SANTA CRUZ BIOTECHNOLOGY, INC.

ST2 siRNA (h): sc-40035

BACKGROUND

The orphan receptor ST2/T1 is a member of the IL-1R family, although it does not bind IL-1α, IL-1β or IL-1R antagonist, and it is preferentially expressed on the surface of T helper cell type 2 (Th2) cells, but not Th1 cells. The gene encoding human ST2 maps to chromosome 2q12.1 and its transcription is controlled by two distinct promoters: an upstream promoter, which directs transcription in hematopoietic cells; and a downstream promoter, which directs transcription in fibroblasts. ST2 is also alternatively spliced to produce three variants: the secreted soluble form (ST2), which is expressed in fibroblasts; the membrane-bound form (ST2L), which is expressed in hematopoietic cells; and ST2V, which is localized on the plasma membrane and is expressed in the stomach, small intestine and colon. ST2 has immunoregulatory properties and, therefore, may have therapeutic potential as an anti-inflammatory agent.

REFERENCES

1. Bergers, G., et al. 1994. Alternative promoter usage of the Fos-responsive gene Fit-1 generates mRNA isoforms coding for either secreted or membrane-bound proteins related to the IL-1 receptor. EMBO J. 13: 1176-1188.
2. Tominaga, S., et al. 1996. Assignment of the human ST2 gene to chromosome 2 at q11.2. Hum. Genet. 97: 561-563.
3. Gachter, T., et al. 1996. Transcription of the interleukin-1 receptor-related T1 gene is initiated at different promoters in mast cells and fibroblasts. J. Biol. Chem. 271: 124-129.
4. Gayle, M.A., et al. 1996. Cloning of a putative ligand for the T1/ST2 receptor. J. Biol. Chem. 271: 5784-5789.
5. Meisel, C., et al. 2001. Regulation and function of T1/ST2 expression on $CD4^+$ T cells: induction of type 2 cytokine production by T1/ST2 cross-linking. J. Immunol. 166: 3143-3150.
6. Sweet, M.J., et al. 2001. A novel pathway regulating lipopolysaccharide-induced shock by ST2/T1 via inhibition of Toll-like receptor 4 expression. J. Immunol. 166: 6633-6639.
7. Kuroiwa, K., et al. 2001. Identification of human ST2 protein in the sera of patients with autoimmune diseases. Biochem. Biophys. Res. Commun. 284: 1104-1108.

CHROMOSOMAL LOCATION

Genetic locus: IL1RL1 (human) mapping to 2q12.1.

PRODUCT

ST2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ST2 shRNA Plasmid (h): sc-40035-SH and ST2 shRNA (h) Lentiviral Particles: sc-40035-V as alternate gene silencing products.

For independent verification of ST2 (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-40035A, sc-40035B and sc-40035C.

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

ST2 siRNA (h) is recommended for the inhibition of ST2 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 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

ST2 (14J07): sc-74296 is recommended as a control antibody for monitoring of ST2 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 ST2 gene expression knockdown using RT-PCR Primer: ST2 (h)-PR: sc-40035-PR (20 µl, 561 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Han, L., et al. 2017. Interleukin-33 promotes inflammation-induced lymphangiogenesis via ST2/TRAF6-mediated Akt/eNOS/NO signalling pathway. Sci. Rep. 7: 10602.

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.