

Product datasheet

Anti-PTEN antibody [EPR4408-76] ab133532

KO VALIDATED Recombinant RabMAb

★★★★☆ 1 Abreviews 2 References 5 Images

Overview

Product name	Anti-PTEN antibody [EPR4408-76]
Description	Rabbit monoclonal [EPR4408-76] to PTEN
Host species	Rabbit
Tested applications	Suitable for: WB Unsuitable for: Flow Cyt, ICC/IF, IHC-P or IP
Species reactivity	Reacts with: Mouse, Rat, Human
Immunogen	Recombinant full length protein corresponding to Human PTEN.
Positive control	WB: Hap1, C6, RAW 264.7, NIH 3T3, MCF7, 293T, A431, and HeLa cell lysates.
General notes	This product is a recombinant monoclonal antibody, which offers several advantages including: <ul style="list-style-type: none"> - High batch-to-batch consistency and reproducibility - Improved sensitivity and specificity - Long-term security of supply - Animal-free production For more information see here . Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents .

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at -20°C.
Storage buffer	pH: 7.2 Preservative: 0.05% Sodium azide Constituents: 0.1% BSA, 40% Glycerol (glycerin, glycerine), 9.85% Tris glycine, 50% Tissue culture supernatant
Purity	Tissue culture supernatant
Clonality	Monoclonal
Clone number	EPR4408-76
Isotype	IgG

Applications

The Abpromise guarantee

Our **Abpromise guarantee** covers the use of ab133532 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB	★★★★★ (1)	1/10000 - 1/50000. Predicted molecular weight: 47 kDa.

Application notes

Is unsuitable for Flow Cyt, ICC/IF, IHC-P or IP.

Target

Function

Tumor suppressor. Acts as a dual-specificity protein phosphatase, dephosphorylating tyrosine-, serine- and threonine-phosphorylated proteins. Also acts as a lipid phosphatase, removing the phosphate in the D3 position of the inositol ring from phosphatidylinositol 3,4,5-trisphosphate, phosphatidylinositol 3,4-diphosphate, phosphatidylinositol 3-phosphate and inositol 1,3,4,5-tetrakisphosphate with order of substrate preference in vitro $\text{PtdIns}(3,4,5)\text{P}_3 > \text{PtdIns}(3,4)\text{P}_2 > \text{PtdIns}3\text{P} > \text{Ins}(1,3,4,5)\text{P}_4$. The lipid phosphatase activity is critical for its tumor suppressor function. Antagonizes the PI3K-AKT/PKB signaling pathway by dephosphorylating phosphoinositides and thereby modulating cell cycle progression and cell survival. The unphosphorylated form cooperates with AIP1 to suppress AKT1 activation. Dephosphorylates tyrosine-phosphorylated focal adhesion kinase and inhibits cell migration and integrin-mediated cell spreading and focal adhesion formation. 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. 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. In motile cells, suppresses the formation of lateral pseudopods and thereby promotes cell polarization and directed movement.

Isoform alpha: Functional kinase, like isoform 1 it antagonizes the PI3K-AKT/PKB signaling pathway. Plays a role in mitochondrial energetic metabolism by promoting COX activity and ATP production, via collaboration with isoform 1 in increasing protein levels of PINK1.

Tissue specificity

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

Involvement in disease

Cowden syndrome 1

Lhermitte-Duclos disease

Bannayan-Riley-Ruvalcaba syndrome

Squamous cell carcinoma of the head and neck

Endometrial cancer

PTEN mutations are found in a subset of patients with Proteus syndrome, a genetically heterogeneous condition. The molecular diagnosis of PTEN mutation positive cases classifies Proteus syndrome patients as part of the PTEN hamartoma syndrome spectrum. As such, patients surviving the early years of Proteus syndrome are likely at a greater risk of developing malignancies.

Glioma 2

VACTERL association with hydrocephalus

Prostate cancer

Macrocephaly/autism syndrome

A microdeletion of chromosome 10q23 involving BMPR1A and PTEN is a cause of chromosome 10q23 deletion syndrome, which shows overlapping features of the following three disorders: Bannayan-Zonana syndrome, Cowden disease and juvenile polyposis syndrome.

Sequence similarities

Contains 1 C2 tensin-type domain.

Contains 1 phosphatase tensin-type domain.

