

PNMTase (C-7): sc-393995

BACKGROUND

Phenylethanolamine N-methyltransferase (PNMT/PNMTase) catalyzes the synthesis of epinephrine from norepinephrine, the last step of catecholamine biosynthesis. Human PNMT, a 282 amino acid polypeptide, shares significant homology with tyrosine hydroxylase. Expression of PNMT is regulated by hormonal and neural stimuli because its promoter contains sequences responding to cholinergic and depolarization stimuli. Cortisol and Egr-1 enhance PNMT expression, which controls the adrenaline production in adrenaline-secreting pheochromocytomas. Protein kinase A also up-regulates PNMT expression, whereas protein kinase C causes down-regulation and pituitary adenylate cyclase-activating polypeptide lowers PNMT activity. PNMT is expressed in a tissue-specific manner based on an alternative splicing mechanism, termed intron retention, to produce two splice variants. This mechanism is sensitive to regulation by glucocorticoids in the brain. The spliced, intronless mRNA is down-regulated postnatally, while the intron-retained mRNA is constitutively expressed through adulthood. At all stages of development, only the intron-less message is expressed in adrenals. PNMT gene is associated with increased susceptibility to the sporadic form of early-onset Alzheimer disease.

REFERENCES

1. Baetge, E.E., et al. 1986. Complete nucleotide and deduced amino acid sequence of bovine phenylethanolamine N-methyltransferase: partial amino acid homology with rat tyrosine hydroxylase. *Proc. Natl. Acad. Sci. USA* 83: 5454-5458.
2. Kaneda, N., et al. 1988. Molecular cloning of cDNA and chromosomal assignment of the gene for human phenylethanolamine N-methyltransferase, the enzyme for epinephrine biosynthesis. *J. Biol. Chem.* 263: 7672-7677.
3. Lee, Y.S., et al. 1999. Neural regulation of phenylethanolamine N-methyltransferase (PNMT) gene expression in bovine chromaffin cells differs from other catecholamine enzyme genes. *J. Mol. Neurosci.* 12: 53-68.

CHROMOSOMAL LOCATION

Genetic locus: PNMT (human) mapping to 17q12; Pnmt (mouse) mapping to 11 D.

SOURCE

PNMTase (C-7) is a mouse monoclonal antibody raised against amino acids 164-212 mapping within an internal region of PNMTase of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PNMTase (C-7) is available conjugated to agarose (sc-393995 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393995 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393995 PE), fluorescein (sc-393995 FITC), Alexa Fluor® 488 (sc-393995 AF488), Alexa Fluor® 546 (sc-393995 AF546), Alexa Fluor® 594 (sc-393995 AF594) or Alexa Fluor® 647 (sc-393995 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393995 AF680) or Alexa Fluor® 790 (sc-393995 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

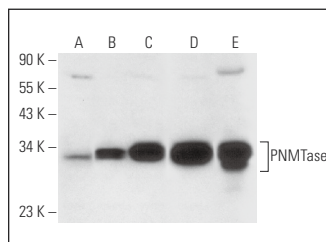
APPLICATIONS

PNMTase (C-7) is recommended for detection of PNMTase 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

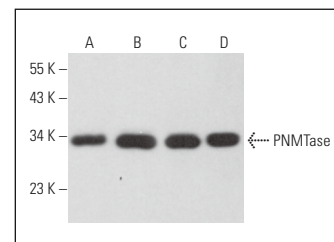
Suitable for use as control antibody for PNMTase siRNA (h): sc-106772, PNMTase siRNA (m): sc-152358, PNMTase shRNA Plasmid (h): sc-106772-SH, PNMTase shRNA Plasmid (m): sc-152358-SH, PNMTase shRNA (h) Lentiviral Particles: sc-106772-V and PNMTase shRNA (m) Lentiviral Particles: sc-152358-V.

Positive Controls: K-562 whole cell lysate: sc-2203, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

DATA



PNMTase (C-7): sc-393995. Western blot analysis of PNMTase expression in K-562 (A), Hep G2 (B) and HeLa (C) whole cell lysates, A549 nuclear extract (D) and human adrenal gland tissue extract (E).



PNMTase (C-7): sc-393995. Western blot analysis of PNMTase expression in HeLa (A), MCF7 (B), 3T3-L1 (C) and NIH/3T3 (D) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ren, C.Z., et al. 2022. SIRT1 exerts anti-hypertensive effect via FOXO1 activation in the rostral ventrolateral medulla. *Free Radic. Biol. Med.* 188: 1-13.
2. Sriha, J., et al. 2022. BET and CDK inhibition reveal differences in the proliferation control of sympathetic ganglion neuroblasts and adrenal chromaffin cells. *Cancers* 14: 2755.
3. Sakai, K., et al. 2023. A cortisol-secreting adrenal adenoma combined with a micro-pheochromocytoma: case report and literature review. *Clin. Med. Insights Endocrinol. Diabetes* 16: 11795514221148556.

STORAGE

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

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.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA