

DESCRIPTION

Species Reactivity	Human/Mouse/Rat
Specificity	Detects human, mouse, and rat PTEN.
Source	Monoclonal Mouse IgG ₁ Clone # 217702
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant human PTEN Thr2-Val403 Accession # P60484
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

	Recommended Concentration	Sample
Intracellular Staining by Flow Cytometry	0.25-1 µg/10 ⁶ cells	Human peripheral blood lymphocytes fixed with paraformaldehyde and permeabilized with saponin

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. ● 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

The tumor suppressor gene PTEN (phosphatase and tensin homolog deleted on chromosome 10), also known as MMAC1 (mutated in multiple advanced cancers 1), encodes a phosphatase that contains the catalytic signature motif (HCxxGxxRS/T) found in all members of the protein tyrosine phosphatase family. *In vitro*, the recombinant PTEN has both lipid phosphatase and protein phosphatase activities (1, 2). Interestingly, accumulating evidence has shown that the tumor suppressor activity of PTEN relies on its ability to dephosphorylate phosphatidylinositol (3,4,5)-triphosphate specifically at position 3 of the inositol ring (3). This activity reduces the levels of phosphatidylinositol (3,4,5)-triphosphate which is specifically produced from phosphatidylinositol (4,5)-diphosphate by PI 3-kinase upon activation by a variety of stimuli. Therefore, PTEN antagonizes PI 3-kinase-induced downstream signaling events and cellular processes including cell growth, apoptosis and cell motility. *In vivo*, the importance of PTEN catalytic activity in its tumor suppressor functions is underscored by the fact that the majority of PTEN missense mutations detected in tumor specimens target the phosphatase domain and cause a loss in PTEN phosphatase activity (4).

References:

1. Maehama, T. and J. Dixon (1998) J. Biol. Chem. **273**:13375.
2. Das, S. *et al.* (2003) Proc. Natl. Acad. Sci. USA **100**:7491.
3. Myers, M. *et al.* (1998) Proc. Natl. Acad. Sci. USA **95**:13513.
4. Waite, K. and C. Eng (2002) Am. J. Hum. Genet. **70**:829.

PRODUCT SPECIFIC NOTICES

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