SANTA CRUZ BIOTECHNOLOGY, INC.

Pma1/2 (y-300): sc-33735

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 re-sponse to glucose metabolism. The strong homology between the amino-acid sequence of Pma1 and those of, Na^+-, K^+- and Ca^{2+}- 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., Kielland-Brandt, M.C. and Fink, G.R. 1986. Yeast plasma membrane ATPase is essential for growth and has homology with (Na^{2+} K^+), K^+- and Ca^{2+}-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

Pma1/2 (y-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus 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.

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

Pma1/2 (y-300) is recommended for detection of Pma1 and Pma2 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).

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.

SELECT PRODUCT CITATIONS

1. Adams, D.S., Masi, A. and Levin, M. 2007. H^+ pump-dependent changes in membrane voltage are an early mechanism necessary and sufficient to induce *Xenopus* tail regeneration. Development 134: 1323-1335.
2. Bairwa, G. and Kaur, R. 2011. A novel role for a glycosylphosphatidylinositol-anchored aspartyl protease, CgYps1, in the regulation of pH homeostasis in *Candida glabrata*. Mol. Microbiol. 79: 900-913.

RESEARCH USE

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