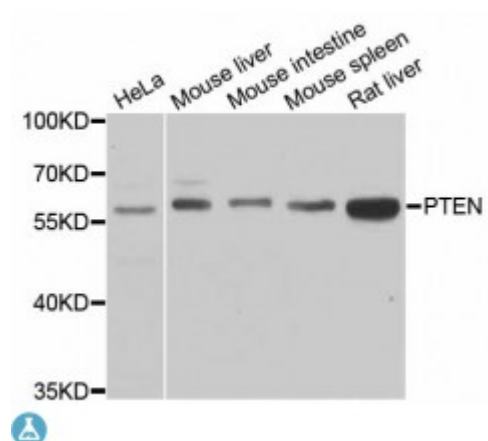


Anti-PTEN Antibody



Description

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. It negatively regulates intracellular levels of phosphatidylinositol-3,4,5-trisphosphate in cells and functions as a tumor suppressor by negatively regulating AKT/PKB signaling pathway. The use of a non-canonical (CUG) upstream initiation site produces a longer isoform that initiates translation with a leucine, and is thought to be preferentially associated with the mitochondrial inner membrane. This longer isoform may help regulate energy metabolism in the mitochondria. A pseudogene of this gene is found on chromosome 9. Alternative splicing and the use of multiple translation start codons results in multiple transcript variants encoding different isoforms.

Model	STJ113730
Host	Rabbit
Reactivity	Human, Mouse, Rat
Applications	WB
Immunogen	Recombinant fusion protein containing a sequence corresponding to amino acids 209-403 of human PTEN (NP_000305.3).
Gene ID	5728
Gene Symbol	PTEN

Dilution range	WB 1:500 - 1:2000
Tissue Specificity	Expressed at a relatively high level in all adult tissues, including heart, brain, placenta, lung, liver, muscle, kidney and pancreas
Purification	Affinity purification
Note	For Research Use Only (RUO).
Protein Name	Phosphatidylinositol 3,4,5-trisphosphate 3-phosphatase and dual-specificity protein phosphatase PTEN
Molecular Weight	47.166 kDa
Clonality	Polyclonal
Conjugation	Unconjugated
Isotype	IgG
Formulation	PBS with 0.02% sodium azide, 50% glycerol, pH7.3.
Storage Instruction	Store at -20C. Avoid freeze / thaw cycles.
Database Links	HGNC:9588 OMIM:137800 Reactome:R-HSA-1660499
Alternative Names	Phosphatidylinositol 3,4,5-trisphosphate 3-phosphatase and dual-specificity protein phosphatase PTEN
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,
Cellular Localization	Cytoplasm,
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,

St John's Laboratory Ltd

F +44 (0)207 681 2580

T +44 (0)208 223 3081

W <http://www.stjohnslabs.com/>

E info@stjohnslabs.com