

PTP IA-2 siRNA (h): sc-62902

BACKGROUND

Protein tyrosine phosphatases, or PTPs, are type I transmembrane proteins, membrane associated proteins or proteins localized in nuclei. Examples of transmembrane PTPs are LAR, PTP α , PTP β , PTP γ , PTP δ , PTP ϵ , PTP ζ , PTP κ and PTP μ . Transmembrane PTPs play diverse roles in a variety of cellular processes during development and in adult tissues. PTP IA-2 (PTP Insulinoma-associated protein 2), also known as PTPRN, IA2, ICA512 (islet cell antigen 512) or RPTPN, is a receptor-type PTP-like protein containing a transmembrane region, an intracellular PTP-like domain, and an extracellular N-terminus. Localizing to secretory granules, PTP IA-2 is exclusively expressed in neuroendocrine cells (including pancreatic islet cells) and is believed to participate in the regulation of secretory granule exocytosis. PTP IA-2 is an autoantigen and contributes to Insulin-dependent diabetes mellitus (IDDM). The detection of autoantibodies against PTP IA-2 is commonly used as a diabetes diagnosis marker.

REFERENCES

1. Dogra, R.S., et al. 2006. Alternative splicing of G6PC2, the gene coding for the islet-specific glucose-6-phosphatase catalytic subunit-related protein (IGRP), results in differential expression in human thymus and spleen compared with pancreas. *Diabetologia* 49: 953-957.
2. Piquer, S., et al. 2006. Monoclonal antibody 76F distinguishes IA-2 from IA-2 β and overlaps an autoantibody epitope. *J. Autoimmun.* 26: 215-222.
3. Primo, M.E., et al. 2006. Expression and physicochemical characterization of an extracellular segment of the receptor protein tyrosine phosphatase IA-2. *Biochim. Biophys. Acta* 1764: 174-181.
4. Gupta, M., et al. 2006. MHC class I chain-related gene-A is associated with IA2 and IAA but not GAD in Swedish type 1 diabetes mellitus. *Ann. N.Y. Acad. Sci.* 1079: 229-239.
5. Mziaut, H., et al. 2006. Synergy of glucose and growth hormone signalling in islet cells through ICA512 and Stat5. *Nat. Cell Biol.* 8: 435-445.
6. Forrest, A.R., et al. 2006. Genome-wide review of transcriptional complexity in mouse protein kinases and phosphatases. *Genome Biol.* 7: R5.

CHROMOSOMAL LOCATION

Genetic locus: PTPRN (human) mapping to 2q35.

PRODUCT

PTP IA-2 siRNA (h) 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 PTP IA-2 shRNA Plasmid (h): sc-62902-SH and PTP IA-2 shRNA (h) Lentiviral Particles: sc-62902-V as alternate gene silencing products.

For independent verification of PTP IA-2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62902A, sc-62902B and sc-62902C.

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

PTP IA-2 siRNA (h) is recommended for the inhibition of PTP IA-2 expression in human 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

PTP IA-2 (A-5): sc-390101 is recommended as a control antibody for monitoring of PTP IA-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-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 PTP IA-2 gene expression knockdown using RT-PCR Primer: PTP IA-2 (h)-PR: sc-62902-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.