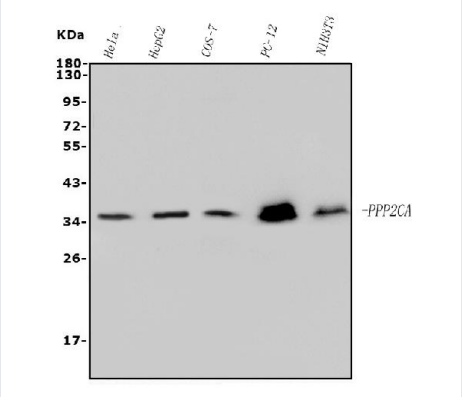
PP2A-Alpha/PPP2CA (PPP2CA) Antibody – Mouse Monoclonal

PRODUCT OVERVIEW

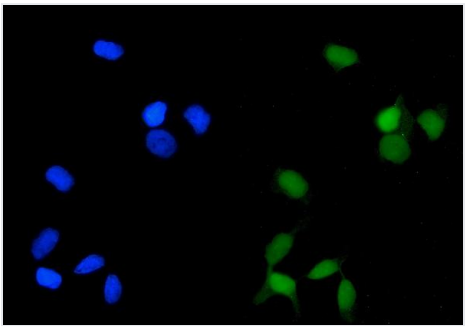
Product Name	PP2A-alpha/PPP2CA, Monoclonal Antibody
Full Product Name	Anti-PP2A-alpha/PPP2CA Antibody (monoclonal, 3B6)
Product Gene Name	anti-PPP2CA antibody
Product Synonym Names	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform; PP2A-alpha; Replication protein C; RP-C; PPP2CA; protein phosphatase 2, catalytic subunit, alpha isozyme
Clonality	Monoclonal
Isotype	Mouse IgG2a
Clone Number	3B6
Host	Mouse
Species Reactivity	Human, Monkey, Mouse, Rat
Form/Format	Lyophilized. Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.01mg NaN3.
Purity/Purification	Immunogen affinity purified.
Specificity	Mouse IgG monoclonal antibody for PP2A-alpha/PPP2CA detection.
Preparation and Storage	Store at -20 degree C for one year. After reconstitution, at 4 degree C for one month. It can also be aliquotted and stored frozen at -20 degree C for a longer time. Avoid repeated freezing and thawing.
Molecular Weight	35,594 Da
Chromosome Location	Chromosome: 5; NC_000005.9 (133532148..133561950, complement). Location: 5q31.1
OMIM	176915
3D Structure	ModBase 3D Structure for P67775
Immunogen	E Coli-derived human PP2A-alpha recombinant protein (Position: M1-L309). Human PP2A-alpha shares 100% amino acid (aa) sequence identity with both mouse and rat PP2A-alpha.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.
Recommended Detection Systems	Recommended Detection Systems||Lab recommends Enhanced Chemiluminescent Kit with anti-Mouse IgG (MBS176445) for Western blot, and HRP Conjugated anti-Mouse IgG Super Vision Assay Kit (MBS176472) for IHC(P) and ICC.
ISO Certification	Manufactured in an ISO 13485:2003 and EN ISO 13485:2012 Certified Laboratory.
Applications Tested/Suitable for anti-PPP2CA antibody	Western Blot (WB), Immunohistochemistry-Paraffin (IHC-P), Immunocytochemistry (ICC), Immunofluorescence (IF), Flow Cytometry (FC/FACS/FCM)
Application Notes for anti-PPP2CA antibody	WB: 0.1-0.5ug/ml|Human, Monkey, Mouse, Rat| IHC-P: 0.5-1ug/ml|Human, Rat| ICC/IF: 4ug/ml|Human| FC/FACS/FCM: 1-3ug/1x106 cells|Human|
Related Product Information for anti-PPP2CA antibody	The catalytic subunit of human protein phosphatase 2A (PPP2CA) encodes a 309-amino acid polypeptide. It is localized to chromosome 5. The gene (approximately 30 kbp) is composed of seven exons and six introns. It is predicted to be important for phosphatase enzymatic activity. Methylation of the C-terminal leucine residue (Leu309) of protein serine/threonine phosphatase 2A catalytic subunit (PP2AC) is known to regulate catalytic activity in vitro. Furthermore, PP2A has a fundamental role in cardiac function, and suggests that disturbances in protein phosphatase expression and activity may cause or exacerbate the course of cardiac diseases.

