

SMG1 (H-300): sc-98676

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

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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.
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4. Abraham, R.T. 2004. The Atm-related kinase, hSMG1, bridges genome and RNA surveillance pathways. *DNA Repair* 3: 919-925.
5. Brumbaugh, K.M., et al. 2004. The mRNA surveillance protein hSMG1 functions in genotoxic stress response pathways in mammalian cells. *Mol. Cell* 14: 585-598.
6. Grimson, A., et al. 2004. SMG1 is a phosphatidylinositol kinase-related protein kinase required for nonsense-mediated mRNA decay in *Caenorhabditis elegans*. *Mol. Cell. Biol.* 24: 7483-7490.
7. Morita, T., et al. 2007. Distant N- and C-terminal domains are required for intrinsic kinase activity of SMG1, a critical component of nonsense-mediated mRNA decay. *J. Biol. Chem.* 282: 7799-7808.
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CHROMOSOMAL LOCATION

Genetic locus: SMG1 (human) mapping to 16p12.3; Smg1 (mouse) mapping to 7 F2.

SOURCE

SMG1 (H-300) is a rabbit polyclonal antibody raised against amino acids 3358-3657 mapping at the C-terminus of SMG1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-98676 X, 200 μ g/0.1 ml.

APPLICATIONS

SMG1 (H-300) is recommended for detection of SMG1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

SMG1 (H-300) is also recommended for detection of SMG1 in additional species, including equine, canine, bovine and avian.

Suitable for use as control antibody for SMG1 siRNA (h): sc-76521, SMG1 siRNA (m): sc-76522, SMG1 shRNA Plasmid (h): sc-76521-SH, SMG1 shRNA Plasmid (m): sc-76522-SH, SMG1 shRNA (h) Lentiviral Particles: sc-76521-V and SMG1 shRNA (m) Lentiviral Particles: sc-76522-V.

SMG1 (H-300) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of SMG1: 400 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.



Try **SMG1 (E-4): sc-374557** or **SMG1 (6-RE13): sc-135563**, our highly recommended monoclonal alternatives to SMG1 (H-300).