SANTA CRUZ BIOTECHNOLOGY, INC.

PTP IA-2 (98/4H6): sc-130570

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, PTPα, PTPβ, PTPγ, PTPδ, PTPε, PTPζ, PTPκ and PTPμ. Transmembrane PTPs play diverse roles in a variety of cellular processes during development and in adult tissues. PTP IA-2 (PTP insuli-noma-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-2β 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 IA-2 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; Ptprn (mouse) mapping to 1 C3.

SOURCE

PTP IA-2 (98/4H6) is a mouse monoclonal antibody raised against the cytoplasmic domain corresponding to amino acids 603-979 of PTP IA-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

PTP IA-2 (98/4H6) is recommended for detection of amino acids 618-628 of PTP IA-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PTP IA-2 siRNA (h): sc-62902, PTP IA-2 siRNA (m): sc-62903, PTP IA-2 shRNA Plasmid (h): sc-62902-SH, PTP IA-2 shRNA Plasmid (m): sc-62903-SH, PTP IA-2 shRNA (h) Lentiviral Particles: sc-62902-V and PTP IA-2 shRNA (m) Lentiviral Particles: sc-62903-V.

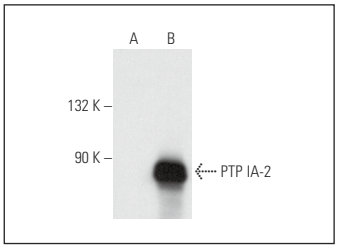
Molecular Weight of PTP IA-2 isoforms: 71/67/64/60/30 kDa.

Positive Controls: PTP IA-2 (h): 293T Lysate: sc-158898.

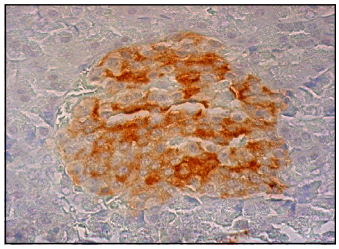
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PTP IA-2 (98/4H6): sc-130570. Western blot analysis of PTP IA-2 expression in non-transfected: sc-117752 (**A**) and human PTP IA-2 transfected: sc-158898 (**B**) 293T whole cell lysates.



PTP IA-2 (98/4H6): sc-130570. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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