SANTA CRUZ BIOTECHNOLOGY, INC.

p-Myt1 (Ser 83): sc-33402

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The Power to Question

BACKGROUND

Phosphorylation of Cdc2 on threonine 14 and tyrosine 15 is required to maintain Cdc2 in an inactive state throughout the S and G_2 phases of the cell cycle. The human Wee 1 protein, Wee 1 Hu, encodes a tyrosine-specific protein kinase that phosphorylates Cdc2 on tyrosine 15. Myt1, a member of the Wee 1 family of protein kinases, has been shown to phosphorylate Cdc2 on both threonine 14 and tyrosine 15 in a cyclin-dependent manner. Both Wee 1 Hu and Myt1 activity are regulated during the cell cycle, suggesting that both proteins play a role in mitotic control. Dephosphorylation of Cdc2 on threonine 14 and ttyrosine 15 in late G_2 by Cdc25 then activates the Cdc2/cyclin B complex to allow entry into mitosis. Myt1 is phosphorylated by Pik1.

REFERENCES

1. Liu, F., et al. 1997. The human Myt1 kinase preferentially phosphorylates Cdc2 on threonine 14 and localizes to the endoplasmic reticulum and Golgi complex. Mol. Cell. Biol. 17: 571-583.
2. Booher, R.N., et al. 1997. Human Myt1 is a cell cycle-regulated kinase that inhibits Cdc2 but not Cdk2 activity. J. Biol. Chem. 272: 22300-22306.
3. Shen, M., et al. 1998. The essential mitotic peptidyl-prolyl isomerase Pin1 binds and regulates mitosis-specific phosphoproteins. Genes Dev. 12: 706-720.
4. Wells, N.J., et al. 1999. The C-terminal domain of the Cdc2 inhibitory kinase Myt1 interacts with Cdc2 complexes and is required for inhibition of G_2/M progression. J. Cell Sci. 112: 3361-3371.
5. Liu, F., et al. 1999. Overproduction of human Myt1 kinase induces a G_2 cell cycle delay by interfering with the intracellular trafficking of Cdc2-cyclin B1 complexes. Mol. Cell. Biol. 19: 5113-5123.
6. Passer, B.J., et al. 2003. The p53-inducible TSAP6 gene product regulates apoptosis and the cell cycle and interacts with Nix and the Myt1 kinase. Proc. Natl. Acad. Sci. USA 100: 2284-2289.

CHROMOSOMAL LOCATION

Genetic locus: PKMYT1 (human) mapping to 16p13.3.

SOURCE

p-Myt1 (Ser 83) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 83 phosphorylated Myt1 of human 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-33402 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

p-Myt1 (Ser 83) is recommended for detection of phosphorylated Ser 83 of Myt1 (isoforms 1 and 2) of human 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).

p-Myt1 (Ser 83) is also recommended for detection of correspondingly phosphorylated Myt1 (isoforms 1 and 2) in additional species, including equine, canine and porcine.

Suitable for use as control antibody for Myt 1 siRNA (h): sc-35997, Myt 1 shRNA Plasmid (h): sc-35997-SH and Myt 1 shRNA (h) Lentiviral Particles: sc-35997-V.

Molecular Weight of p-Myt1: 50-60 kDa.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 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. Priyadarshini, A., et al. 2009. Activation of both Mos and Cdc25 is required for G_2-M transition in perch oocyte. Mol. Reprod. Dev. 76: 289-300.

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.