SANTA CRUZ BIOTECHNOLOGY, INC.

Gpa1 (y-290): sc-9080

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MAP kinase cascades, consisting of a mitogen-activated protein kinase (also called ERK, for extracellular regulated kinase) and one or more upstream regulatory kinases (MAPKKs), play an integral role in signal transduction. One of the best characterized MAP kinase pathways is the yeast pheromone response pathway. Extracellular pheromones bind to the receptors Ste2 and Ste3, which couple to a heterotrimeric G protein. The G protein consists of α, β and γ subunits, respectively designated Gpa1 (also called Scg1, Cdc70 or Dac1), Ste4 and Ste18. Activation of this G protein leads to the activation of the MAPKKK Ste11, which then activates the MAPKK Ste7. Activated Ste7 phosphorylates the MAP kinases Fus3 (also called Dac2) and Kss1. These MAP kinases activate the transcription factor Ste12, which upregulates mating-specific genes, and Far1, which is involved in cell cycle arrest.

REFERENCES

1. Nakayama, N., Mayajima, A., and Arai, K. 1985. Nucleotide sequences of STE2 and STE3, cell type-specific sterile genes from *Saccharomyces cerevisiae*. EMBO J. 4: 2643-2648.
2. Dietzel, C. and Kurjan, J. 1987. The yeast SCG1 gene: a Ga-like protein implicated in the a- and α-factor response pathway. Cell 50: 1001-1010.
3. Dolan, J.W., Kirkman, C., and Fields, S. 1989. The yeast Ste12 protein binds to the DNA sequence mediating pheromone induction. Proc. Natl. Acad. Sci. USA 86: 5703-5707.
4. Whiteway, M., Hougan, L., Dignard, D., Thomas, D.Y., Bell, L., Saari, G.C., Grant, F.J., O'Hara, P., and MacKay, V.L. 1989. The STE4 and STE18 genes of yeast encode potential β and γ subunits of the mating factor receptor-coupled G protein. Cell 56: 467-477.
5. Elion, E.A., Grisafi, P.L., and Fink, G.R. 1990. Fus3 encodes a Cdc2$^+$/Cdc28-related kinase required for the transition from mitosis into conjugation. Cell 60: 649-664.
6. Peter, M., Gartner, A., Horecka, J., Ammerer, G., and Herskowitz, I. 1993. Far1 links the signal transduction pathway to the cell cycle machinery in yeast. Cell 73: 747-760.
7. Ferguson, B., Horecka, J., Printen, J., Schultz, J., Stevenson, B.J., and Sprague, G.F., Jr. 1994. The yeast pheromone response pathway: new insights into signal transmission. Cell. Mol. Biol. Res. 40: 223-228.
8. Bardwell, L., Cook, J.G., Chang, E.C., Cairns, B.R., and Thorner, J. 1996. Signaling in the yeast pheromone response pathway: specific and high-affinity interaction of the mitogen-activated protein (MAP) kinases Kss1 and Fus3 with the upstream MAP kinase kinase Ste7. Mol. Cell Biol. 16: 3637-3650.

SOURCE

Gpa1 (y-290) is a rabbit polyclonal antibody raised against amino acids 183-472 of Gpa1 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.

APPLICATIONS

Gpa1 (y-290) is recommended for detection of Gpa1 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)] 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).

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.