

PPP1A Antibody
Purified Mouse Monoclonal Antibody (Mab)
Catalog # AP52662

Specification

PPP1A Antibody - Product Information

Application	WB, ICC, IHC
Primary Accession	P62136
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Calculated MW	38 KDa

PPP1A Antibody - Additional Information

Gene ID 5499

Other Names

Alpha isoform serine threonine protein phosphatase PP1alpha 1 catalytic subunit; Catalytic subunit; EC 3.1.3.16; MGC15877; MGC1674; PP 1A; PP-1A; PP1A; PP1A_HUMAN; PP1alpha; PP2C ALPHA; PP2CA; Ppp1ca; Protein Phosphatase 2C Alpha Isoform; Serine threonine protein phosphatase PP1 alpha catalytic subunit; Serine threonine protein phosphatase PP1 alpha catalytic subunit protein phosphatase 1; Serine/threonine-protein phosphatase PP1-alpha catalytic subunit.

Dilution

WB~~1:1000

ICC~~1:300

IHC~~1:100

Format

Purified mouse monoclonal in buffer containing 0.1M Tris-Glycine (pH 7.4, 150 mM NaCl) with 0.09% (W/V) sodium azide, 50% glycerol

Storage

Store at -20 °C. Stable for 12 months from date of receipt

PPP1A Antibody - 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:30158517)

[35768504](http://www.uniprot.org/citations/35768504), PubMed: [35830882](http://www.uniprot.org/citations/35830882), PubMed: [35831509](http://www.uniprot.org/citations/35831509), PubMed: [36175670](http://www.uniprot.org/citations/36175670), PubMed: [39603239](http://www.uniprot.org/citations/39603239), PubMed: [39603240](http://www.uniprot.org/citations/39603240)). Protein phosphatase 1 (PP1) is essential for cell division, transcription elongation, and participates in the regulation of glycogen metabolism, muscle contractility and protein synthesis (PubMed: [35768504](http://www.uniprot.org/citations/35768504), PubMed: [35830882](http://www.uniprot.org/citations/35830882), PubMed: [35831509](http://www.uniprot.org/citations/35831509), PubMed: [36175670](http://www.uniprot.org/citations/36175670), PubMed: [39603239](http://www.uniprot.org/citations/39603239), PubMed: [39603240](http://www.uniprot.org/citations/39603240)). 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: [39603239](http://www.uniprot.org/citations/39603239), PubMed: [39603240](http://www.uniprot.org/citations/39603240)). 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: [31677974](http://www.uniprot.org/citations/31677974)). 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: [33264625](http://www.uniprot.org/citations/33264625)). PNUTS-PP1 also plays a role in the control of chromatin structure and cell cycle progression during the transition from mitosis into interphase (PubMed: [20516061](http://www.uniprot.org/citations/20516061)). 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: [17283141](http://www.uniprot.org/citations/17283141)). 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: [21712997](http://www.uniprot.org/citations/21712997)). May dephosphorylate CSNK1D and CSNK1E (PubMed: [21712997](http://www.uniprot.org/citations/21712997)). 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: [23396208](http://www.uniprot.org/citations/23396208)). Dephosphorylates CENPA (PubMed: [25556658](http://www.uniprot.org/citations/25556658)). Dephosphorylates the 'Ser-139' residue of ATG16L1 causing dissociation of ATG12-ATG5-ATG16L1 complex, thereby inhibiting autophagy (PubMed: [26083323](http://www.uniprot.org/citations/26083323)). Together with PPP1CC (PP1-gamma subunit), dephosphorylates IFIH1/MDA5 and RIG-I leading to their activation and a functional innate immune response (PubMed: [23499489](http://www.uniprot.org/citations/23499489)). Core component of the SHOC2-MRAS-PP1c (SMP) holophosphatase complex that regulates the MAPK pathway activation (PubMed: [35768504](http://www.uniprot.org/citations/35768504), PubMed: [35830882](http://www.uniprot.org/citations/35830882), PubMed: [35831509](http://www.uniprot.org/citations/35831509), PubMed: [36175670](http://www.uniprot.org/citations/36175670)).

target="_blank">36175670). 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:35768504, PubMed:35830882, PubMed:35831509, PubMed:36175670). The SMP complex enhances the dephosphorylation activity and substrate specificity of PP1c (PubMed:35768504, PubMed:36175670).

