SANTA CRUZ BIOTECHNOLOGY, INC.

Geminin (FL-209): sc-13015

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Geminin is a nuclear protein that regulates the initiation of DNA replication during the cell cycle. DNA replication requires the coordinated association of Cdc6 and minichromosome maintenance (MCM) proteins with chromatin. Geminin blocks this assembly of MCM into the prereplication complex and, in turn, prevents replication from occurring. Expression of geminin fluctuates throughout the cell cycle with geminin levels lowest at G_1. Throughout S, G_2 and M phases, Geminin levels are consistently elevated followed by a decrease during mitosis. The initiation of DNA replication is dependent on the degradation of Geminin during mitosis and the absence of Geminin throughout G_1 phase. Geminin degradation is mediated by the anaphase-promoting complex (APC), which specifically targets B-type cyclins and other proteins containing a destruction box motif for degradation by ubiquitin-mediated proteolysis.

REFERENCES

1. Yu, H., et al. 1996. Identification of a novel ubiquitin-conjugating enzyme involved in mitotic cyclin degradation. Curr. Biol. 6: 455-466.
2. Rowles, A., et al. 1997. Chromatin proteins involved in the initiation of DNA replication. Curr. Opin. Genet. Dev. 7: 152-157.

CHROMOSOMAL LOCATION

Genetic locus: GMNN (human) mapping to 6p22.2; Gmnn (mouse) mapping to 13 A3.1.

SOURCE

Geminin (FL-209) is a rabbit polyclonal antibody raised against amino acids 1-209 representing full length Geminin 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

Geminin (FL-209) is recommended for detection of Geminin 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 Geminin siRNA (h): sc-43800, Geminin siRNA (m): sc-108025, Geminin shRNA Plasmid (h): sc-43800-SH, Geminin shRNA Plasmid (m): sc-108025-SH, Geminin shRNA (h) Lentiviral Particles: sc-43800-V and Geminin shRNA (m) Lentiviral Particles: sc-108025-V.

Molecular Weight of Geminin: 35 kDa.

Positive Controls: MM-142 nuclear extract: sc-2139 or Geminin (m): 293T Lysate: sc-120468.

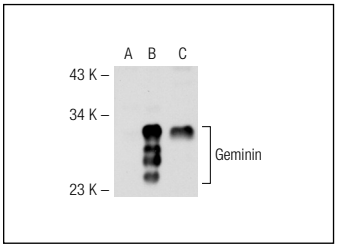
RESEARCH USE

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

STORAGE

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

DATA



Geminin (FL-209): sc-13015. Western blot analysis of Geminin expression in non-transfected 293T: sc-117752 (**A**), mouse Geminin transfected 293T: sc-120468 (**B**) and MM-142 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Del Bene, F., et al. 2004. Direct interaction of Geminin and Six3 in eye development. Nature 427: 745-749.
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3. Cook, J.G., et al. 2004. The regulated association of Cdt1 with minichromosome maintenance proteins and Cdc6 in mammalian cells. J. Biol. Chem. 279: 9625-9633.
4. Ballabeni, A., et al. 2004. Human Geminin promotes pre-RC formation and DNA replication by stabilizing Cdt1 in mitosis. EMBO J. 23: 3122-3132.
5. Yoshida, K., et al. 2004. The destruction box of human Geminin is critical for proliferation and tumor growth in human colon cancer cells. Oncogene 23: 58-70.
6. Yamamoto, H., et al. 2005. cell cycle and developmental regulations of replication factors in mouse embryonic stem cells. J. Biol. Chem. 280: 12976-12987.
7. Mailand, N., et al. 2005. Cdks promote DNA replication origin licensing in human cells by protecting Cdc6 from APC/C-dependent proteolysis. Cell 122: 915-926.
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9. Salabat, M.R., et al. 2008. Geminin is overexpressed in human pancreatic cancer and downregulated by the bioflavanoid apigenin in pancreatic cancer cell lines. Mol. Carcinog. 47: 835-844.
10. Chan, Y.W., et al. 2008. Cdk1 inhibitors antagonize the immediate apoptosis triggered by spindle disruption but promote apoptosis following the subsequent rereplication and abnormal mitosis. Cell Cycle 7: 1449-1461.
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