

# JNK2 siRNA (h): sc-39101

## BACKGROUND

c-Jun N-terminal kinases (JNKs) phosphorylate and augment transcriptional activity of c-Jun. JNKs originate from three genes that yield ten isoforms through alternative mRNA splicing, including JNK1 $\alpha$ 1, JNK1 $\beta$ 1, JNK2 $\alpha$ 1, JNK2 $\beta$ 1, and JNK3 $\alpha$ 1, which represent the p46 isoforms, and JNK1 $\alpha$ 2, JNK1 $\beta$ 2, JNK2 $\alpha$ 2, JNK2 $\beta$ 2, and JNK3 $\beta$ 2, which represent the p54 isoforms. JNKs coordinate cell responses to stress and influence regulation of cell growth and transformation. The human JNK1 (PRKM8, SAPK1, MAPK8) gene maps to chromosome 10q11.22 and shares 83% amino acid identity with JNK2. JNK1 is necessary for normal activation and differentiation of CD4 helper T (TH) cells into TH1 and TH2 effector cells. Capsaicin activates JNK1 and p38 in Ras-transformed human breast epithelial cells. Nitrogen oxides (NOx) upregulate JNK1 in addition to c-Fos, c-Jun, and other signaling kinases, including MEKK1 and p38.

## CHROMOSOMAL LOCATION

Genetic locus: MAPK9 (human) mapping to 5q35.3.

## PRODUCT

JNK2 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see JNK2 shRNA Plasmid (h): sc-39101-SH and JNK2 shRNA (h) Lentiviral Particles: sc-39101-V as alternate gene silencing products.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

JNK2 siRNA (h) is recommended for the inhibition of JNK2 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  $\mu$ M in 66  $\mu$ l. 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

JNK2 (A-7): sc-271133 is recommended as a control antibody for monitoring of JNK2 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 JNK2 gene expression knockdown using RT-PCR Primer: JNK2 (h)-PR: sc-39101-PR (20  $\mu$ l, 201 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Joo, J.H., et al. 2007. Farnesol-induced apoptosis in human lung carcinoma cells is coupled to the endoplasmic reticulum stress response. *Cancer Res.* 67: 7929-7936.
- Yeligar, S.M., et al. 2009. Ethanol augments RANTES/CCL5 expression in rat liver sinusoidal endothelial cells and human endothelial cells via activation of NF $\kappa$ B, HIF-1  $\alpha$ , and AP-1. *J. Immunol.* 183: 5964-5976.
- Anchukaitis, K.J. and Evans, M.N. 2010. Tropical cloud forest climate variability and the demise of the Monteverde golden toad. *Proc. Natl. Acad. Sci. USA* 107: 5036-5040.
- Li, Y., et al. 2011. Up-regulation of cyclin D1 by JNK1/c-Jun is involved in tumorigenesis of human embryo lung fibroblast cells induced by a low concentration of arsenite. *Toxicol. Lett.* 206: 113-120.
- Raciti, M., et al. 2012. JNK2 is activated during ER stress and promotes cell survival. *Cell Death Dis.* 3: e429.
- He, W., et al. 2014. A JNK-mediated autophagy pathway that triggers c-IAP degradation and necroptosis for anticancer chemotherapy. *Oncogene* 33: 3004-3013.
- Ghosh, A., et al. 2014. c-Fos mediates repression of the apical sodium-dependent bile acid transporter by fibroblast growth factor-19 in mice. *Am. J. Physiol. Gastrointest. Liver Physiol.* 306: G163-G171.
- Parra, E., et al. 2015. Inhibition of basal JNK activity by small interfering RNAs enhances cisplatin sensitivity and decreases DNA repair in T98G glioblastoma cells. *Oncol. Rep.* 33: 413-418.
- Santarelli, R., et al. 2016. KSHV reduces autophagy in THP-1 cells and in differentiating monocytes by decreasing CAST/calpastatin and ATG5 expression. *Autophagy* 12: 2311-2325.
- Terzo, E.A., et al. 2019. SETD2 loss sensitizes cells to PI3K $\beta$  and Akt inhibition. *Oncotarget* 10: 647-659.
- Bi, S., et al. 2019. Lycopene upregulates ZO-1 and downregulates claudin-1 through autophagy inhibition in the human cutaneous squamous cell carcinoma cell line COLO-16. *J. Cancer* 10: 510-521.

## RESEARCH USE

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