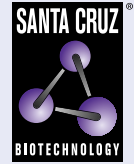SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 47 (G-12): sc-5293

The Power to Question

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 TGFβ and IL-1β.

CHROMOSOMAL LOCATION

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

SOURCE

HSP 47 (G-12) is a mouse monoclonal antibody raised against amino acids 129-300 of HSP 47 of human origin.

PRODUCT

Each vial contains 200 µg IgG$_{2a}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HSP 47 (G-12) is available conjugated to agarose (sc-5293 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5293 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5293 PE), fluorescein (sc-5293 FITC), Alexa Fluor® 488 (sc-5293 AF488), Alexa Fluor® 546 (sc-5293 AF546), Alexa Fluor® 594 (sc-5293 AF594) or Alexa Fluor® 647 (sc-5293 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5293 AF680) or Alexa Fluor® 790 (sc-5293 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

HSP 47 (G-12) is recommended for detection of HSP 47 of mouse, rat and 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 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.
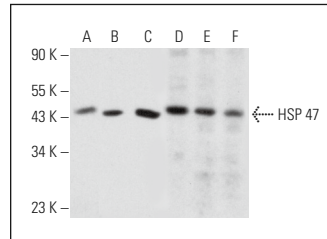
Molecular Weight of HSP 47: 47 kDa.

Positive Controls: LADMAC whole cell lysate: sc-364189, L6 whole cell lysate: sc-364196 or SK-N-SH cell lysate: sc-2410.
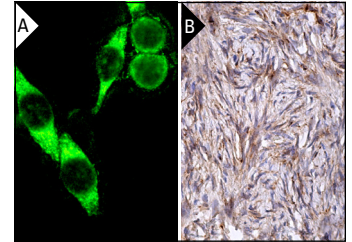
STORAGE

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

DATA

HSP 47 (G-12): sc-5293. Western blot analysis of HSP 47 expression in MCF7 (**A**), SK-N-SH (**B**), Sol8 (**C**), LADMAC (**D**), L6 (**E**) and A-10 (**F**) whole cell lysates.

HSP 47 (G-12): sc-5293. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic staining (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing cytoplasmic staining of ovarian stroma cells (**B**).

SELECT PRODUCT CITATIONS

1. Chi, L.M., et al. 2009. Enhanced interferon signaling pathway in oral cancer revealed by quantitative proteome analysis of microdissected specimens using ^{16}O/^{18}O labeling and integrated two-dimensional LC-ESI-MALDI tandem MS. Mol. Cell. Proteomics 8: 1453-1474.

2. Yamamoto, N., et al. 2013. Tumor-suppressive microRNA-29a inhibits cancer cell migration and invasion via targeting HSP47 in cervical squamous cell carcinoma. Int. J. Oncol. 43: 1855-1863.

3. Li, X., et al. 2014. Quantitative profiling of the rat heart myoblast secretome reveals differential responses to hypoxia and re-oxygenation stress. J. Proteomics 98: 138-149.

4. Steplewski, A., et al. 2015. Auxiliary proteins that facilitate formation of collagen-rich deposits in the posterior knee capsule in a rabbit-based joint contracture model. J. Orthop. Res. 34: 489-501.

5. Kamikawaji, K., et al. 2016. Regulation of LOXL2 and SERPINH1 by anti-tumor microRNA-29a in lung cancer with idiopathic pulmonary fibrosis. J. Hum. Genet. 61: 985-993.

6. Jung, T.W., et al. 2018. Protectin DX ameliorates hepatic steatosis by suppression of endoplasmic reticulum stress via AMPK-induced ORP150 expression. J. Pharmacol. Exp. Ther. 365: 485-493.

7. Chen, J., et al. 2019. Heat shock protein 47 (HSP47) binds to discoidin domain-containing receptor 2 (DDR2) and regulates its protein stability. J. Biol. Chem. 294: 16846-16854.

8. Urushima, H., et al. 2021. Activation of hepatic stellate cells requires dissociation of E-cadherin-containing adherens junctions with hepatocytes. Am. J. Pathol. 191: 438-453.

RESEARCH USE

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