abcam

Product datasheet

Anti-PTEN antibody [Y184] ab32199

KO VALIDATED Recombinant RabMAb

15 Abreviews 247 References 8 Images

Overview

Product name	Anti-PTEN antibody [Y184]
Description	Rabbit monoclonal [Y184] to PTEN
Host species	Rabbit
Specificity	A 42kDa band is seen for some samples in addition to 50-54kDa band- we do not know the specificity of this band. For example Rat kidney, heart, spleen have bands around 50kDa but rat PC-12 cells have single band at ~42kDa.
Tested applications	**Suitable for:** WB
Species reactivity	**Reacts with:** Mouse, Human **Predicted to work with:** Rat
Immunogen	Synthetic peptide within Human PTEN aa 350 to the C-terminus (C terminal). The exact sequence is proprietary. (Peptide available as **ab157804**)
Positive control	WB: HAP1, MCF7 and HEK-293 cell lysates; Human brain lysate; Mouse primary bone marrow derived macrophage whole cell lysate.
General notes	This product is a recombinant monoclonal antibody, which offers several advantages including: - 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 +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.20 Preservative: 0.01% Sodium azide

	Constituents: 49% PBS, 50% Glycerol (glycerin, glycerine), 0.05% BSA
Purity	Protein A purified
Clonality	Monoclonal
Clone number	Y184
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab32199 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	★★★★★ **(10)**	1/10000. Detects a band of approximately 54 kDa (predicted molecular weight: 47 kDa). **For unpurified, use 1/500.**

Target

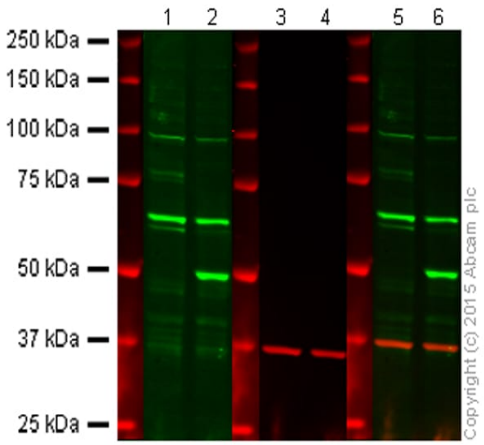
Function Tumor suppressor. Acts as a dual-specificity protein phosphatase, dephosphorylating tyrosine-, serine- and threonine-phosphorylated proteins. Also acts as a lipid phosphatase, removing the phosphate in the D3 position of the inositol ring from phosphatidylinositol 3,4,5-trisphosphate, phosphatidylinositol 3,4-diphosphate, phosphatidylinositol 3-phosphate and inositol 1,3,4,5-tetrakisphosphate with order of substrate preference in vitro PtdIns(3,4,5)P3 > PtdIns(3,4)P2 > PtdIns3P > Ins(1,3,4,5)P4. 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

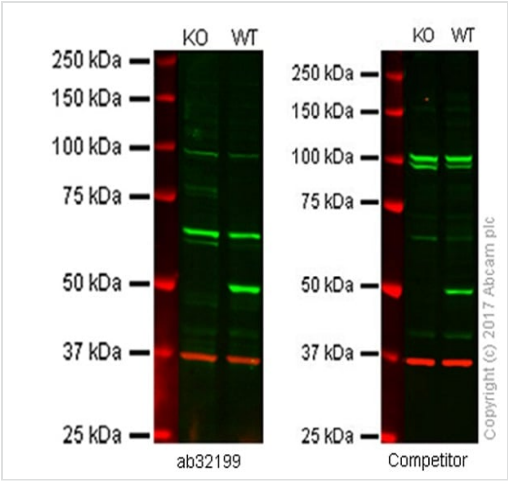


Western blot - Anti-PTEN antibody [Y184] (ab32199)

Lanes 1 and 5: PTEN knockout HAP1 cell lysate (20 µg)
Lanes 2 and 6: Wild-type HAP1 cell lysate (20 µg)
Lane 2: Green signal from target – ab32199 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

ab32199 was shown to specifically recognize PTEN in wild-type HAP1 cells along with additional cross reactive bands. No band was observed when PTEN knockout samples were used. Wild-type and PTEN knockout samples were subjected to SDS-PAGE, ab32199 and **ab8245** (loading control to GAPDH) were diluted to 1/500 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

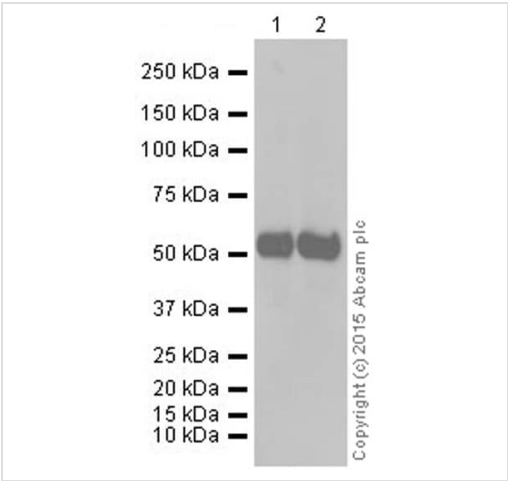
1/10,000 dilution for 1 h at room temperature before imaging.



Western blot - Anti-PTEN antibody [Y184] (ab32199)

Lanes 1: PTEN knockout HAP1 cell lysate (20 µg)
Lanes 2: Wild-type HAP1 cell lysate (20 µg)
Green signal from target
Red signal from loading control – **ab8245** observed at 37 kDa

This western blot image is a comparison between ab32199 and a competitor's top cited mouse monoclonal antibody.



