



Anti-HSP60 Antibody [LK2]

Mouse Anti-Human HSP60
Monoclonal IgG1
Catalog No. SMC-111



Product Name	HSP60 Antibody
Description	Mouse Anti-Human HSP60 Monoclonal IgG1
Species Reactivity	Bacteria, Bacteria (Salmonella Typhimurium), Bovine, Chicken, Dog, E. coli (Escherichia coli), Fish, Guinea Pig (Cavia porcellus), H. pylori (Helicobacter pylori), Hamster, Human, Insect, Monkey, Mouse, Nematode (Trichinella spiralis), Pig, Plant, Rabbit, Rat, Spinach, Three-spined stickleback (Gasterosteus aculeatus), White Fly (Aleyrodidae), Yeast
Applications	WB, IHC, FCM
Antibody Dilution	WB (1:4000), IHC (1:100); optimal dilutions for assays should be determined by the user.
Host Species	Mouse
Immunogen Species	Human
Immunogen	Recombinant human HSP60
Concentration	1 mg/ml
Conjugates	APC, ATTO 390, ATTO 488, ATTO 594, Biotin, FITC, HRP, PerCP, RPE, Unconjugated
Field Of Use	Not for use in humans. Not for use in diagnostics or therapeutics. For in vitro research use only.

Properties

Storage Buffer	PBS, 50% glycerol, 0.09% sodium azide *Storage buffer may change when conjugated
Storage Temperature	-20°C, Conjugated antibodies should be stored according to the product label
Shipping Temperature	Blue Ice or 4°C
Purification	Protein G Purified
Clonality	Monoclonal
Clone Number	LK2
Isotype	IgG1
Specificity	Detects ~60kDa.
Cite This Product	HSP60 Antibody (StressMarq Biosciences Victoria, BC CANADA, Catalog# SMC-111, RRID: AB_2121271)
Certificate Of Analysis	0.25 µg/ml of SMC-111 was sufficient for detection of HSP60 in 10 µg of heat shocked HeLa cell lysate by colorimetric immunoblot analysis using goat anti-mouse IgG as the secondary antibody.

Biological Description

Alternative Names	HSPD1, HSP60, 60 kDa heat shock protein, mitochondrial, Chaperonin 60, CPN60, HuCHA60, Heat shock protein family D member 1, GroEL homolog, mitochondrial, GROEL, HLD4, HSP 60, HSP65, SPG 13
Research Areas	Cancer, Cell Signaling, Chaperone Proteins, Heat Shock, Organelle Markers, Protein Trafficking, Tags and Cell Markers
Cellular Localization	Mitochondrion, Mitochondrion Matrix
Accession Number	NP_002147.2
Gene ID	3329
Swiss Prot	P10809
Scientific Background	HSP60, also known as Cpn60 or GroEL in prokaryotes, is a highly conserved molecular chaperone essential for protein folding and cellular

homeostasis. Present in both prokaryotic and eukaryotic cells, HSP60 prevents protein misfolding and aggregation during biogenesis and under stress conditions. In mammals, HSP60 is localized to the mitochondria, where it partners with its co-chaperonin HSP10 to facilitate the proper folding and assembly of mitochondrial proteins.

Structurally, HSP60 forms homo-oligomeric complexes of 7 or 14 subunits, exhibiting ATPase activity and reversible dissociation in the presence of Mg^{2+} and ATP. Its evolutionary conservation is underscored by the ability of human HSP60-HSP10 to functionally replace the bacterial GroEL-GroES system in engineered *E. coli* strains.

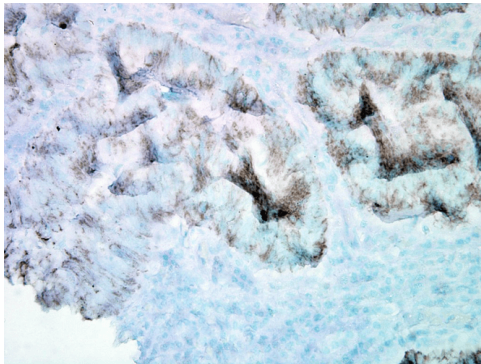
Beyond its canonical role in mitochondrial proteostasis, HSP60 has been implicated in immune regulation and cellular stress responses. Elevated levels of HSP60 have been associated with several chronic diseases, including autoimmune disorders, coronary artery disease, diabetes, and neurodegenerative conditions such as Alzheimer's disease and multiple sclerosis.

In neuroscience, HSP60's role in maintaining mitochondrial integrity is particularly significant, as mitochondrial dysfunction is a central feature of many neurodegenerative diseases. Its dual function in protein quality control and cellular protection positions HSP60 as a promising biomarker and therapeutic target in neurodegeneration research.

