SANTA CRUZ BIOTECHNOLOGY, INC.

Kar2 (yN-20): sc-15594

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 the 78 kDa protein BiP, which 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 (yN-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-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.

Blocking peptide available for competition studies, sc-15594 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

Kar2 (yN-20) is recommended for detection of Kar2 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.

PROTOCOLS

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