

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

1. 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.
2. 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.
3. 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.
4. 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 MarkerTM 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 $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. 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.