

**Anti-PTEN Antibody**  
Catalog # ABO12790

**Specification**

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**Anti-PTEN Antibody - Product Information**

Application	WB
Primary Accession	<a href="#">P60484</a>
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

**Description**

Rabbit IgG polyclonal antibody for Phosphatidylinositol 3,4,5-trisphosphate 3-phosphatase and dual-specificity protein phosphatase PTEN(PTEN) detection. Tested with WB in Human;Mouse;Rat.

**Reconstitution**

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

**Anti-PTEN Antibody - Additional Information**

**Gene ID** 5728

**Other Names**

Phosphatidylinositol 3, 4, 5-trisphosphate 3-phosphatase and dual-specificity protein phosphatase PTEN, 3.1.3.16, 3.1.3.48, 3.1.3.67, Mutated in multiple advanced cancers 1, Phosphatase and tensin homolog, PTEN, MMAC1, TEP1

**Calculated MW**

47166 MW KDa

**Application Details**

Western blot, 0.1-0.5 µg/ml, Human, Mouse, Rat<br>

**Subcellular Localization**

Cytoplasm. Nucleus. Nucleus, PML body. Monoubiquitinated form is nuclear. Nonubiquitinated form is cytoplasmic. Colocalized with PML and USP7 in PML nuclear bodies. XIAP/BIRC4 promotes its nuclear localization.

**Tissue Specificity**

Expressed at a relatively high level in all adult tissues, including heart, brain, placenta, lung, liver, muscle, kidney and pancreas. .

**Contents**

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na<sub>2</sub>HPO<sub>4</sub>, 0.05mg Na<sub>3</sub>.

**Immunogen**

E. coli-derived human PTEN recombinant protein (Position: T2-T202). Human PTEN shares 100% amino acid (aa) sequence identity with mouse PTEN.

### Purification

Immunogen affinity purified.

### Cross Reactivity

No cross reactivity with other proteins.

### Storage

**At -20°C for one year. After r<sup>o</sup> Constitution, at 4°C for one month. It° Can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.**

## Anti-PTEN Antibody - Protein Information

### Name PTEN

### Synonyms MMAC1, TEP1

### Function

Dual-specificity protein phosphatase, dephosphorylating tyrosine-, serine- and threonine-phosphorylated proteins (PubMed:<a href="http://www.uniprot.org/citations/9187108" target="\_blank">9187108</a>, PubMed:<a href="http://www.uniprot.org/citations/9256433" target="\_blank">9256433</a>, PubMed:<a href="http://www.uniprot.org/citations/9616126" target="\_blank">9616126</a>). Also functions as a lipid phosphatase, removing the phosphate in the D3 position of the inositol ring of PtdIns(3,4,5)P3/phosphatidylinositol 3,4,5- trisphosphate, PtdIns(3,4)P2/phosphatidylinositol 3,4-diphosphate and PtdIns3P/phosphatidylinositol 3-phosphate with a preference for PtdIns(3,4,5)P3 (PubMed:<a href="http://www.uniprot.org/citations/16824732" target="\_blank">16824732</a>, PubMed:<a href="http://www.uniprot.org/citations/26504226" target="\_blank">26504226</a>, PubMed:<a href="http://www.uniprot.org/citations/9593664" target="\_blank">9593664</a>, PubMed:<a href="http://www.uniprot.org/citations/9811831" target="\_blank">9811831</a>). Furthermore, this enzyme can also act as a cytosolic inositol 3-phosphatase acting on Ins(1,3,4,5,6)P5/inositol 1,3,4,5,6 pentakisphosphate and possibly Ins(1,3,4,5)P4/1D-myo-inositol 1,3,4,5-tetrakisphosphate (PubMed:<a href="http://www.uniprot.org/citations/11418101" target="\_blank">11418101</a>, PubMed:<a href="http://www.uniprot.org/citations/15979280" target="\_blank">15979280</a>). Antagonizes the PI3K-AKT/PKB signaling pathway by dephosphorylating phosphoinositides and thereby modulating cell cycle progression and cell survival (PubMed:<a href="http://www.uniprot.org/citations/31492966" target="\_blank">31492966</a>, PubMed:<a href="http://www.uniprot.org/citations/37279284" target="\_blank">37279284</a>). The unphosphorylated form cooperates with MAGI2 to suppress AKT1 activation (PubMed:<a href="http://www.uniprot.org/citations/11707428" target="\_blank">11707428</a>). In motile cells, suppresses the formation of lateral pseudopods and thereby promotes cell polarization and directed movement (PubMed:<a href="http://www.uniprot.org/citations/22279049" target="\_blank">22279049</a>). Dephosphorylates tyrosine-phosphorylated focal adhesion kinase and inhibits cell migration and integrin-mediated cell spreading and focal adhesion formation (PubMed:<a href="http://www.uniprot.org/citations/22279049" target="\_blank">22279049</a>). Required for growth factor-induced epithelial cell migration; growth factor stimulation induces PTEN phosphorylation which changes its binding preference from the p85 regulatory subunit of the PI3K kinase complex to DLC1 and results in translocation of the PTEN-DLC1 complex to the posterior of migrating cells to promote RHOA activation (PubMed:<a href="http://www.uniprot.org/citations/26166433" target="\_blank">26166433</a>). Meanwhile, TNS3 switches binding preference from DLC1 to p85 and the TNS3-p85 complex translocates to the leading edge of migrating cells to activate RAC1 activation (PubMed:<a href="http://www.uniprot.org/citations/26166433" target="\_blank">26166433</a>). Plays a role as a key modulator of the AKT-mTOR signaling pathway controlling the tempo of the process of

