SANTA CRUZ BIOTECHNOLOGY, INC.

TSG-6 siRNA (m): sc-39820

BACKGROUND

The TSG-6 gene is transcribed in normal fibroblasts and activated by binding of the cytokines TNFα and IL-1 at AP-1 and NF-IL6 sites in its promoter. TSG-6 is a glycoprotein and a member of the hyaluronan-binding protein family, which includes cartilage link protein, proteoglycan core protein and the adhesion receptor CD44. TSG-6 is highly homologous to CD44, particularly in the hyaluronic acid-binding domain. TSG-6 is found in TNF-treated cells; its expression is rapidly activated by TNFα, IL-1 and lipopolysaccharide in normal fibroblasts, peripheral blood mononuclear cells, synovial cells and chondrocytes. The presence of TSG-6 in synovial fluid suggests a possible role in rheumatoid arthritis. TSG-6 forms a stable complex with components of the serine protease inhibitor, inter-α-inhibitor (Iαl)). TSG-6 potentiates the inhibitory effect of Iαl on the protease activity of plasmin. Through their cooperative inhibitory effect on plasmin, TSG-6 and Iαl can modulate the protease network and thus inhibit inflammation.

REFERENCES

1. Lee, T.H., et al. 1992. A novel secretory tumor necrosis factor-inducible protein (TSG-6) is a member of the family of hyaluronate binding proteins, closely related to the adhesion receptor CD44. J. Cell Biol. 116: 545-557.
2. Wisniewski, H.G., et al. 1993. TSG-6: a TNF-, IL-1-, and LPS-inducible secreted glycoprotein associated with arthritis. J. Immunol. 151: 6593-6601.

CHROMOSOMAL LOCATION

Genetic locus: Tnfaip6 (mouse) mapping to 2 C1.1.

PRODUCT

TSG-6 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 TSG-6 shRNA Plasmid (m): sc-39820-SH and TSG-6 shRNA (m) Lentiviral Particles: sc-39820-V as alternate gene silencing products.

For independent verification of TSG-6 (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-39820A, sc-39820B and sc-39820C.

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

TSG-6 siRNA (m) is recommended for the inhibition of TSG-6 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

TSG-6 (A38.1.20): sc-65886 is recommended as a control antibody for monitoring of TSG-6 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 TSG-6 gene expression knockdown using RT-PCR Primer: TSG-6 (m)-PR: sc-39820-PR (20 µl, 412 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, Y., et al. 2014. Mesenchymal stem cells inhibit lipopolysaccharide-induced inflammatory responses of BV2 microglial cells through TSG-6. J. Neuroinflammation 11: 135.
2. Liu, Y., et al. 2014. MSCs inhibit bone marrow-derived DC maturation and function through the release of TSG-6. Biochem. Biophys. Res. Commun. 450: 1409-1415.
3. Qiu, J.L., et al. 2015. The selective mGluR5 agonist CHPG attenuates SO2-induced oxidative stress and inflammation through TSG-6/NFκB pathway in BV2 microglial cells. Neurochem. Int. 85-86: 46-52.
4. Li, Y., et al. 2019. Cell-cell contact with proinflammatory macrophages enhances the immunotherapeutic effect of mesenchymal stem cells in two abortion models. Cell. Mol. Immunol. 16: 908-920.
5. Liu, Y., et al. 2019. Mesenchymal stem cells enhance microglia M2 polarization and attenuate neuroinflammation through TSG-6. Brain Res. 1724: 146422.
6. Liu, C. and Sun, J. 2020. Impact of marine-based biomaterials on the immunoregulatory properties of bone marrow-derived mesenchymal stem cells: potential use of fish collagen in bone tissue engineering. ACS Omega 5: 28360-28368.

RESEARCH USE

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