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SANTA CRUZ BIOTECHNOLOGY, INC.

PPP1R4 siRNA (m): sc-152425

BACKGROUND

In eukaryotes, the phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the protein phosphatases. PPP1R4 (protein phosphatase 1 regulatory subunit 4), also known as PPP1R3B and hepatic glycogen-targeting protein phosphatase 1 regulatory subunit GL, is a 285 amino acid protein that suppresses the rate at which PP1α dephosphorylates GP (glycogen phosphorylase). PPP1R4 associates with glycogen particles and acts as a glycogen targeting subunit for PP1α, ultimately limiting glycogen breakdown. PPP1R4 is highly expressed in heart, skeletal muscle and liver. Although the gene encoding PPP1R4 maps within a region that has been linked to type-II diabetes and maturity-onset diabetes of the young (MODY), it does not appear to be involved in diabetes pathogenesis in caucasian families.

REFERENCES

1. Doherty, M.J., et al. 1995. Amino acid sequence and expression of the hepatic glycogen-binding (GL)-subunit of protein phosphatase-1. FEBS Lett. 375: 294-298.
2. Doherty, M.J., et al. 1998. Loss of the hepatic glycogen-binding subunit (GL) of protein phosphatase 1 underlies deficient glycogen synthesis in Insulin-dependent diabetic rats and in adrenalectomized starved rats. Biochem. J. 333: 253-257.
3. Armstrong, C.G., et al. 1998. Identification of the separate domains in the hepatic glycogen-targeting subunit of protein phosphatase 1 that interact with phosphorylase a, glycogen and protein phosphatase 1. Biochem. J. 336: 699-704.
4. Munro, S., et al. 2002. Human skeletal muscle expresses a glycogen-targeting subunit of PP1 that is identical to the Insulin-sensitive glycogen-targeting subunit GL of liver. Diabetes 51: 591-598.
5. Dunn, J.S., et al. 2006. Examination of PPP1R3B as a candidate gene for the type 2 diabetes and MODY loci on chromosome 8p23. Ann. Hum. Genet. 70: 587-593.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r3b (mouse) mapping to 8 A4.

PRODUCT

PPP1R4 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 PPP1R4 shRNA Plasmid (m): sc-152425-SH and PPP1R4 shRNA (m) Lentiviral Particles: sc-152425-V as alternate gene silencing products.

For independent verification of PPP1R4 (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-152425A, sc-152425B and sc-152425C.

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

PPP1R4 siRNA (m) is recommended for the inhibition of PPP1R4 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 PPP1R4 gene expression knockdown using RT-PCR Primer: PPP1R4 (m)-PR: sc-152425-PR (20 µl, 600 bp). 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.

PROTOCOLS

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