Product References and Citations for anti-PPP2CA antibody	1. Stone SR, Mayer R, Wernet W, Maurer F, Hofsteenge J, Hemmings BA. The nucleotide sequence of the cDNA encoding the human lung protein phosphatase 2A alpha catalytic subunit. Nucleic Acids Res. 1988 Dec 9; 16(23):11365. 2. Jones TA, Barker HM, da Cruz e Silva EF, Mayer-Jaekel RE, Hemmings BA, Spurr NK, Sheer D, Cohen PT. Localization of the genes encoding the catalytic subunits of protein phosphatase 2A to human chromosome bands 5q23-->q31 and 8p12-->p11. 2, respectively. Cytogenet Cell Genet. 1993; 63(1):35-41. 3. Khew-Goodall Y, Mayer RE, Maurer F, Stone SR, Hemmings BA. Structure and transcriptional regulation of protein phosphatase 2A catalytic subunit genes. Biochemistry. 1991 Jan 8; 30(1):89-97. 4. Arino J, Woon CW, Brautigan DL, Miller TB Jr, Johnson GL. Human liver phosphatase 2A: cDNA and amino acid sequence of two catalytic subunit isotypes. Proc Natl Acad Sci U S A. 1988 Jun; 85(12):4252-6. 5. Bryant JC, Westphal RS, Wadzinski BE. Methylated C-terminal leucine residue of PP2A catalytic subunit is important for binding of regulatory Balpha subunit. Biochem J. 1999 Apr 15; 339 (Pt 2):241-6. 6. Gergs U, Boknik P, Buchwalow I, Fabritz L, Matus M, Justus I, Hanske G, Schmitz W, Neumann J. Overexpression of the catalytic subunit of protein phosphatase 2A impairs cardiac function. J Biol Chem. 2004 Sep 24; 279(39):40827-34.
Other Notes	Small volumes of anti-PPP2CA antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for PPP2CA purchase	MBS1754001 is an antibody targeting PPP2CA. Also known as Anti-PP2A-alpha/PPP2CA Antibody (monoclonal, 3B6). Reactive in Human, Monkey, Mouse, Rat. Host: Mouse.



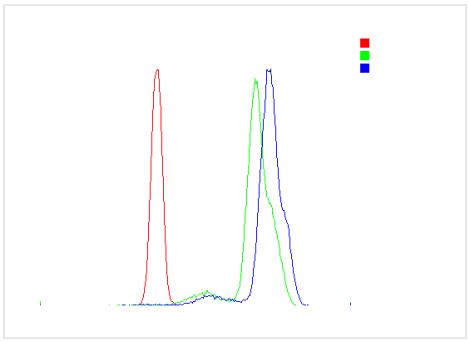
Western Blot (WB) of anti-PPP2CA antibody

Figure 1. Western blot analysis of PP2A-alpha/PPP2CA using anti-PP2A-alpha/PPP2CA antibody (MBS1754001).Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions.Lane 1: human HELA whole cell lysatesLane 2: human HEPG2 whole cell lysatesLane 3: monkey COS-7 whole cell lysatesLane 4: rat PC-12 whole cell lysatesLane 5: mouse NIH/3T3 whole cell lysates.After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1. 5 hour at RT. The membrane was incubated with mouse anti- PP2A-alpha/PPP2CA antigen affinity purified monoclonal antibody (Catalog # MBS1754001) at 0. 5 ?g/mL overnight at 4 degree C, then washed with TBS-0. 1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:10000 for 1. 5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # MBS176445) with Tanon 5200 system. A specific band was detected for PP2A-alpha/PPP2CA at approximately 36KD. The expected band size for PP2A-alpha/PPP2CA is at 36KD.

