SANTA CRUZ BIOTECHNOLOGY, INC.

Stat1 siRNA (m): sc-44124

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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 expression 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 (mouse) mapping to 1 C1.1.

PRODUCT

Stat1 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 Stat1 shRNA Plasmid (m): sc-44124-SH and Stat1 shRNA (m) Lentiviral Particles: sc-44124-V as alternate gene silencing products.

For independent verification of Stat1 (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-44124A, sc-44124B and sc-44124C.

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 (m) is recommended for the inhibition of Stat1 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

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 (m)-PR: sc-44124-PR (20 µl, 429 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jin, Y., et al. 2008. MDMX promotes proteasomal turnover of p21 at G_1 and early S phases independently of, but in cooperation with, MDM2. Mol. Cell. Biol. 28: 1218-1229.
2. Kim, J.Y., et al. 2010. The induction of Stat1 gene by activating transcription factor 3 contributes to pancreatic β-cell apoptosis and its dysfunction in streptozotocin-treated mice. Cell. Signal. 22: 1669-1680.
3. Zimmerman, M.A., et al. 2012. Unphosphorylated Stat1 promotes sarcoma development through repressing expression of FAS and Bad and conferring apoptotic resistance. Cancer Res. 72: 4724-4732.
4. Takahashi, M., et al. 2013. Arsenic trioxide prevents nitric oxide production in lipopolysaccharide-stimulated RAW 264.7 by inhibiting a TRIF-dependent pathway. Cancer Sci. 104: 165-170.
5. Hasnain, S.Z., et al. 2014. Glycemic control in diabetes is restored by therapeutic manipulation of cytokines that regulate β cell stress. Nat. Med. 20: 1417-1426.
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7. Dicay, M.S., et al. 2015. Interferon-γ suppresses intestinal epithelial aquaporin-1 expression via Janus kinase and Stat3 activation. PLoS ONE 10: e0118713.
8. Wang, P., et al. 2015. TRIM26 negatively regulates interferon-β production and antiviral response through polyubiquitination and degradation of nuclear IRF3. PLoS Pathog. 11: e1004726.
9. He, C., et al. 2015. PDGFRβ signalling regulates local inflammation and synergizes with hypercholesterolaemia to promote atherosclerosis. Nat. Commun. 6: 7770.
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11. Wang, H., et al. 2019. Protective effect of silencing Stat1 on high glucose-induced podocytes injury via forkhead transcription factor O1-regulated the oxidative stress response. BMC Mol. Cell Biol. 20: 27.

RESEARCH USE

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