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SANTA CRUZ BIOTECHNOLOGY, INC.

Stat1 siRNA (h): sc-44123

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 the various Stat transcription factors. Stat1 and Stat2 are induced by IFN-α and form a heterodimer which is part of the ISGF3 transcription factor complex. Although early reports indicate Stat3 activation by EGF and IL-6, it has been shown that Stat3β appears to be activated by both while Stat3α is activated by EGF, but not by IL-6. Highest expresion of Stat4 is seen in testis and myeloid cells. IL-12 has been identified as an activator of Stat4. Stat5 has been shown to be activated by prolactin and by IL-3. Stat6 is involved in IL-4 activated signaling pathways.

CHROMOSOMAL LOCATION

Genetic locus: STAT1 (human) mapping to 2q32.2.

PRODUCT

Stat1 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 Stat1 shRNA Plasmid (h): sc-44123-SH and Stat1 shRNA (h) Lentiviral Particles: sc-44123-V as alternate gene silencing products.

For independent verification of Stat1 (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-44123A, sc-44123B and sc-44123C.

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

Stat1 siRNA (h) is recommended for the inhibition of Stat1 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

Stat1 (C-136): sc-464 is recommended as a control antibody for monitoring of Stat1 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 Stat1 gene expression knockdown using RT-PCR Primer: Stat1 (h)-PR: sc-44123-PR (20 µl, 545 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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4. Gan, A.M., et al. 2014. Functional analysis of the fractalkine gene promoter in human aortic smooth muscle cells exposed to proinflammatory conditions. FEBS J. 281: 3869-3881.
5. Campia, I., et al. 2015. An autocrine cytokine/JAK/STAT-signaling induces kynurenine synthesis in multidrug resistant human cancer Cells. PLoS ONE 10: e0126159.
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7. Liu, Y., et al. 2016. RIG-I mediated STING up-regulation restricts HSV-1 infection. J. Virol. 90: 9406-9419.
8. Joy, M., et al. 2017. The myocardin-related transcription factor MKL co-regulates the cellular levels of two profilin isoforms. J. Biol. Chem. 292: 11777-11791.
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10. Hu, S., et al. 2018. The long noncoding RNA LOC105374325 causes podocyte injury in individuals with focal segmental glomerulosclerosis. J. Biol. Chem. 293: 20227-20239.
11. Verma, S., et al. 2020. BST2 regulates interferon γ-dependent decrease in invasion of HTR-8/SVneo cells via STAT1 and AKT signaling pathways and expression of E-cadherin. Cell Adh. Migr. 14: 24-41.

RESEARCH USE

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