SANTA CRUZ BIOTECHNOLOGY, INC.

# Geminin (A-3): sc-74496

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 the 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.
3. Page, A.M. and Hieter, P. 1997. The anaphase promoting complex. Cancer Surv. 29: 133-150.


## CHROMOSOMAL LOCATION

Genetic locus: GMNN (human) mapping to 6p22.3; Gmnn (mouse) mapping to 13 A3.1.

## SOURCE

Geminin (A-3) is a mouse monoclonal antibody raised against amino acids 1-209 representing full length Geminin of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Geminin (A-3) is recommended for detection of Geminin 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

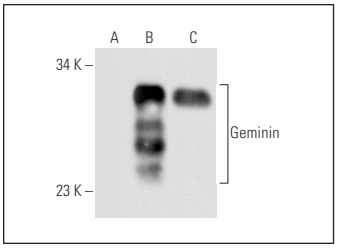
Molecular Weight of Geminin: 35 kDa.

Positive Controls: M1 whole cell lysate: sc-364782, Geminin (m): 293T Lysate: sc-120468 or MM-142 cell lysate: sc-2246.

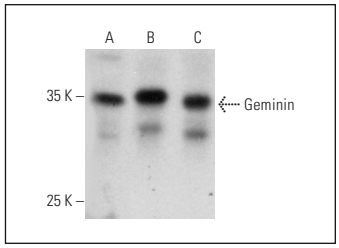
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA




Geminin (A-3): sc-74496. 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.




Geminin (A-3): sc-74496. Western blot analysis of Geminin expression in NCI-H1299 (**A**), M1 (**B**) and NRK (**C**) whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Guo, J. and Sun, N. 2013. Cell cycle regulator Geminin is dispensable for the proliferation of vascular smooth muscle cells. Sci. China Life Sci. 256: 731-738.
2. Tao, F., et al. 2016. Fuling granule, a traditional chinese medicine compound, suppresses cell proliferation and TGFβ-induced EMT in ovarian cancer. PLoS ONE 11: e0168892.
3. Mukherjee, S., et al. 2016. Phosphorylation of Ku70 subunit by cell cycle kinases modulates the replication related function of Ku heterodimer. Nucleic Acids Res. 44: 7755-7765.
4. Coulombe, P., et al. 2019. The ORC ubiquitin ligase OBI1 promotes DNA replication origin firing. Nat. Commun. 10: 2426.


## 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.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.