SANTA CRUZ BIOTECHNOLOGY, INC.

Myt 1 (C-20): sc-6352

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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. Myt 1, 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. Activity of both Wee 1 Hu and Myt 1 is regulated during the cell cycle, suggesting that both proteins play a role in mitotic control. Dephosphorylation of Cdc2 on Threonine 14 and Tyrosine 15 in late G_2 by Cdc25 then activates the Cdc2/cyclin B complex to allow entry into mitosis.

REFERENCES

1. Morla, A., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
2. Krek, W., et al. 1991. Differential phosphorylation of vertebrate p34Cdc2 kinase at the G_1/S and G_2/M transitions of the cell cycle: identification of major phosphorylation sites. EMBO J. 10: 305-316.
3. Strausfeld, U., et al. 1991. Dephosphorylation and activation of a p34Cdc2/cyclin B complex *in vitro* by human CDC25 protein. Nature 351: 242-245.
4. Gautier, J., et al. 1991. Cdc25 is a specific tyrosine phosphatase that directly activates p34Cdc2. Cell 67: 197-211.
5. Igarashi, M., et al. 1991. Wee 1^+-like gene in human cells. Nature 353: 80-83.
6. McGowan, C.H., et al. 1995. Human Wee1 kinase inhibits cell division by phosphorylating p34Cdc2 exclusively on Tyr 15. EMBO J. 12: 75-85.
7. Watanabe, N., et al. 1995. Regulation of the human Wee 1 Hu Cdk Tyrosine 15 kinase during the cell cycle. EMBO J. 14: 1878-1891.

CHROMOSOMAL LOCATION

Genetic locus: PKMYT1 (human) mapping to 16p13.3; Pkmyt1 (mouse) mapping to 17 A3.3.

SOURCE

Myt 1 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Myt 1 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-6352 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

Myt 1 (C-20) is recommended for detection of Myt 1 of mouse, rat and 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).

Myt 1 (C-20) is also recommended for detection of Myt 1 in additional species, including equine and canine.

Suitable for use as control antibody for Myt 1 siRNA (h): sc-35997, Myt 1 siRNA (m): sc-35998, Myt 1 shRNA Plasmid (h): sc-35997-SH, Myt 1 shRNA Plasmid (m): sc-35998-SH, Myt 1 shRNA (h) Lentiviral Particles: sc-35997-V and Myt 1 shRNA (m) Lentiviral Particles: sc-35998-V.

Molecular Weight of Myt 1: 50-60 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or SK-BR-3 cell lysate: sc-2218.

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Ho, Y.S., et al. 2001. Griseofulvin potentiates antitumorigenesis effects of nocodazole through induction of apoptosis and G_2/M cell cycle arrest in human colorectal cancer cell. Intl. J. Cancer 91: 393-401.
2. Matsuo, T., et al. 2003. Control mechanism of the circadian clock for timing of cell division *in vivo*. Science 302: 255-259.
3. Petermann, A.T., et al. 2003. Mitotic cell cycle proteins increase in podocytes despite lack of proliferation. Kidney Int. 63: 113-122.
4. Chow, J.P., et al. 2012. The CDK1 inhibitory kinase MYT1 in DNA damage checkpoint recovery. Oncogene. E-published.

RESEARCH USE

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