

Cdt1 (H-300): sc-28262

BACKGROUND

Human Cdt1 is a nuclear localizing replication initiation factor that is expressed only during the G₁ and S phases of the cell cycle. In conjunction with Cdc18, Cdt1 is required to load the MCM protein Cdc21 onto chromatin at the end of mitosis which is necessary to initiate DNA replication. After S phase onset, Cdt1 protein levels decrease and are barely detectable in cells in early S phase or G₂. However, Cdt1 mRNA is expressed in S-phase-arrested cells, and its levels do not change dramatically during the cell cycle, suggesting that proteolytic degradation rather than transcriptional controls ensure proper accumulation of Cdt1. Cdt1 can associate with the DNA replication inhibitor Geminin, which is present in the S and G₂ phases of the cell cycle. Inhibition of DNA replication by Geminin in cell-free DNA replication extracts can be reversed by the addition of excess Cdt1. Geminin may be responsible for preventing inappropriate origin firing by targeting Cdt1.

REFERENCES

- Hofmann, J.F. and Beach, D. 1994. Cdt1 is an essential target of the Cdc10/Sct1 transcription factor: requirement for DNA replication and inhibition of mitosis. *EMBO J.* 13: 425-434.
- Wohlschlegel, J.A., et al. 2000. Inhibition of eukaryotic DNA replication by geminin binding to Cdt1. *Science* 290: 2309-2312.

CHROMOSOMAL LOCATION

Genetic locus: CDT1 (human) mapping to 16q24.3; Cdt1 (mouse) mapping to 8 E1.

SOURCE

Cdt1 (H-300) is a rabbit polyclonal antibody raised against amino acids 247-546 mapping at the C-terminus of Cdt1 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

Cdt1 (H-300) is recommended for detection of Cdt1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cdt1 siRNA (h): sc-37544, Cdt1 siRNA (m): sc-142240, Cdt1 shRNA Plasmid (h): sc-37544-SH, Cdt1 shRNA Plasmid (m): sc-142240-SH, Cdt1 shRNA (h) Lentiviral Particles: sc-37544-V and Cdt1 shRNA (m) Lentiviral Particles: sc-142240-V.

Molecular Weight of Cdt1: 65 kDa.

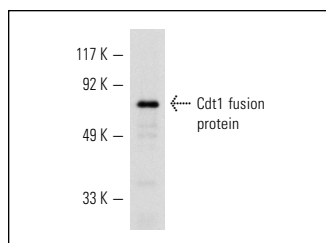
STORAGE

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

RESEARCH USE

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

DATA



Cdt1 (H-300): sc-28262. Western blot analysis of human recombinant Cdt1 fusion protein.

SELECT PRODUCT CITATIONS

- Hochegger, H., et al. 2007. An essential role for Cdk1 in S phase control is revealed via chemical genetics in vertebrate cells. *J. Cell Biol.* 178: 257-268.
- Wakasugi, M., et al. 2007. DDB1 gene disruption causes a severe growth defect and apoptosis in chicken DT40 cells. *Biochem. Biophys. Res. Commun.* 364: 771-777.
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- Ohno, Y., et al. 2010. Hoxb4 transduction down-regulates Geminin protein, providing hematopoietic stem and progenitor cells with proliferation potential. *Proc. Natl. Acad. Sci. USA* 107: 21529-21534.
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- Uno, S. and Masai, H. 2011. Efficient expression and purification of human replication fork-stabilizing factor, Claspin, from mammalian cells: DNA-binding activity and novel protein interactions. *Genes Cells* 16: 842-856.
- Joaquin, M., et al. 2012. The p57 CDKi integrates stress signals into cell-cycle progression to promote cell survival upon stress. *EMBO J.* 31: 2952-2964.
- Di Paola, D. and Zannis-Hadjopoulos, M. 2012. Comparative analysis of pre-replication complex proteins in transformed and normal cells. *J. Cell. Biochem.* 113: 1333-1347.



Try **Cdt1 (F-6): sc-365305**, our highly recommended monoclonal alternative to Cdt1 (H-300). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Cdt1 (F-6): sc-365305**.