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MCP-1 siRNA (m): sc-43914

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.
4. Combadiere, C., et al. 1995. Monocyte chemoattractant protein-3 is a functional ligand for C-C chemokine receptors 1 and 2B. *J. Biol. Chem.* 270: 29671-29675.
5. Proost, P., et al. 1996. Human monocyte chemotactic proteins-2 and -3: structural and functional comparison with MCP-1. *J. Leukoc. Biol.* 59: 67-74.

CHROMOSOMAL LOCATION

Genetic locus: Ccl2 (mouse) mapping to 11 B5.

PRODUCT

MCP-1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MCP-1 shRNA Plasmid (m): sc-43914-SH and MCP-1 shRNA (m) Lentiviral Particles: sc-43914-V as alternate gene silencing products.

For independent verification of MCP-1 (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-43914A, sc-43914B and sc-43914C.

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 (m) is recommended for the inhibition of MCP-1 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 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 (ECE.2): sc-52701 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MCP-1 gene expression knockdown using RT-PCR Primer: MCP-1 (m)-PR: sc-43914-PR (20 μ l, 304 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Gao, Y.J., et al. 2010. Spinal injection of TNF- α -activated astrocytes produces persistent pain symptom mechanical allodynia by releasing monocyte chemoattractant protein-1. *Glia* 58: 1871-1880.
2. Tsukahara, T., et al. 2012. Lysophosphatidic acid stimulates MCP-1 secretion from C2C12 myoblast. *ISRN Inflamm.* 2012: 983420.
3. Matsuda, K., et al. 2017. Mast cell hyperactivity underpins the development of oxygen-induced retinopathy. *J. Clin. Invest.* 127: 3987-4000.
4. Chen, Y., et al. 2018. SAK-HV promotes RAW264.7 cells migration mediated by MCP-1 via JNK and NF κ B pathways. *Int. J. Biol. Sci.* 14: 1993-2002.
5. Yang, R., et al. 2018. Hydrogen sulfide promotes immunomodulation of gingiva-derived mesenchymal stem cells via the Fas/FasL coupling pathway. *Stem Cell Res. Ther.* 9: 62.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.