

DUSP27 siRNA (r): sc-156160

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. DUSP27 (dual specificity phosphatase 27), also known as FMDSP or DUPD1 (dual specificity phosphatase and pro isomerase domain containing 1), is a 220 amino acid cytoplasmic protein that belongs to the protein-tyrosine phosphatase family. Expressed in skeletal muscle, liver and adipose tissue, DUSP27 may play a role in energy metabolism. The gene encoding DUSP27 is referred to as DUPD1 and maps to human chromosome 10, which houses over 1,200 genes and comprises nearly 4.5% of the human genome.

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. and Dixon, J.E. 1995. Multiple dual specificity protein tyrosine phosphatases are expressed and regulated differentially in liver cell lines. *J. Biol. Chem.* 270: 1156-1160.
3. Aoki, N., et al. 2001. A growing family of dual specificity phosphatases with low molecular masses. *J. Biochem.* 130: 133-140.
4. Nonneman, D. and Rohrer, G.A. 2004. Comparative mapping of human chromosome 10 to pig chromosomes 10 and 14. *Anim. Genet.* 35: 338-343.
5. Teng, C.H., et al. 2007. Several dual specificity phosphatases coordinate to control the magnitude and duration of JNK activation in signaling response to oxidative stress. *J. Biol. Chem.* 282: 28395-28407.

CHROMOSOMAL LOCATION

Genetic locus: Dusp27 (rat) mapping to 13q23.

PRODUCT

DUSP27 siRNA (r) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DUSP27 shRNA Plasmid (r): sc-156160-SH and DUSP27 shRNA (r) Lentiviral Particles: sc-156160-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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DUSP27 siRNA (r) is recommended for the inhibition of DUSP27 expression in rat 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 μ M in 66 μ 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

DUSP27 (F-12): sc-515513 is recommended as a control antibody for monitoring of DUSP27 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 DUSP27 gene expression knockdown using RT-PCR Primer: DUSP27 (r)-PR: sc-156160-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Devi, Y.S., et al. 2011. Inhibition of MAPK by prolactin signaling through the short form of its receptor in the ovary and decidua: involvement of a novel phosphatase. *J. Biol. Chem.* 286: 7609-7618.

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.