

# PTP IA-2 $\beta$ siRNA (h): sc-106910

## BACKGROUND

Protein-Tyrosine Phosphatase Receptor-Type IA-2 $\beta$  (PTP IA-2 $\beta$ ), alternately known as PTPRN2 or Phogrin, localizes in dense-core secretory vesicles of pancreas islet cells and influences Insulin secretion. The PTP IA-2 $\beta$  precursor is an autoantigen that contributes to Insulin-dependent diabetes mellitus (IDDM). The autoantigenic epitopes of PTP IA-2 $\beta$  appear within the cytoplasmic domain of this transmembrane protein. PTP IA-2 $\beta$  is present at high levels in brain and pancreas with lower levels in trachea, prostate, stomach and spinal cord. The human PTPRN2 gene maps to chromosome 7q36.3. Northern blot analysis showed that PTPRN2 was expressed as 5.5- and 3.7-kb transcripts primarily in human brain and pancreas. Three alternative transcript splice variants of this gene encode distinct proteins.

## REFERENCES

1. Kawasaki, E., et al. 1996. Molecular cloning and characterization of the human transmembrane protein tyrosine phosphatase homologue, phogrin, an autoantigen of type 1 diabetes. *Biochem. Biophys. Res. Commun.* 227: 440-447.
2. Smith, P.D., et al. 1996. ICAAR, a novel member of a new family of transmembrane, tyrosine phosphatase-like proteins. *Biochem. Biophys. Res. Commun.* 229: 402-411.
3. Achenbach, P., et al. 2002. Spontaneous peripheral T-cell responses to the IA-2 $\beta$  (phogrin) autoantigen in young nonobese diabetic mice. *J. Autoimmun.* 19: 111-116.
4. Gross, S., et al. 2002. Multimerization of the protein-tyrosine phosphatase (PTP)-like Insulin-dependent diabetes mellitus autoantigens IA-2 and IA-2 $\beta$  with receptor PTPs (RPTPs). Inhibition of RPTP $\alpha$  enzymatic activity. *J. Biol. Chem.* 277: 48139-48145.
5. Drake, P.G., et al. 2003. A novel strategy for the development of selective active-site inhibitors of the protein tyrosine phosphatase-like proteins islet-cell antigen 512 (IA-2) and phogrin (IA-2 $\beta$ ). *Biochem. J.* 373: 393-401.
6. Kubosaki, A., et al. 2004. Targeted disruption of the IA-2 $\beta$  gene causes glucose intolerance and impairs Insulin secretion but does not prevent the development of diabetes in NOD mice. *Diabetes* 53: 1684-1691.

## CHROMOSOMAL LOCATION

Genetic locus: PTPRN2 (human) mapping to 7q36.3.

## PRODUCT

PTP IA-2 $\beta$  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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PTP IA-2 $\beta$  shRNA Plasmid (h): sc-106910-SH and PTP IA-2 $\beta$  shRNA (h) Lentiviral Particles: sc-106910-V as alternate gene silencing products.

For independent verification of PTP IA-2 $\beta$  (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-106910A, sc-106910B and sc-106910C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

PTP IA-2 $\beta$  siRNA (h) is recommended for the inhibition of PTP IA-2 $\beta$  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  $\mu$ M in 66  $\mu$ 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 $\beta$  (B-4): sc-393922 is recommended as a control antibody for monitoring of PTP IA-2 $\beta$  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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTP IA-2 $\beta$  gene expression knockdown using RT-PCR Primer: PTP IA-2 $\beta$  (h)-PR: sc-106910-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.