SANTA CRUZ BIOTECHNOLOGY, INC.

IPP-2 siRNA (m): sc-146263

BACKGROUND

Two inhibitors of protein phosphatase 1 (PP1) include the phosphatase inhibitor 1 (IPP-1) and phosphatase inhibitor 2 (IPP-2) (1). IPP-2, also known as I-2, interacts with the catalytic subunit of PP1 to form the heterodimer PP1I. The PP1I complex is present in the cytosol of cells in a broad range of vertebrate and invertebrate species. Although the heterodimer itself is inactive, a reversible phosphorylation of IPP-2 at Thr 72 by glycogen-synthase-kinase (GSK3) initiates activation of the heterodimer complex *in vitro*. Phosphorylation of IPP-2 by casein kinase-II at Ser 86, Ser 120, and Ser 121 enhances the rate of phosphorylation by GSK3 at Thr 72 and effectively activates the heterodimer complex. Besides moderating PP1 activity, IPP-2 may play a role as a chaperone for the correct folding of PP1. The gene for human IPP-2 maps to chromosome 6 in the major histocompatiblity complex region.

REFERENCES

1. Huang, F.L., et al. 1976. Separation and characterization of two phosphorylase phosphatase inhibitors from rabbit skeletal muscle. Eur. J. Biochem. 70: 419-426.
2. DePaoli-Roach, A.A. 1984. Synergistic phosphhorylation and activation of ATP-Mg dependent phosphoprotein phosphatase by Ta/65K-3 and casein kinase II (PC0.7). J. Biol. Chem. 259: 12144-12152.
3. Holmes, C.F.B., et al. 1986. Identification of the sites on rabbit skeletal muscle protein phosphatase inhibitor-2 phosphorylated by casein kinase II. Biochim. Biophys. Acta 870: 408-416.
4. Orgad, S., et al. 1987. The protein phosphatases of *Drosophila melanogaster* and their inhibitors. Eur. J. Biochem. 164: 31-38.
5. Pondaven, P., et al. 1987. Identification of protein phosphatases-1 and 2A and inhibitor-2 in oocytes of the starfish *Asterias rubens* and *Marthasterias glacialis*. Eur. J. Biochem. 167: 135-140.

CHROMOSOMAL LOCATION

Genetic locus: Ppp1r2 (mouse) mapping to 16 B2.

PRODUCT

IPP-2 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 IPP-2 shRNA Plasmid (m): sc-146263-SH and IPP-2 shRNA (m) Lentiviral Particles: sc-146263-V as alternate gene silencing products.

For independent verification of IPP-2 (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-146263A, sc-146263B and sc-146263C.

PROTOCOLS

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

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

IPP-2 siRNA (m) is recommended for the inhibition of IPP-2 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.

GENE EXPRESSION MONITORING

IPP-2 (70.5): sc-130392 is recommended as a control antibody for monitoring of IPP-2 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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-2 gene expression knockdown using RT-PCR Primer: IPP-2 (m)-PR: sc-146263-PR (20 µl). 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.