SANTA CRUZ BIOTECHNOLOGY, INC.

DUSP12 siRNA (m): sc-77197

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. DUSP12 (dual specificity phosphatase 12), also known as YVH1, is a 340 amino acid protein that localizes to the nucleus and contains one tyrosine-protein phosphatase domain. Expressed ubiquitously with highest expression in ovary, testis, spleen and blood leukocytes, DUSP12 uses zinc as a cofactor to catalyze the conversion of a protein tyrosine phosphate to a protein tyrosine and a free phosphate, possibly playing a role in cellular proliferation and differentiation.

REFERENCES

1. 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.
2. Groom, L.A., et al. 1996. Differential regulation of the MAP, SAP and RK/p38 kinases by PYST1, a novel cytosolic dual-specificity phosphatase. EMBO J. 15: 3621-3632.
3. Muda, M., et al. 1999. Identification of the human YVH1 protein-tyrosine phosphatase orthologue reveals a novel zinc binding domain essential for *in vivo* function. J. Biol. Chem. 274: 23991-23995.
4. Online Mendelian Inheritance in Man, OMIM™. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 604835. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Das, S.K., et al. 2006. Polymorphisms in the glucokinase-associated, dual-specificity phosphatase 12 (DUSP12) gene under chromosome 1q21 linkage peak are associated with type 2 diabetes. Diabetes 55: 2631-2639.

CHROMOSOMAL LOCATION

Genetic locus: Dusp12 (mouse) mapping to 1 H3.

PRODUCT

DUSP12 siRNA (m) 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 DUSP12 shRNA Plasmid (m): sc-77197-SH and DUSP12 shRNA (m) Lentiviral Particles: sc-77197-V as alternate gene silencing products.

For independent verification of DUSP12 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-77197A, sc-77197B and sc-77197C.

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

DUSP12 siRNA (m) is recommended for the inhibition of DUSP12 expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DUSP12 gene expression knockdown using RT-PCR Primer: DUSP12 (m)-PR: sc-77197-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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