

CMPK (F-5): sc-376209



The Power to Question

BACKGROUND

Nucleoside monophosphate kinases are required for pharmacological activation of therapeutic nucleosides and nucleotide analogs. CMPK (cytidine monophosphate kinase), also known as UMP-CMP kinase and Deoxycytidylate kinase, is a 196 amino acid protein that catalyzes the phosphoryl transfer from ATP to UMP, CMP and dCMP. This enzymatic reaction leads to the formation of ADP and the corresponding nucleoside diphosphate, which are required for cellular nucleic acid synthesis. Primarily localized to the cytoplasm, CMPK also plays an important role in the activation of pyrimidine analogs, which is clinically useful anti-cancer and anti-viral drugs. CMP is the best substrate for CMPK, followed by UMP and dCMP.

REFERENCES

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2. Van Rompay, A.R., et al. 1999. Phosphorylation of deoxycytidine analog monophosphates by UMP-CMP kinase: molecular characterization of the human enzyme. *Mol. Pharmacol.* 56: 562-569.
3. Van Rompay, A.R., et al. 2000. Phosphorylation of nucleosides and nucleoside analogs by mammalian nucleoside monophosphate kinases. *Pharmacol. Ther.* 87: 189-198.
4. Pearman, A.T., et al. 2001. Characterization of human UMP-CMP kinase enzymatic activity and 5' untranslated region. *Life Sci.* 69: 2361-2370.
5. Liou, J.Y., et al. 2002. Characterization of human UMP/CMP kinase and its phosphorylation of D- and L-form deoxycytidine analogue monophosphates. *Cancer Res.* 62: 1624-1631.
6. Pasti, C., et al. 2003. Reaction of human UMP-CMP kinase with natural and analog substrates. *Eur. J. Biochem.* 270: 1784-1790.
7. Segura-Peña, D., et al. 2004. Substrate-induced conformational changes in human UMP/CMP kinase. *J. Biol. Chem.* 279: 33882-33889.
8. Hsu, C.H., et al. 2005. Phosphorylation of cytidine, deoxycytidine, and their analog monophosphates by human UMP/CMP kinase is differentially regulated by ATP and magnesium. *Mol. Pharmacol.* 67: 806-814.

CHROMOSOMAL LOCATION

Genetic locus: CMPK1 (human) mapping to 1p33; Cmpk1 (mouse) mapping to 4 D1.

SOURCE

CMPK (F-5) is a mouse monoclonal antibody raised against amino acids 92-196 mapping at the C-terminus of CMPK of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CMPK (F-5) is recommended for detection of CMPK of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CMPK (F-5) is also recommended for detection of CMPK in additional species, including porcine and canine.

Suitable for use as control antibody for CMPK siRNA (h): sc-88593, CMPK siRNA (m): sc-105219, CMPK shRNA Plasmid (h): sc-88593-SH, CMPK shRNA Plasmid (m): sc-105219-SH, CMPK shRNA (h) Lentiviral Particles: sc-88593-V and CMPK shRNA (m) Lentiviral Particles: sc-105219-V.

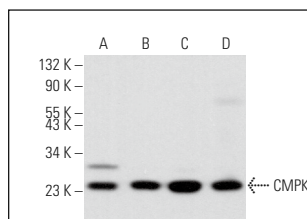
Molecular Weight of CMPK: 26 kDa.

Positive Controls: CMPK (h): 293T Lysate: sc-170057, K-562 whole cell lysate: sc-2203 or NIH/3T3 whole cell lysate: sc-2210.

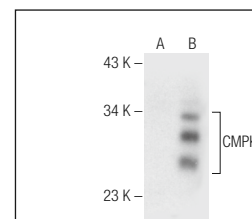
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CMPK (F-5): sc-376209. Western blot analysis of CMPK expression in K-562 (A), U-251-MG (B) and NIH/3T3 (C) whole cell lysates and mouse spinal cord tissue extract (D).



CMPK (F-5): sc-376209. Western blot analysis of CMPK expression in non-transfected: sc-117752 (A) and human CMPK transfected: sc-170057 (B) 293T whole cell lysates.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.