



Rtg2 (yC-19): sc-26931

BACKGROUND

In *Saccharomyces cerevisiae*, cells modulate the expression of nuclear genes in response to changes in the functional state of mitochondria, and interorganelle communication pathway called retrograde regulation. Expression of the Cit2 gene shows a typical retrograde response in that its expression dramatically increases in cells with dysfunctional mitochondria, such as in rho(o) petites. Three genes, Rtg1, Rtg2 and Rtg3, are required for both basal and elevated expression of Cit2. Rtg2 acts to transduce mitochondrial signals affecting the phosphorylation state and subcellular localization of Rtg3. In addition to their role in retrograde regulation of Cit2, the Rtg genes mediate the expression of genes encoding peroxisomal proteins and are thus pivotal genes in controlling interorganelle communication between mitochondria, peroxisomes, and the nucleus. Yeast strains with null alleles of either of these two genes (Rtg1 or Rtg2) cannot grow on acetate as the sole carbon source and are auxotrophic for glutamate and aspartate. Rtg2 (for retrograde regulation protein 2), a protein of 394 amino acids, contains an N-terminal hsp70/actin/sugar kinase ATP binding domain. Rtg2 acts as a modifier gene for CTG*CAG repeat instability in *Saccharomyces cerevisiae*. The yeast Rtg2 gene also regulates aconitase expression under catabolite repression conditions, indicating that Rtg2 may be involved in the control of several anaplerotic pathways.

REFERENCES

- Liao, X., and Butow, R.A. 1993. Rtg1 and Rtg2: two yeast genes required for a novel path of communication from mitochondria to the nucleus. *Cell*. 72: 61-71.
- Chelstowska, A., and Butow, R.A. 1995. Rtg genes in yeast that function in communication between mitochondria and the nucleus are also required for expression of genes encoding peroxisomal proteins. *J Biol Chem*. 270: 18141-18146.
- Small, W.C., Brodeur, R.D., Sandor, A., Fedorova, N., Li, G., Butow, R.A., and Srere, P.A. 1995. Enzymatic and metabolic studies on retrograde regulation mutants of yeast. *Biochem*. 34: 5569-5576.
- Velot, C., Haviernik, P., and Lauquin, G.J. 1996. The *Saccharomyces cerevisiae* Rtg2 gene is a regulator of aconitase expression under catabolite repression conditions. *Genetics*. 144: 893-903.
- Chelstowska, A., et al. 1999. Signalling between mitochondria and the nucleus regulates the expression of a new D-lactate dehydrogenase activity in yeast. *Yeast*. 15: 1377-1391.
- Sekito, T., Thornton, J., and Butow, R.A. 2000. Mitochondria-to-nuclear signaling is regulated by the subcellular localization of the transcription factors Rtg1p and Rtg3p. *Mol Biol Cell*. 11: 2103-2115.
- Bhattacharyya, S., et al. 2002. Identification of RTG2 as a modifier gene for CTG*CAG repeat instability in *Saccharomyces cerevisiae*. *Genetics*. 162: 579-589.

SOURCE

Rtg2 (yC-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Rtg2 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.

Blocking peptide available for competition studies, sc-26931 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rtg2 (yC-19) is recommended for detection of Rtg2 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.

PROTOCOLS

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