SANTA CRUZ BIOTECHNOLOGY, INC.

Stat6 siRNA (h): sc-29497

BACKGROUND

Membrane receptor signaling by various ligands, including interferons and growth hormones such as EGF, induces activation of JAK kinases which then leads to tyrosine phosphorylation of proteins that have been designated Stats (signal transducers and activators of transcription. The first members of this family to be described include Stat1α p91, Stat1β p84 (a form of p91 that lacks 38 COOH-terminal amino acids) and Stat2 p113. Stat1 and Stat2 are induced by IFN-α and form a heterodimer which is part of the ISGF3 transcription factor complex. Stat3, which becomes activated in response to epidermal growth factor (EGF) and interleukin-6 (IL-6), but not interferon-γ (IFN-γ) or Stat4, is an additional member of this family. It has been suggested that the phosphorylated forms of both Stat3 and Stat4 form homodimers as well as heterodimers with the other members of the Stat family, and that differential activation of different Stat proteins in response to different ligands should help to explain specificity in nuclear signaling from the cell surface. Highest expression of Stat4 is seen in testis and myeloid cells. IL-12 has been identified as an activator of Stat4. Other members of the Stat family include Stat5, which has been shown to be activated by prolactin and by IL-3, and Stat6 (also designated IL-4 Stat), which is involved in IL-4-activated signaling pathways.

CHROMOSOMAL LOCATION

Genetic locus: STAT6 (human) mapping to 12q13.3.

PRODUCT

Stat6 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 Stat6 shRNA Plasmid (h): sc-29497-SH and Stat6 shRNA (h) Lentiviral Particles: sc-29497-V as alternate gene silencing products.

For independent verification of Stat6 (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-29497A, sc-29497B and sc-29497C.

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

Stat6 siRNA (h) is recommended for the inhibition of Stat6 expression in human cells.

PROTOCOLS

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

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

Stat6 (D-1): sc-374021 is recommended as a control antibody for monitoring of Stat6 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 Stat6 gene expression knockdown using RT-PCR Primer: Stat6 (h)-PR: sc-29497-PR (20 µl, 472 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Koon, H.W., et al. 2006. Substance P stimulates cyclooxygenase-2 and prostaglandin E2 expression through JAK-Stat activation in human colonic epithelial cells. J. Immunol. 176: 5050-5059.
2. Kim, H.J., et al. 2011. Cisplatin ototoxicity involves cytokines and Stat6 signaling network. Cell Res. 21: 944-956.
3. Kim, H.D., et al. 2013. Interleukin-4 induces senescence in human renal carcinoma cell lines through Stat6 and p38 MAPK. J. Biol. Chem. 288: 28743-28754.
4. Xie, T., et al. 2015. Rho-kinase inhibitor fasudil reduces allergic airway inflammation and mucus hypersecretion by regulating Stat6 and NFκB. Clin. Exp. Allergy 45: 1812-1822.
5. Li, W., et al. 2016. Hedgehog signaling activation in hepatic stellate cells promotes angiogenesis and vascular mimicry in hepatocellular carcinoma. Cancer Invest. 34: 424-430.
6. Yamaga, K., et al. 2017. Detailed analysis of a superficial CD34-positive fibroblastic tumor: a case report and review of the literature. Oncol. Lett. 14: 3395-3400.
7. He, Z., et al. 2019. CITED2 mediates the cross-talk between mechanical loading and IL-4 to promote chondroprotection. Ann. N.Y. Acad. Sci. 1442: 128-137.

RESEARCH USE

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