

Pma1 (yN-20): sc-19389

BACKGROUND

The yeast plasma membrane H⁺-ATPase (Pma1) generates a membrane electrochemical gradient which is required for the secondary uptake of nutrients. Pma1, located in the yeast plasma membrane and encoded by the PMA1 gene, provides energy for the active transport of nutrients and regulates intracellular pH. The function of the PMA1 gene is essential for cell growth and development because a null mutation is lethal in haploid cells. Pma1 is delivered to the cell surface via the secretory pathway. Pma1 is post-translationally regulated in response to the availability of glucose. PTK2 and HRK1 (YOR267c), encode protein kinases implicated in activation of Pma1 in response to glucose metabolism. The strong homology between the amino acid sequence of Pma1 and those of, Na⁺, K⁺- and Ca²⁺- ATPases is consistent with the notion that the family of cation pumps which form a phosphorylated intermediate evolved from a common ancestral ATPase. The gene which encodes Pma1 maps to chromosome VII.

REFERENCES

1. Serrano, R., Kiehlbrandt, M.C. and Fink, G.R. 1986. Yeast plasma membrane ATPase is essential for growth and has homology with (Na⁺ + K⁺), K⁺- and Ca²⁺-ATPases. *Nature* 319: 689-693.
2. Capieaux, E., Vignais, M.L., Sentenac, A. and Goffeau, A. 1989. The yeast H⁺-ATPase gene is controlled by the promoter binding factor TUF. *J. Biol. Chem.* 264: 7437-7446.
3. Rao, R., Drummond-Barbosa, D. and Slayman, C.W. 1993. Transcriptional regulation by glucose of the yeast PMA1 gene encoding the plasma membrane H⁺-ATPase. *Yeast* 9: 1075-1084.
4. Luo, W. and Chang, A. 2000. An endosome-to-plasma membrane pathway involved in trafficking of a mutant plasma membrane ATPase in yeast. *Mol. Biol. Cell* 11: 579-592.
5. Goossens, A., de La Fuente, N., Forment, J., Serrano, R. and Portillo, F. 2000. Regulation of yeast H⁺-ATPase by protein kinases belonging to a family dedicated to activation of plasma membrane transporters. *Mol. Cell. Biol.* 20: 7654-7661.

SOURCE

Pma1 (yN-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Pma1 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-19389 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.

APPLICATIONS

Pma1 (yN-20) is recommended for detection of Pma1 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).

Molecular Weight of Pma1: 100 kDa.

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.

SELECT PRODUCT CITATIONS

1. Turner, K.M., Wright, L.C., Sorrell, T.C. and Djordjevic, J.T. 2006. N-linked glycosylation sites affect secretion of cryptococcal phospholipase B1, irrespective of glycosylphosphatidylinositol anchoring. *Biochim. Biophys. Acta* 1760: 1569-1579.
2. Chang, J., Ruiz, V. and Vancura, A. 2008. Purification of yeast membranes and organelles by sucrose density gradient centrifugation. *Methods Mol. Biol.* 457: 141-149.
3. Ananthaswamy, N., Rutledge, R., Sauna, Z.E., Ambudkar, S.V., Dine, E., Nelson, E., Xia, D. and Golin, J. 2010. The signaling interface of the yeast multidrug transporter Pdr5 adopts a *cis* conformation, and there are functional overlap and equivalence of the deviant and canonical Q-loop residues. *Biochemistry* 49: 4440-4449.

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.