Western blot - Anti-PTEN antibody [Y184] (ab32199)

All lanes : Anti-PTEN antibody [Y184] (ab32199) at 1/10000 dilution (purified)

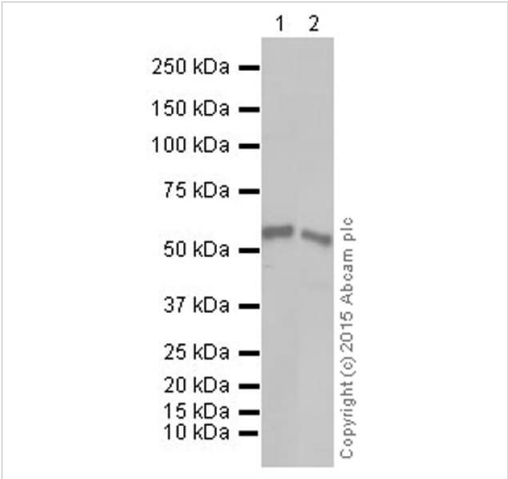
All lanes : Brain lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Anti-rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 47 kDa
Observed band size: 54 kDa

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST



Western blot - Anti-PTEN antibody [Y184] (ab32199)

All lanes : Anti-PTEN antibody [Y184] (ab32199) at 1/10000 dilution (purified)

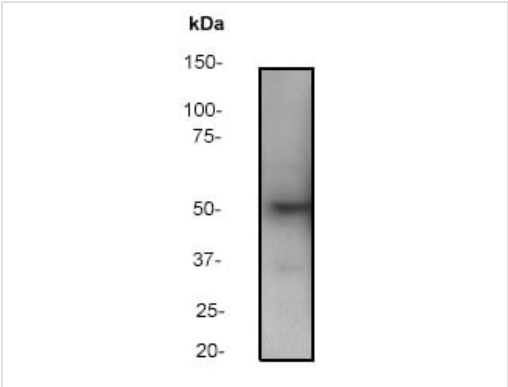
Lane 1 : MCF7 whole cell lysate
Lane 2 : HEK293 whole cell lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Anti-rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 47 kDa
Observed band size: 54 kDa

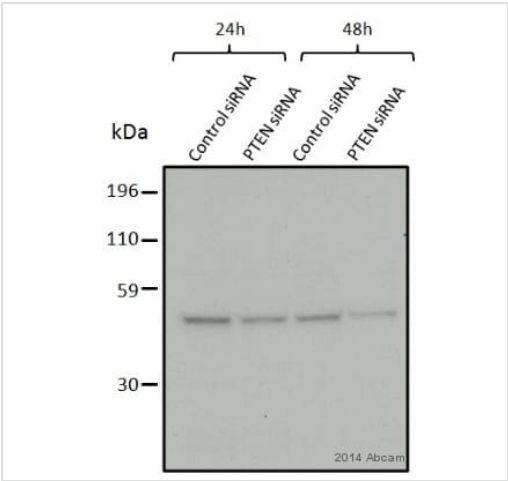
Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST



Western blot - Anti-PTEN antibody [Y184] (ab32199)

Anti-PTEN antibody [Y184] (ab32199) at 1/500 dilution (Unpurified) + MCF7 cell lysate

Predicted band size: 47 kDa
Observed band size: 54 kDa



Western blot - Anti-PTEN antibody [Y184] (ab32199)

This image is courtesy of an anonymous Abreview

All lanes : Anti-PTEN antibody [Y184] (ab32199) at 1/500 dilution (Unpurified)

All lanes : Mouse primary bone marrow derived macrophage whole cell lysate

Lysates/proteins at 50 µg per lane.

Secondary

All lanes : HRP-conjugated goat anti-rabbit IgG polyclonal

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 47 kDa

Observed band size: 50 kDa

Exposure time: 30 seconds

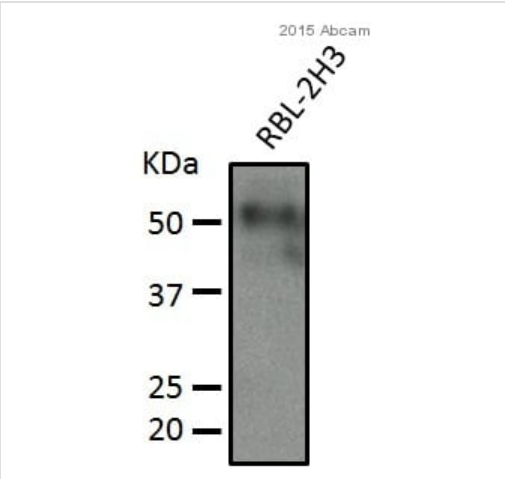
Treatment:

Lane 1 - control siRNA 24 hours

Lane 2 - PTEN siRNA 24 hours

Lane 3 - control siRNA 48 hours

Lane 4 - PTEN siRNA 48 hours



Western blot - Anti-PTEN antibody [Y184] (ab32199)

This image is courtesy of an anonymous Abreview.

Anti-PTEN antibody [Y184] (ab32199) at 1/500 dilution + RBL-2H3 whole cell lysate

Secondary

Goat Anti-rabbit HRP at 1/1000 dilution

Developed using the ECL technique.

Predicted band size: 47 kDa

Anti-PTEN antibody [Y184] (ab32199)

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