

# Fis1 (D-9): sc-376446

## BACKGROUND

Fis1 localizes to the outer mitochondrial membrane and, along with dynamin-related protein (Drp1), participates in mitochondrial fission. Fission and fusion mechanisms regulate mitochondrial morphology within the cell. Fission frequency is determined by the level of Fis1 molecules at the mitochondrial surface. Fis1 contains a C-terminal domain, which is required for mitochondrial localization, and an N-terminal domain, which is necessary for mitochondrial fission. Fragmentation of the mitochondrial network by Fis1 leads to cytochrome c release and apoptosis. The mitochondrial fission mechanisms may be involved in positively and negatively regulating apoptosis.

## REFERENCES

- James, D.I., et al. 2003. hFis1, a novel component of the mammalian mitochondrial fission machinery. *J. Biol. Chem.* 278: 36373-36379.
- Yoon, Y., et al. 2003. The mitochondrial protein hFis1 regulates mitochondrial fission in mammalian cells through an interaction with the dynamin-like protein DLP1. *Mol. Cell. Biol.* 23: 5409-5420.
- Arai, R., et al. 2004. Establishment of stable hFis1 knockdown cells with an siRNA expression vector. *J. Biochem.* 136: 421-425.
- Lee, Y.J., et al. 2004. Roles of the mammalian mitochondrial fission and fusion mediators Fis1, Drp1, and Opa1 in apoptosis. *Mol. Cell. Biol.* 15: 5001-5011.
- Dohm, J.A., et al. 2004. Cytosolic domain of the human mitochondrial fission protein Fis1 adopts a TPR fold. *Proteins* 54: 153-156.
- Stojanovski, D., et al. 2004. Levels of human Fis1 at the mitochondrial outer membrane regulate mitochondrial morphology. *J. Cell Sci.* 117: 1201-1210.
- Frieden, M., et al. 2004. Ca<sup>2+</sup> homeostasis during mitochondrial fragmentation and perinuclear clustering induced by hFis1. *J. Biol. Chem.* 279: 22704-22714.
- Jofuku, A., et al. 2005. Analysis of functional domains of rat mitochondrial Fis1, the mitochondrial fission-stimulating protein. *Biochem. Biophys. Res. Commun.* 333: 650-659.

## CHROMOSOMAL LOCATION

Genetic locus: FIS1 (human) mapping to 7q22.1; Fis1 (mouse) mapping to 5 G2.

## SOURCE

Fis1 (D-9) is a mouse monoclonal antibody raised against amino acids 1-152 representing full length Fis1 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.

## STORAGE

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

## APPLICATIONS

Fis1 (D-9) is recommended for detection of Fis1 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Fis1 siRNA (h): sc-60643, Fis1 siRNA (m): sc-60644, Fis1 shRNA Plasmid (h): sc-60643-SH, Fis1 shRNA Plasmid (m): sc-60644-SH, Fis1 shRNA (h) Lentiviral Particles: sc-60643-V and Fis1 shRNA (m) Lentiviral Particles: sc-60644-V.

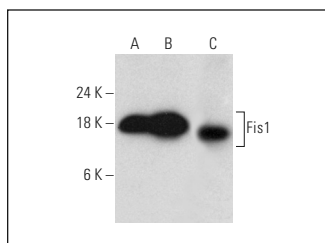
Molecular Weight of Fis1: 17 kDa.

Positive Controls: SK-BR-3 cell lysate: sc-2218, SJRH30 cell lysate: sc-2287 or HeLa whole cell lysate: sc-2200.

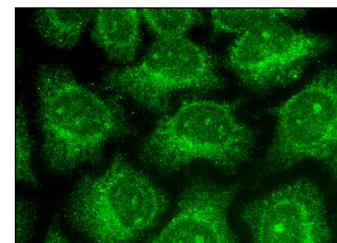
## RECOMMENDED SUPPORT REAGENTS

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



Fis1 (D-9): sc-376446. Western blot analysis of Fis1 expression in HeLa (A), SK-BR-3 (B) and SJRH30 (C) whole cell lysates.



Fis1 (D-9): sc-376446. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

- Lee, J.M., et al. 2021. Mitochondrial transplantation modulates inflammation and apoptosis, alleviating tendinopathy both *in vivo* and *in vitro*. *Antioxidants* 10: 696.
- Li, X.Y., et al. 2022. Serum levels of mitochondrial fission- and fusion-related genes of coal workers' pneumoconiosis and risk factor analysis based on a generalized linear model. *Appl. Bionics Biomech.* 2022: 8629583.

## RESEARCH USE

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