

# Geminin (F-7): sc-74456

## 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<sub>1</sub>. Throughout S, G<sub>2</sub> 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<sub>1</sub> 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Geminin (F-7) 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<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Geminin (F-7) is available conjugated to agarose (sc-74456 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-74456 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-74456 PE), fluorescein (sc-74456 FITC), Alexa Fluor® 488 (sc-74456 AF488), Alexa Fluor® 546 (sc-74456 AF546), Alexa Fluor® 594 (sc-74456 AF594) or Alexa Fluor® 647 (sc-74456 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-74456 AF680) or Alexa Fluor® 790 (sc-74456 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

Geminin (F-7) 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)], 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 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.

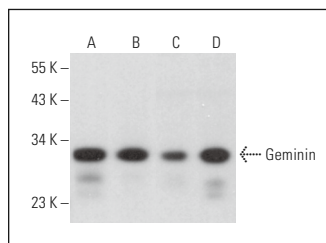
Molecular Weight of Geminin: 35 kDa.

Positive Controls: COLO 205 whole cell lysate: sc-364177, MM-142 cell lysate: sc-2246 or TK-1 whole cell lysate: sc-364798.

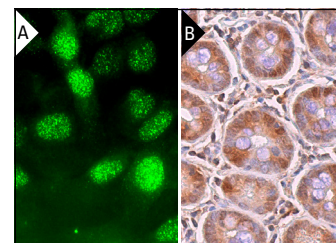
## RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Geminin (F-7): sc-74456. Western blot analysis of Geminin expression in MM-142 (A), TK-1 (B), COLO 205 (C) and SW480 (D) whole cell lysates.



Geminin (F-7): sc-74456. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing nuclear and cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

1. Zou, Y., et al. 2017. Overexpression of ubiquitin specific proteases 44 promotes the malignancy of glioma by stabilizing tumor-promoter securin. *Oncotarget* 8: 58231-58246.
2. Coulombe, P., et al. 2019. The ORC ubiquitin ligase OBI1 promotes DNA replication origin firing. *Nat. Commun.* 10: 2426.
3. Yang, J., et al. 2021. TRPS1 drives heterochromatic origin refiring and cancer genome evolution. *Cell Rep.* 34: 108814.
4. Ma, J., et al. 2021. SPOP mutation induces replication over-firing by impairing Geminin ubiquitination and triggers replication catastrophe upon ATR inhibition. *Nat. Commun.* 12: 5779.

## 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.

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