SANTA CRUZ BIOTECHNOLOGY, INC.

# p38β MAPK11 siRNA (h): sc-39116

## BACKGROUND

MAP (mitogen-activated protein) kinases play a significant role in many biological processes, including cell adhesion and spreading, cell differentiation and apoptosis. p38α MAPK14, p38β MAPK11 and p38γ MAPK12 each contain one protein kinase domain and belong to the MAP kinase family. Expressed in different areas throughout the body with common expression patterns in heart, p38 proteins use magnesium as a cofactor to catalyze the ATP-dependent phosphorylation of target proteins. Via their catalytic activity, p38α MAPK14, p38β MAPK11 and p38γ MAPK12 are involved in a variety of events throughout the cell, including signal transduction pathways, cytokine production and cell proliferation and differentiation. The p38 proteins are subject to phosphoryation on Thr and Tyr residues, an event which is thought to activate the phosphorylated protein.

## REFERENCES


1. Lee, J.C., et al. 1994. A protein kinase involved in the regulation of inflammatory cytokine biosynthesis. Nature 372: 739-746.
2. Han, J., et al. 1995. Molecular cloning of human p38 MAP kinase. Biochim. Biophys. Acta 1265: 224-227.
3. Li, Z., et al. 1996. The primary structure of p38γ: a new member of p38 group of MAP kinases. Biochem. Biophys. Res. Commun. 228: 334-340.


## CHROMOSOMAL LOCATION

Genetic locus: MAPK11 (human) mapping to 22q13.33.

## PRODUCT

p38β MAPK11 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 p38β MAPK11 shRNA Plasmid (h): sc-39116-SH and p38β MAPK11 shRNA (h) Lentiviral Particles: sc-39116-V as alternate gene silencing products.

For independent verification of p38β MAPK11 (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-39116A, sc-39116B and sc-39116C.

## 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

p38β MAPK11 siRNA (h) is recommended for the inhibition of p38β MAPK11 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

p38β MAPK11 (F-3): sc-390984 is recommended as a control antibody for monitoring of p38β MAPK11 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 p38β MAPK11 gene expression knockdown using RT-PCR Primer: p38β MAPK11 (h)-PR: sc-39116-PR (20 µl, 527 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. von Brandenstein, M.G., et al. 2008. A p38-p65 transcription complex induced by endothelin-1 mediates signal transduction in cancer cells. Biochim. Biophys. Acta 1783: 1613-1622.
2. Zheng, F., et al. 2014. p38α MAPK-mediated induction and interaction of FOXO3a and p53 contribute to the inhibited-growth and induced-apoptosis of human lung adenocarcinoma cells by berberine. J. Exp. Clin. Cancer Res. 33: 36.
3. Cheng, C.T., et al. 2016. Metabolic stress-induced phosphorylation of KAP1 Ser473 blocks mitochondrial fusion in breast cancer cells. Cancer Res. 76: 5006-5018.
4. Hsu, H.H., et al. 2017. Taiwanin E inhibits cell migration in human LoVo colon cancer cells by suppressing MMP-2/9 expression via p38 MAPK pathway. Environ. Toxicol. 32: 2021-2031.
5. Giardino Torchia, M.L., et al. 2018. Intensity and duration of TCR signaling is limited by p38 phosphorylation of ZAP-70$^{T293}$ and destabilization of the signalosome. Proc. Natl. Acad. Sci. USA 115: 2174-2179.
6. Grun, D., et al. 2019. NRP-1 interacts with GIPC1 and SYX to activate p38 MAPK signaling and cancer stem cell survival. Mol. Carcinog. 58: 488-499.
7. Yu, S., et al. 2020. M1 macrophages accelerate renal glomerular endothelial cell senescence through reactive oxygen species accumulation in streptozotocin-induced diabetic mice. Int. Immunopharmacol. 81: 106294.


## RESEARCH USE

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