SANTA CRUZ BIOTECHNOLOGY, INC.

CMPK (h): 293T Lysate: sc-170057

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 are clinically useful anti-cancer and anti-viral drugs. CMP is the best substrate for CMPK, followed by UMP and dCMP.

REFERENCES

1. Giblett, E.R., et al. 1974. Uridine monophosphate kinase: a new genetic polymorphism with possible clinical implications. Am. J. Hum. Genet. 26: 627-635.
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.
9. Online Mendelian Inheritance in Man, OMIM™. 2009. Johns Hopkins University, Baltimore, MD. MIM Number: 191710. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: CMPK1 (human) mapping to 1p33.

PRODUCT

CMPK (h): 293T Lysate represents a lysate of human CMPK transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

CMPK (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive CMPK antibodies. Recommended use: 10-20 µl per lane.

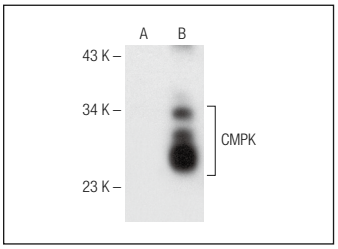
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

CMPK (H-2): sc-376153 is recommended as a positive control antibody for Western Blot analysis of enhanced human CMPK expression in CMPK transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



CMPK (H-2): sc-376153. Western blot analysis of CMPK expression in non-transfected: sc-117752 (**A**) and human CMPK transfected: sc-170057 (**B**) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.