SANTA CRUZ BIOTECHNOLOGY, INC.

p38γ MAPK12 siRNA (h): sc-39013

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.
4. Jiang, Y., et al. 1996. Characterization of the structure and function of a new mitogen-activated protein kinase (p38β). J. Biol. Chem. 271: 17920-17926.
5. Tamura, K., et al. 2000. Requirement for p38α in erythropoietin expression: a role for stress kinases in erythropoiesis. Cell 102: 221-231.

CHROMOSOMAL LOCATION

Genetic locus: MAPK12 (human) mapping to 22q13.33.

PRODUCT

p38γ MAPK12 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 p38γ MAPK12 shRNA Plasmid (h): sc-39013-SH and p38γ MAPK12 shRNA (h) Lentiviral Particles: sc-39013-V as alternate gene silencing products.

For independent verification of p38γ MAPK12 (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-39013A, sc-39013B and sc-39013C.

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

p38γ MAPK12 siRNA (h) is recommended for the inhibition of p38γ MAPK12 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

p38γ MAPK12 (E-4): sc-398546 is recommended as a control antibody for monitoring of p38γ MAPK12 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 p38γ MAPK12 gene expression knockdown using RT-PCR Primer: p38γ MAPK12 (h)-PR: sc-39013-PR (20 µl, 530 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. DebRoy, A., et al. 2014. Cooperative signaling via transcription factors NFκB and AP1/c-Fos mediates endothelial cell STIM1 expression and hyperpermeability in response to endotoxin. J. Biol. Chem. 289: 24188-24201.
2. Yamaguchi, R., et al. 2018. Transcription factor specificity protein 1 modulates TGFβ1/Smad signaling to negatively regulate SIGIRR expression by human M1 macrophages stimulated with substance P. Cytokine 108: 24-36.
3. Yamaguchi, R., et al. 2020. TRIM28/TIF1β and Fli-1 negatively regulate peroxynitrite generation via DUOX2 to decrease the shedding of membrane-bound fractalkine in human macrophages after exposure to substance P. Cytokine 134: 155180.

RESEARCH USE

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