SANTA CRUZ BIOTECHNOLOGY, INC.

Kar2 (y-115): sc-33630

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The yeast KAR2 gene was isolated by complementation of a mutation that blocks nuclear fusion. The predicted KAR2 protein sequence is most structurally homologous to mammalian BiP/GRP78. The endoplasmic reticulum (ER) of mammalian cells contains a protein BiP that is believed to assist in the folding of secretory and transmembrane proteins. In yeast, Kar2 function is required for translocation of soluble proteins into the ER at a stage beyond the initial nascent chain-membrane association. Deficiencies in Kar2 may cause generalized failure of protein folding in the ER, leading to pleiotropic effects on cellular metabolism. The unfolded protein response (UPR) is a signal transduction pathway induced by a variety of ER stresses and functions to maintain homeostasis of the cellular membrane in eukaryotes. Additionally, Kar2 directly regulates the UPR by the interaction the transmembrane protein kinase/ribonuclease, Ire1, which transmits a signal from the ER to the nucleus.

REFERENCES

1. Rose, M.D., Misra, L.M. and Vogel, J.P. 1989. KAR2, a karyogamy gene, is the yeast homolog of the mammalian BiP/GRP78 gene. Cell 57: 1211-1221.
2. Normington, K., Kohno, K., Kozutsumi, Y., Gething, M.J. and Sambrook, J. 1989. *S. cerevisiae* encodes an essential protein homologous in sequence and function to mammalian BiP. Cell 57: 1223-1236.
3. Nguyen, T.H., Law, D.T. and Williams, D.B. 1991. Binding protein BiP is required for translocation of secretory proteins into the endoplasmic reticulum in *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA 88: 1565-1569.
4. Zimmer, T., Ogura, A., Ohta, A. and Takagi, M. 1999. Misfolded membrane-bound cytochrome P450 activates Kar2 induction through two distinct mechanisms. J. Biochem. 126: 1080-1089.
5. Okamura, K., Kimata, Y., Higashio, H., Tsuru, A. and Kohno, K. 2000. Dissociation of Kar2p/BiP from an ER sensory molecule, Ire1p, triggers the unfolded protein response in yeast. Biochem. Biophys. Res. Commun. 279: 445-450.

SOURCE

Kar2 (y-115) is a rabbit polyclonal antibody raised against amino acids 568-682 mapping at the C-terminus of Kar2 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.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

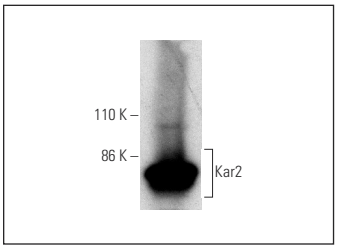
Kar2 (y-115) is recommended for detection of Kar2 of *Saccharomyces cerevisiae* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Positive Controls: *Saccharomyces cerevisiae* whole cell lysate.

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.

DATA



Kar2 (y-115): sc-33630. Western blot analysis of Kar2 expression in *Saccharomyces cerevisiae* whole cell lysate.

RESEARCH USE

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