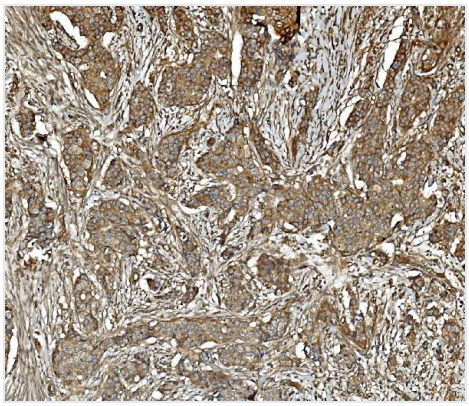


Immunofluorescence (IF) of anti-PPP2CA antibody

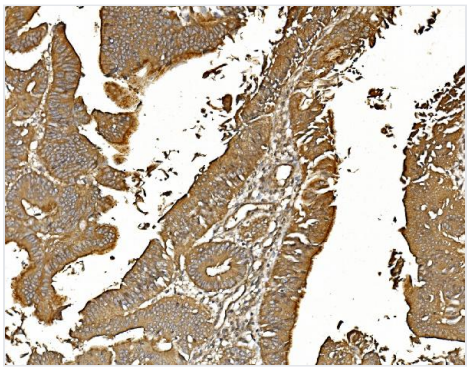
Figure 2. IF analysis of PP2A-alpha/PPP2CA using anti- PP2A-alpha/PPP2CA antibody (MBS1754001).PP2A-alpha/PPP2CA was detected in immunocytochemical section of HELA cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (MBS176582) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 4?g/mL mouse anti- PP2A-alpha/PPP2CA Antibody (MBS1754001) overnight at 4 degree C. DyLight®488 Conjugated Goat Anti-Mouse IgG (BA1126) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37 degree C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



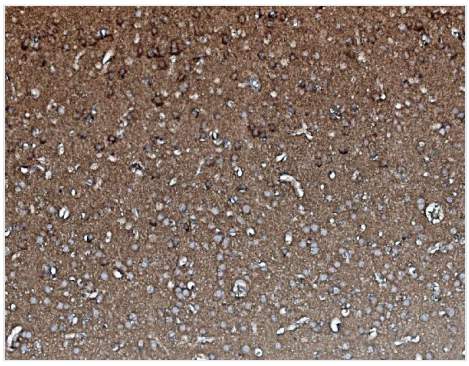
Flow Cytometry (FC/FACS) of anti-PPP2CA antibody
Figure 3. Flow Cytometry analysis of U937 cells using anti-PP2A-alpha/PPP2CA antibody (MBS1754001).Overlay histogram showing U937 cells stained with MBS1754001 (Blue line). The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-PP2A-alpha/PPP2CA Antibody (MBS1754001, 1?g/1x106 cells) for 30 min at 20 degree C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10?g/1x106 cells) was used as secondary antibody for 30 minutes at 20 degree C. Isotype control antibody (Green line) was mouse IgG (1?g/1x106) used under the same conditions. Unlabelled sample (Red line) was also used as a control.



Immunohistochemistry (IHC) of anti-PPP2CA antibody
Figure 4. IHC analysis of PP2A-alpha/PPP2CA using anti-PP2A-alpha/PPP2CA antibody (MBS1754001).PP2A-alpha/PPP2CA was detected in paraffin-embedded section of human mammary cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8. 0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1?g/ml mouse anti-PP2A-alpha/PPP2CA Antibody (MBS1754001) overnight at 4 degree C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # MBS176438) with DAB as the chromogen.



Immunohistochemistry (IHC) of anti-PPP2CA antibody
Figure 5. IHC analysis of PP2A-alpha/PPP2CA using anti-PP2A-alpha/PPP2CA antibody (MBS1754001).PP2A-alpha/PPP2CA was detected in paraffin-embedded section of human rectal cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8. 0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1?g/ml mouse anti-PP2A-alpha/PPP2CA Antibody (MBS1754001) overnight at 4 degree C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # MBS176438) with DAB as the chromogen.



