Technical Data Sheet

PE Mouse anti-PTEN

Product Information

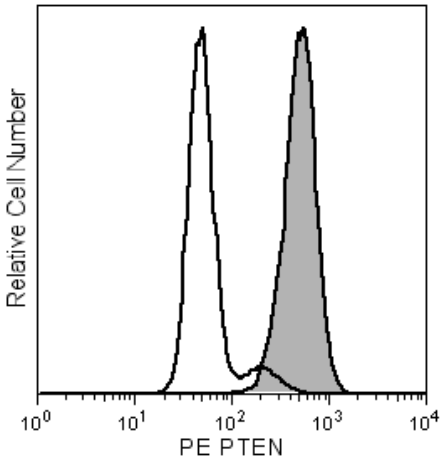
Material Number:	**560002**
Alternate Name:	MMAC1, TEP1
Size:	50 Tests
Vol. per Test:	20 µl
Clone:	A2B1
Immunogen:	Human C-terminal PTEN Peptide
Isotype:	Mouse (BALB/c) IgG1, κ
Reactivity:	QC Testing: Human Tested in Development: Mouse Reported Reactivity: Rat, Dog
Storage Buffer:	Aqueous buffered solution containing BSA and ≤0.09% sodium azide.

Description

Cancer can develop when cells escape normal growth control mechanisms through mutations in proto-oncogenes or tumor suppressor genes. A characteristic of most oncogene and tumor suppressor gene products is that they are components of signal transduction pathways that are essential for maintaining cellular homeostasis. PTEN (phosphatase and tensin homolog), also known as MMAC1 (mutated in multiple advanced cancers 1), is a tumor suppressor gene that is mutated at high frequency in multiple tumor types. The protein encoded by PTEN is a phosphatase that preferentially dephosphorylates phosphoinositide substrates. It is believed that a mechanism by which PTEN mutations cause tumors is the loss of its negative control on the phosphoinositide 3-kinase signaling pathway that regulates cell growth and survival. PTEN also plays a role in the maintenance of hematopoietic stem cells.

The A2B1 monoclonal antibody recognizes PTEN, regardless of phosphorylation status.

The specificity of this antibody conjugate for flow cytometric analysis was validated by confirming that RNA-mediated interference (RNAi) of the specific protein reduced the staining of the cells (see figure). Furthermore, the capacity of the RNAi to down-regulate the expression of the relevant protein was confirmed by western blot analysis.



Analysis of PTEN in human epithelioid carcinoma. *HeLa S3 cells (ATCC CCL 2.2) were either transfected with PTEN RNAi (open histogram) or untreated (shaded histogram). The cells were fixed (BD Cytofix™ buffer, Cat. No. 554655) for 10 minutes at 37°C, then permeabilized (BD Phosflow™ Perm Buffer III, Cat. No. 558050) on ice for 30 minutes, and then stained with PE Mouse anti-PTEN. Down-regulation of PTEN expression is evident in the RNAi-transfected cells. Flow cytometry was performed on a BD FACSArray™ bioanalyzer system.*

Preparation and Storage

Store undiluted at 4°C and protected from prolonged exposure to light. Do not freeze.
The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
The antibody was conjugated with R-PE under optimum conditions, and unconjugated antibody and free PE were removed.

Application Notes

Application

Intracellular staining (flow cytometry)	Routinely Tested

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Suggested Companion Products

Catalog Number	Name	Size	Clone
559320	PE Mouse IgG1, κ Isotype Control	100 Tests	MOPC-21
554655	Fixation Buffer	100 mL	(none)
558050	Perm Buffer III	125 mL	(none)
554656	Stain Buffer (FBS)	500 mL	(none)

Product Notices

1. This reagent has been pre-diluted for use at the recommended Volume per Test. We typically use 1 × 10^6 cells in a 100-µl experimental sample (a test).
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
4. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
5. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
6. Species testing during development may have been performed with a different format of the same clone. Selected applications have been tested for cross-reactivity.

References

Cantley LC, Neel BG. New insights into tumor suppression: PTEN suppresses tumor formation by restraining the phosphoinositide 3-kinase/AKT pathway. *Proc Natl Acad Sci U S A.* 1999; 96(8):4240-4245. (Biology)

Goberdhan DCI, Wilson C. PTEN: tumour suppressor, multifunctional growth regulator and more. *Hum Mol Genet.* 2003; 12(2):R238-R248. (Biology)

Levine RA, Forest T, Smith C. Tumor suppressor PTEN is mutated in canine osteosarcoma cell lines and tumors. *Vet Pathol.* 2002; 39:372-378. (Clone-specific: Immunohistochemistry)

Raftopoulou M, Etienne-Manneville S, Self A, Nicholls S, Hall A. Regulation of cell migration by the C2 domain of the tumor suppressor PTEN. *Science.* 2004; 303:1179-1181. (Biology)

Steck PA, Pershouse MA, Jasser SA, et al. Identification of a candidate tumour suppressor gene, MMAC1 at chromosome 10q23.3 that is mutated in multiple advanced cancers. *Nat Genet.* 1997; 15(4):356-362. (Biology)

Wu R-C, Li X, Schönthal AH. Transcriptional activation of p21WAF1 by PTEN/MMAC1 tumor suppressor. *Mol Cell Biochem.* 2000; 203:59-71. (Immunogen: Western blot)

Yilmaz OH, Valez R, Theisen BK, et al. Pten dependence distinguishes haematopoietic stem cells from leukaemia-initiating cells. *Nature.* 2006; 441:475-482. (Biology)

Zhang J, Grindley JC, Yin T, et al. PTEN maintains haematopoietic stem cells and acts in lineage choice and leukaemia prevention. *Nature.* 2006; 441:518-522. (Biology)

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