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AR03017PU-N Human HSP90AA1 / HSP90 alpha - Purified

Alternate names: HSP86, HSP90A, HSPC1, HSPCA, Heat shock 86 kDa, Heat shock protein HSP 90-alpha, NY-REN-38

Quantity: 0.1 mg

Concentration: Lot specific

Background: Hsp90 is a highly conserved and essential stress protein that is expressed in all eukaryotic cells. From a functional perspective, hsp90 participates in the folding, assembly, maturation, and stabilization of specific proteins as an integral component of a chaperone complex (1-4). Despite its label of being a heat-shock protein, hsp90 is one of the most highly expressed proteins in unstressed cells (1-2% of cytosolic protein). It carries out a number of housekeeping functions - including controlling the activity, turnover, and trafficking of a variety of proteins. Most of the hsp90-regulated proteins that have been discovered to date are involved in cell signaling (5-6). The number of proteins now know to interact with Hsp90 is about 100. Target proteins include the kinases v-Src, Wee1, and c-Raf, transcriptional regulators such as p53 and steroid receptors, and the polymerases of the hepatitis B virus and telomerase.5. When bound to ATP, Hsp90 interacts with co-chaperones Cdc37, p23, and an assortment of immunophilin-like proteins, forming a complex that stabilizes and protects target proteins from proteasomal degradation. In most cases, hsp90-interacting proteins have been shown to co-precipitate with hsp90 when carrying out immunoadsorption studies, and to exist in cytosolic heterocomplexes with it. In a number of cases, variations in hsp90 expression or hsp90 mutation has been shown to degrade signaling function via the protein or to impair a specific function of the protein (such as steroid binding, kinase activity) in vivo. Ansamycin antibiotics, such as geldanamycin and radicicol, inhibit hsp90 function (7).

Uniprot ID: P07900

NCBI: 9606

Species: Human

Source: E. coli

Format: **State:** Liquid protein
Purity: >90% pure as determined by SDS-PAGE analysis (Purified by Multy-step Chromatography).
Buffer System: 50mM Tris pH 7.5, 5mM Bme, 0.3M NaCl, 10% Glycerol.

Applications: Western Blot Control, SDS-PAGE , ATPase Activity Assay, Surface Plasmon Resonance (SPR).
Specificity: ~90 kDa
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Description: Recombinant Hsp90 alpha cloned from a Human cDNA library

Add. Information: Centrifuge vial before opening.

Storage:

Store at 2-8°C for one week or (in aliquots) at -20°C for longer.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

Product Citations:

Originator or purchased from resellers:

1. Wang, J., Grishin, A.V. and Ford, H.R. Experimental Anti-Inflammatory Drug Semapimod Inhibits TLR Signaling by Targeting the TLR Chaperone gp96. J Immunol. 2016, 196(12):5130-7. PubMed PMID: 27194788.
2. Bartolini, M., Wainer, I.W., Bertucci, C. and Andrisano, V. The rapid and direct determination of ATPase activity by ion exchange chromatography and the application to the activity of heat shock protein-90. J Pharm Biomed Anal. (2012) 73, 77-81. PubMed PMID: 22497853.
3. Rateb, M.E. et al. (2011) J Nat Prod. 2011. 74 (6): 1491-1499. Chaxamycins A–D, Bioactive Ansamycins from a Hyper-arid Desert Streptomyces sp. PubMed PMID: 21553813.
4. Goode, K.M. et al. (2017) Targeting the Hsp90 C-terminal domain to induce allosteric inhibition and selective client downregulation. Biochim Biophys Acta. [Epub ahead of print] PubMed PMID: 28495207.
5. Saito, Y. et al. (2016) Oxidation and interaction of DJ-1 with 20S proteasome in the erythrocytes of early stage Parkinson's disease patients. Sci Rep. 6:30793. PubMed PMID: 27470541.
6. Bober, J. et al. (2016) IUBMB Life. 68(3):242-51. Identification of new FGF1 binding partners-Implications for its intracellular function. PubMed PMID: 26840910.
7. Gilbert, K.M., Rowley, B., Gomez-Acevedo, H. and Blossom, S.J. Coexposure to Mercury Increases Immunotoxicity of Trichloroethylene 2011. Toxicol Sci. 119 (2): 281-292. PubMed PMID: 21084432.

General Readings:

1. Arlander SJH, et al. (2003) J Biol Chem 278: 52572-52577.
2. Pearl H, et al. (2001) Adv Protein Chem 59:157-186.
3. Neckers L, et al. (2002) Trends Mol Med 8:S55-S61.
4. Pratt W, Toft D. (2003) Exp Biol Med 228:111-133.
5. Pratt W, Toft D. (1997) Endocr Rev 18: 306–360.
6. Pratt WB. (1998) Proc Soc Exptl Biol Med 217: 420–434.
7. Whitesell L, et al. (1994) Proc Natl Acad Sci USA 91: 8324–8328.

Pictures:

SDS-Page of human HSP90 Alpha protein (SPR-101). Lane 1: Molecular Weight Ladder (MW). Lane 2: Human HSP90 alpha protein (AR03017PU).