abcam

Product datasheet

Anti-PTEN antibody [EPR22636-122] ab267787

KO VALIDATED Recombinant RabMAb

37 References 12 Images

Overview

Product name	Anti-PTEN antibody [EPR22636-122]
Description	Rabbit monoclonal [EPR22636-122] to PTEN
Host species	Rabbit
Tested applications	**Suitable for:** WB, IHC-P, IP, Flow Cyt (Intra) **Unsuitable for:** ICC/IF
Species reactivity	**Reacts with:** Mouse, Rat, Human
Immunogen	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
Positive control	WB: Wild-type HAP1, MCF7, MDA-MB-468, HeLa, C6, RAW264.7, PC-12 and NIH/3T3 whole cell lysates; Mouse kidney, Mouse spleen and Rat lung lysates. IHC-P: Human endometrial cancer, Human ovarian cancer, Human pancreas, Mouse pancreas and Rat pancreas tissues. Flow Cyt (intra): HeLa and NIH/3T3 cells. IP: MCF7 and HeLa cells.
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 long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.2 Preservative: 0.01% Sodium azide Constituents: PBS, 0.05% BSA, 40% Glycerol (glycerin, glycerine)
Purity	Protein A purified
Clonality	Monoclonal

Clone number	EPR22636-122
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab267787 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		1/1000. Detects a band of approximately 54 kDa (predicted molecular weight: 47 kDa).
IHC-P		1/2000. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.
IP		1/30.
Flow Cyt (Intra)		1/500.

Application notes Is unsuitable for ICC/IF.

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

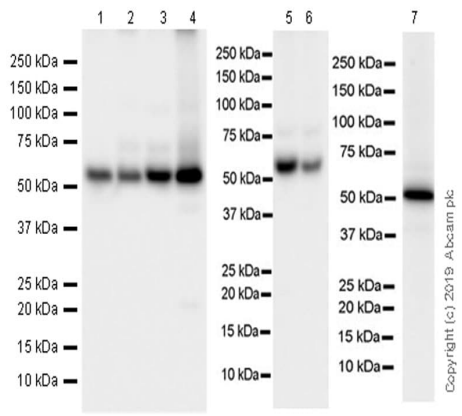
Expressed at a relatively high level in all adult tissues, including heart, brain, placenta, lung, liver, muscle, kidney and pancreas.

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 [EPR22636-122] (ab267787)

All lanes : Anti-PTEN antibody [EPR22636-122] (ab267787) at 1/1000 dilution

Lane 1 : C6 (rat glial tumor glial cell), whole cell lysate
Lane 2 : RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate
Lane 3 : PC-12 (rat adrenal gland pheochromocytoma), whole cell lysate
Lane 4 : NIH/3T3 (mouse embryonic fibroblast), whole cell lysate
Lane 5 : Mouse kidney tissue lysate
Lane 6 : Mouse spleen tissue lysate
Lane 7 : Rat lung tissue lysate

Lysates/proteins at 10 µg per lane.

Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/20000 dilution

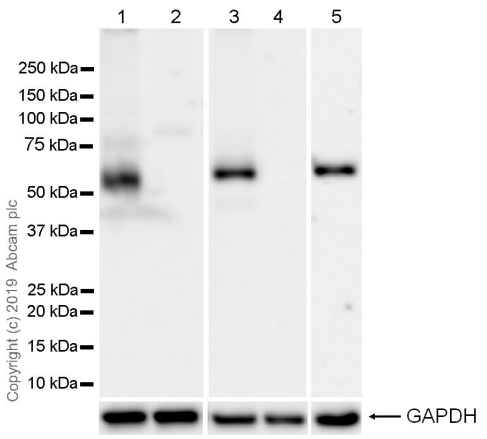
Predicted band size: 47 kDa
Observed band size: 54 kDa

Blocking and dilution buffer: 5% NFDM/TBST.

Exposure times:

Lanes 1-6: 3 seconds;
Lane 7: 7 seconds.

The molecular weight observed is consistent with what has been described in the literature (PMID:10514407).



Western blot - Anti-PTEN antibody [EPR22636-122] (ab267787)

All lanes : Anti-PTEN antibody [EPR22636-122] (ab267787) at 1/1000 dilution

Lane 1 : Wild-type HAP1 (Human near-haploid cell line) whole cell lysate
Lane 2 : PTEN knockout HAP1 whole cell lysate
Lane 3 : MCF7 (human breast adenocarcinoma epithelial cell), whole cell lysate
Lane 4 : MDA-MB-468 (human breast adenocarcinoma epithelial cell), whole cell lysate
Lane 5 : HeLa (human cervix adenocarcinoma epithelial cell), whole cell lysate

Lysates/proteins at 20 µg per lane.

Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/20000 dilution

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

Blocking and dilution buffer: 5% NFDM/TBST.

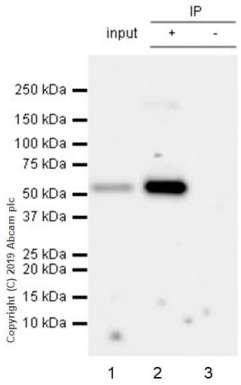
Exposure times:

Lanes 1-4: 3 seconds;
Lane 5: 114 seconds.

ab267787 was shown to specifically react with PTEN in wild-type HAP1 cells as signal was lost in PTEN knockout cells. Wild-type and PTEN knockout samples were subjected to SDS-PAGE. Ab267787 and **ab181602** (Rabbit anti-GAPDH loading control) were incubated 1 hour at room temperature at 1/1000 dilution and 1/200,000 dilution respectively. Blots were developed with Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (**ab97051**) secondary antibody at 1/20,000 dilution for 1 hour at room temperature before imaging.

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID:10514407).

Negative control: MDA-MB-468 (PMID:21358673,15674339).



Immunoprecipitation - Anti-PTEN antibody [EPR22636-122] (ab267787)

PTEN was immunoprecipitated from 0.35 mg HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate with ab267787 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab267787 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (**ab131366**) was used at 1/5000 dilution.

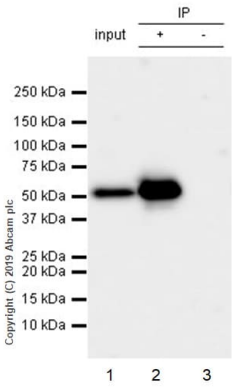
Lane 1: HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10ug

Lane 2: ab267787 IP in HeLa whole cell lysate

Lane 3: Rabbit monoclonal IgG (**ab172730**) instead of ab267787 in HeLa whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 15 seconds



Immunoprecipitation - Anti-PTEN antibody [EPR22636-122] (ab267787)

PTEN was immunoprecipitated from 0.35 mg MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate with ab267787 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab267787 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (**ab131366**) was used at 1/5000 dilution.

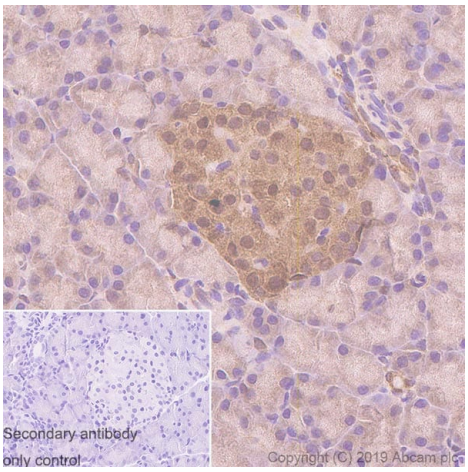
Lane 1: MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysate 10ug

Lane 2: ab267787 IP in MCF7 whole cell lysate

Lane 3: Rabbit monoclonal IgG (**ab172730**) instead of ab267787 in MCF7 whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 15 seconds

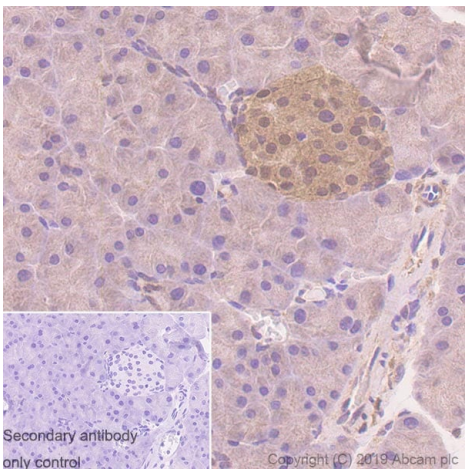


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Immunohistochemical analysis of paraffin-embedded Rat pancreas tissue labeling PTEN with ab267787 at 1/2000 dilution (2.18 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on rat pancreas (PMID:11021813). The section was incubated with ab267787 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.

