SANTA CRUZ BIOTECHNOLOGY, INC.

Mpk1 (E-9): sc-133189

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Yeasts maintain the integrity of their cell walls via a MAP kinase cascade. This cascade consists of a MAP kinase (mitogen-activated protein kinase, also called ERK, for extracellular regulated kinase) as well as several upstream regulatory kinases (MAPKKs or MEKs, for MAP/ERK kinase). Pkc1 (also designated Sst1), a yeast homolog of the mammalian PKC α, β, and γ isoforms, transmits extracellular signals to Bck1, a MAPKKK (also called Slk1, Ssp31 or Las3). Bck1 then activates two MAPKKs, Mkk1 and Mkk2 (also referred to as Ssp32 and Ssp33, respectively). These in turn activate the MAP kinase Mpk1 (also called Slt2). Mutants lacking any component of this cascade exhibit a defect in cell lysis resulting from deficient cell wall synthesis. Bck2 (also designated Ctr7) has been identified as a suppressor of Pkc1 and Mpk1 deletions.

REFERENCES

1. Lee, K.S., et al. 1993. A yeast mitogen-activated protein kinase homolog (Mpk1p) mediates signalling by protein kinase C. Mol. Cell. Biol. 13: 3067-3075.
2. Irie, K., et al. 1993. Mkk1 and Mkk2, which encode *Saccharomyces cerevisiae* mitogen-activated protein kinase-kinase homologs, function in the pathway mediated by protein kinase C. Mol. Cell. Biol. 13: 3076-3083.

SOURCE

Mpk1 (E-9) is a mouse monoclonal antibody raised against amino acids 241-484 of Mpk1 of *Saccharomyces cerevisiae* origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Mpk1 (E-9) is recommended for detection of Mpk1 of *S. cerevisiae* origin by Western Blotting (starting dilution 1:100, 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).

Molecular Weight of Mpk1: 60 kDa.

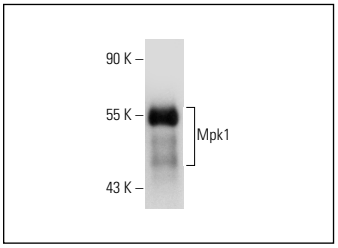
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

STORAGE

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

DATA



Mpk1 (E-9): sc-133189. Western blot analysis of yeast recombinant Mpk1 under reducing conditions.

SELECT PRODUCT CITATIONS

1. Li, X., et al. 2013. Different polarisome components play distinct roles in Slt2p-regulated cortical ER inheritance in *Saccharomyces cerevisiae.* Mol. Biol. Cell 24: 3145-3154.
2. García, R., et al. 2016. Rlm1 mediates positive autoregulatory transcriptional feedback that is essential for Slt2-dependent gene expression. J. Cell Sci. 129: 1649-1660.
3. Santiago-Cartagena, E., et al. 2019. Identification and functional testing of novel interacting protein partners for the stress sensors Wsc1p and Mid2p of *Saccharomyces cerevisiae.* G3 9: 1085-1102.
4. Chen, H., et al. 2020. The Ccr4-Not complex regulates TORC1 signaling and mitochondrial metabolism by promoting vacuole V-ATPase activity. PLoS Genet. 16: e1009046.
5. González-Rubio, G., et al. 2021. Differential role of threonine and tyrosine phosphorylation in the activation and activity of the yeast MAPK Slt2. Int. J. Mol. Sci. 22: 1110.
6. Sellers-Moya, Á., et al. 2021. Clotrimazole-induced oxidative stress triggers novel yeast Pkc1-independent cell wall integrity MAPK pathway circuitry. J. Fungi 7: 647.
7. Jiménez-Gutiérrez, E., et al. 2022. Neomycin interferes with phosphatidylinositol-4,5-bisphosphate at the yeast plasma membrane and activates the cell wall integrity pathway. Int. J. Mol. Sci. 23: 11034.
8. González-Rubio, G., et al. 2023. The mitogen-activated protein kinase Slt2 promotes asymmetric cell cycle arrest and reduces TORC1-Sch9 signaling in yeast lacking the protein phosphatase Ptc1. Microbiol. Spectr. 11: e0524922. PMID: 37042757
9. Reidy, M., et al. 2023. Nucleotide exchange is sufficient for Hsp90 functions *in vivo.* Nat. Commun. 14: 2489.

RESEARCH USE

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