Domain

The C2 domain binds phospholipid membranes in vitro in a Ca(2+)-independent manner; this binding is important for its tumor suppressor function.

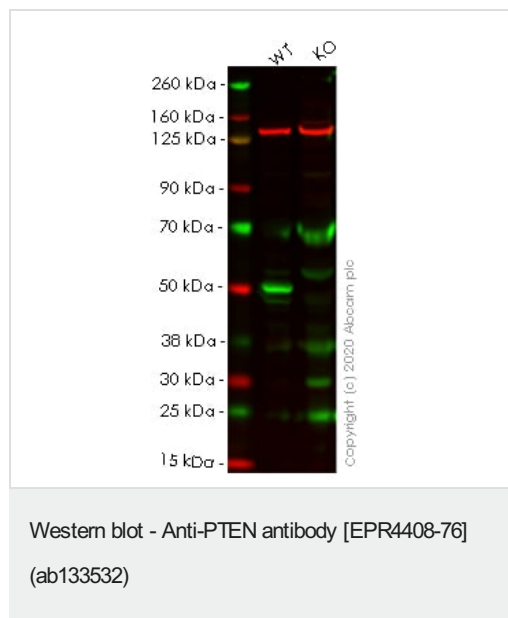
Post-translational modifications

Constitutively phosphorylated by CK2 under normal conditions. Phosphorylated in vitro by MAST1, MAST2, MAST3 and STK11. Phosphorylation results in an inhibited activity towards PIP3. Phosphorylation can both inhibit or promote PDZ-binding. Phosphorylation at Tyr-336 by FRK/PTK5 protects this protein from ubiquitin-mediated degradation probably by inhibiting its binding to NEDD4. Phosphorylation by ROCK1 is essential for its stability and activity. Phosphorylation by PLK3 promotes its stability and prevents its degradation by the proteasome. Monoubiquitinated; monoubiquitination is increased in presence of retinoic acid. Deubiquitinated by USP7; leading to its nuclear exclusion. Monoubiquitination of one of either Lys-13 and Lys-289 amino acid is sufficient to modulate PTEN compartmentalization. Ubiquitinated by XIAP/BIRC4.

Cellular localization

Secreted. May be secreted via a classical signal peptide and reenter into cells with the help of a poly-Arg motif and 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.

Images



All lanes : Anti-PTEN antibody [EPR4408-76] (ab133532) at 1/10000 dilution

Lane 1 : Wild-type HeLa cell lysate

Lane 2 : PTEN knockout HeLa cell lysate

Lysates/proteins at 20 µg per lane.

Performed under reducing conditions.

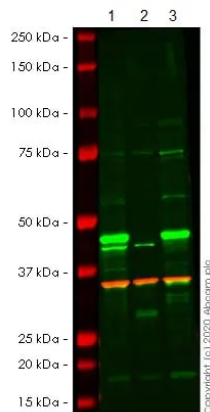
Predicted band size: 47 kDa

Observed band size: 47 kDa

Lanes 1- 2: Merged signal (red and green). Green - ab133532 observed at 47 kDa. Red - Anti-Vinculin antibody [VIN-54] observed at 124 kDa.

ab133532 was shown to react with PTEN in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line **ab255419** (knockout cell lysate **ab263829**) was used. Wild-type

HeLa and PTEN knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab133532 and Anti-Vinculin antibody [VIN-54] overnight at 4°C at a 1 in 10000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (**ab216773**) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (**ab216776**) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.



Western blot - Anti-PTEN antibody [EPR4408-76] (ab133532)

All lanes : Anti-PTEN antibody [EPR4408-76] (ab133532) at 1/10000 dilution

Lane 1 : Wild-type HeLa cell lysate

Lane 2 : PTEN CRISPR/Cas9 edited HeLa cell lysate

Lane 3 : HAP1 cell lysate

Lysates/proteins at 20 µg per lane.

