SANTA CRUZ BIOTECHNOLOGY, INC.

SMG1 (6-RE13): sc-135563

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (ser/thr) protein kinases. SMG1, also known as ATX or LIP, is a 3,657 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one FAT domain, one FATC domain, one HEAT repeat and one PI3K domain. Expressed in a variety of tissues, including heart and skeletal muscle, SMG1 functions as a ser/thr protein kinase that uses manganese as a cofactor to catalyze the phosphorylation of target proteins. Via its catalytic activity, SMG1 plays an important role in mRNA surveillance and genotoxic stress-induced response pathways. Multiple isoforms of SMG1 exist due to alternative splicing events.

REFERENCES

1. Yamashita, A., et al. 2001. Human SMG1, a novel phosphatidylinositol 3-kinase-related protein kinase, associates with components of the mRNA surveillance complex and is involved in the regulation of nonsense-mediated mRNA decay. Genes Dev. 15: 2215-2228.
2. Denning, G., et al. 2001. Cloning of a novel phosphatidylinositol kinase-related kinase: characterization of the human SMG1 RNA surveillance protein. J. Biol. Chem. 276: 22709-22714.

CHROMOSOMAL LOCATION

Genetic locus: SMG1 (human) mapping to 16p12.3.

SOURCE

SMG1 (6-RE13) is a mouse monoclonal antibody raised against recombinant SMG1 protein of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SMG1 (6-RE13) is recommended for detection of SMG1 of 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), 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 SMG1 siRNA (h): sc-76521, SMG1 shRNA Plasmid (h): sc-76521-SH and SMG1 shRNA (h) Lentiviral Particles: sc-76521-V.

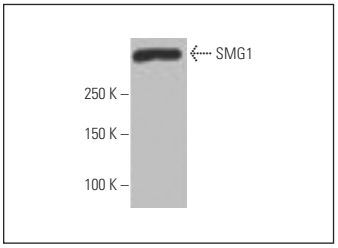
Molecular Weight of SMG1: 400 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

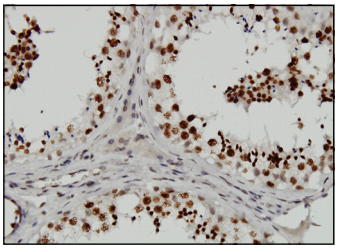
RECOMMENDED SUPPORT REAGENTS

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



SMG1 (6-RE13): sc-135563. Western blot analysis of SMG1 expression in HeLa nuclear extract.



SMG1 (6-RE13): sc-135563. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wang, G., et al. 2013. MicroRNA 125 represses nonsense-mediated mRNA decay by regulating SMG1 expression. Biochem. Biophys. Res. Commun. 435: 16-20.
2. Han, L.L., et al. 2014. Expression and significance of the novel tumor-suppressor gene SMG1 in hepatocellular carcinoma. Oncol. Rep. 31: 2569-2578.
3. Flury, V., et al. 2014. Characterization of phosphorylation- and RNA-dependent UPF1 interactors by quantitative proteomics. J. Proteome Res. 13: 3038-3053.
4. Martin, L., et al. 2014. Identification and characterization of small molecules that inhibit nonsense-mediated RNA decay and suppress nonsense p53 mutations. Cancer Res. 74: 3104-3113.
5. Wang, G., et al. 2016. MiR-128 and miR-125 regulate expression of coagulation Factor IX gene with nonsense mutation by repressing nonsense-mediated mRNA decay. Biomed. Pharmacother 80: 331-337.

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.