCP-2 activates human basophil and eosinophil leukocytes similar to MCP-3. *J. Immunol.* 154: 4166-4172.

CHROMOSOMAL LOCATION

Genetic locus: CCL2 (human) mapping to 17q12.

PRODUCT

MCP-1 siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MCP-1 shRNA Plasmid (h): sc-43913-SH and MCP-1 shRNA (h) Lentiviral Particles: sc-43913-V as alternate gene silencing products.

For independent verification of MCP-1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43913A, sc-43913B and sc-43913C.

STORAGE AND RESUSPENSION

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

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

APPLICATIONS

MCP-1 siRNA (h) is recommended for the inhibition of MCP-1 expression in human 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 μ M in 66 μ 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

MCP-1 (5J): sc-32771 is recommended as a control antibody for monitoring of MCP-1 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 κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MCP-1 gene expression knockdown using RT-PCR Primer: MCP-1 (h)-PR: sc-43913-PR (20 μ l, 474 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, H.J., et al. 2015. Mesenchymal stem/stromal cells protect against autoimmunity via CCL2-dependent recruitment of myeloid-derived suppressor cells. *J. Immunol.* 194: 3634-3645.
2. Zhang, J., et al. 2016. Benzopyrene promotes lung cancer A549 cell migration and invasion through up-regulating cytokine IL8 and chemokines CCL2 and CCL3 expression. *Exp. Biol. Med.* 241: 1516-1523.
3. Xu, M., et al. 2016. Role of MCP-1 in alcohol-induced aggressiveness of colorectal cancer cells. *Mol. Carcinog.* 55: 1002-1011.
4. Zannotto-Filho, A., et al. 2017. Inflammatory landscape of human brain tumors reveals an NF κ B dependent cytokine pathway associated with mesenchymal glioblastoma. *Cancer Lett.* 390: 176-187.
5. Ko, J.H., et al. 2017. Ly6C^{hi} monocytes are required for mesenchymal stem/stromal cell-induced immune tolerance in mice with experimental autoimmune uveitis. *Biochem. Biophys. Res. Commun.* 494: 6-12.

RESEARCH USE

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