

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide

Synthetic peptide Catalog # BP8472b

Specification

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Product Information

Primary Accession

P62136

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Additional Information

Gene ID 5499

Other Names

Serine/threonine-protein phosphatase PP1-alpha catalytic subunit, PP-1A, PPP1CA, PPP1A

Target/Specificity

The synthetic peptide sequence used to generate the antibody AP8472b was selected from the C-term region of human PPP1CA. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Protein Information

Name PPP1CA

Synonyms PPP1A

Function

Protein phosphatase that associates with over 200 regulatory proteins to form highly specific holoenzymes which dephosphorylate hundreds of biological targets (PubMed:28216226, PubMed:30158517, PubMed:35768504, PubMed:35830882, PubMed:35831509, PubMed:36175670, PubMed:39603239, PubMed:39603240). Protein



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phosphatase 1 (PP1) is essential for cell division, transcription elongation, and participates in the
regulation of glycogen metabolism, muscle contractility and protein synthesis (PubMed: <a
href="http://www.uniprot.org/citations/35768504" target=" blank">35768504</a>, PubMed:<a
href="http://www.uniprot.org/citations/35830882" target="_blank">35830882</a>, PubMed:<a
href="http://www.uniprot.org/citations/35831509" target="blank">35831509</a>, PubMed:<a
href="http://www.uniprot.org/citations/36175670" target="blank">36175670</a>, PubMed:<a
href="http://www.uniprot.org/citations/39603239" target=" blank">39603239</a>, PubMed:<a
href="http://www.uniprot.org/citations/39603240" target="blank">39603240</a>). Involved in
regulation of ionic conductances and long-term synaptic plasticity. May play an important role in
dephosphorylating substrates such as the postsynaptic density-associated Ca(2+)/calmodulin
dependent protein kinase II. Catalytic component of the PNUTS-PP1 protein phosphatase complex,
a protein phosphatase 1 (PP1) complex that promotes RNA polymerase II transcription
pause-release, allowing transcription elongation: the PNUTS-PP1 complex mediates the release of
RNA polymerase II from promoter-proximal region of genes by catalyzing dephosphorylation of
proteins involved in transcription, such as AFF4, CDK9, MEPCE, INTS12, NCBP1, POLR2M/GDOWN1
and SUPT6H (PubMed: <a href="http://www.uniprot.org/citations/39603239"
target=" blank">39603239</a>, PubMed:<a href="http://www.uniprot.org/citations/39603240"
target=" blank">39603240</a>). The PNUTS-PP1 complex also regulates transcription
termination by mediating dephosphorylation of SUPT5H in termination zones downstream of
poly(A) sites, thereby promoting deceleration of RNA polymerase II transcription (PubMed: <a
href="http://www.uniprot.org/citations/31677974" target=" blank">31677974</a>). PNUTS-PP1
complex is also involved in the response to replication stress by mediating dephosphorylation of
POLR2A at 'Ser-5' of the CTD, promoting RNA polymerase II degradation (PubMed:<a
href="http://www.uniprot.org/citations/33264625" target="_blank">33264625</a>). PNUTS-PP1
also plays a role in the control of chromatin structure and cell cycle progression during the
transition from mitosis into interphase (PubMed:<a
href="http://www.uniprot.org/citations/20516061" target="_blank">20516061</a>). Regulates
NEK2 function in terms of kinase activity and centrosome number and splitting, both in the
presence and absence of radiation- induced DNA damage (PubMed: <a
href="http://www.uniprot.org/citations/17283141" target=" blank">17283141</a>). Regulator of
neural tube and optic fissure closure, and enteric neural crest cell (ENCCs) migration during
development (By similarity). In balance with CSNK1D and CSNK1E, determines the circadian period
length, through the regulation of the speed and rhythmicity of PER1 and PER2 phosphorylation
(PubMed:<a href="http://www.uniprot.org/citations/21712997" target=" blank">21712997</a>).
May dephosphorylate CSNK1D and CSNK1E (PubMed:<a
href="http://www.uniprot.org/citations/21712997" target="blank">21712997</a>).
Dephosphorylates the 'Ser-418' residue of FOXP3 in regulatory T-cells (Treg) from patients with
rheumatoid arthritis, thereby inactivating FOXP3 and rendering Treg cells functionally defective
(PubMed:<a href="http://www.uniprot.org/citations/23396208" target=" blank">23396208</a>).
Dephosphorylates CENPA (PubMed: <a href="http://www.uniprot.org/citations/25556658"
target=" blank">25556658</a>). Dephosphorylates the 'Ser-139' residue of ATG16L1 causing
dissociation of ATG12-ATG5-ATG16L1 complex, thereby inhibiting autophagy (PubMed: <a
href="http://www.uniprot.org/citations/26083323" target=" blank">26083323</a>). Together
with PPP1CC (PP1-gamma subunit), dephosphorylates IFIH1/MDA5 and RIG-I leading to their
activation and a functional innate immune response (PubMed:<a
href="http://www.uniprot.org/citations/23499489" target=" blank">23499489</a>). Core
component of the SHOC2-MRAS-PP1c (SMP) holophosphatase complex that regulates the MAPK
pathway activation (PubMed:<a href="http://www.uniprot.org/citations/35768504"
target=" blank">35768504</a>, PubMed:<a href="http://www.uniprot.org/citations/35830882"
target=" blank">35830882</a>, PubMed:<a href="http://www.uniprot.org/citations/35831509"
target=" blank">35831509</a>, PubMed:<a href="http://www.uniprot.org/citations/36175670"
target="blank">36175670</a>). The SMP complex specifically dephosphorylates the inhibitory
phosphorylation at 'Ser-259' of RAF1 kinase, 'Ser-365' of BRAF kinase and 'Ser-214' of ARAF
kinase, stimulating their kinase activities (PubMed:<a
href="http://www.uniprot.org/citations/35768504" target=" blank">35768504</a>, PubMed:<a
href="http://www.uniprot.org/citations/35830882" target="blank">35830882</a>, PubMed:<a
href="http://www.uniprot.org/citations/35831509" target="_blank">35831509</a>, PubMed:<a
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href="http://www.uniprot.org/citations/36175670" target="_blank">36175670). The SMP complex enhances the dephosphorylation activity and substrate specificity of PP1c (PubMed:35768504, PubMed:36175670).

