

TSG-6 siRNA (h): sc-39819

BACKGROUND

The TSG6 gene is transcribed in normal fibroblasts and activated by binding of the cytokines TNF α 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 TNF α , 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 (I α I). TSG-6 potentiates the inhibitory effect of I α I on the protease activity of plasmin. Through their cooperative inhibitory effect on plasmin, TSG-6 and I α I 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. Lee, T.H., et al. 1993. Transcriptional regulation of TSG-6, a tumor necrosis factor- and interleukin-1-inducible primary response gene coding for a secreted hyaluronan-binding protein. *J. Biol. Chem.* 268: 6154-6160.

CHROMOSOMAL LOCATION

Genetic locus: TNFAIP6 (human) mapping to 2q23.3.

PRODUCT

TSG-6 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 TSG-6 shRNA Plasmid (h): sc-39819-SH and TSG-6 shRNA (h) Lentiviral Particles: sc-39819-V as alternate gene silencing products.

For independent verification of TSG-6 (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-39819A, sc-39819B and sc-39819C.

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

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

TSG-6 (E-1): sc-377277 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 (h)-PR: sc-39819-PR (20 μ l, 473 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, R.H., et al. 2009. Intravenous hMSCs improve myocardial infarction in mice because cells embolized in lung are activated to secrete the anti-inflammatory protein TSG-6. *Cell Stem Cell* 5: 54-63.
2. Choi, H., et al. 2011. Anti-inflammatory protein TSG-6 secreted by activated MSCs attenuates zymosan-induced mouse peritonitis by decreasing TLR2/NF κ B signaling in resident macrophages. *Blood* 118: 330-338.
3. Oh, J.Y., et al. 2012. Intravenous mesenchymal stem cells prevented rejection of allogeneic corneal transplants by aborting the early inflammatory response. *Mol. Ther.* 20: 2143-2152.
4. Kota, D.J., et al. 2013. TSG-6 produced by hMSCs delays the onset of autoimmune diabetes by suppressing Th1 development and enhancing tolerogenicity. *Diabetes* 62: 2048-2058.
5. Cheng, B., et al. 2014. TSG-6 mediates the effect of tendon derived stem cells for rotator cuff healing. *Eur. Rev. Med. Pharmacol. Sci.* 18: 247-251.
6. Ko, J.H., et al. 2016. Mesenchymal stem/stromal cells precondition lung monocytes/macrophages to produce tolerance against allo- and autoimmunity in the eye. *Proc. Natl. Acad. Sci. USA* 113: 158-163.
7. Li, Q., et al. 2018. TSG-6 secreted by human adipose tissue-derived mesenchymal stem cells ameliorates severe acute pancreatitis via ER stress downregulation in mice. *Stem Cell Res. Ther.* 9: 255.

RESEARCH USE

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