Immunohistochemistry (IHC) of anti-PPP2CA antibody
Figure 6. IHC analysis of PP2A-alpha/PPP2CA using anti-PP2A-alpha/PPP2CA antibody (MBS1754001).PP2A-alpha/PPP2CA was detected in paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH8. 0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1?g/ml mouse anti-PP2A-alpha/PPP2CA Antibody (MBS1754001) overnight at 4 degree C. Biotinylated goat anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37 degree C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # MBS176438) with DAB as the chromogen.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for PPP2CA. It may not necessarily be applicable to this product.

NCBI GI #	4506017
NCBI GeneID	5515
NCBI Accession #	NP_002706.1
UniProt Primary Accession #	P67775
UniProt Secondary Accession #	P05323; P13197
UniProt Related Accession #	P67775
GenBank Nucleotide #	NM_002715.2
NCBI Official Full Name	serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform

NCBI Official Synonym Full Names	protein phosphatase 2, catalytic subunit, alpha isozyme
NCBI Official Symbol	PPP2CA
NCBI Official Synonym Symbols	RP-C; PP2Ac; PP2CA; PP2Calpha
UniProt Protein Name	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform
UniProt Synonym Protein Names	Replication protein C
Protein Family	Serine/threonine-protein phosphatase
UniProt Gene Name	PPP2CA
UniProt Synonym Gene Names	PP2A-alpha; RP-C
UniProt Entry Name	PP2AA_HUMAN
NCBI Protein Information	serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform; PP2A-alpha; replication protein C; protein phosphatase 2A catalytic subunit, alpha isoform; protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform; serine/threonine pr
NCBI Summary for PPP2CA	This gene encodes the phosphatase 2A catalytic subunit. Protein phosphatase 2A is one of the four major Ser/Thr phosphatases, and it is implicated in the negative control of cell growth and division. It consists of a common heteromeric core enzyme, which is composed of a catalytic subunit and a constant regulatory subunit, that associates with a variety of regulatory subunits. This gene encodes an alpha isoform of the catalytic subunit. [provided by RefSeq, Jul 2008]
UniProt Comments for PPP2CA	PPP2CA: ubiquitous cytosolic Ser/Thr protein phosphatase, catalytic subunit. The holoenzyme consists of a 36 kDa catalytic subunit (subunit C) and a 65 kDa constant regulatory subunit (PR65 or subunit A), that associates with a variety of regulatory subunits. Proteins that associate with the core dimer include three families of regulatory subunits B (the R2/B/PR55/B55, R3/B'/PR72/PR130/PR59 and R5/B'/B56 families), the 48 kDa variable regulatory subunit, viral proteins, and cell signaling molecules. Protein type: EC 3.1.3.16; Motility/polarity/chemotaxis; Protein phosphatase, Ser/Thr (non-receptor) Chromosomal Location of Human Ortholog: 5q31.1 Cellular Component: microtubule cytoskeleton; spindle pole; protein phosphatase type 2A complex; membrane; mitochondrion; plasma membrane; nucleus; cytosol; chromosome, pericentric region Molecular Function: protein dimerization activity; protein C-terminus binding; protein binding; metal ion binding; GABA receptor binding; protein serine/threonine phosphatase activity Biological Process: mitotic nuclear envelope reassembly; apoptosis; regulation of protein amino acid autophosphorylation; protein amino acid dephosphorylation; response to organic substance; regulation of transcription, DNA-dependent; meiotic cell cycle; regulation of cell differentiation; regulation of growth; mesoderm development; regulation of receptor activity; regulation of DNA replication; inactivation of MAPK activity; second-messenger-mediated signaling; regulation of cell adhesion; fibroblast growth factor receptor signaling pathway; RNA splicing; regulation of Wnt receptor signaling pathway; negative regulation of tyrosine phosphorylation of Stat3 protein; mRNA catabolic process, nonsense-mediated decay; gene expression; regulation of protein catabolic process; mitotic cell cycle; negative regulation of cell growth; ceramide metabolic process
Research Articles on PPP2CA	**1.** Together, these observations suggest that PP2A regulates hTERT subcellular localization, in addition to its inhibitory effects on telomerase activity
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