SANTA CRUZ BIOTECHNOLOGY, INC.

Bub3 (yK-18): sc-22496

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The Power to Question

BACKGROUND

In *Saccharomyces cerevisiae*, the normal distribution of chromosomes during mitosis is under the surveillance of a set of genes, the spindle assembly checkpoint genes, that include the BUB and MAD gene groups and MPS. However, spindle checkpoint proteins do not contribute equally to chromosome segregation fidelity; loss of Bub1 or Bub3 protein elicits the largest effect. In the presence of spindle damage, Bub1 is required to prevent cell cycle progression into anaphase. Deletion of Bub3 leads to abolishment of the mitotic checkpoint function in yeast. Bub1 encodes a protein kinase required for spindle assembly checkpoint function and Bub3 is a checkpoint protein that permits entry into mitosis depending upon the assembly state of microtubules. Bub1 and Bub3 are mutually dependent for function, and immunoprecipitation experiments demonstrate a physical association between the two. Bub1 possesses kinase activity in that it is able to autophosphorylate and to catalyze phosphorylation of Bub3. Overproduced Bub1 is found to localize to the cell nucleus. During prophase and prometaphase, preceding kinetochore-microtubule attachment, Bub3 localizes to kinetochores.

REFERENCES

1. Roberts, B.T., Farr, K.A., and Hoyt, M.A. 1994. The *Saccharomyces cerevisiae* checkpoint gene BUB1 encodes a novel protein kinase. Mol. Cell. Biol. 14: 8282-8291.
2. Guenette, S., Magendantz, M., and Solomon, F. 1995. Suppression of a conditional mutation in a-tubulin by overexpression of two checkpoint genes. J. Cell. Sci.108: 1195-1204.
3. Farr, K.A. and Hoyt, M.A. 1998. Bub1p kinase activates the *Saccharomyces cerevisiae* spindle assembly checkpoint. Mol. Cell. Biol. 18: 2738-2747.
4. Martinez-Exposito, M.J., Kaplan, K.B., Copeland, J., and Sorger, P.K. 1999. Retention of the BUB3 checkpoint protein on lagging chromosomes. Proc. Natl. Acad. Sci. USA 96: 8493-8498.
5. Ru, H.Y., Chen, R.L., Lu, W.C., and Chen, J.H. 2002. hBUB1 defects in leukemia and lymphoma cells. Oncogene 21: 4673-4679.
6. Warren, C.D., Brady, D.M., Johnston, R.C., Hanna, J.S., Hardwick, K.G., and Spencer, F.A. 2002. Distinct chromosome segregation roles for spindle checkpoint proteins. Mol. Biol. Cell 13: 3029-3041.

SOURCE

Bub3 (yK-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Bub3 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-22496 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Bub3 (yK-18) is recommended for detection of Bub3 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 Bub3: 37 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.

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.