SANTA CRUZ BIOTECHNOLOGY, INC.

Tem1 (yN-19): sc-12031

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The Power to Question

BACKGROUND

Cell cycle progression is controlled at a point late in G_1 designated Start. The key cell cycle transitions in *Saccharomyces cerevisiae* are G_1 to S, metaphase to anaphase, and the exit from mitosis, all of which are regulated by a complex network of proteins. The specific set of proteins required for the exit from mitosis include Tem1, Lte1, Cdc15, Dbf2/Dbf20, Cdc5, Mob1, and Cdc14. Cdc14 is a dual specificity protein phosphatase that inactivates mitotic cyclin-dependent kinases (Cdks). It is tethered to the nucleolus by the action of Net1, but is released in late anaphase/telophase by Tem1, a GTP-binding protein. Mutations in these genes arrest cells in late anaphase/telophase, which indicates that Cdc14 and Tem1 are necessary for the termination of the M phase in the cell cycle.

REFERENCES

1. Shirayama, M., Matsui, Y. and Toh-E, A. 1994. The yeast TEM1 gene, which encodes a GTP-binding protein, is involved in termination of M phase. Mol. Cell. Biol. 14: 7476-7482.
2. Taylor, G.S., Liu, Y., Baskerville, C. and Charbonneau, H. 1997. The activity of Cdc14p, an oligomeric dual specificity protein phosphatase from *Saccharomyces cerevisiae*, is required for cell cycle progression. J. Biol. Chem. 272: 24054-24063.
3. Shou, W., Seol, J.H., Shevchenko, A., Baskerville, C., Moazed, D., Shevchenko, A., Charbonneau, H. and Deshaies, R.J. 1999. Exit from mitosis is triggered by Tem1-dependent release of the protein phosphatase Cdc14 from nucleolar RENT complex. Cell 97: 233-244.
4. de Almeida, A., Raccurt, I., Peyrol, S. and Charbonneau, M. 1999. The *Saccharomyces cerevisiae* Cdc14 phosphatase is implicated in the structural organization of the nucleolus. Biol. Cell 91: 649-663.
5. Jaspersen, S.L. and Morgan, D.O. 2000. Cdc14 activates Cdc15 to promote mitotic exit in budding yeast. Curr. Biol. 10: 615-618.
6. Li, L., Ljungman, M. and Dixon, J.E. 2000. The human Cdc14 phosphatases interact with and dephosphorylate the tumor suppressor protein p53. J. Biol. Chem. 275: 2410-2414.

SOURCE

Tem1 (yN-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Tem1 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-12031 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

Tem1 (yN-19) is recommended for detection of Tem1 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.

SELECT PRODUCT CITATIONS

1. Moriya, H., Shimizu-Yoshida, Y. and Kitano, H. 2006. *In vivo* robustness analysis of cell division cycle genes in *Saccharomyces cerevisiae*. PLoS Genet. 2: e111.

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.