newborn neurons integration during adult neurogenesis, including correct neuron positioning, dendritic development and synapse formation (By similarity). Involved in the regulation of synaptic function in excitatory hippocampal synapses. Recruited to the postsynaptic membrane upon NMDA receptor activation, is required for the modulation of synaptic activity during plasticity. Enhancement of lipid phosphatase activity is able to drive depression of AMPA receptor-mediated synaptic responses, activity required for NMDA receptor-dependent long-term depression (LTD) (By similarity). May be a negative regulator of insulin signaling and glucose metabolism in adipose tissue. The nuclear monoubiquitinated form possesses greater apoptotic potential, whereas the cytoplasmic nonubiquitinated form induces less tumor suppressive ability (PubMed:<a href="http://www.uniprot.org/citations/10468583" target="\_blank">10468583</a>, PubMed:<a href="http://www.uniprot.org/citations/18716620" target="\_blank">18716620</a>).

#### Cellular Location

Cytoplasm. Nucleus. Nucleus, PML body. Cell projection, dendritic spine {ECO:0000250|UniProtKB:O54857}. Postsynaptic density {ECO:0000250|UniProtKB:O54857}. Note=Monoubiquitinated form is nuclear Nonubiquitinated form is cytoplasmic. Colocalized with PML and USP7 in PML nuclear bodies (PubMed:18716620). XIAP/BIRC4 promotes its nuclear localization (PubMed:19473982). Associates with the postsynaptic density in response to NMDAR activation (By similarity) {ECO:0000250|UniProtKB:O54857, ECO:0000269|PubMed:18716620, ECO:0000269|PubMed:19473982}

#### Tissue Location

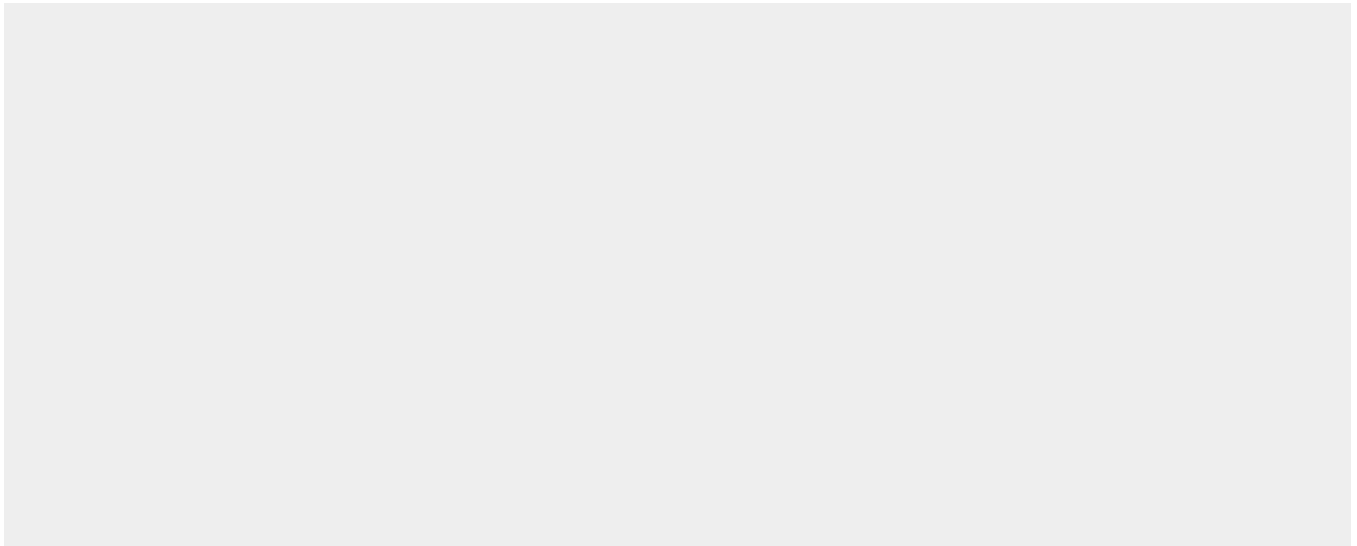
Expressed at a relatively high level in all adult tissues, including heart, brain, placenta, lung, liver, muscle, kidney and pancreas.

#### Anti-PTEN Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### Anti-PTEN Antibody - Images



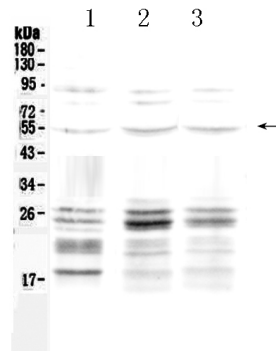


Figure 1. Western blot analysis of PTEN using anti-PTEN antibody (ABO12790).

#### **Anti-PTEN Antibody - Background**

PTEN is also known as BZS, DEC, CWS1, GLM2, MHAM, TEP1, PTEN1. It is mapped to 10q23.3. This gene was identified as a tumor suppressor that is mutated in a large number of cancers at high frequency. The protein encoded by this gene is a phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase. It contains a tensin like domain as well as a catalytic domain similar to that of the dual specificity protein tyrosine phosphatases. Unlike most of the protein tyrosine phosphatases, this protein preferentially dephosphorylates phosphoinositide substrates. The PTEN structure reveals a phosphatase domain that is similar to protein phosphatases but also has an enlarged active site important for the accommodation of the phosphoinositide substrate.