

# Cdt1 (L-20): sc-18559

## BACKGROUND

Human Cdt1 is a nuclear localizing replication initiation factor that is expressed only during the G<sub>1</sub> 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 G<sub>2</sub>. 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 G<sub>2</sub> 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

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- Wohlschlegel, J.A., et al. 2000. Inhibition of eukaryotic DNA replication by Geminin binding to Cdt1. *Science* 290: 2309-2312.
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- Nishitani, H., et al. 2000. The Cdt1 protein is required to license DNA for replication in fission yeast. *Nature* 404: 625-628.
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- Spella, M., et al. 2007. Licensing regulators Geminin and Cdt1 identify progenitor cells of the mouse CNS in a specific phase of the cell cycle. *Neuroscience* 147: 373-387.
- Kim, Y. and Kipreos, E.T. 2007. Cdt1 degradation to prevent DNA re-replication: conserved and non-conserved pathways. *Cell Div.* 2: 18.

## CHROMOSOMAL LOCATION

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

## SOURCE

Cdt1 (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Cdt1 of human origin.

## RESEARCH USE

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

## 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-18559 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Cdt1 (L-20) 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), 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).

Cdt1 (L-20) is also recommended for detection of Cdt1 in additional species, including equine, canine, bovine and porcine.

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.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Wei, D., et al. 2011. Radiosensitization of human pancreatic cancer cells by MLN4924, an investigational NEDD8-activating enzyme inhibitor. *Cancer Res.* 72: 282-293.
- Yang, D., et al. 2012. The p21-dependent radiosensitization of human breast cancer cells by MLN4924, an investigational inhibitor of NEDD8 activating enzyme. *PLoS ONE* 7: e34079.

## STORAGE

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



Try **Cdt1 (F-6): sc-365305**, our highly recommended monoclonal alternative to Cdt1 (L-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **Cdt1 (F-6): sc-365305**.