

CTP Synthetase 1/2 (γ-88): sc-134457

BACKGROUND

CTP synthetase catalyses the conversion of uridine 5'-triphosphate to cytidine 5'-triphosphate, the last step of the pyrimidine biosynthetic pathway. The yeast CTP synthetase protein sequence shows a strong degree of homology with bacterial and human CTP synthetases. An alternative pathway for CTP synthesis may exist in yeast, which could involve either a divergent duplicated gene or a different route beginning with the amination of uridine mono- or diphosphate. Phosphorylation of CTP synthetase on Ser 36, Ser 330, Ser 354 and Ser 454 regulates the levels of CTP and phosphatidylcholine synthesis in yeast. CTP Synthetases 1 and 2 are *Saccharomyces cerevisiae* proteins belonging to the CTP synthase family. Existing as homodimers, CTP Synthetase 1 and 2 are both activated by GTP and inhibited by CTP. CTP Synthetase 1 and 2 are involved in pyrimidine metabolism and CTP biosynthesis via *de novo* pathway.

REFERENCES

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- De Wergifosse, P., et al. 1994. The sequence of a 22.4 kb DNA fragment from the left arm of yeast chromosome II reveals homologues to bacterial proline synthetase and murine α-adaptin, as well as a new permease and a DNA-binding protein. *Yeast* 10: 1489-1496.
- Yang, W.L., et al. 1994. Purification and characterization of CTP synthetase, the product of the URA7 gene in *Saccharomyces cerevisiae*. *Biochemistry* 33: 10785-10793.
- Nadkarni, A.K., et al. 1995. Differential biochemical regulation of the URA7- and URA8-encoded CTP synthetases from *Saccharomyces cerevisiae*. *J. Biol. Chem.* 270: 24982-24988.
- Ostrander, D.B., et al. 1998. Effect of CTP synthetase regulation by CTP on phospholipid synthesis in *Saccharomyces cerevisiae*. *J. Biol. Chem.* 273: 18992-19001.
- Park, T.S., et al. 2003. Phosphorylation of CTP synthetase on Ser 36, Ser 330, Ser 354, and Ser 454 regulates the levels of CTP and phosphatidylcholine synthesis in *Saccharomyces cerevisiae*. *J. Biol. Chem.* 278: 20785-20794.
- Carman, G.M., et al. 2004. Phospholipid synthesis in yeast: regulation by phosphorylation. *Biochem. Cell Biol.* 82: 62-70.
- Han, G.S., et al. 2005. Expression of human CTP synthetase in *Saccharomyces cerevisiae* reveals phosphorylation by protein kinase A. *J. Biol. Chem.* 280: 38328-38336.
- Chang, Y.F. and Carman, G.M. 2008. CTP synthetase and its role in phospholipid synthesis in the yeast *Saccharomyces cerevisiae*. *Prog. Lipid Res.* 47: 333-339.

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.

SOURCE

CTP Synthetase 1/2 (γ-88) is a rabbit polyclonal antibody raised against amino acids 31-118 mapping near the N-terminus of CTP Synthetase of *Saccharomyces cerevisiae* origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CTP Synthetase 1/2 (γ-88) is recommended for detection of CTP Synthetase 1/2 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, 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).

Molecular Weight of CTP Synthetase 1/2: 65 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Chen, K., et al. 2011. Glutamine analogs promote cytoophidium assembly in human and *Drosophila* cells. *J. Genet. Genomics* 38: 391-402.
- Azzam, G. and Liu, J.L. 2013. Only one isoform of *Drosophila melanogaster* CTP synthase forms the cytoophidium. *PLoS Genet.* 9: e1003256.
- Strochlic, T.I., et al. 2014. Ack kinase regulates CTP synthase filaments during *Drosophila* oogenesis. *EMBO Rep.* 15: 1184-1191.

PROTOCOLS

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