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PHLPP1 Antibody

Catalog # ASC11540

Product Information

Application	WB, IF, ICC, E
Primary Accession	O60346
Other Accession	NP_919431, 291219891
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	184672
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	PHLPP1 antibody can be used for detection of PHLPP1 by Western blot at 1 - 2 g/mL.

Additional Information

Gene ID	23239
Other Names	PH domain leucine-rich repeat-containing protein phosphatase 1, 3.1.3.16, Pleckstrin homology domain-containing family E member 1, PH domain-containing family E member 1, Suprachiasmatic nucleus circadian oscillatory protein, hSCOP, PHLPP1, KIAA0606, PHLPP, PLEKHE1, SCOP
Target/Specificity	PHLPP1; At least four isoforms are known to exist; this antibody will only detect the largest isoform. PHLPP1 antibody is predicted to not cross react with PHLPP2.
Reconstitution & Storage	PHLPP1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	PHLPP1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PHLPP1 (HGNC:20610)
Function	Protein phosphatase involved in regulation of Akt and PKC signaling. Mediates dephosphorylation in the C-terminal domain hydrophobic motif of members of the AGC Ser/Thr protein kinase family; specifically acts on 'Ser-473' of AKT2 and AKT3, 'Ser-660' of PRKCB and 'Ser-657' of PRKCA (PubMed:15808505, PubMed:17386267, PubMed:18162466). Isoform 2 seems to have a major role in regulating Akt signaling in hippocampal neurons (By

	similarity). Akt regulates the balance between cell survival and apoptosis through a cascade that primarily alters the function of transcription factors that regulate pro- and antiapoptotic genes. Dephosphorylation of 'Ser-473' of Akt triggers apoptosis and suppression of tumor growth. Dephosphorylation of PRKCA and PRKCB leads to their destabilization and degradation (PubMed:18162466). Dephosphorylates STK4 on 'Thr-387' leading to STK4 activation and apoptosis (PubMed:20513427). Dephosphorylates RPS6KB1 and is involved in regulation of cap-dependent translation (PubMed:21986499). Inhibits cancer cell proliferation and may act as a tumor suppressor (PubMed:19079341). Dephosphorylates RAF1 inhibiting its kinase activity (PubMed:24530606). May act as a negative regulator of K-Ras signaling in membrane rafts (By similarity). Involved in the hippocampus- dependent long-term memory formation (By similarity). Involved in circadian control by regulating the consolidation of circadian periodicity after resetting (By similarity). Involved in development and function of regulatory T-cells (By similarity).
Cellular Location	Cytoplasm. Membrane; Peripheral membrane protein. Nucleus. Note=In colorectal cancer tissue, expression is concentrated at the lateral membrane of epithelial cells
Tissue Location	In colorectal cancer tissue, expression is highest in the surface epithelium of normal colonic mucosa adjacent to the cancer tissue but is largely excluded from the crypt bases. Expression is lost or significantly decreased in 78% of tested tumors (at protein level). Ubiquitously expressed in non-cancerous tissues

Background

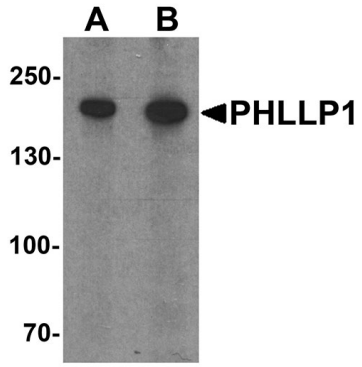
PHLPP1 Antibody: PHLPP1 is a member of the serine/threonine phosphatase family, which are important regulators of Akt serine-threonine kinases (AKT1, AKT2, AKT3) and conventional/novel protein kinase C (PKC) isoforms. PHLPP1 and PHLPP2 have a similar domain structure and have been shown to dephosphorylate and inactivate, distinct Akt isoforms, at one of the two critical phosphorylation sites required for activation: Serine473. PHLPP2 dephosphorylates AKT1 and AKT3, whereas PHLPP1 is specific for AKT2 and AKT3. PHLPP1 promotes apoptosis and may act as a tumor suppressor. Increased expression of PHLPP1 may also play a role in obesity and type 2 diabetes by interfering with Akt-mediated insulin signaling.

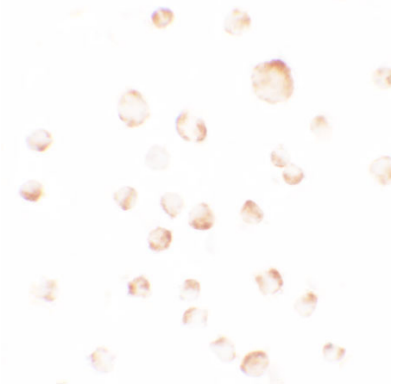
References

Brognard J and Newton AC. PHLiPPing the switch on Akt and protein kinase C signaling. Trends Endocrinol. Metab. 2008; 19:223-30.
Gao T, Furnari F and Newton AC. PHLPP: a phosphatase that directly dephosphorylates Akt, promotes apoptosis, and suppresses tumor growth. Mol. Cell 2005; 18:13-24.
Brognard J, Sierecki E, Gao T, et al. PHLPP and a second isoform, PHLPP2, differentially attenuate the amplitude of Akt signaling by regulating distinct Akt isoforms. Mol. Cell 2007; 25:917-31
Andreozzi F, Procopio C, Greco A, et al. Increased levels of the Akt-specific phosphatase PH domain leucine-rich repeat protein phosphatase (PHLPP)-1 in obese participants are associated with insulin resistance. Diabetologia 2011; 54:1879-87.

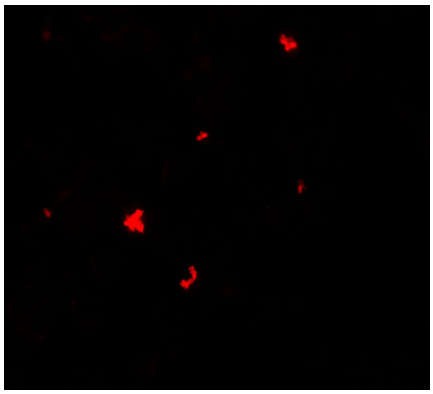
Images

Western blot analysis of PHLPP1 in SW480 cell lysate with PHLPP1 antibody at (A) 1 and (B) 2 µg/mL.





Immunocytochemistry of PHLPP1 in SW480 cells with PHLPP1 antibody at 2.5 µg/ml.



Immunofluorescence of PHLPP1 in SW480 cells with PHLPP1 antibody at 5 µg/ml.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.