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EPM2A Antibody

Catalog # ASC11542

Product Information

Application	WB, IF, ICC, E
Primary Accession	O95278
Other Accession	NP_005661, 11321613
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	37158
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	EPM2A antibody can be used for detection of EPM2A by Western blot at 1 - 2 g/mL.

Additional Information

Gene ID	7957
Other Names	Laforin, 3.1.3.-, 3.1.3.16, 3.1.3.48, Glucan phosphatase, Lafora PTPase, LAFPTPase, EPM2A
Target/Specificity	EPM2A; At least four isoforms of EPM2A are known to exist; this antibody will detect all but the shortest isoform.
Reconstitution & Storage	EPM2A antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	EPM2A Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	EPM2A
Function	Plays an important role in preventing glycogen hyperphosphorylation and the formation of insoluble aggregates, via its activity as glycogen phosphatase, and by promoting the ubiquitination of proteins involved in glycogen metabolism via its interaction with the E3 ubiquitin ligase NHLRC1/malin. Shows strong phosphatase activity towards complex carbohydrates in vitro, avoiding glycogen hyperphosphorylation which is associated with reduced branching and formation of insoluble aggregates (PubMed:16901901, PubMed:23922729, PubMed:25538239, PubMed:25544560, PubMed:26231210). Dephosphorylates phosphotyrosine

	and synthetic substrates, such as para- nitrophenylphosphate (pNPP), and has low activity with phosphoserine and phosphothreonine substrates (in vitro) (PubMed:11001928, PubMed:11220751, PubMed:11739371, PubMed:14532330, PubMed:14722920, PubMed:16971387, PubMed:18617530, PubMed:22036712, PubMed:23922729). Has been shown to dephosphorylate MAPT (By similarity). Forms a complex with NHLRC1/malin and HSP70, which suppresses the cellular toxicity of misfolded proteins by promoting their degradation through the ubiquitin-proteasome system (UPS). Acts as a scaffold protein to facilitate PPP1R3C/PTG ubiquitination by NHLRC1/malin (PubMed:23922729). Also promotes proteasome-independent protein degradation through the macroautophagy pathway (PubMed:20453062).
Cellular Location	Cytoplasm. Note=Under glycogenolytic conditions localizes to the nucleus [Isoform 2]: Cytoplasm. Endoplasmic reticulum membrane; Peripheral membrane protein; Cytoplasmic side. Cell membrane. Nucleus. Note=Also found in the nucleus. [Isoform 5]: Cytoplasm. Nucleus
Tissue Location	Expressed in heart, skeletal muscle, kidney, pancreas and brain. Isoform 4 is also expressed in the placenta

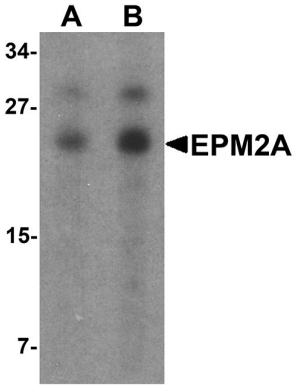
Background

EPM2A Antibody: The Epilepsy, progressive myoclonus type 2A protein (EPM2A) is a dual-specificity phosphatase that associates with polyribosomes. Mutations in this gene have been associated with myoclonic epilepsy of Lafora. EPM2A interacts with a number of proteins known to be involved in glycogen metabolism and has been shown to have robust phosphatase activity against a phosphorylated complex carbohydrate, suggesting that EPM2A may be involved in the regulation of glycogen metabolism.

References

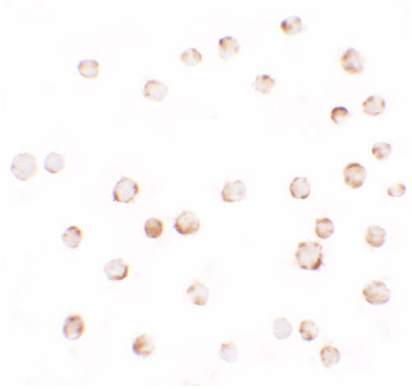
Minassian BA, Lee JR, Herbrick JA, et al. Mutations in a gene encoding a novel protein tyrosine phosphatase cause progressive myoclonus epilepsy. Nat. Genet. 1998; 20:171-4.
Worby CA, Gentry MS, and Dixon JE. Laforin, a dual specificity phosphatase that dephosphorylates complex carbohydrates. J. Biol. Chem. 2006; 281:30412-8.

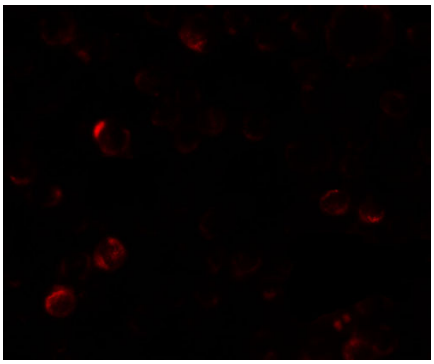
Images



Western blot analysis of SW480 in SW480 cell lysate with EPM2A antibody at (A) 1 and (B) 2 µg/mL.

Immunocytochemistry of EPM2A in SW480 cells with EPM2A antibody at 2.5 µg/ml.





Immunofluorescence of EPM2A in SW480 cells with EPM2A antibody at 5 µg/ml.