SANTA CRUZ BIOTECHNOLOGY, INC.

M-CSF siRNA (m): sc-39394

BACKGROUND

The macrophage colony-stimulating factor (M-CSF), also designated CSF-1, was originally discovered in serum, urine and other biological fluids as a factor that can stimulate the formation of macrophage colonies from bone marrow hematopoietic progenitor cells. M-CSF is a homodimeric cytokine that is produced by fibroblasts, epithelial cells, bone marrow stromal cells, osteoblasts, keratinocytes, macrophages, T cells and B cells. M-CSF is a glycoprotein required for the proliferation and differentiation of mononuclear phagocytes, including osteoclasts. M-CSF has also been identified as an important mediator of the inflammatory response and can regulate the release of proinflammatory cytokines from macrophages. M-CSF exerts its pleiotropic effects by binding to a single type of high affinity cell surface receptor that is encoded by the c-Fms proto-oncogene.

REFERENCES

1. Stanley, E.R., et al. 1977. Factors regulating macrophage production and growth. Purification and some properties of the colony stimulating factor from medium conditioned by mouse L cells. J. Biol. Chem. 252: 4305-4312.
2. Das, S.K., et al. 1981. Human colony-stimulating factor (CSF-1) radioimmunoassay: resolution of three subclasses of human colony-stimulating factors. Blood 58: 630-641.
3. Wong, G.G., et al. 1987. Human CSF-1: molecular cloning and expression of 4-kb cDNA encoding the human urinary protein. Science 235: 1504-1508.
4. Pollard, J.W., et al. 1987. Apparent role of the macrophage growth factor, CSF-1, in placental development. Nature 330: 484-486.

CHROMOSOMAL LOCATION

Genetic locus: Csf1 (mouse) mapping to 3 F2.3.

PRODUCT

M-CSF 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see M-CSF shRNA Plasmid (m): sc-39394-SH and M-CSF shRNA (m) Lentiviral Particles: sc-39394-V as alternate gene silencing products.

For independent verification of M-CSF (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-39394A, sc-39394B and sc-39394C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

M-CSF siRNA (m) is recommended for the inhibition of M-CSF 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 µM in 66 µl. 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

M-CSF (D-4): sc-365779 is recommended as a control antibody for monitoring of M-CSF 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 M-CSF gene expression knockdown using RT-PCR Primer: M-CSF (m)-PR: sc-39394-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, W., et al. 2017. Lymphatic endothelial cells produce M-CSF, causing massive bone loss in mice. J. Bone Miner. Res. 32: 939-950.
2. Wang, W., et al. 2019. Lymphatic endothelial cells produce M-CSF, causing massive bone loss in mice. J. Bone Miner. Res. 34: 2162.

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.