

PPP1R14D siRNA (m): sc-152417

BACKGROUND

PPP1R14D (protein phosphatase 1, regulatory (inhibitor) subunit 14D), also known as GBPI-1 (gastrointestinal and brain-specific PP1-inhibitory protein 1), is a 145 amino acid metabolic signaling protein that belongs to the PP1 inhibitor family and is one of three CPI-17 homologs in the human genome. Localizing to cytoplasm, PPP1R14D is expressed in colon, intestine, kidney and brain cortex. PPP1R14D contains an N-terminal consensus PP1-binding motif and numerous potential phosphorylation sites. A PPP1CA inhibitor, PPP1R14D exhibits inhibitory activity only when phosphorylated, thereby resulting in a molecular switch for regulating phosphorylation of PPP1CA substrates and smooth muscle contraction. PPP1R14D, as part of a selected set of genes, can be used to identify bladder urothelial carcinoma and predict tumor aggressiveness. The gene that encodes PPP1R14D maps to human chromosome 15q15.1.

REFERENCES

1. Ceulemans, H., Stalmans, W. and Bollen, M. 2002. Regulator-driven functional diversification of protein phosphatase-1 in eukaryotic evolution. *Bioessays* 24: 371-381.
2. Liu, Q.R., Zhang, P.W., Lin, Z., Li, Q.F., Woods, A.S., Troncoso, J. and Uhl, G.R. 2004. GBPI, a novel gastrointestinal- and brain-specific PP1-inhibitory protein, is activated by PKC and inactivated by PKA. *Biochem. J.* 377: 171-181.
3. Liu, Q.R., Gong, J.P. and Uhl, G.R. 2005. Families of protein phosphatase 1 modulators activated by protein kinases A and C: focus on brain. *Prog. Nucleic Acid Res. Mol. Biol.* 79: 371-404.
4. Roudkenar, M.H., Li, L., Baba, T., Kuwahara, Y., Nakagawa, H., Wang, L., Kasaoka, S., Ohkubo, Y., Ono, K. and Fukumoto, M. 2008. Gene expression profiles in mouse liver cells after exposure to different types of radiation. *J. Radiat. Res.* 49: 29-40.
5. Eto, M. 2009. Regulation of cellular protein phosphatase-1 (PP1) by phosphorylation of the CPI-17 family, C-kinase-activated PP1 inhibitors. *J. Biol. Chem.* 284: 35273-35277.
6. Mengual, L., Burset, M., Ribal, M.J., Ars, E., Marín-Aguilera, M., Fernández, M., Ingelmo-Torres, M., Villavicencio, H. and Alcaraz, A. 2010. Gene expression signature in urine for diagnosing and assessing aggressiveness of bladder urothelial carcinoma. *Clin. Cancer Res.* 16: 2624-2633.
7. Hutchinson, L. 2010. Bladder cancer: gene-expression signature in urine indicates aggressive disease. *Nat. Rev. Urol.* 7: 364.
8. Karthik, D. and Ravikumar, S. 2011. Characterization of the brain proteome of rats with diabetes mellitus through two-dimensional electrophoresis and mass spectrometry. *Brain Res.* 1371: 171-179.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r14d (mouse) mapping to 2 E5.

PROTOCOLS

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

PRODUCT

PPP1R14D siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PPP1R14D shRNA Plasmid (m): sc-152417-SH and PPP1R14D shRNA (m) Lentiviral Particles: sc-152417-V as alternate gene silencing products.

For independent verification of PPP1R14D (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-152417A and sc-152417B.

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

PPP1R14D siRNA (m) is recommended for the inhibition of PPP1R14D 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PPP1R14D gene expression knockdown using RT-PCR Primer: PPP1R14D (m)-PR: sc-152417-PR (20 μ l). 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.