SANTA CRUZ BIOTECHNOLOGY, INC.

# PTN (H-6): sc-74443

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Pleiotrophin (PTN) and midkine (MK) comprise a family of structurally related, developmentally regulated genes. Human PTN is synthesized as a 168 amino acid precursor which is subsequently cleaved to generate a 136 amino acid protein. Human PTN is approximately 50% identical to human MK, with conservation of all ten cysteines. Cells reported to express PTN include osteoblasts, chondrocytes, fibroblasts, astrocytes, oligodendroglia, Schwann cells, neurons, pituicytes and Leydig cells. PTN is a heparin-binding growth factor that functions as a weak mitogen and promotes neurite-outgrowth from embry-onic brain neurons. PTN is expressed at high levels in many tissues during fetal development, but becomes restricted to the brain in adult animals.

## CHROMOSOMAL LOCATION

Genetic locus: PTN (human) mapping to 7q33; Ptn (mouse) mapping to 6 B1.

## SOURCE

PTN (H-6) is a mouse monoclonal antibody raised against amino acids 94-168 of PTN 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.

PTN (H-6) is available conjugated to agarose (sc-74443 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74443 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74443 PE), fluorescein (sc-74443 FITC), Alexa Fluor® 488 (sc-74443 AF488), Alexa Fluor® 546 (sc-74443 AF546), Alexa Fluor® 594 (sc-74443 AF594) or Alexa Fluor® 647 (sc-74443 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74443 AF680) or Alexa Fluor® 790 (sc-74443 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

PTN (H-6) is recommended for detection of precursor and mature PTN of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PTN siRNA (h): sc-39713, PTN siRNA (m): sc-39714, PTN shRNA Plasmid (h): sc-39713-SH, PTN shRNA Plasmid (m): sc-39714-SH, PTN shRNA (h) Lentiviral Particles: sc-39713-V and PTN shRNA (m) Lentiviral Particles: sc-39714-V.

Molecular Weight (predicted) of PTN: 18 kDa.

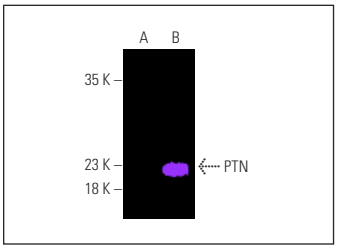
Molecular Weight (observed) of PTN: 18-25 kDa.

Positive Controls: PTN (m): 293T Lysate: sc-122837, rat brain extract: sc-2392 or HeLa nuclear extract: sc-2120.

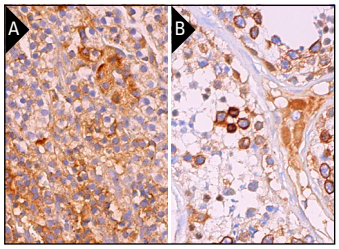
## STORAGE

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

## DATA




PTN (H-6): sc-74443. Fluorescent western blot analysis of PTN expression in non-transfected: sc-117752 (**A**) and mouse PTN transfected: sc-122837 (**B**) 293T whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG Fc BP-CFL 555: sc-533654.




PTN (H-6): sc-74443. Immunoperoxidase staining of formalin fixed, paraffin-embedded human parathyroid gland tissue showing cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing membrane and cytoplasmic staining of subset of cells in seminiferous ducts (**B**).

## SELECT PRODUCT CITATIONS

1. Erlandsen, H., et al. 2012. Pleiotrophin expression during odontogenesis. J. Histochem. Cytochem. 60: 366-375.
2. Yang, S., et al. 2013. Pleiotrophin is involved in the amniotic epithelial cell-induced differentiation of human umbilical cord blood-derived mesenchymal stem cells into dopaminergic neuron-like cells. Neurosci. Lett. 539: 86-91.
3. Koyama-Nasu, R., et al. 2014. The pleiotrophin-ALK axis is required for tumorigenicity of glioblastoma stem cells. Oncogene 33: 2236-2244.
4. Qin, E.Y., et al. 2017. Neural precursor-derived pleiotrophin mediates subventricular zone invasion by glioma. Cell 170: 845-859.
5. Tang, C., et al. 2018. Neural stem cells behave as a functional niche for the maturation of newborn neurons through the decretion of PTN. Neuron 101: 32-44.
6. He, M., et al. 2019. miR-627-3p inhibits osteosarcoma cell proliferation and metastasis by targeting PTN. Aging 11: 5744-5756.
7. Praktiknjo, S.D., et al. 2020. Tracing tumorigenesis in a solid tumor model at single-cell resolution. Nat. Commun. 11: 991.
8. Liu, S., et al. 2021. Discovery of PTN as a serum-based biomarker of pro-metastatic prostate cancer. Br. J. Cancer 124: 896-900.
9. Liu, Z., et al. 2022. Sec13 promotes oligodendrocyte differentiation and myelin repair through autocrine pleiotrophin signaling. J. Clin. Invest. 132: e155096.
10. Wu, C., et al. 2022. Ubiquitin ligase Triad1 promotes neurite outgrowth by inhibiting MDM2-mediated ubiquitination of the neuroprotective factor pleiotropin. J. Biol. Chem. 298: 102443.

## RESEARCH USE

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