SANTA CRUZ BIOTECHNOLOGY, INC.

p-Cdc2 p34 (pY15.44): sc-136014

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cdc2, an evolutionarily conserved serine/threonine-specific protein kinase, is essential in the cell cycle transition from G_2 to M phase. Cdc2 is regulated by association with B-type cyclins and by reversible phosphorylation. Cyclin B binding facilitates the phosphorylation of Cdc2 p34 on three regulatory sites: threonine 14, tyrosine 15 and threonine 161. In higher eukaryotes, Cdc2 is negatively regulated by phosphorylation of two residues located in the ATP-binding site, Thr 14 and Tyr 15. Cdc2 is positively regulated by the cyclin-dependent phosphorylation of Thr 161. Both phosphorylation and dephosphorylation at Thr 161 are required for progression through the cell cycle.

REFERENCES

1. Draetta, G., et al. 1987. Identification of p34 and p13, human homologs of the cell cycle regulators of fission yeast encoded by $cdc2^+$ and $suc1^+$. Cell 50: 319-325.
2. Brizuela, L., et al. 1987. $p13^{suc1}$ acts in the fission yeast cell division cycle as a component of the $p34^{cdc2}$ protein kinase. EMBO J. 6: 3507-3514.
3. Arion, D., et al. 1988. Cdc2 is a component of the M phase-specific Histone H1 kinase: evidence for identity with MPF. Cell 55: 371-378.
4. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.

CHROMOSOMAL LOCATION

Genetic locus: CDK1 (human) mapping to 10q21.2; Cdk1 (mouse) mapping to 10 B5.3.

SOURCE

p-Cdc2 p34 (pY15.44) is a mouse monoclonal antibody raised against a short amino acid sequence containing Tyr 15 phosphorylated Cdc2 p34 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-Cdc2 p34 (pY15.44) is recommended for detection of Tyr 15 phosphorylated Cdc2 p34 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Cdc2 p34 siRNA (h): sc-29252, Cdc2 p34 siRNA (m): sc-29253, Cdc2 p34 shRNA Plasmid (h): sc-29252-SH, Cdc2 p34 shRNA Plasmid (m): sc-29253-SH, Cdc2 p34 shRNA (h) Lentiviral Particles: sc-29252-V and Cdc2 p34 shRNA (m) Lentiviral Particles: sc-29253-V.

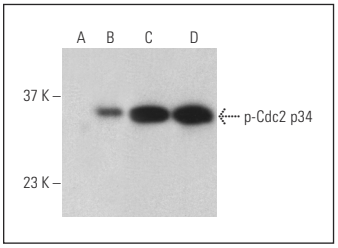
Molecular Weight of p-Cdc2 p34: 34 kDa.

Positive Controls: HeLa + hydroxyurea cell lysate: sc-24682, HeLa whole cell lysate: sc-2200 or Cdc2 p34 (h2): 293 Lysate: sc-128282.

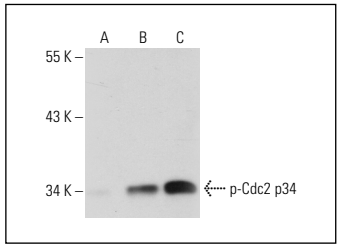
STORAGE

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 Cdc2 p34 phosphorylation in untreated (**A**,**C**) and hydroxyurea treated (**B**,**D**) HeLa whole cell lysates. Antibodies tested include p-Cdc2 p34 (pY15.44): sc-136014 (lanes **A**-**B**) and Cdc2 p34 (B-6): sc-8395 (lanes **C**-**D**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



p-Cdc2 p34 (pY15.44): sc-136014. Western blot analysis of Cdc2 p34 phosphorylation in non-transfected 293: sc-110760 (**A**), human Cdc2 p34 transfected 293: sc-128282 (**B**) and HeLa (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Horejší, B., et al. 2012. Nuclear γ-Tubulin associates with nucleoli and interacts with tumor suppressor protein C53. J. Cell. Physiol. 227: 367-382.
2. Zhang, Y., et al. 2018. The new 6q27 tumor suppressor DACT2, frequently silenced by CpG methylation, sensitizes nasopharyngeal cancer cells to paclitaxel and 5-FU toxicity via β-catenin/Cdc25c signaling and G_2/M arrest. Clin. Epigenetics 10: 26.
3. Zhang, M., et al. 2019. AIM2 promotes non-small-cell lung cancer cell growth through inflammasome-dependent pathway. J. Cell. Physiol. 234: 20161-20173.
4. Peng, M., et al. 2020. CAVIN2 is frequently silenced by CpG methylation and sensitizes lung cancer cells to paclitaxel and 5-FU. Epigenomics 12: 1793-1810.
5. Kim, N., et al. 2021. MITF promotes cell growth, migration and invasion in clear cell renal cell carcinoma by activating the RhoA/YAP signal pathway. Cancers 13: 2920.
6. Megino-Luque, C., et al. 2022. ARID1A-deficient cells require HDAC6 for progression of endometrial carcinoma. Mol. Oncol. 16: 2235-2259.
7. Wu, R., et al. 2023. Pulsatilla Decoction and its bioactive component β-peltatin induce G_2/M cell cycle arrest and apoptosis in pancreatic cancer. Chin. Med. 18: 61.
8. Wang, Q., et al. 2024. Synergistic action of benzyl isothiocyanate and Sorafenib in a nanoparticle delivery system for enhanced triple-negative breast cancer treatment. Cancers 16: 1695.

RESEARCH USE

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