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PPM1K Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP53362

Product Information

Application	WB
Primary Accession	Q8N3J5
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Calculated MW	40997

Additional Information

Gene ID	152926
Other Names	Protein phosphatase 1K, mitochondrial, 3.1.3.16, PP2C domain-containing protein phosphatase 1K, PP2C-like mitochondrial protein, PP2C-type mitochondrial phosphoprotein phosphatase, PTMP, Protein phosphatase 2C isoform kappa, PP2C-kappa, PPM1K, PP2CM
Dilution	WB~~ 1:1000
Format	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.09% (W/V) sodium azide and 50% glycerol
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	PPM1K {ECO:0000303|PubMed:23086801, ECO:0000312|HGNC:HGNC:25415}
Function	Serine/threonine-protein phosphatase component of macronutrients metabolism. Forms a functional kinase and phosphatase pair with BCKDK, serving as a metabolic regulatory node that coordinates branched-chain amino acids (BCAAs) with glucose and lipid metabolism via two distinct phosphoprotein targets: mitochondrial BCKDHA subunit of the branched-chain alpha-ketoacid dehydrogenase (BCKDH) complex and cytosolic ACLY, a lipogenic enzyme of Krebs cycle (PubMed:17336929, PubMed:17374715, PubMed:19411760, PubMed:22291014, PubMed:22589535, PubMed:23086801, PubMed:29779826). At high levels of branched-chain ketoacids, dephosphorylates and activates mitochondrial BCKDH complex, a multisubunit complex consisting of three multimeric components each involved in different steps of BCAA catabolism: E1 composed of BCKDHA and BCKDHB, E2 core composed of DBT monomers, and E3 composed of DLD monomers. Tightly associates with the E2

component of BCKDH complex and dephosphorylates BCKDHA on Ser-337 (PubMed:17336929, PubMed:17374715, PubMed:19411760, PubMed:22291014, PubMed:22589535, PubMed:23086801, PubMed:29779826). Regulates the reversible phosphorylation of ACLY in response to changes in cellular carbohydrate abundance such as occurs during fasting to feeding metabolic transition. At fasting state, appears to dephosphorylate ACLY on Ser- 455 and inactivate it. Refeeding stimulates MLXIPL/ChREBP transcription factor, leading to increased BCKDK to PPM1K expression ratio, phosphorylation and activation of ACLY that ultimately results in the generation of malonyl-CoA and oxaloacetate immediate substrates of de novo lipogenesis and gluconeogenesis, respectively (PubMed:29779826). Recognizes phosphosites having SxS or RxxS motifs and strictly depends on Mn(2+) ions for the phosphatase activity (PubMed:29779826). Regulates Ca(2+)-induced opening of mitochondrial transition pore and apoptotic cell death (PubMed:17374715).

Cellular Location Mitochondrion matrix. Note=Detected in the cytosolic compartment of liver cells. {ECO:0000250|UniProtKB:A6K136}

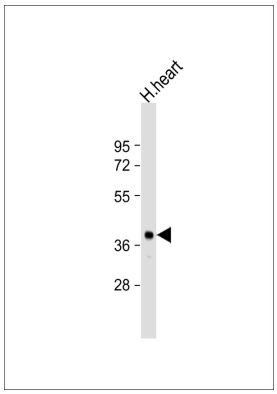
Background

Regulates the mitochondrial permeability transition pore and is essential for cellular survival and development.

References

Lu G.,et al.Genes Dev. 21:784-796(2007).
Mao Y.,et al.Submitted (OCT-2002) to the EMBL/GenBank/DDBJ databases.
Joshi M.A.,et al.Biochem. Biophys. Res. Commun. 356:38-44(2007).
Xu J.,et al.Submitted (OCT-2003) to the EMBL/GenBank/DDBJ databases.
Ota T.,et al.Nat. Genet. 36:40-45(2004).

Images



Anti-PPM1K Antibody at 1:1000 dilution + human heart lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/10000 dilution. Predicted band size : 41 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

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