10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

PP2A alpha/beta Rabbit mAb

Catalog # AP75936

Product Information

Application	WB, IHC-P, FC
Primary Accession	P67775
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	35594

Additional Information

Gene ID	5515
Other Names	PPP2CA
Dilution	WB~~1:1000-1:5000 IHC-P~~N/A FC~~1:20-1:50
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	PPP2CA
Function	Catalytic subunit of protein phosphatase 2A (PP2A), a serine/threonine phosphatase involved in the regulation of a wide variety of enzymes, signal transduction pathways, and cellular events (PubMed:10801873, PubMed:12473674, PubMed:17245430, PubMed:22613722, PubMed:33243860, PubMed:34004147, PubMed:9920888, PubMed:41986709). PP2A is the major phosphatase for microtubule-associated proteins (MAPs) (PubMed:22613722). PP2A can modulate the activity of phosphorylase B kinase casein kinase 2, mitogen-stimulated S6 kinase, and MAP-2 kinase (PubMed:22613722). Cooperates with SGO2 to protect centromeric cohesin from separase-mediated cleavage in oocytes specifically during meiosis I (By similarity). Can dephosphorylate various proteins, such as SV40 large T antigen, AXIN1, p53/TP53, PIM3, WEE1 (PubMed:10801873, PubMed:12473674, PubMed:17245430, PubMed:9920888). Activates RAF1 by dephosphorylating it at 'Ser-259' (PubMed:10801873). Mediates

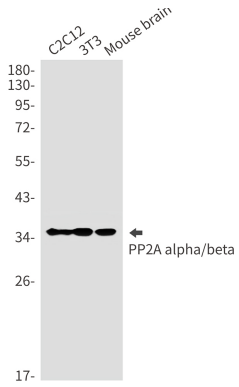
	dephosphorylation of WEE1, preventing its ubiquitin-mediated proteolysis, increasing WEE1 protein levels, and promoting the G2/M checkpoint (PubMed:33108758). Mediates dephosphorylation of MYC; promoting its ubiquitin-mediated proteolysis: interaction with AMBRA1 enhances interaction between PPP2CA and MYC (PubMed:25438055). Mediates dephosphorylation of FOXO3; promoting its stabilization: interaction with AMBRA1 enhances interaction between PPP2CA and FOXO3 (PubMed:30513302). Catalyzes dephosphorylation of the pyrin domain of NLRP3, promoting assembly of the NLRP3 inflammasome (By similarity). Together with RACK1 adapter, mediates dephosphorylation of AKT1 at 'Ser-473', preventing AKT1 activation and AKT-mTOR signaling pathway (By similarity). Dephosphorylation of AKT1 is essential for regulatory T-cells (Treg) homeostasis and stability (By similarity). Catalyzes dephosphorylation of PIM3, promoting PIM3 ubiquitination and proteasomal degradation (PubMed:12473674). Part of the striatin- interacting phosphatase and kinase (STRIPAK) complexes (PubMed:33633399). STRIPAK complexes have critical roles in protein (de)phosphorylation and are regulators of multiple signaling pathways including Hippo, MAPK, nuclear receptor and cytoskeleton remodeling (PubMed:33633399). Different types of STRIPAK complexes are involved in a variety of biological processes such as cell growth, differentiation, apoptosis, metabolism and immune regulation (PubMed:33633399). Key mediator of a quality checkpoint during transcription elongation as part of the Integrator-PP2A (INTAC) complex (PubMed:33243860, PubMed:34004147, PubMed:37080207). The INTAC complex drives premature transcription termination of transcripts that are unfavorably configured for transcriptional elongation: within the INTAC complex, PPP2CA catalyzes dephosphorylation of the C-terminal domain (CTD) of Pol II subunit POLR2A/RPB1 and SUPT5H/SPT5, thereby preventing transcriptional elongation (PubMed:33243860, PubMed:34004147, PubMed:37080207).
Cellular Location	Cytoplasm. Nucleus. Chromosome. Chromosome, centromere. Cytoplasm, cytoskeleton, spindle pole. Note=In prometaphase cells, but not in anaphase cells, localizes at centromeres (PubMed:16541025). During mitosis, also found at spindle poles (PubMed:16541025). Centromeric localization requires the presence of SGO2 (By similarity). Recruited to chromatin and transcription pause-release checkpoint via its association with the Integrator complex (PubMed:33243860, PubMed:34004147). {ECO:0000250|UniProtKB:P63330, ECO:0000269|PubMed:16541025, ECO:0000269|PubMed:33243860, ECO:0000269|PubMed:34004147}

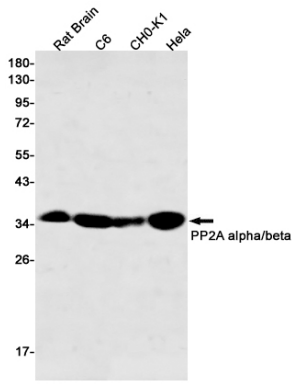
Background

PP2A is the major phosphatase for microtubule-associated proteins (MAPs). PP2A can modulate the activity of phosphorylase B kinase casein kinase 2, mitogen-stimulated S6 kinase, and MAP-2 kinase. Cooperates with SGOL2 to protect centromeric cohesin from separase-mediated cleavage in oocytes specifically during meiosis I (By similarity). Can dephosphorylate SV40 large T antigen and p53/TP53. Activates RAF1 by dephosphorylating it at 'Ser-259'.

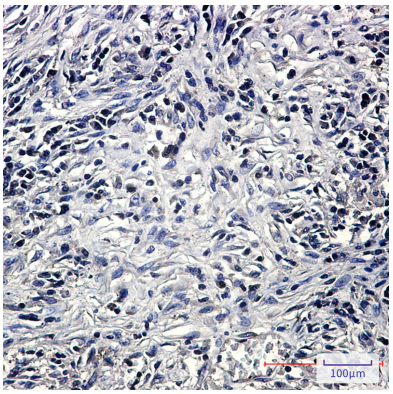
Images

Western blot analysis of PP2A alpha/beta in C2C12, 3T3, mouse brain lysates using PP2A alpha/beta antibody.

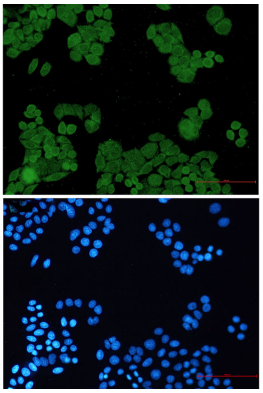




Western blot analysis of PP2A alpha/beta in rat Brain, C6, CHO-K1, Hela lysates using PP2A alpha/beta antibody.



Immunohistochemistry analysis of paraffin-embedded Human lung cancer using PP2A alpha/beta antibody. High-pressure and temperature Sodium Citrate pH 6.0 was used for antigen retrieval.



Immunocytochemistry analysis of PP2A alpha/beta (green) in hela using PP2A alpha/beta antibody,and DAPI(blue).

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