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CAD Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP11110c

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P27708
Other Accession	NP_004332.2
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB18384
Calculated MW	242984
Antigen Region	780-809

Additional Information

Gene ID	790
Other Names	CAD protein, Glutamine-dependent carbamoyl-phosphate synthase, Aspartate carbamoyltransferase, Dihydroorotase, CAD
Target/Specificity	This CAD antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 780-809 amino acids from the Central region of human CAD.
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 0.09% (W/V) sodium azide. 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	CAD Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CAD (HGNC:1424)
Function	Multifunctional protein that encodes the first 3 enzymatic activities of the de novo pyrimidine pathway: carbamoylphosphate synthetase (CPSase; EC

	6.3.5.5), aspartate transcarbamylase (ATCase; EC 2.1.3.2) and dihydroorotase (DHOase; EC 3.5.2.3). The CPSase-function is accomplished in 2 steps, by a glutamine-dependent amidotransferase activity (GATase) that binds and cleaves glutamine to produce ammonia, followed by an ammonium-dependent carbamoyl phosphate synthetase, which reacts with the ammonia, hydrogencarbonate and ATP to form carbamoyl phosphate. The endogenously produced carbamoyl phosphate is sequestered and channeled to the ATCase active site. ATCase then catalyzes the formation of carbamoyl-L-aspartate from L-aspartate and carbamoyl phosphate. In the last step, DHOase catalyzes the cyclization of carbamoyl aspartate to dihydroorotate.
Cellular Location	Cytoplasm. Nucleus. Note=Cytosolic and unphosphorylated in resting cells, translocates to the nucleus in response to EGF stimulation, nuclear import promotes optimal cell growth

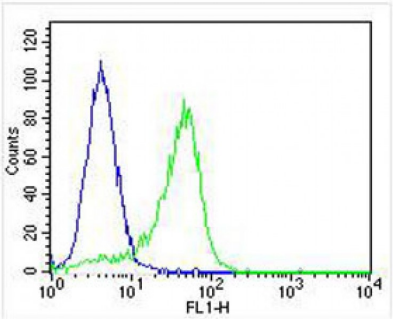
Background

The de novo synthesis of pyrimidine nucleotides is required for mammalian cells to proliferate. This gene encodes a trifunctional protein which is associated with the enzymatic activities of the first 3 enzymes in the 6-step pathway of pyrimidine biosynthesis: carbamoylphosphate synthetase (CPS II), aspartate transcarbamoylase, and dihydroorotase. This protein is regulated by the mitogen-activated protein kinase (MAPK) cascade, which indicates a direct link between activation of the MAPK cascade and de novo biosynthesis of pyrimidine nucleotides.

References

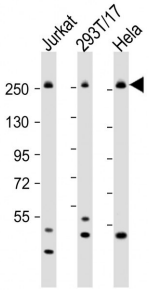
Jia, P., et al. Schizophr. Res. 122 (1-3), 38-42 (2010) :
Rose, J.E., et al. Mol. Med. 16 (7-8), 247-253 (2010) :
Ahuja, V., et al. J. Inherit. Metab. Dis. 31(4):481-491(2008)
Sugiyama, N., et al. Mol. Cell Proteomics 6(6):1103-1109(2007)
Olsen, J.V., et al. Cell 127(3):635-648(2006)

Images



Overlay histogram showing Hela cells stained with AP11110c (green line). The cells were fixed with 2% paraformaldehyde (10 min) and then permeabilized with 90% methanol for 10 min. The cells were then icubated in 2% bovine serum albumin to block non-specific protein-protein interactions followed by the antibody (AP11110c, 1:25 dilution) for 60 min at 37ºC. The secondary antibody used was Goat-Anti-Rabbit IgG, DyLight® 488 Conjugated Highly Cross-Adsorbed(OH191631) at 1/400 dilution for 40 min at 37ºC. Isotype control antibody (blue line) was rabbit IgG (1µg/1x10^6 cells) used under the same conditions. Acquisition of >10, 000 events was performed.

All lanes : Anti-CAD Antibody (Center) at 1:2000 dilution Lane 1: Jurkat whole cell lysate Lane 2: 293T/17 whole cell lysate Lane 3: Hela whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 243 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



Citations

- Oncogenic HSP90 Facilitates Metabolic Alterations in Aggressive B-cell Lymphomas