SANTA CRUZ BIOTECHNOLOGY, INC.

p-Cdc2 p34 (Thr 161): sc-12341

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 Cdc^{2+} and $SUC1^{+}$. Cell 50: 319-325.
2. Brizuela, L., et al. 1987. p13SUC1 acts in the fission yeast cell division cycle as a component of the p34Cdc2 protein kinase. EMBO J. 6: 3507-3514.

SOURCE

p-Cdc2 p34 (Thr 161) is available as either goat (sc-12341) or rabbit (sc-12341-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Thr 161 of Cdc2 p34 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-12341 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Cdc2 p34 (Thr 161) is recommended for detection of Thr 161 phosphorylated Cdc2 p34, Cdk2 and Cdk3 of mouse, rat, human and *Xenopus laevis* 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-Cdc2 p34 (Thr 161) is also recommended for detection of correspondingly phosphorylated Cdc2 p34, Cdk2 and Cdk3 in additional species, including equine, canine, bovine, porcine and avian.

Molecular Weight of p-Cdc2 p34: 34 kDa.

Positive Controls: Saos-2 cell lysate: sc-2235, HeLa whole cell lysate: sc-2200 or NAMALWA cell lysate: sc-2234.

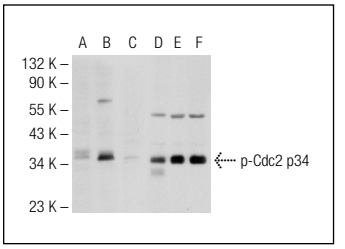
STORAGE

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

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: for goat primary antibody (sc-14268): use donkey anti-goat IgG-HRP: sc-2020 (range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (range: 1:2000-1:5000), for rabbit primary antibody (sc-14268-R): use goat anti-rabbit IgG-HRP: sc-2004 (range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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: for goat primary antibody (sc-14268): use donkey anti-goat IgG-FITC: sc-2024 (range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (range: 1:100-1:400), for rabbit primary antibody (sc-14268-R): use goat anti-rabbit IgG-FITC: sc-2012 (range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Western blot analysis of Cdc2 p34 phosphorylation in untreated (**A**,**D**), nocodazole treated (**B**,**E**) and nocodazole and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa whole cell lysates. Antibodies tested include p-Cdc2 p34 (Thr 161)-R: sc-12341-R (**A**,**B**,**C**) and p-Cdc2 p34 (PSTAIRE): sc-53 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. Yu, J., et al. 2007. Gambogic acid-induced G_2/M phase cell-cycle arrest via disturbing Cdk7-mediated phosphorylation of Cdc2 p34 in human gastric carcinoma BGC-823 cells. Carcinogenesis 28: 632-638.
2. 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.
3. Terrano, D.T., et al. 2010. Cyclin-dependent kinase 1-mediated Bcl-xL/Bcl-2 phosphorylation acts as a functional link coupling mitotic arrest and apoptosis. Mol. Cell. Biol. 30: 640-656.
4. Ma, S.H., et al. 2011. Susceptibility of Hep3B cells in different phases of cell cycle to tBid. Biochim. Biophys. Acta 1813: 179-185.

RESEARCH USE

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