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IPP-1 siRNA (m): sc-45874

BACKGROUND

The inhibitor of protein phosphatase 1 (IPP-1, I-1) plays a role in regulating the phosphorylation of other proteins, and is itself phosphorylated by a cyclic AMP-dependent protein kinase. IPP-1 is present in skeletal muscles and in distinct neuronal systems of the brain. The localization and expression of IPP-1 suggests that it may play discrete roles in certain regions and developing stages of the brain, independent of the regulation of protein phosphatase type 1 (PP-1). PP-1 binds to both phosphorylated and dephosphorylated IPP-1. Conversion of PP-1 to an Mn^{2+} -dependent state appears to play a role in its regulation by IPP-1. IPP-1 attenuates the activity of glycogen phosphorylase and is thought to play an important role in the hormonal control of glycogen metabolism.

REFERENCES

- Mikkelsen, J.D. and Gustafson, E.L. 1993. Distribution of phosphatase inhibitor-1-immunoreactive neurons in the suprachiasmatic nucleus of the Syrian hamster. *Brain Res.* 623: 147-154.
- Sakagami, H., et al. 1994. Localization of phosphatase inhibitor-1 mRNA in the developing and adult rat brain in comparison with that of protein phosphatase-1 mRNAs. *Brain Res. Mol. Brain Res.* 25: 7-18.
- Endo, S., et al. 1996. Multiple structural elements define the specificity of recombinant human inhibitor-1 as a protein phosphatase-1 inhibitor. *Biochemistry* 35: 5220-5228.
- Endo, S., et al. 1997. Conversion of protein phosphatase 1 catalytic subunit to a Mn^{2+} -dependent enzyme impairs its regulation by inhibitor 1. *Biochemistry* 36: 6986-6992.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r1a (mouse) mapping to 15 F3.

PRODUCT

IPP-1 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 IPP-1 shRNA Plasmid (m): sc-45874-SH and IPP-1 shRNA (m) Lentiviral Particles: sc-45874-V as alternate gene silencing products.

For independent verification of IPP-1 (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-45874A, sc-45874B and sc-45874C.

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

IPP-1 siRNA (m) is recommended for the inhibition of IPP-1 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

IPP-1 (B-4): sc-515553 is recommended as a control antibody for monitoring of IPP-1 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 IPP-1 gene expression knockdown using RT-PCR Primer: IPP-1 (m)-PR: sc-45874-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Shahrestanaki, M.K., et al. 2019. IPP-1 controls Akt/CREB phosphorylation extension in A_{2a} adenosine receptor signaling cascade in MIN6 pancreatic β -cell line. *Eur. J. Pharmacol.* 850: 88-96.

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.