Cellular Location

Cytoplasm. Nucleus. Nucleus, nucleoplasm. Nucleus, nucleolus Note=Primarily nuclear and largely excluded from the nucleolus. Highly mobile in cells and can be relocalized through interaction with targeting subunits. NOM1 plays a role in targeting this protein to the nucleolus. In the presence of PPP1R8 relocalizes from the nucleus to nuclear speckles. Shuttles toward the cytosol during infection with VEEV (PubMed:29769351).

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

Blocking Peptides

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Images

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - Background

PPP1CA is one of the three catalytic subunits of protein phosphatase 1 (PP1). PP1 is a serine/threonine specific protein phosphatase known to be involved in the regulation of a variety of cellular processes, such as cell division, glycogen metabolism, muscle contractility, protein synthesis, and HIV-1 viral transcription. Increased PP1 activity has been observed in the end stage of heart failure. Studies in both human and mice suggest that PP1 is an important regulator of cardiac function. Mouse studies also suggest that PP1 functions as a suppressor of learning and memory.

PPP1A (PPP1CA) Antibody (C-term) Blocking peptide - References

Okada, T., et al., Int. J. Oncol. 25(5):1383-1388 (2004).Nazarov, I.B., et al., Radiat. Res. 160(3):309-317 (2003).Ammosova, T., et al., J. Biol. Chem. 278(34):32189-32194 (2003).Danial, N.N., et al., Nature 424(6951):952-956 (2003).Wang, H., et al., J. Biol. Chem. 277(51):49605-49612 (2002).