SANTA CRUZ BIOTECHNOLOGY, INC.

Wee 1 (H-300): sc-9037

SANTA CRUZ BIOTECHNOLOGY

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.

CHROMOSOMAL LOCATION

Genetic locus: WEE1 (human) mapping to 11p15.4; Wee1 (mouse) mapping to 7 F1.

SOURCE

Wee 1 (H-300) is a rabbit polyclonal antibody raised against amino acids 347-646 mapping at the C-terminus of Wee 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.

APPLICATIONS

Wee 1 (H-300) is recommended for detection of Wee 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Wee 1 (H-300) is also recommended for detection of Wee 1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Wee 1 siRNA (h): sc-36835, Wee 1 siRNA (m): sc-36836, Wee 1 shRNA Plasmid (h): sc-36835-SH, Wee 1 shRNA Plasmid (m): sc-36836-SH, Wee 1 shRNA (h) Lentiviral Particles: sc-36835-V and Wee 1 shRNA (m) Lentiviral Particles: sc-36836-V.

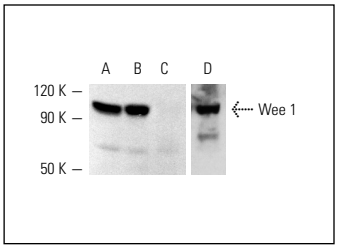
Molecular Weight of Wee 1: 94 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, MOLT-4 cell lysate: sc-2233 or BJAB whole cell lysate: sc-2207.

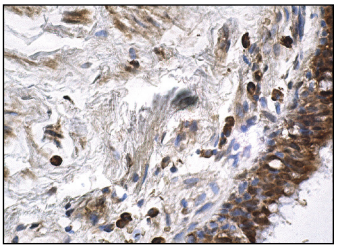
STORAGE

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

DATA



Western blot analysis of Wee 1 expression in MOLT-4 (**A**), BJAB (**B**,**D**) and WEHI-231 (**C**) whole cell lysates. Antibodies tested include: Wee 1 (B-11): sc-5285 (**A**-**C**) and Wee 1 (H-300): sc-9037 (**D**).



Wee 1 (H-300): sc-9037. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing nuclear and cytoplasmic staining of respiratory epithelial cells.

SELECT PRODUCT CITATIONS

1. Leise, W. and Mueller, P.R. 2002. Multiple Cdk1 inhibitory kinases regulate the cell cycle during development. Dev. Biol. 249: 156-173.
2. Yarden, R.I., et al. 2002. BRCA1 regulates the G_2/M checkpoint by activating Chk1 kinase upon DNA damage. Nat. Genet. 30: 285-289.
3. Smith, A., et al. 2007. Redundant ubiquitin ligase activities regulate Wee 1 degradation and mitotic entry. Cell Cycle 6: 2795-2799.
4. Wang, J., et al. 2009. Identification of XAF1 as a novel cell cycle regulator through modulating G_2/M checkpoint and interaction with checkpoint kinase 1 in gastrointestinal cancer. Carcinogenesis 30: 1507-1516.
5. Ozturk, N., et al. 2009. Loss of cryptochrome reduces cancer risk in p53 mutant mice. Proc. Natl. Acad. Sci. USA 106: 2841-2846.
6. Owens, L., et al. 2010. Activation domain-dependent degradation of somatic Wee 1 kinase. J. Biol. Chem. 285: 6761-6769.
7. Hashiramoto, A., et al. 2010. Mammalian clock gene Cryptochrome regulates arthritis via proinflammatory cytokine TNF-α. J. Immunol. 184: 1560-1565.
8. Sarkar, S., et al. 2010. MiR-322/424 and -503 are induced during muscle differentiation and promote cell cycle quiescence and differentiation by down-regulation of Cdc25A. Mol. Biol. Cell 21: 2138-2149.

RESEARCH USE

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