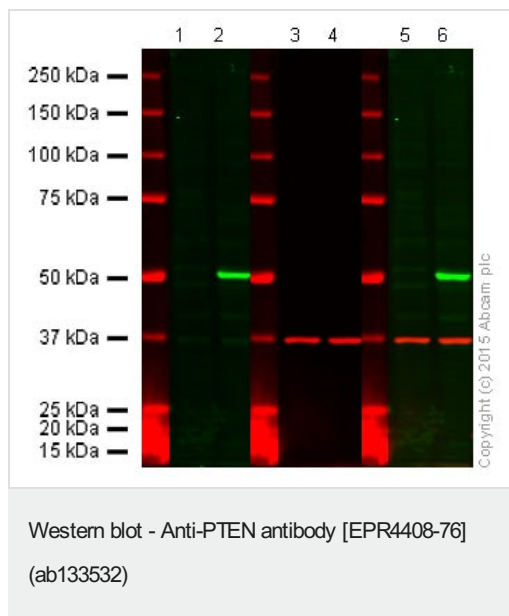
Performed under reducing conditions.

Predicted band size: 47 kDa

Observed band size: 47 kDa

Lanes 1 - 3: Merged signal (red and green). Green - ab133532 observed at 47 kDa. Red - loading control, **ab8245** (Mouse anti-GAPDH antibody [6C5]) observed at 37 kDa.

ab133532 was shown to react with PTEN in wild-type HeLa cells in western blot. The band observed in PTEN CRISPR/Cas9 edited cell line **ab255419** (PTEN CRISPR/Cas9 edited cell lysate **ab263829**) below 47 kDa may represent truncated forms and cleaved fragments. This has not been investigated further. HeLa wild-type and PTEN CRISPR/Cas9 edited cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab133532 and **ab8245** (Mouse anti-GAPDH antibody [6C5]) overnight at 4 °C at a 1 in 10000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (**ab216773**) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (**ab216776**) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.



Lanes 1-2 : Anti-PTEN antibody [EPR4408-76] (ab133532) at 1/10000 dilution

Lanes 3-4 : Anti-GAPDH antibody [6C5] - Loading Control (**ab8245**) at 1/2000 dilution

Lanes 1 & 3 & 5 : PTEN knockout HAP1 cell lysate

Lanes 2 & 4 & 6 : Wild-type HAP1 cell lysate

Lysates/proteins at 20 µg per lane.

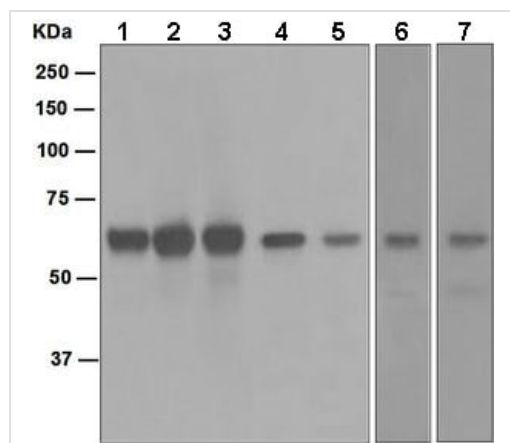
Predicted band size: 47 kDa

Lanes 1 and 2: Green signal from target - ab133532 observed at 47 kDa

Lanes 3 and 4: Red signal from loading control - **ab8245** observed at 37 kDa

Lanes 5 and 6: Merged (red and green) signal

ab133532 was shown to specifically react with PTEN in wild-type HAP1 cells. No band was observed when PTEN knockout samples were used. Wild-type and PTEN knockout samples were subjected to SDS-PAGE, ab133532 and **ab8245** (loading control to GAPDH) were diluted to 1/10,000 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (**ab216773**) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (**ab216776**) secondary antibodies at 1/10,000 dilution for 1hr at room temperature before imaging.



Western blot - Anti-PTEN antibody [EPR4408-76] (ab133532)

All lanes : Anti-PTEN antibody [EPR4408-76] (ab133532) at 1/10000 dilution

Lane 1 : C6 cell lysate

Lane 2 : RAW 264.7 cell lysate

Lane 3 : NIH 3T3 cell lysate

Lane 4 : MCF7 cell lysate

Lane 5 : 293T cell lysate

Lane 6 : A431 cell lysate

Lane 7 : HeLa cell lysate

Lysates/proteins at 10 µg per lane.

Secondary

All lanes : HRP labelled goat anti-rabbit at 1/2000 dilution

Predicted band size: 47 kDa

Observed band size: 54 kDa

Why choose a recombinant antibody?



Research with confidence
Consistent and reproducible results



Long-term and scalable supply
Recombinant technology



Success from the first experiment
Confirmed specificity



Ethical standards compliant
Animal-free production

Anti-PTEN antibody [EPR4408-76] (ab133532)

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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