SANTA CRUZ BIOTECHNOLOGY, INC.

Tyk 2 siRNA (h): sc-36764

BACKGROUND

Tyk 2 belongs to the family of non-receptor janus tyrosine kinases, which regulate a spectrum of cellular functions occurring downstream of activated cytokine receptors in the lympho-hematopoietic system. Immunological stimuli, such as interferons and cytokines, recruit Stat transcription factors to the cytokine receptor where Tyk 2 is associated. Tyk 2 then phosphorylates proximal Stat factors, which subsequently dimerize, translocate to the nucleus, and bind to *cis* elements upstream of target gene promoters to regulating transcription. The canonical JAK-Stat pathway is integral to maintaining a normal immune system by stimulating proliferation, differentiation, survival, and host resistance to pathogens. Cytokine induced pro-inflammatory responses are attractive targets for anti-inflammatory therapies, specifically at the level of JAK-Stat signaling.

REFERENCES

1. Leonard, W.J., et al. 1998. JAKs and Stats: biological implications. Annu. Rev. Immunol. 16: 293-322.
2. Murakami, Y., et al. 1998. Constitutive activation of JAK2 and Tyk 2 in a v-Src-transformed human gallbladder adenocarcinoma cell line. J. Cell. Physiol. 175: 220-228.
3. Subramaniam, S.V., et al. 1999. Evidence for the involvement of JAK/Stat pathway in the signaling mechanism of interleukin-17. Biochem. Biophys. Res. Commun. 262: 14-19.
4. Kotenko, S.V., et al. 2000. JAK-Stat signal transduction pathway through the eyes of cytokine class II receptor complexes. Oncogene 19: 2557-2565.

CHROMOSOMAL LOCATION

Genetic locus: TYK2 (human) mapping to 19p13.2.

PRODUCT

Tyk 2 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 Tyk 2 shRNA Plasmid (h): sc-36764-SH and Tyk 2 shRNA (h) Lentiviral Particles: sc-36764-V as alternate gene silencing products.

For independent verification of Tyk 2 (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-36764A, sc-36764B and sc-36764C.

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

Tyk 2 siRNA (h) is recommended for the inhibition of Tyk 2 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

Tyk 2 (C-8): sc-5271 is recommended as a control antibody for monitoring of Tyk 2 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Tyk 2 gene expression knockdown using RT-PCR Primer: Tyk 2 (h)-PR: sc-36764-PR (20 µl, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ide, H., et al. 2008. Tyk 2 expression and its signaling enhances the invasiveness of prostate cancer cells. Biochem. Biophys. Res. Commun. 369: 292-296.
2. Natarajan, K., et al. 2019. Organic dust induces inflammatory gene expression in lung epithelial cells via Ros-dependent Stat3 activation. Am. J. Physiol. Lung Cell. Mol. Physiol. 317: L127-L140.

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.