SANTA CRUZ BIOTECHNOLOGY, INC.

Ctr1 (yN-14): sc-26159

BACKGROUND

The activity of a diverse subset of enzymes relies on the essential nutrient copper. Copper uptake requires tight regulation to ensure that sufficient copper is present in the cell to drive vital cellular processes, while avoiding the accumulation of copper to toxic levels. In *Saccharomyces cerevisiae*, copper regulation involves several proteins. Fre1, a surface reductase, reduces and mobilizes copper outside the cell, while the Ctr1 and Ctr3 proteins function as copper transport proteins within the plasma membrane. Regulation of these proteins occurs at the transcriptional level. Under copper-deficient conditions, Mac1 binds to copper response elements (CuREs) within promoters, which contain the consensus sequence GCTC, to activate the transcription of Ctr2, Ctr3 and Fre1. Mac1 also mediates Ctr1 degradation. In human, Ctr1 also mediates the uptake of cisplatin, a chemotherapeutic drug, and may modulate the sensitivity and toxicity of this drug.

REFERENCES

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3. Jamison McDaniels, C.P., Jensen, L.T., Srinivasan, C., Winge, D.R. and Tullius, T.D. 1999. The yeast transcription factor Mac1 binds to DNA in a modular fashion. J. Biol. Chem. 274: 26962-26967.
4. Serpe, M., Joshi, A. and Kosman, D.J. 1999. Structure-function analysis of the protein-binding domains of Mac1p, a copper-dependent transcriptional activator of copper uptake in *Saccharomyces cerevisiae*. J. Biol. Chem. 274: 29211-29219.
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6. Ishida, S., Lee, J., Thiele, D.J. and Herskowitz, I. 2002. Uptake of the anticancer drug cisplatin mediated by the copper transporter Ctr1 in yeast and mammals. Proc. Natl. Acad. Sci. USA 99: 14298-14302.
7. Yonkovich, J., McKenndry, R., Shi, X. and Zhu, Z. 2002. Copper ion-sensing transcription factor Mac1p post-translationally controls the degradation of its target gene product Ctr1p. J. Biol. Chem. 277: 23981-23984.

SOURCE

Ctr1 (yN-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Ctr1 of *Saccharomyces cerevisiae* origin.

PROTOCOLS

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

PRODUCT

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

Blocking peptide available for competition studies, sc-26159 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Ctr1 (yN-14) is recommended for detection of Ctr1 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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.

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.