

# HSP 60 (LK1): sc-59567

## BACKGROUND

The heat shock proteins (HSPs) comprise a group of highly conserved, abundantly expressed proteins with diverse functions, including the assembly and sequestering of multiprotein complexes, transportation of nascent poly-peptide chains across cellular membranes, and the regulation of protein folding. HSPs (also known as molecular chaperones) fall into six general families: HSP 90, HSP 70, HSP 60, the low molecular weight HSPs, the immunophilins and the HSP 110 family. The constitutively expressed mitochondrial protein HSP 60 shares the ability to recognize and stabilize proteins during folding, assembly and disassembly with other HSP family members. The mitochondrial and cytosolic localization of HSP 60, combined with its binding and catalysis of folding of newly synthesized proteins destined for the mitochondrial matrix, classify this protein as a molecular chaperone. An additional role of HSP 60 is to act as a cell surface marker for  $\gamma/\delta$  T cell recognition.

## CHROMOSOMAL LOCATION

Genetic locus: HSPD1 (human) mapping to 2q33.1; Hspd1 (mouse) mapping to 1 C1.2.

## SOURCE

HSP 60 (LK1) is a mouse monoclonal antibody raised against recombinant HSP 60 corresponding to amino acids 383-447 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HSP 60 (LK1) is available conjugated to agarose (sc-59567 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-59567 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-59567 PE), fluorescein (sc-59567 FITC), Alexa Fluor® 488 (sc-59567 AF488), Alexa Fluor® 546 (sc-59567 AF546), Alexa Fluor® 594 (sc-59567 AF594) or Alexa Fluor® 647 (sc-59567 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-59567 AF680) or Alexa Fluor® 790 (sc-59567 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

HSP 60 (LK1) is recommended for detection of only the mammalian (not bacterial) HSP 60 of mouse, rat, human, bovine, porcine and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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), flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

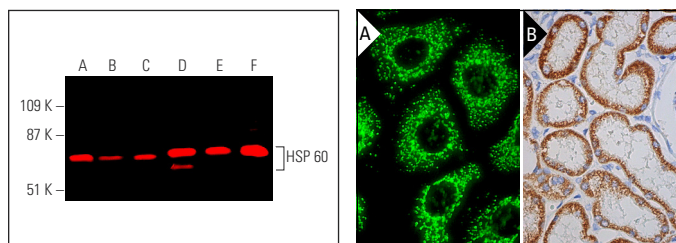
Suitable for use as control antibody for HSP 60 siRNA (h): sc-29351, HSP 60 siRNA (m): sc-35604, HSP 60 shRNA Plasmid (h): sc-29351-SH, HSP 60 shRNA Plasmid (m): sc-35604-SH, HSP 60 shRNA (h) Lentiviral Particles: sc-29351-V and HSP 60 shRNA (m) Lentiviral Particles: sc-35604-V.

Molecular Weight of HSP 60: 60 kDa.

## STORAGE

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

## DATA



HSP 60 (LK1): sc-59567. Near-infrared western blot analysis of HSP 60 expression in NIH/3T3 (A), KNRK (B) and PC-12 (C) whole cell lysates and mouse placenta (D), human kidney (E) and human adrenal gland (F) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.

HSP 60 (LK1): sc-59567. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (B).

## SELECT PRODUCT CITATIONS

- Jiang, D., et al. 2003. Identification of metastasis-associated proteins by proteomic analysis and functional exploration of interleukin-18 in metastasis. *Proteomics* 3: 724-737.
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- Kim, D., et al. 2017. Holding of bovine blastocysts at suprazero temperatures using small molecules. *Sci. Rep.* 7: 9490.
- Goiran, T., et al. 2018. Nuclear p53-mediated repression of autophagy involves PINK1 transcriptional down-regulation. *Cell Death Differ.* 25: 873-884.
- Kim, W., et al. 2019. CCAR2/DBC1 and HSP 60 positively regulate expression of survivin in neuroblastoma cells. *Int. J. Mol. Sci.* 20: 131.
- Hua, C.C. 2020. Associations between the Nrf2/Keap1 pathway and mitochondrial functions in colorectal cancer are affected by metastasis. *Cancer Biomark.* 27: 163-171.
- Krysztofiak, A., et al. 2021. Metabolism of cancer cells commonly responds to irradiation by a transient early mitochondrial shutdown. *iScience* 24: 103366.
- Choi, H.S., et al. 2022. Role of heat shock protein 60 in primed and naïve states of human pluripotent stem cells. *PLoS ONE* 17: e0269547.
- Sossa-Rojas, H., et al. 2023. Preclinical evaluation of oncolytic potential human rotavirus Wt 1-5 in gastric adenocarcinoma. *PLoS ONE* 18: e0285543.
- Kim, S.A., et al. 2024. Soluble klotho induces the heat shock factor 1 through EGR1 expression. *Biofactors* 50: 1039-1053.

## RESEARCH USE

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