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KD-Validated Anti-PPP3CA Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1124

Product Information

Application	WB, ICC
Primary Accession	Q08209
Reactivity	Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	23GB 2855
Calculated MW	58688
Gene Name	PPP3CA
Aliases	PPP3CA; Protein Phosphatase 3 Catalytic Subunit Alpha; Calcineurin A Alpha; PPP2B; CALNA; CNA1; CAM-PRP Catalytic Subunit; EC 3.1.3.16; CNA Alpha; CALN; Protein Phosphatase 3 (Formerly 2B), Catalytic Subunit, Alpha Isoform (Calcineurin A Alpha); Serine/Threonine-Protein Phosphatase 2B Catalytic Subunit Alpha Isoform; Protein Phosphatase 3 (Formerly 2B), Catalytic Subunit, Alpha Isoform; Protein Phosphatase 2B, Catalytic Subunit, Alpha Isoform; Calmodulin-Dependent Calcineurin A Subunit Alpha Isoform; Protein Phosphatase 3, Catalytic Subunit, Alpha Isozyme; Protein Phosphatase 3 Catalytic Subunit Alpha Isozyme; ACCIID; CALNA1; IECEE1; DEE91; IECEE; CCN1; CNA
Immunogen	A synthesized peptide derived from human Calcineurin A

Additional Information

Gene ID	5530
Other Names	Protein phosphatase 3 catalytic subunit alpha {ECO:0000312|HGNC:HGNC:9314}, 3.1.3.16, CAM-PRP catalytic subunit, Calcineurin A alpha, Calmodulin-dependent calcineurin A subunit alpha isoform, PPP3CA (HGNC:9314), CALNA, CNA

Protein Information

Name	PPP3CA (HGNC:9314)
Synonyms	CALNA, CNA
Function	Calcium-dependent, calmodulin-stimulated protein phosphatase which plays an essential role in the transduction of intracellular Ca(2+)-mediated signals (PubMed:15671020, PubMed:18838687, PubMed:19154138, PubMed:23468591, PubMed:30254215). Many of the substrates contain a PxIxIT motif and/or a LxVP motif (PubMed:17498738, PubMed:17502104, PubMed:22343722, PubMed:23468591, PubMed:27974827). In response to increased Ca(2+) levels, dephosphorylates and activates phosphatase SSH1

which results in cofilin dephosphorylation (PubMed:15671020). In response to increased Ca(2+) levels following mitochondrial depolarization, dephosphorylates DNM1L inducing DNM1L translocation to the mitochondrion (PubMed:18838687). Positively regulates the CACNA1B/CAV2.2-mediated Ca(2+) release probability at hippocampal neuronal soma and synaptic terminals (By similarity). Dephosphorylates heat shock protein HSPB1 (By similarity). Dephosphorylates and activates transcription factor NFATC1 (PubMed:19154138). In response to increased Ca(2+) levels, regulates NFAT-mediated transcription probably by dephosphorylating NFAT and promoting its nuclear translocation (PubMed:26248042). Dephosphorylates and inactivates transcription factor ELK1 (PubMed:19154138). Dephosphorylates DARPP32 (PubMed:19154138). May dephosphorylate CRTC2 at 'Ser-171' resulting in CRTC2 dissociation from 14-3-3 proteins (PubMed:30611118). Dephosphorylates transcription factor TFEB at 'Ser- 211' following Coxsackievirus B3 infection, promoting nuclear translocation (PubMed:33691586). Required for postnatal development of the nephrogenic zone and superficial glomeruli in the kidneys, cell cycle homeostasis in the nephrogenic zone, and ultimately normal kidney function (By similarity). Plays a role in intracellular AQP2 processing and localization to the apical membrane in the kidney, may thereby be required for efficient kidney filtration (By similarity). Required for secretion of salivary enzymes amylase, peroxidase, lysozyme and sialic acid via formation of secretory vesicles in the submandibular glands (By similarity). Required for calcineurin activity and homosynaptic depotentiation in the hippocampus (By similarity). Required for normal differentiation and survival of keratinocytes and therefore required for epidermis superstructure formation (By similarity). Positively regulates osteoblastic bone formation, via promotion of osteoblast differentiation (By similarity). Positively regulates osteoclast differentiation, potentially via NFATC1 signaling (By similarity). May play a role in skeletal muscle fiber type specification, potentially via NFATC1 signaling (By similarity). Negatively regulates MAP3K14/NIK signaling via inhibition of nuclear translocation of the transcription factors RELA and RELB (By similarity). Required for antigen-specific T- cell proliferation response (By similarity). Dephosphorylates KLHL3, promoting the interaction between KLHL3 and WNK4 and subsequent degradation of WNK4 (PubMed:30718414). Negatively regulates SLC9A1 activity (PubMed:31375679).

Cellular Location

Cytoplasm. Cell membrane; Peripheral membrane protein. Cell membrane, sarcolemma {ECO:0000250|UniProtKB:P63329}. Cytoplasm, myofibril, sarcomere, Z line {ECO:0000250|UniProtKB:P63329}. Cell projection, dendritic spine. Note=Colocalizes with ACTN1 and MYOZ2 at the Z line in heart and skeletal muscle (By similarity). Recruited to the cell membrane by scaffold protein AKAP5 following L-type Ca(2+)-channel activation (PubMed:22343722) {ECO:0000250|UniProtKB:P63329, ECO:0000269|PubMed:22343722}

Tissue Location

Expressed in keratinocytes (at protein level) (PubMed:29043977). Expressed in lymphoblasts (at protein level) (PubMed:30254215).

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