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PPP1R3 siRNA (m): sc-152420

BACKGROUND

PPP1R3, also known as GM, PP1G or PPP1R3A (protein phosphatase 1, regulatory (inhibitor) subunit 3A), is a 1,122 amino acid single-pass membrane protein that contains one carbohydrate binding type-21 (CBM21) domain and exists as two alternatively spliced isoforms. Expressed in skeletal muscle and heart, PPP1R3 likely functions as a glycogen-targeting subunit for PP1, which is essential for cell division and is involved in regulating glycogen metabolism, muscle contractility and protein synthesis. Although PPP1R3 plays an important role in glycogen synthesis, it is not essential for Insulin activation of glycogen synthase. PPP1R3 defects may cause susceptibility to noninsulin-dependent diabetes mellitus (NIDDM), also known as diabetes mellitus type II, which is characterized by an autosomal dominant mode of inheritance, onset during adulthood and Insulin resistance. PPP1R3 also occurs in diverse human cancer cell lines and primary lung carcinomas, indicating that it may function as a tumor suppressor in carcinogenesis. The gene that encodes PPP1R3 maps to human chromosome 7q31.1.

REFERENCES

- Chen, Y.H., et al. 1994. Sequence of the human glycogen-associated regulatory subunit of type 1 protein phosphatase and analysis of its coding region and mRNA level in muscle from patients with NIDDM. *Diabetes* 43: 1234-1241.
- Xia, J., et al. 1998. A common variant in PPP1R3 associated with Insulin resistance and type 2 diabetes. *Diabetes* 47: 1519-1524.
- Hegele, R.A., et al. 1998. Variation in the AU(AT)-rich element within the 3'-untranslated region of PPP1R3 is associated with variation in plasma glucose in aboriginal Canadians. *J. Clin. Endocrinol. Metab.* 83: 3980-3983.
- Kohno, T., et al. 1999. Alterations of the PPP1R3 gene in human cancer. *Cancer Res.* 59: 4170-4174.
- Xia, J., et al. 1999. A type 2 diabetes-associated polymorphic ARE motif affecting expression of PPP1R3 is involved in RNA-protein interactions. *Mol. Genet. Metab.* 68: 48-55.
- Hansen, L., et al. 2000. Polymorphism in the glycogen-associated regulatory subunit of type 1 protein phosphatase (PPP1R3) gene and Insulin sensitivity. *Diabetes* 49: 298-301.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r3a (mouse) mapping to 6 A2.

PRODUCT

PPP1R3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PPP1R3 shRNA Plasmid (m): sc-152420-SH and PPP1R3 shRNA (m) Lentiviral Particles: sc-152420-V as alternate gene silencing products.

For independent verification of PPP1R3 (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-152420A, sc-152420B and sc-152420C.

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

PPP1R3 siRNA (m) is recommended for the inhibition of PPP1R3 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.

GENE EXPRESSION MONITORING

PPP1R3 (C-8): sc-398425 is recommended as a control antibody for monitoring of PPP1R3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PPP1R3 gene expression knockdown using RT-PCR Primer: PPP1R3 (m)-PR: sc-152420-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.

PROTOCOLS

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