

HSP 47 (E-4): sc-398579

BACKGROUND

Heat shock proteins (HSPs) are ubiquitously expressed in all organisms. HSP 47, also known as collagen 1, serpinh1, collagen-binding protein 1 (CBP1) and gp46, is expressed in smooth muscle cells, specifically in the interstitial space between tubules, vascular smooth muscle and medullary rays. It is expressed constitutively in cells that synthesize collagen and is involved in Collagen Type I biosynthesis. HSP 47 plays a vital role in folding and assembling collagen. A procollagen-specific molecular chaperone, HSP 47 resides in the endoplasmic reticulum of procollagen-producing cells and is essential for secretion of procollagen from cells. After insult, it acts as a stress response molecule to sequester abnormal procollagen. HSP 47 synthesis is induced by TGF β and IL-1 β .

REFERENCES

- Verrico, A.K., et al. 2001. *In vivo* expression of the collagen-related heat shock protein HSP 47, following hyperthermia or photodynamic therapy. *Lasers Med. Sci.* 16: 192-198.
- Keagle, J.N., et al. 2001. Expression of heat shock proteins in a linear rodent wound. *Wound Repair Regen.* 9: 378-385.
- Kaur, J., et al. 2001. Co-expression of colligin and collagen in oral sub-mucous fibrosis: plausible role in pathogenesis. *Oral Oncol.* 37: 282-287.
- Stacchiotti, A., et al. 2001. Distribution of heat shock proteins in kidneys of rats after immunosuppressive treatment with cyclosporine A. *Acta Histochem.* 103: 167-177.
- Murakami, S., et al. 2001. Heat shock protein (HSP) 47 and Collagen are up-regulated during neointimal formation in the balloon-injured rat carotid artery. *Atherosclerosis* 157: 361-368.
- Tsukimi, Y., et al. 2001. Involvement of heat shock proteins in the healing of acetic acid-induced gastric ulcers in rats. *J. Physiol. Pharmacol.* 52: 391-406.
- Koide, T., et al. 2002. Xaa-Arg-Gly triplets in the collagen triple helix are dominant binding sites for the molecular chaperone HSP 47. *J. Biol. Chem.* 277: 6178-6182.

CHROMOSOMAL LOCATION

Genetic locus: SERPINH1 (human) mapping to 11q13.5; Serpinh1 (mouse) mapping to 7 E2.

SOURCE

HSP 47 (E-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 18-36 at the N-terminus of HSP 47 of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398579 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

HSP 47 (E-4) is recommended for detection of HSP 47 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for HSP 47 siRNA (h): sc-35600, HSP 47 siRNA (m): sc-35601, HSP 47 shRNA Plasmid (h): sc-35600-SH, HSP 47 shRNA Plasmid (m): sc-35601-SH, HSP 47 shRNA (h) Lentiviral Particles: sc-35600-V and HSP 47 shRNA (m) Lentiviral Particles: sc-35601-V.

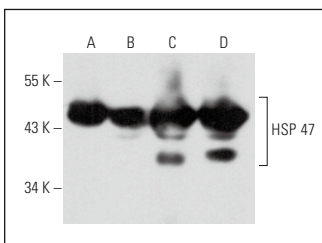
Molecular Weight of HSP 47: 47 kDa.

Positive Controls: LADMAC whole cell lysate: sc-364189, L6 whole cell lysate: sc-364196 or Sol8 cell lysate: sc-2249.

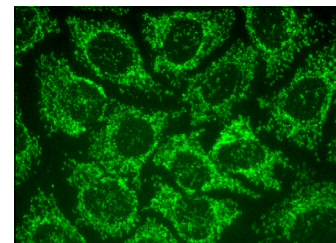
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG λ BP-HRP: sc-516132 or m-IgG λ BP-HRP (Cruz Marker): sc-516132-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-IgG λ BP-FITC: sc-516185 or m-IgG λ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



HSP 47 (E-4): sc-398579. Western blot analysis of HSP 47 expression in Sol8 (A), LADMAC (B), A-10 (C) and L6 (D) whole cell lysates.



HSP 47 (E-4): sc-398579. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Chang, J., et al. 2020. Circadian control of the secretory pathway maintains collagen homeostasis. *Nat. Cell Biol.* 22: 74-86.

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.