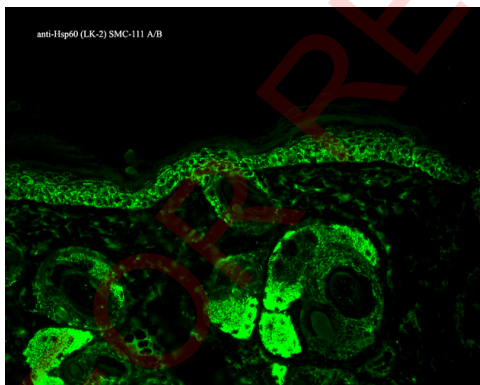
References

1. Hartl, F.U. (1996) *Nature* 381: 571-579.
2. Bukau, B. and Horwich, A.L. (1998) *Cell* 92: 351-366.
3. Hartl, F.U. and Hayer-Hartl, M. (2002) *Science* 295: 1852-1858.
4. Jindal, S., et al. (1989) *Molecular and Cellular Biology* 9: 2279-2283.
5. La Verda, D., et al (1999) *Infect Dis. Obstet. Gynecol.* 7: 64-71.
6. Itoh, H. et al. (2002) *Eur. J. Biochem.* 269: 5931-5938.
7. Gupta, S. and Knowlton, A.A. J. *Cell Mol Med.* 9: 51-58.
8. Deocaris, C.C. et al. (2006) *Cell Stress Chaperones* 11: 116-128.
9. Lai, H.C. et al. (2007) *Am. J. Physiol. Endocrinol. Metab.* 292: E292-E297.
10. Gao, Y.L., et al (1995) *J. of Immunology* 154: 3548-3556.
11. Neuer, A., et al (1997) *European Society for Human Reproduction and Embryology* 12(5):925-929.
12. Bason, C., et al (2003) *Lancet* 362(9400): 1971-1977.

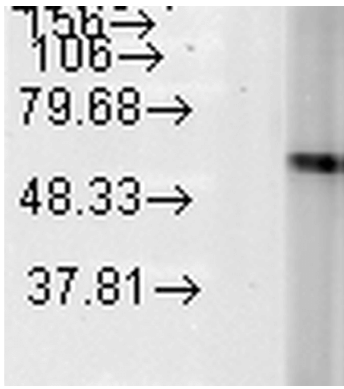
Product Images



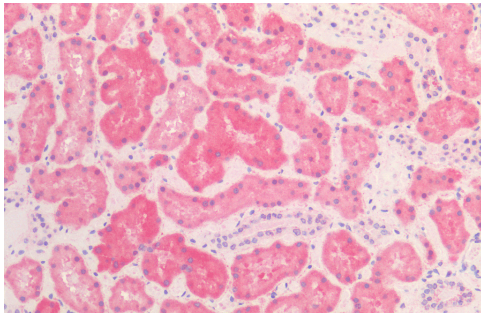
Immunohistochemistry analysis using Mouse Anti-Hsp60 Monoclonal Antibody, Clone LK-2 (SMC-111). Tissue: colon carcinoma. Species: Human. Fixation: Formalin. Primary Antibody: Mouse Anti-Hsp60 Monoclonal Antibody (SMC-111) at 1:100000 for 12 hours at 4°C. Secondary Antibody: Biotin Goat Anti-Mouse at 1:2000 for 1 hour at RT. Counterstain: Mayer Hematoxylin (purple/blue) nuclear stain at 200 μ l for 2 minutes at RT. Localization: Inflammatory cells. Magnification: 40x. This image was produced using an amplifying IHC wash buffer. The antibody has therefore been diluted more than is recommended for other applications.



Immunohistochemistry analysis using Mouse Anti-Hsp60 Monoclonal Antibody, Clone LK-2 (SMC-111). Tissue: backskin. Species: Mouse. Fixation: Bouin's Fixative and paraffin-embedded. Primary Antibody: Mouse Anti-Hsp60 Monoclonal Antibody (SMC-111) at 1:100 for 1 hour at RT. Secondary Antibody: FITC Goat Anti-Mouse (green) at 1:50 for 1 hour at RT. Localization: Cytoplasmic Staining.



Western Blot analysis of Human Heat Shocked cervical cancer cell line (HeLa) lysate showing detection of Hsp60 protein using Mouse Anti-Hsp60 Monoclonal Antibody, Clone LK-2 (SMC-111). Load: 15 µg. Block: 1.5% BSA for 30 minutes at RT. Primary Antibody: Mouse Anti-Hsp60 Monoclonal Antibody (SMC-111) at 1:1000 for 2 hours at RT. Secondary Antibody: Sheep Anti-Mouse IgG: HRP for 1 hour at RT.



Immunohistochemistry analysis using Mouse Anti-HSP60 Monoclonal Antibody, Clone LK2 (SMC-111). Tissue: Kidney. Species: Human. Fixation: Formalin Fixed, Paraffin Embedded. Primary Antibody: Mouse Anti-HSP60 Monoclonal Antibody (SMC-111).