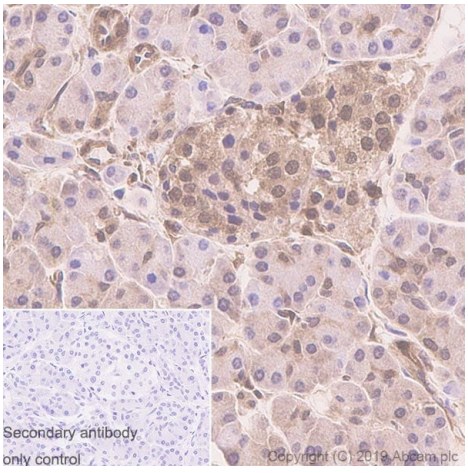


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Immunohistochemical analysis of paraffin-embedded Mouse pancreas tissue labeling PTEN with ab267787 at 1/2000 dilution (2.18 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on mouse pancreas (PMID:11021813). The section was incubated with ab267787 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.

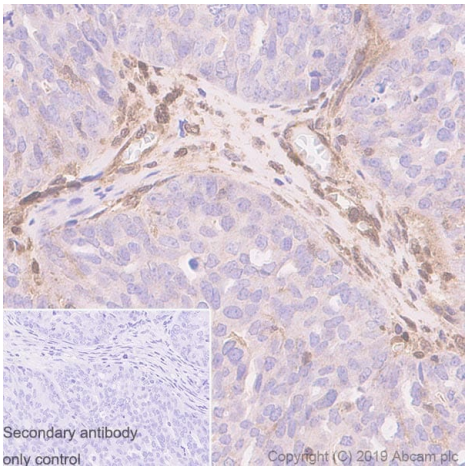


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Immunohistochemical analysis of paraffin-embedded Human pancreas tissue labeling PTEN with ab267787 at 1/2000 dilution (2.18 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on human pancreas (PMID:11021813). The section was incubated with ab267787 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.

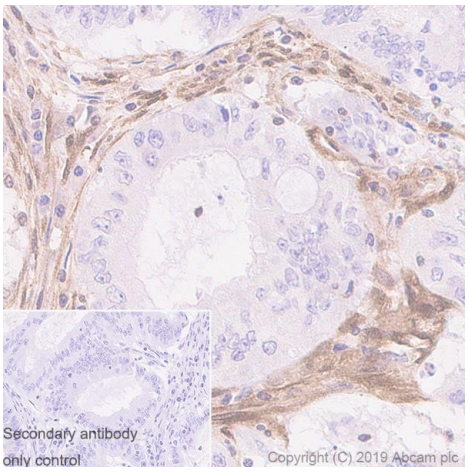


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Immunohistochemical analysis of paraffin-embedded Human ovarian cancer tissue labeling PTEN with ab267787 at 1/2000 dilution (2.18 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on stroma of human ovarian cancer (PMID:25608477). The section was incubated with ab267787 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.

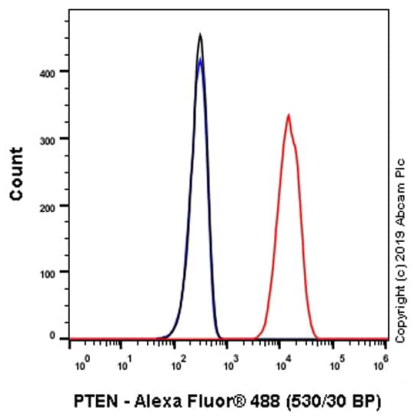


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Immunohistochemical analysis of paraffin-embedded Human endometrial cancer tissue labeling PTEN with ab267787 at 1/2000 dilution (2.18 ug/ml) followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**). Positive staining on stroma of human endometrial cancer (PMID:2230170). The section was incubated with ab267787 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

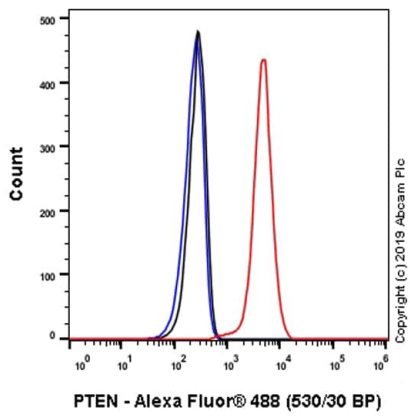
Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (**ab209101**).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20 mins.



Flow Cytometry (Intracellular) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed, 90% methanol permeabilized NIH/3T3 (Mouse embryonic fibroblast) cells labelling PTEN with ab267787 at 1/500 dilution (Red) compared with a Rabbit monoclonal IgG (**ab172730**) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) at 1/2000 dilution was used as the secondary antibody.



Flow Cytometry (Intracellular) - Anti-PTEN antibody [EPR22636-122] (ab267787)

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed, 90% methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling PTEN with ab267787 at 1/500 dilution (Red) compared with a Rabbit monoclonal IgG (**ab172730**) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) at 1/2000 dilution was used as the secondary antibody.

Anti-PTEN antibody [EPR22636-122] (ab267787)

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