

# SESN2 (41-K): sc-101249

## BACKGROUND

SESN2, also known as sestrin 2, HI95, SES2 or SEST2, is a 480 amino acid protein that belongs to the sestrin family of PA26-related proteins. Expressed in a variety of tissues throughout the body, SESN2 is thought to be involved in the regulation of cell growth and survival and may play a role in mediating stress-induced cellular responses. SESN2 expression is upregulated following oxidative stress or DNA damage. This leads to cell toxicity and subsequent apoptosis, implying an essential role for SESN2 in the regulation of cell viability. Conversely, overexpression of SESN2 in breast cancer cells leads to protection from apoptosis, suggesting a possible role for SESN2 in tumor progression. SESN2 is, therefore, a crucial regulator of cell survival whose function varies depending on cellular conditions.

## REFERENCES

1. Budanov, A.V., et al. 2002. Identification of a novel stress-responsive gene HI95 involved in regulation of cell viability. *Oncogene* 21: 6017-6031.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607767. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: SESN2 (human) mapping to 1p35.3.

## SOURCE

SESN2 (41-K) is a mouse monoclonal antibody raised against recombinant SESN2 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

SESN2 (41-K) is recommended for detection of SESN2 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 SESN2 siRNA (h): sc-106544, SESN2 shRNA Plasmid (h): sc-106544-SH and SESN2 shRNA (h) Lentiviral Particles: sc-106544-V.

Molecular Weight of SESN2: 60 kDa.

Positive Controls: SESN2 (h): 293 Lysate: sc-177915, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

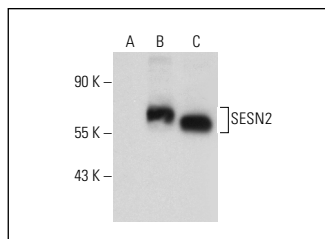
## STORAGE

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

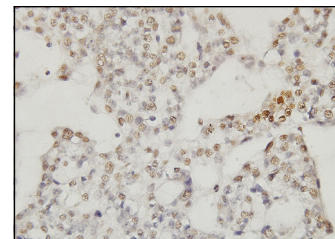
## RESEARCH USE

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

## DATA



SESN2 (41-K): sc-101249. Western blot analysis of SESN2 expression in non-transfected 293: sc-110760 (A), human SESN2 transfected 293: sc-177915 (B) and K-562 (C) whole cell lysates.



SESN2 (41-K): sc-101249. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human ovary, clear cell carcinoma tissue showing nuclear localization.

## SELECT PRODUCT CITATIONS

1. Brüning, A., et al. 2013. Nelfinavir and bortezomib inhibit mTOR activity via ATF4-mediated sestrin-2 regulation. *Mol. Oncol.* 7: 1012-1018.
2. Wei, J.L., et al. 2015. Decreased expression of sestrin 2 predicts unfavorable outcome in colorectal cancer. *Oncol. Rep.* 33: 1349-1357.
3. Wang, X., et al. 2017. Sestrin2 and Sestrin 3 suppress NK-92 cell-mediated cytotoxic activity on ovarian cancer cells through AMPK and mTORC1 signaling. *Oncotarget* 8: 90132-90143.
4. Kumar, A. and Shaha, C. 2018. SESN2 facilitates mitophagy by helping Parkin translocation through ULK1 mediated Beclin1 phosphorylation. *Sci. Rep.* 8: 615.
5. Chen, T., et al. 2019. p53 mediates PEDF-induced autophagy in human umbilical vein endothelial cells through sestrin2 signaling. *Mol. Med. Rep.* 20: 1443-1450.
6. Rai, N., et al. 2020. Sestrin2 as serum protein marker and potential therapeutic target for Parkinson's disease. *J. Gerontol. A Biol. Sci. Med. Sci.* 75: 690-695.
7. Kovaleva, I.E., et al. 2020. Mitochondrial localization of SESN2. *PLoS ONE* 15: e0226862.
8. Ala, M., et al. 2022. Empagliflozin enhances autophagy, mitochondrial biogenesis, and antioxidant defense and ameliorates renal ischemia/reperfusion in nondiabetic rats. *Oxid. Med. Cell. Longev.* 2022: 1197061.
9. Ragni, M., et al. 2022. An amino acid-defined diet impairs tumour growth in mice by promoting endoplasmic reticulum stress and mTOR inhibition. *Mol. Metab.* 60: 101478.
10. Shirzad, H., et al. 2023. Amlodipine alleviates renal ischemia/reperfusion injury in rats through Nrf2/Sestrin2/PGC-1α/TFAM Pathway. *BMC Pharmacol. Toxicol.* 24: 82.

## PROTOCOLS

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