

CTR1 (G-15): sc-18473

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 CTR1, 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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2. Pena, M.M., et al. 1998. Dynamic regulation of copper uptake and detoxification genes in *Saccharomyces cerevisiae*. *Mol. Cell. Biol.* 18: 2514-2523.
3. Jamison McDaniels, C.P., et al. 1999. The yeast transcription factor Mac1 binds to DNA in a modular fashion. *J. Biol. Chem.* 274: 26962-26967.
4. Serpe, M., et al. 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.
5. Pena, M.M., et al. 2000. Characterization of the *Saccharomyces cerevisiae* high affinity copper transporter CTR3. *J. Biol. Chem.* 275: 33244-33251.
6. Yonkovich, J., et al. 2002. Copper ion-sensing transcription factor Mac1p post-translationally controls the degradation of its target gene product CTR1p. *J. Biol. Chem.* 277: 23981-23984.
7. Ishida, S., et al. 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.

CHROMOSOMAL LOCATION

Genetic locus: SLC31A1 (human) mapping to 9q32; Slc31a1 (mouse) mapping to 4 B3.

SOURCE

CTR1 (G-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CTR1 of human origin.

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-18473 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CTR1 (G-15) is recommended for detection of CTR1 of mouse, rat and human 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).

CTR1 (G-15) is also recommended for detection of CTR1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for CTR1 siRNA (h): sc-105249, CTR1 siRNA (m): sc-77370, CTR1 shRNA Plasmid (h): sc-105249-SH, CTR1 shRNA Plasmid (m): sc-77370-SH, CTR1 shRNA (h) Lentiviral Particles: sc-105249-V and CTR1 shRNA (m) Lentiviral Particles: sc-77370-V.

Molecular Weight of mature CTR1: 35 kDa.

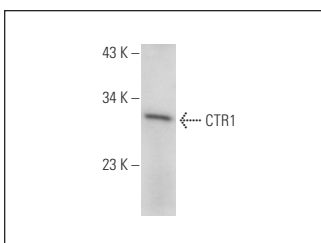
Molecular Weight of CTR1 precursor: 28 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or KNRK whole cell lysate: sc-2214.

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



CTR1 (G-15): sc-18473. Western blot analysis of CTR1 expression in KNRK whole cell lysate.

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.