SANTA CRUZ BIOTECHNOLOGY, INC.

DUSP13 siRNA (m): sc-143195

BACKGROUND

Mitogen-activated protein (MAP) kinases are a large class of proteins involved in signal transduction pathways, which are activated by a range of stimuli and mediate a number of physiological and pathological changes in the cell. Dual specificity phosphatases (DUSPs) are a subclass of the protein tyrosine phosphatase (PTP) gene superfamily, which are selective for dephosphorylating critical phosphothreonine and phosphotyrosine residues within MAP kinases. DUSP 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. DUSP13, also designated TMDP or SKRP4, is abundantly expressed in testis with lower expression in skeletal muscle. DUSP13 is thought to be involved in the regulation of meiosis and/or differentiation of testicular germ cells during spermatogenesis.

REFERENCES

1. Keyse, S.M. 1995 An emerging family of dual specificity MAP kinase phosphatases. Biochim. Biophys. Acta 1265: 152-160.
2. Martell, K.J., et al. 1995. hVH-5: a protein tyrosine phosphatase abundant in brain that inactivates mitogen-act protein kinase. J. Neurochem. 65: 1823-1833.
3. Sun, H. 1998. Functional studies of dual-specificity phosphatases. Methods Mol. Biol. 84: 307-318.
4. Nakamura, K., et al. 1999. Molecular cloning and characterization of a novel dual-specificity protein phosphatase possibly involved in spermatogenesis. Biochem. J. 344: 819-825.
5. Camps, M., et al. 2000. Dual specificity phosphatases: a gene family for control of MAP kinase function. FASEB J. 14: 6-16.
6. Chen, H.H., et al. 2004. Characterization of two distinct dual specificity phosphatases encoded in alternative open reading frames of a single gene located on human chromosome 10q22.2. J. Biol. Chem. 279: 41404-41413.
7. Kim, S.J., et al. 2007. Crystal structure of human TMDP, a testis-specific dual specificity protein phosphatase: implications for substrate specificity. Proteins 66: 239-245.
8. Patterson, K.I., et al. 2009. Dual-specificity phosphatases: critical regulators with diverse cellular targets. Biochem. J. 418: 475-489.

CHROMOSOMAL LOCATION

Genetic locus: Dusp13 (mouse) mapping to 14 A3.

PRODUCT

DUSP13 siRNA (m) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DUSP13 shRNA Plasmid (m): sc-143195-SH and DUSP13 shRNA (m) Lentiviral Particles: sc-143195-V as alternate gene silencing products.

RESEARCH USE

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

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

DUSP13 siRNA (m) is recommended for the inhibition of DUSP13 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 DUSP13 gene expression knockdown using RT-PCR Primer: DUSP13 (m)-PR: sc-143195-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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