SANTA CRUZ BIOTECHNOLOGY, INC.

p-Cdc2 p34 (Thr 161): sc-101654

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 phosophorylation. 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. Nurse, P. 1990. Universal control mechanism regulating onset of M phase. Nature 344: 503-508.
2. Krek, W. and Nigg, E.A. 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. Krek, W., Marks, J., Schmitz, N., Nigg, E. A. and Simanis, V. 1992. Vertebrate p34cdc2 phosphorylation site mutants: effects upon cell cycle progression in the fission yeast *Schizosaccharomyces pombe*. J. Cell. Sci. 102: 43-53.
4. Atherton-Fessler, S., Hanning, G. and Piwnica-Worms, H. 1993. Reversible tyrosine phosphorylation and cell cycle control. Semin. Cell Biol. 4: 433-442.
5. Atherton-Fessler, S., Parker, L.L., Geahlen, R.L. and Piwnica-Worms, H. 1993. Mechanisms of p34cdc2 regulation. Mol. Cell. Biol. 13: 1675-1685.
6. De Bondt, H.L., Rosenblatt, J., Jancarik, J., Jones, H.D., Morgan, D.O. and Kim, S.H. 1993. Crystal structure of cyclin-dependent kinase 2. Nature 363: 595-602.
7. Draetta, G., Piwnica-Worms, H., Morrison, D., Druker, B., Roberts, T. and Beach, D. 1998. Human Cdc2 protein kinase is a major cell-cycle regulated tyrosine kinase substrate. Nature 336: 738-744.

CHROMOSOMAL LOCATION

Genetic locus: CDC2 (human) mapping to 10q21.2; Cdc2a (mouse) mapping to 10 B5.3.

SOURCE

p-Cdc2 p34 (Thr 161) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 161 of Cdc2 p34 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

p-Cdc2 p34 (Thr 161) is recommended for detection of Thr 161 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)], immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Cdc2 p34 siRNA (h): sc-29252 and Cdc2 p34 siRNA (m): sc-29253.

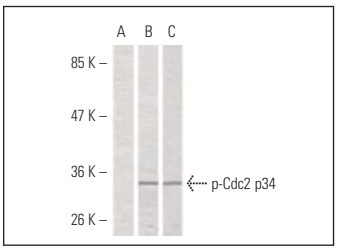
Molecular Weight of p-Cdc2 p34: 34 kDa.

Positive Controls: Saos-2 + hydroxyurea cell lysate: sc-2286, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

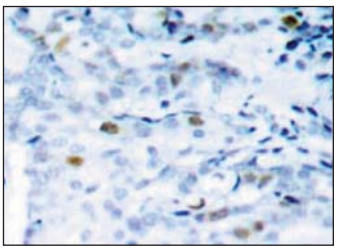
RECOMMENDED SECONDARY REAGENTS

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) 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 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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



Western blot analysis of phosphorylated Cdc2 p34 expression in COLO205 (**A**,**B**) and K-562 (**C**) whole cell lysates. Antibodies tested include p-Cdc2 p34 (Thr 161): sc-101654 preincubated with cognate phosphorylated peptide (**A**) and p-Cdc2 p34 (Thr 161): sc-101654 (**B**,**C**).



p-Cdc2 p34 (Thr 161): sc-101654. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing nuclear and cytoplasmic staining.

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.