SANTA CRUZ BIOTECHNOLOGY, INC.

PTEN (A2B1): sc-7974

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

As human tumors progress to advanced stages, one genetic alteration that occurs at high frequency is a loss of heterozygosity (LOH) at chromosome 10q23. Mapping of homozygous deletions on this chromosome led to the isolation of the PTEN gene, also designated MMAC1 (for mutated in multiple advanced cancers) and TEP1. This candidate tumor suppressor gene exhibits a high frequency of mutations in human glioblastomas and is also mutated in other cancers, including sporadic brain, breast, kidney and prostate cancers. PTEN has been associated with Cowden disease, an autosomal dominant cancer predisposition syndrome. The PTEN gene product is a putative protein tyrosine phosphatase that is localized to the cytoplasm, and it shares extensive homology with the cytoskeletal proteins tensin and auxilin. Gene transfer studies have indicated that the phosphatase domain of PTEN is essential for growth suppression of glioma cells.

CHROMOSOMAL LOCATION

Genetic locus: PTEN (human) mapping to 10q23.31; Pten (mouse) mapping to 19 C1.

SOURCE

PTEN (A2B1) is a mouse monoclonal antibody raised against amino acids 388-400 of PTEN 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.

PTEN (A2B1) is available conjugated to agarose (sc-7974 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7974 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7974 PE), fluorescein (sc-7974 FITC), Alexa Fluor® 488 (sc-7974 AF488), Alexa Fluor® 546 (sc-7974 AF546), Alexa Fluor® 594 (sc-7974 AF594) or Alexa Fluor® 647 (sc-7974 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-7974 AF680) or Alexa Fluor® 790 (sc-7974 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PTEN (A2B1) is recommended for detection of PTEN 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), 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 PTEN siRNA (h): sc-29459, PTEN siRNA (m): sc-36326, PTEN shRNA Plasmid (h): sc-29459-SH, PTEN shRNA Plasmid (m): sc-36326-SH, PTEN shRNA (h) Lentiviral Particles: sc-29459-V and PTEN shRNA (m) Lentiviral Particles: sc-36326-V.

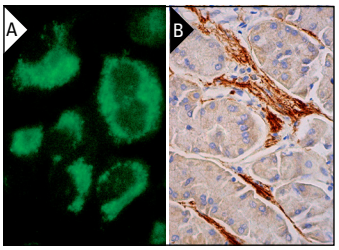
Molecular Weight of PTEN: 55 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, A-431 whole cell lysate: sc-2201 or HeLa whole cell lysate: sc-2200.

STORAGE

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

DATA



PTEN (A2B1): sc-7974. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing staining of extracellular space (**B**).

SELECT PRODUCT CITATIONS

1. Shan, X., et al. 2000. Deficiency of PTEN in Jurkat T cells causes constitutive localization of Itk to the plasma membrane and hyperresponsiveness to CD3 stimulation. Mol. Cell. Biol. 20: 6945-6957.
2. Zhang, J., et al. 2013. Deubiquitylation and stabilization of PTEN by USP13. Nat. Cell Biol. 15: 1486-1494.
3. Yang, L., et al. 2014. Identification of prolidase as a high affinity ligand of the ErbB2 receptor and its regulation of ErbB2 signaling and cell growth. Cell Death Dis. 5: e1211.
4. Albers, J., et al. 2015. A versatile modular vector system for rapid combinatorial mammalian genetics. J. Clin. Invest. 125: 1603-1619.
5. Visuttijai, K., et al. 2016. Lowered expression of tumor suppressor candidate MYO1C stimulates cell proliferation, suppresses cell adhesion and activates AKT. PLoS ONE 11: e0164063.
6. Liu, Y., et al. 2017. PTEN regulates spindle assembly checkpoint timing through MAD1 in interphase. Oncotarget 8: 98040-98050.
7. Meakin, P.J., et al. 2018. The β secretase BACE1 regulates the expression of Insulin receptor in the liver. Nat. Commun. 9: 1306.
8. Feng, J., et al. 2019. PTEN arginine methylation by PRMT6 suppresses PI3K-AKT signaling and modulates pre-mRNA splicing. Proc. Natl. Acad. Sci. USA 116: 6868-6877.
9. Ghule, A., et al. 2020. Modulation of feeding behavior and metabolism by dynorphin. Sci. Rep. 10: 3821.
10. Zhang, Q., et al. 2021. PTENε suppresses tumor metastasis through regulation of filopodia formation. EMBO J. 40: e105806.

RESEARCH USE

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

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