Cellular Location

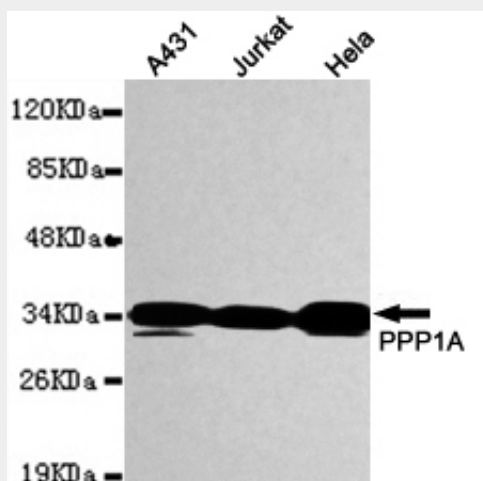
Cytoplasm. Nucleus, nucleoplasm. Nucleus, nucleolus Note=Primarily nuclear and largely excluded from the nucleolus. Highly mobile in cells and can be relocalized through interaction with targeting subunits. NOM1 plays a role in targeting this protein to the nucleolus. In the presence of PPP1R8 relocalizes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

PPP1A Antibody - Protocols

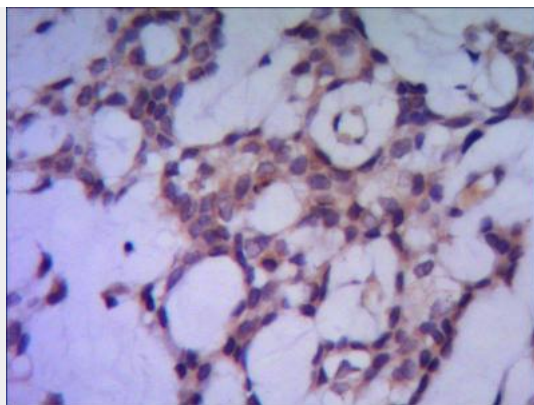
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

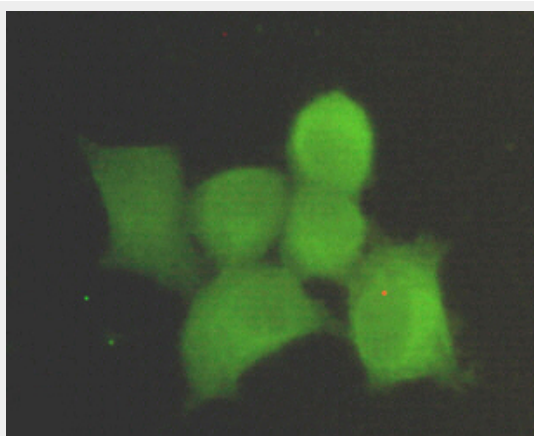
PPP1A Antibody - Images



Western blot detection of PPP1A in MCF7,K562,Hela,HEPG2 and Jurkat whole cell lysates using PPP1A mouse mAb (1:1000 diluted).Predicted band size: 38KDa.Observed band size: 38KDa.



IHC of paraffin-embedded human breast cancer using anti-PPP1A mouse mAb diluted 1/500-1/1000.



Immunocytochemistry stain of HeLa using PPP1A mouse mAb (1:300).

PPP1A Antibody - Background

Protein phosphatase that associates with over 200 regulatory proteins to form highly specific holoenzymes which dephosphorylate hundreds of biological targets. Protein phosphatase 1 (PP1) is essential for cell division, and participates in the regulation of glycogen metabolism, muscle contractility and protein synthesis. 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. Component of the PTW/PP1 phosphatase complex, which plays a role in the control of chromatin structure and cell cycle progression during the transition from mitosis into interphase. Regulates NEK2 function in terms of kinase activity and centrosome number and splitting, both in the presence and absence of radiation-induced DNA damage. Regulator of neural tube and optic fissure closure, and enteric neural crest cell (ENCCs) migration during development. In balance with CSNK1D and CSNK1E, determines the circadian period length, through the regulation of the speed and rhythmicity of PER1 and PER2 phosphorylation. May dephosphorylate CSNK1D and CSNK1E.

PPP1A Antibody - References

Song Q.,et al.Gene 129:291-295(1993).
Durfee T.,et al.Genes Dev. 7:555-569(1993).
Tung L.,et al.Submitted (APR-1991) to the EMBL/GenBank/DDBJ databases.
Ota T.,et al.Nat. Genet. 36:40-45(2004).
Kalinine N.,et al.Submitted (MAY-2003) to the EMBL/GenBank/DDBJ databases.