

#4823 Store at -20°C

# CDC20 Antibody



✓ 100 µl  
(10 western blots)

**Orders** ■ 877-616-CELL (2355)  
orders@cellsignal.com  
**Support** ■ 877-678-TECH (8324)  
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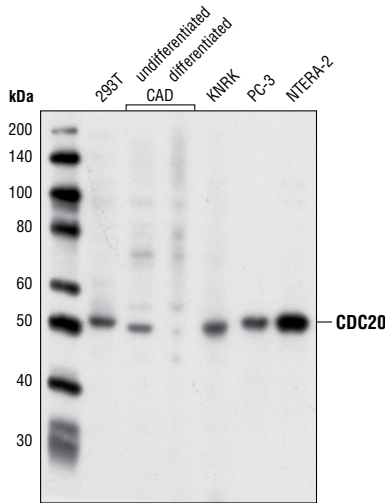
rev. 04/20/10

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H, M, R	51 kDa	Rabbit**

**Background:** The cell division cycle demands accuracy to avoid the accumulation of genetic damage. This process is controlled by molecular circuits called "checkpoints" that are common to all eukaryotic cells (1). Checkpoints monitor DNA integrity and cell growth prior to replication and division at the G1/S and G2/M transitions, respectively. The cdc2-cyclin B kinase is pivotal in regulating the G2/M transition (2,3). Cdc2 is phosphorylated at Thr14 and Tyr15 during G2-phase by the kinases Wee1 and Myt1, rendering it inactive. The tumor suppressor protein retinoblastoma (Rb) controls progression through the late G1 restriction point (R) and is a major regulator of the G1/S transition (4). During early and mid G1-phase, Rb binds to and represses the transcription factor E2F (5). The phosphorylation of Rb late in G1 by cdk2 induces Rb to dissociate from E2F, permitting the transcription of S-phase-promoting genes. Rb can be phosphorylated at multiple sites *in vitro* by cdc2, cdk2 and cdk4/6 (6-8). DNA damage triggers both the G2/M and the G1/S checkpoints. DNA damage activates the DNA-PK/ATR/ATR kinases, which phosphorylate Chk at Ser345 (9), Chk2 at Thr68 (10) and p53 (11). The Chk kinases inactivate cdc25 via phosphorylation at Ser216, blocking the activation of cdc2.

CDC20 binds to and activates the anaphase-promoting complex (APC) during mitosis and G1 phase of the cell cycle (12). Moreover, CDC20 is necessary for ubiquitin ligase activity of the APC/cyclosome (APC/C). In metaphase MAD2L1 inactivates the CDC20-APC/C complex, while in anaphase this inhibition is lost and CDC20-APC/C degrades its substrates (13). p53 and p21 suppress expression of CDC20 upon genotoxic stresses and ectopic introduction of p53. siRNA mediated knock-down of CDC20 in cancer cells leads to attenuated cell growth and induces G(2)/M arrest, suggesting that CDC20 is a possible therapeutic target of cancer (14). Organization of neuronal circuits requires presynaptic axonal differentiation and synapse formation. CDC20-APC regulates presynaptic differentiation in postmitotic neurons by triggering the required degradation of the transcription factor NeuroD2 (15).



Western blot analysis of extracts from various cell lines using CDC20 Antibody.

**Specificity/Sensitivity:** CDC20 Antibody detects endogenous levels of total CDC20 protein.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala35 of human CDC20 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Entrez-Gene ID #991  
Swiss-Prot Acc. #Q12834

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western blotting 1:1000

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Nurse, P. (1997) *Cell* 91, 865-7.
- (2) Norbury, C. and Nurse, P. (1992) *Annu Rev Biochem* 61, 441-70.
- (3) Watanabe, N. et al. (1995) *EMBO J.* 14, 1878-1891.
- (4) Sherr, C.J. (1996) *Science* 274, 1672-1677.
- (5) Dyson, N. (1998) *Genes Dev.* 12, 2245-2262.
- (6) Kitagawa, M. et al. (1996) *EMBO J.* 15, 7060-7069.
- (7) Lundberg, A.S. and Weinberg, R.A. (1998) *Mol Cell Biol* 18, 753-761.
- (8) Harbour, J.W. et al. (1999) *Cell* 98, 859-869.
- (9) Zhao, H. and Piwnicka-Worms, H. (2001) *Mol. Cell Biol.* 21, 4129-4139.
- (10) Matsuoka, S. et al. (2000) *Proc. Natl. Acad. Sci. USA* 97, 10389-10394.
- (11) Tibbetts, R.S. et al. (1999) *Genes Dev.* 13, 152-157.
- (12) Fang, G. et al. (1998) *Mol Cell* 2, 163-71.
- (13) Fang, G. et al. (1998) *Genes Dev* 12, 1871-83.
- (14) Kidokoro, T. et al. (2008) *Oncogene* 27, 1562-71.
- (15) Yang, Y. et al. (2009) *Science* 326, 575-8.

**IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine  
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.