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# 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 FMDSF 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  $\mu$ 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  $\mu$ 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

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  $\mu$ 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

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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> 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  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.