

CAD Antibody

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For Research Use Only. Not for Use in Diagnostic Procedures.

| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---------------|-------------|--------------|-----------|-----------------|-------------|-----------------|
| W | H M R | Endogenous | 240 | Rabbit | #P27708 | 790 |

Product Usage Information**Application**

Western Blotting

Dilution

1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

Specificity/Sensitivity

CAD Antibody recognizes endogenous levels of total CAD protein. This antibody may cross-react with a protein of unknown origin at ~45 kDa in some cell lines.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human CAD protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

CAD is essential for the *de novo* synthesis of pyrimidine nucleotides and possesses the following enzymatic activities: glutamine amidotransferase, carbamoyl-phosphate synthetase, aspartate transcarbamoylase, and dihydroorotase. Thus, the enzyme converts glutamine to uridine monophosphate, a common precursor of all pyrimidine bases, and it is necessary for nucleic acid synthesis (1). In resting cells, CAD is localized mainly in the cytoplasm where it carries out pyrimidine synthesis. As proliferating cells enter S phase, MAP Kinase (Erk1/2) phosphorylates CAD at Thr456, resulting in CAD translocation to the nucleus. As cells exit S phase, CAD is dephosphorylated at Thr456 and phosphorylated at Ser1406 by PKA, returning the pathway to basal activity (2). Various research studies have shown increased expression of CAD in several types of cancer, prompting the development of pharmacological inhibitors such as PALA. Further studies have identified CAD as a potential predictive early marker of prostate cancer relapse (3).

Background References

1. Coleman, P.F. et al. (1977) *J Biol Chem* 252, 6379-85.
2. Sigoillot, F.D. et al. (2005) *J Biol Chem* 280, 25611-20.
3. Morin, A. et al. (2012) *FASEB J* 26, 460-7.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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