

DUSP5 siRNA (h): sc-60554

BACKGROUND

Dual specificity phosphatases (DSPs) are a subclass of the protein tyrosine phosphatase (PTP) gene superfamily, which are selective for dephosphorylating critical phosphothreonine and phosphotyrosine residues within MAP kinases. DSP gene expression is induced by a host of growth factors and/or cellular stresses, thereby negatively regulating MAP kinase superfamily members including MAPK/ERK, SAPK/JNK and p38. The members of the dual-specificity phosphatase protein family include MKP-1/CL100 (3CH134), MKP-2, MKP-3, MKP-4, MKP-5, MKP-6, MKP-7, MKP-X, VHR, VHY, PAC1, hVH-3 (B23), hVH-5, PYST2, DUSP1, DUSP5, DUSP8, PIR1 and SKRP1. DUSP5 is a nuclear phosphoprotein that displays phosphatase activity toward several different substrates. It shows the highest relative activity toward ERK1.

REFERENCES

1. Ishibashi, T., et al. 1994. A novel dual-specificity phosphatase induced by serum stimulation and heat shock. *J. Biol. Chem.* 269: 29897-29902.
2. Kwak, S.P., et al. 1995. Multiple dual-specificity protein tyrosine phosphatases are expressed and regulated differentially in liver cell lines. *J. Biol. Chem.* 270: 1156-1160.
3. Tullai, J.W., et al. 2004. Identification of transcription factor binding sites upstream of human genes regulated by the phosphatidylinositol 3-kinase and MEK/ERK signaling pathways. *J. Biol. Chem.* 279: 20167-20177.
4. Cahir-McFarland, E.D., et al. 2004. Role of NFκB in cell survival and transcription of latent membrane protein 1-expressing or Epstein-Barr virus latency III-infected cells. *J. Virol.* 78: 4108-4119.
5. Sumanas, S., et al. 2005. Identification of novel vascular endothelial-specific genes by the microarray analysis of the zebrafish cloche mutants. *Blood* 106: 534-541.
6. Mandl, M., et al. 2005. Specific inactivation and nuclear anchoring of extracellular signal-regulated kinase 2 by the inducible dual-specificity protein phosphatase DUSP5. *Mol. Cell. Biol.* 25: 1830-1845.

CHROMOSOMAL LOCATION

Genetic locus: DUSP5 (human) mapping to 10q25.2.

PRODUCT

DUSP5 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 DUSP5 shRNA Plasmid (h): sc-60554-SH and DUSP5 shRNA (h) Lentiviral Particles: sc-60554-V as alternate gene silencing products.

For independent verification of DUSP5 (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-60554A, sc-60554B and sc-60554C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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 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

DUSP5 siRNA (h) is recommended for the inhibition of DUSP5 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

DUSP5 (H-9): sc-393801 is recommended as a control antibody for monitoring of DUSP5 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 DUSP5 gene expression knockdown using RT-PCR Primer: DUSP5 (h)-PR: sc-60554-PR (20 μl, 516 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, R., et al. 2019. P68 RNA helicase promotes invasion of glioma cells through negatively regulating DUSP5. *Cancer Sci.* 110: 107-117.

RESEARCH USE

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