

Product Data Sheet

□ Cat # RP-1615 Recombinant Human Heat Shock Protein 90 B1 (hsp90 beta 1/GRP94/TRA1/GP96))

Size: □ 5 ug

Heat shock proteins (HSPs) are among the highly conserved cellular proteins. HSPs protect cells are induced upon heat stress and may account up to 4–6% of cellular proteins. HSPs are also induced by other stresses including exposure to cold, UV light, and during wound healing or tissue remodeling. Many members of this group perform chaperone function by stabilizing new proteins to ensure correct folding or by helping to refold proteins that were damaged by the cell stress. HSPs are induced primarily by heat shock factor (HSF). HSPs are found in virtually all living organisms, from bacteria to humans. They also play a critical role in normal (non-stressed cells) and acts as chaperone protein that assists other proteins to fold properly, stabilizes proteins against heat stress, and aids in protein degradation. It also stabilizes a number of proteins required for tumor growth. Inhibitors of HSPs are being explored as anti-cancer agents. Heat-shock proteins are identified by their size. For example, Hsp60, Hsp70 and Hsp90 (the most widely-studied HSPs) refer to families of heat shock proteins on the order of 60, 70, and 90 Kda in size, respectively. The small 8-Kda protein ubiquitin, which marks proteins for degradation, also has features of a heat shock protein.

The principal heat-shock proteins that have chaperone activity belong to five conserved classes: **HSP10** (GroES), **HSP20-30** (HspB, Hsp27, HSPB6/HspB1), HSP33, HSP60 (GroEL), **HSP70** (Dnak, Hsp71, Hsp72, Grp78/Bip, **HSP90** (HtpG, C62.5; HscpC, Hsp90, Grp94), **HSP100** (ClpB, ClpA, ClpX; Hsp104, Hsp110), and the small heat-shock proteins (Ubiquitin). Many of these proteins may have multiple splice variants (Hsp90 α and Hsp90 β , for instance) or conflicts of nomenclature (Hsp72 is sometimes called Hsp70).

Heat shock protein 90 (Hsp90) is one of the most common cytoplasmic protein of the stress-related proteins. Hsp90 is found in bacteria (HtpG) and all branches of eukaryotes, but it is apparently absent in archaea. Hsp90 is highly conserved from bacteria to mammals, Yeast Hsp90 is 60% identical to human Hsp90 α . In mammals, there are two or more genes encoding cytosolic Hsp90 homologues, the human Hsp90 α is 85% sequence identity to Hsp90 β . The five functional human genes encoding Hsp90 protein isoforms include: **HSP90A** (HSP90AA encoding Hsp90-A1 and HSP90AA2 encoding Hsp90-A2), HSP90AB1 produces Hsp90-beta, **HSP90B** encodes HSP90B1/GRP-94 and TRAP (TNF Receptor-Associated Protein 1/TRAP1).

Hsp90 consists of four structural domains: a highly conserved N-terminal domain (NTD) of ~25 kDa, a "charged linker" region, that connects the N-terminus with the middle domain, a middle domain (MD) of ~40 kDa, a C-terminal domain (CTD) of ~12 kDa. In unstressed cells, Hsp90 plays a number of important roles, which include assisting folding, intracellular transport, maintenance, and degradation of proteins as well as facilitating cell signaling. Its normal function is critical to maintaining the health of cells, whereas its dysregulation may contribute to carcinogenesis. The uses of Hsp90 inhibitors in cancer treatment highlight Hsp90's importance as a therapeutic target.

Alternate names: ECGP, GP96, TRA1, GRP94, HSP90B1, Endoplasmin, Heat shock protein 90 kDa beta member 1, 94 kDa glucose-regulated protein, gp96 homolog, Tumor rejection antigen 1.

Form and Storage:

HSP90B1 is produced in E.Coli (protein accession # P14625; 22-819-aa, ~95 kda, His-tag at the N-terminus, >95% pure). It is supplied in 20mM Tris-HCl, pH-8, 1mM EDTA, 0.1M NaCl, 1mM DTT and 10% Glycerol (see lot sp. conc on the vial) or in powder form.

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

Avoid multiple freeze-thaw cycles.

Suggested applications

WB Control, Chaperone assays, Inhibitor/binding assays, ELISA reference standard, Co-IP; Optimal concn should be tested for a given application.

References: Ernst A (2015) Cancer let. 365, 211-222; Kim SW (2015) J. Biol. Chem. 290, 17029-17040; Synoradzki K (2015) BBA 1853, 445-452; Rebbe NF (1989) JBC 264, 15006-15011; R (2014)

This item is for LABORATORY RESEARCH USE ONLY.

Related Items

Catalog# ProdDescription

HSP901-M Monoclonal Anti-Human/mouse/rat HSP90 alpha/beta IgG, aff

HSP902-A Anti-Human/mouse/rat HSP90 (hsp90A/HSP90AA1/LAP2/HSPC1) peptide IgG, aff pure

HSP903-A Anti-Human/mouse/rat HSP90 alpha (hsp90AB1) peptide IgG, HSP903-C Recombinant (E. coli) Human Heat Shock Protein 90 alpha (hsp90/hsp90 alpha/dnak) protein control for Western

HSP904-A Anti-Human/mouse/rat HSP90 beta (hsp90B1) peptide IgG, aff

HSP904-C Recombinant (E. coli) Human Heat Shock Protein 90 beta ((hsp90 beta 1/GRP94/TRA1/GP96)) protein control for Western

HSP90K1001-A	Anti-Human/rat HSP90 (ack100) IgG #1, aff pure
HSP90K1001-P	Human/rat HSP90 (ack100) acetylated peptide # 2
HSP90K1002-P	Human/rat HSP90 (K100) non-acetylated peptide # 2
HSP90K2941-A	Anti-Human/rat HSP90 (ack294) IgG #1, aff pure
HSP90K2941-P	Human/rat HSP90 (ack294) acetylated peptide # 1
HSP90K2942-P	Human/rat HSP90 (K294) non-acetylated peptide # 2
HSP90K5581-A	Anti-Human/rat HSP90 (ack558) IgG #1, aff pure
HSP90K5581-P	Human/rat HSP90 (ack558) acetylated peptide # 1
HSP90K5582-P	Human/rat HSP90 (K558) non-acetylated peptide # 1
HSP90K691-A	Anti-Human/rat HSP90 (ack69) IgG #1, aff pure
HSP90K691-P	Human/rat HSP90 (ack69) acetylated peptide # 1
HSP90K692-P	Human/rat HSP90 (K69) non-acetylated peptide # 2

RP-1615 Recombinant Human Heat Shock Protein 90 B1 (hsp90 beta 1/GRP94/TRA1/GP96)

RP-1618 Recombinant (E. coli) Human Heat Shock Protein 90 B1 (hsp90 beta 1/GRP94/TRA1/GP96)

RP-622 Recombinant Human Activator of HSP90 ATPase-1

RP-629 Recombinant Human Heat Shock Protein 90 (hsp90/hsp90 alpha)

RP-1615-recombinant-hsp90-beta1

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