SANTA CRUZ BIOTECHNOLOGY, INC.

HSP 60 (A57-B9): sc-57840

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The Power to Question

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 polypeptide 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 γ/δ T cell recognition.

REFERENCES

1. Ritossa, F. 1962. A new puffing pattern induced by temperature shock and DNP in *Drosophila*. Experientia 18: 571-573.
2. Lemeaux, P.G., et al. 1978. Transient rates of synthesis of individual polypeptides in *E. coli* following temperature shifts. Cell 13: 427-434.

SOURCE

HSP 60 (A57-B9) is a mouse monoclonal antibody raised against a recombinant serovar A HSP 60 of *Chlamydia trachomatis* origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

HSP 60 (A57-B9) is available conjugated to agarose (sc-57840 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-57840 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-57840 PE), fluorescein (sc-57840 FITC), Alexa Fluor® 488 (sc-57840 AF488), Alexa Fluor® 546 (sc-57840 AF546), Alexa Fluor® 594 (sc-57840 AF594) or Alexa Fluor® 647 (sc-57840 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-57840 AF680) or Alexa Fluor® 790 (sc-57840 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

HSP 60 (A57-B9) is recommended for detection of a C-terminal region corresponding to amino acids 401-544 of HSP 60 of *C. trachomatis* 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); also recommended for detection of HSP 60 of *C. psittaci, N. gonorrhoeae,* with minimal cross-reactivity to *B. Burgdorferi.*

Molecular Weight of HSP 60: 60 kDa.

RESEARCH USE

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

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Reiling, J.H., et al. 2013. A CREB3-ARF4 signalling pathway mediates the response to Golgi stress and susceptibility to pathogens. Nat. Cell Biol. 15: 1473-1485.
2. Siegl, C., et al. 2014. Tumor suppressor p53 alters host cell metabolism to limit *Chlamydia trachomatis* infection. Cell Rep. 9: 918-929.
3. Chowdhury, S.R., et al. 2017. *Chlamydia* preserves the mitochondrial network necessary for replication via microRNA-dependent inhibition of fission. J. Cell Biol. 216: 1071-1089.
4. Fischer, A., et al. 2017. *Chlamydia trachomatis*-containing vacuole serves as deubiquitination platform to stabilize Mcl-1 and to interfere with host defense. Elife 6: e21465.
5. Wu, Y., et al. 2017. ABMA, a small molecule that inhibits intracellular toxins and pathogens by interfering with late endosomal compartments. Sci. Rep. 7: 15567.
6. Prusty, B.K., et al. 2018. Peptidase inhibitor 15 (PI15) regulates chlamydial CPAF activity. Front. Cell. Infect. Microbiol. 8: 183.
7. Auer, D., et al. 2020. The chlamydial deubiquitinase Cdu1 supports recruitment of Golgi vesicles to the inclusion. Cell. Microbiol. 22: e13136.
8. Götz, R., et al. 2020. Nanoscale imaging of bacterial infections by sphingolipid expansion microscopy. Nat. Commun. 11: 6173.
9. Thapa, J., et al. 2020. Hypoxia promotes *Chlamydia trachomatis* L2/434/Bu growth in immortal human epithelial cells via activation of the PI3K-Akt pathway and maintenance of a balanced NAD^+/NADH ratio. Microbes Infect. 22: 441-450.
10. Kunz, T.C., et al. 2021. The expandables: cracking the staphylococcal cell wall for expansion microscopy. Front. Cell. Infect. Microbiol. 11: 644750.
11. Li, X., et al. 2023. Ultrasensitive sensors reveal the spatiotemporal landscape of lactate metabolism in physiology and disease. Cell Metab. 35: 200-211.e9.
12. Zhang, S., et al. 2023. *Chlamydia trachomatis* relies on the scavenger role of aryl hydrocarbon receptor with detyrosinated tubulin for its intracellular growth, but this is impaired by excess indole. Microbes Infect. E-published.

STORAGE

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