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CMPK2 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP5206c

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	Q5EBM0
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB26588
Calculated MW	49448
Antigen Region	142-170

Additional Information

Gene ID	129607
Other Names	UMP-CMP kinase 2, mitochondrial, Nucleoside-diphosphate kinase, CMPK2
Target/Specificity	This CMPK2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 142-170 amino acids from the Central region of human CMPK2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CMPK2 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CMPK2
Function	Mitochondrial nucleotide monophosphate kinase needed for salvage dNTP synthesis that mediates immunomodulatory and antiviral activities through IFN-dependent and IFN-independent pathways (PubMed:17999954, PubMed:30083606, PubMed:36930652, PubMed:37075076). Restricts the

	replication of multiple viruses including flaviviruses or coronaviruses (PubMed:30083606, PubMed:36930652, PubMed:37075076). Together with viperin/RSAD2 and ddhCTP, suppresses the replication of several coronaviruses through inhibition of the viral RNA-dependent RNA polymerase activities (PubMed:36930652). Concerning flaviviruses, restricts RNA translation when localized to the mitochondria independently of its kinase activity (PubMed:37075076). Is able to phosphorylate dUMP, dCMP, CMP, UMP and monophosphates of the pyrimidine nucleoside analogs ddC, dFdC, araC, BVDU and FdUrd with ATP as phosphate donor. Efficacy is highest for dUMP followed by dCMP while CMP and UMP are poor substrates. Controls therefore mitochondrial DNA synthesis by supplying required deoxyribonucleotides (By similarity). CMPK2-dependent mitochondrial DNA synthesis is necessary for the production of oxidized mitochondrial DNA fragments after exposure to NLRP3 activators (By similarity). In turn, cytosolic oxidized mtDNA associates with the NLRP3 inflammasome complex and is required for its activation (By similarity).
Cellular Location	Mitochondrion. Note=Mitochondrial localization is required for its antiviral function.
Tissue Location	High levels are observed in myeloid, lymphoid and mesenchymal tissues.

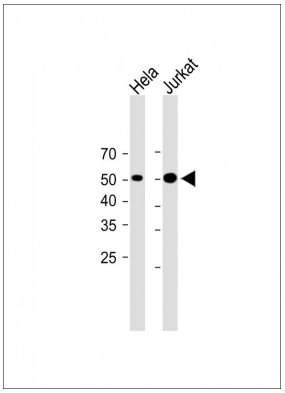
Background

Mitochondrial UMP-CMP kinase (EC 2.7.2.14) is a component of the salvage pathway for nucleotide synthesis. Other enzymes of the salvage pathway include thymidine kinase-2 (TK2; MIM 188250), deoxynucleotidase-2 (NT5M; MIM 605292), deoxyguanosine kinase (DGUOK; MIM 601465), adenylate kinase-2 (AK2; MIM 103020), adenylate kinase-3 (AK3; MIM 609290), adenylate kinase-3-like-1 (AK3L1; MIM 103030), and nucleoside diphosphate kinase.

References

Xu, Y., et al. J. Biol. Chem. 283(3):1563-1571(2008)

Images



All lanes: Anti-CMPK2 Antibody (Center) at 1:2000 dilution Lane 1: Hela whole cell lysate Lane 2: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary: Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ASP1615) at 1/15000 dilution. Observed band size: 49 KDa Blocking/Dilution buffer: 5% NFDM/TBST.