



## SMTNL2 (E-13): sc-136893

### BACKGROUND

The cytoskeletal protein smoothelin is highly conserved among vertebrates and is expressed exclusively by contractile smooth muscle cells where it localizes to the filament network. Smoothelin associates with Actin stress fibers but does not interact with Desmin. SMTNL2 (smoothelin-like 2), also known as FLJ42461, MGC131847 or MGC138382, is a 461 amino acid protein belonging to the smoothelin family. Containing a single CH (calponin-homology) domain, SMTNL2 is considered an Actin binding protein. SMTNL2 exists as two isoforms produced by alternative splicing events and is encoded by a gene mapping to human chromosome 17. Human chromosome 17 comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

### REFERENCES

1. Kurita, R., et al. 2004. A novel smoothelin-like, Actin-binding protein required for choroidal fissure closure in zebrafish. *Biochem. Biophys. Res. Commun.* 313: 1092-1100.
2. Nusbaum, R., et al. 2006-2007. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. *Breast Dis.* 27: 21-50.
3. Tai, Y.C., et al. 2007. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J. Natl. Cancer Inst.* 99: 1811-1814.
4. Wooldridge, A.A., et al. 2008. Deletion of the protein kinase A/protein kinase G target SMTNL1 promotes an exercise-adapted phenotype in vascular smooth muscle. *J. Biol. Chem.* 283: 11850-11859.
5. Ishida, H., et al. 2008. Solution structure of the calponin homology (CH) domain from the smoothelin-like 1 protein: a unique apocalmodulin-binding mode and the possible role of the C-terminal type-2 CH-domain in smooth muscle relaxation. *J. Biol. Chem.* 283: 20569-20578.
6. Borman, M.A., et al. 2009. The role of the calponin homology domain of smoothelin-like 1 (SMTNL1) in myosin phosphatase inhibition and smooth muscle contraction. *Mol. Cell. Biochem.* 327: 93-100.

### CHROMOSOMAL LOCATION

Genetic locus: SMTNL2 (human) mapping to 17p13.2; Smtnl2 (mouse) mapping to 11 B4.

### STORAGE

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

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

### SOURCE

SMTNL2 (E-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SMTNL2 of human origin.

### PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-136893 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

SMTNL2 (E-13) is recommended for detection of SMTNL2 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with SMTNL1.

Suitable for use as control antibody for SMTNL2 siRNA (h): sc-93778, SMTNL2 siRNA (m): sc-153641, SMTNL2 shRNA Plasmid (h): sc-93778-SH, SMTNL2 shRNA Plasmid (m): sc-153641-SH, SMTNL2 shRNA (h) Lentiviral Particles: sc-93778-V and SMTNL2 shRNA (m) Lentiviral Particles: sc-153641-V.

Molecular Weight of SMTNL2: 50 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotting A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### RESEARCH USE

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