



# DUSP28 siRNA (h): sc-94445

## 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. DUSP28 (dual specificity phosphatase 28), also known as VHP, is a 176 amino acid protein that belongs to the protein-tyrosine phosphatase family and non-receptor class dual specificity subfamily. Containing one tyrosine-protein phosphatase domain, DUSP28 is encoded by a gene that maps to human chromosome 2, which consists of 237 million bases, encodes over 1,400 genes and makes up approximately 8% of the human genome. A number of genetic diseases are linked to genes on chromosome 2, including Harlequin ichthyosis, sitosterolemia and Alstrom syndrome.

## REFERENCES

1. Keyse, S.M. 1995. An emerging family of dual specificity MAP kinase phosphatases. *Biochim. Biophys. Acta* 1265: 152-160.
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. Keyse, S.M. 1998. Protein phosphatases and the regulation of MAP kinase activity. *Semin. Cell Dev. Biol.* 9: 143-152.
4. Camps, M., et al. 2000. Dual specificity phosphatases: a gene family for control of MAP kinase function. *FASEB J.* 14: 6-16.
5. Zumsteg, U., et al. 2000. Alstrom syndrome: confirmation of linkage to chromosome 2p12-13 and phenotypic heterogeneity in three affected sibs. *J. Med. Genet.* 37: E8.
6. Shulenin, S., et al. 2001. An ATP-binding cassette gene (ABCG5) from the ABCG (white) gene subfamily maps to human chromosome 2p21 in the region of the Sitosterolemia locus. *Cytogenet. Cell Genet.* 92: 204-208.

## CHROMOSOMAL LOCATION

Genetic locus: DUSP28 (human) mapping to 2q37.3.

## PRODUCT

DUSP28 siRNA (h) is a pool of 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DUSP28 shRNA Plasmid (h): sc-94445-SH and DUSP28 shRNA (h) Lentiviral Particles: sc-94445-V as alternate gene silencing products.

For independent verification of DUSP28 (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-94445A and sc-94445B.

## PROTOCOLS

See our web site at [www.scbt.com](http://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  $\mu$ 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

DUSP28 siRNA (h) is recommended for the inhibition of DUSP28 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  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor DUSP28 gene expression knockdown using RT-PCR Primer: DUSP28 (h)-PR: sc-94445-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. Lee, J., et al. 2015. Blockade of dual-specificity phosphatase 28 decreases chemo-resistance and migration in human pancreatic cancer cells. *Sci. Rep.* 5: 12296.
2. Lee, J., et al. 2016. DUSP28 links regulation of Mucin 5B and Mucin 16 to migration and survival of AsPC-1 human pancreatic cancer cells. *Tumour Biol.* 37: 12193-12202.
3. Lee, J., et al. 2017. Autocrine DUSP28 signaling mediates pancreatic cancer malignancy via regulation of PDGF-A. *Sci. Rep.* 7: 12760.
4. Lee, J., et al. 2019. Scattered DUSP28 is a novel biomarker responsible for aggravating malignancy via the autocrine and paracrine signaling in metastatic pancreatic cancer. *Cancer Lett.* 456: 1-12.
5. Lee, J., et al. 2020. Silencing  $\delta$ -like 1 expression induces migratory features in pancreatic cancer cells through stimulation of Src and p38 signalling pathway. *Anticancer Res.* 40: 1335-1344.

## RESEARCH USE

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