

# Cdt1 (F-6): sc-365305

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Cdt1 (F-6) is a mouse monoclonal antibody raised against amino acids 247-546 mapping at the C-terminus of Cdt1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cdt1 (F-6) is available conjugated to agarose (sc-365305 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365305 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365305 PE), fluorescein (sc-365305 FITC), Alexa Fluor® 488 (sc-365305 AF488), Alexa Fluor® 546 (sc-365305 AF546), Alexa Fluor® 594 (sc-365305 AF594) or Alexa Fluor® 647 (sc-365305 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365305 AF680) or Alexa Fluor® 790 (sc-365305 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

Cdt1 (F-6) is recommended for detection of Cdt1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (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.

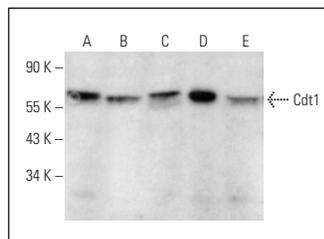
Molecular Weight of Cdt1: 65 kDa.

Positive Controls: WR19L cell lysate: sc-3805, F9 cell lysate: sc-2245 or BC<sub>3</sub>H1 cell lysate: sc-2299.

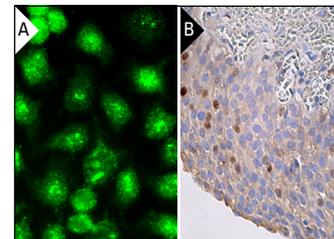
## STORAGE

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

## DATA



Cdt1 (F-6): sc-365305. Western blot analysis of Cdt1 expression in WR19L (A), F9 (B) and BC<sub>3</sub>H1 (C) whole cell lysates and NIH/3T3 (D) and WEHI-231 (E) nuclear extracts.



Cdt1 (F-6): sc-365305. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of subset of urothelial cells (B).

## SELECT PRODUCT CITATIONS

- Johansson, P., et al. 2014. SCF-FBX031 E3 ligase targets DNA replication factor Cdt1 for proteolysis in the G<sub>2</sub> phase of cell cycle to prevent re-replication. *J. Biol. Chem.* 289: 18514-18525.
- Paiva, C., et al. 2015. Targeting neddylation induces DNA damage and checkpoint activation and sensitizes chronic lymphocytic leukemia B cells to alkylating agents. *Cell Death Dis.* 6: e1807.
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- Lee, C., et al. 2020. Cyclin E2 promotes whole genome doubling in breast cancer. *Cancers* 12: 2268.
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- Varisli, L., et al. 2021. HN1 interacts with  $\gamma$ -Tubulin to regulate centrosomes in advanced prostate cancer cells. *Cell Cycle* 20: 1723-1744.
- Martin, J.C., et al. 2022. CDC7 kinase (DDK) inhibition disrupts DNA replication leading to mitotic catastrophe in Ewing sarcoma. *Cell Death Discov.* 8: 85.

## RESEARCH USE

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

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