PRODUCT INFORMATION

Hsp90α (human recombinant)

Item No. 10202

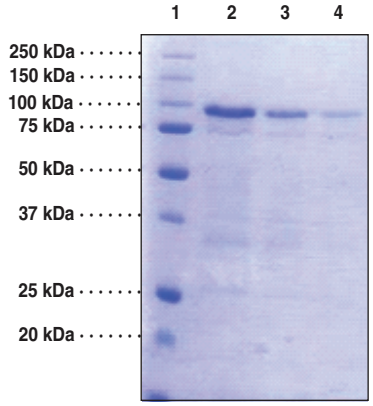
Overview and Properties

Synonyms: Heat Shock Protein 90α, Hsp86
Source: Recombinant N-terminal hexahistidine-tagged protein, expressed in *E. coli*
Amino Acids: 2-732 (full-length)
Uniprot No.: P07900

Batch specific information can be found on the Certificate of Analysis or by contacting Technical Support

Molecular Weight: 87 kDa
Storage: -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
Stability: As supplied, 6 months from the QC date provided on the Certificate of Analysis, when stored properly
Purity: ***batch specific*** (≥80% estimated by SDS-PAGE)
Supplied in: ***batch specific***
Protein Concentration: ***batch specific*** mg/ml
Additional Information: This protein has not been tested for enzyme activity.

Image



Lane 1: MW Markers
Lane 2: Hsp90α (4 µg)
Lane 3: Hsp90α (2 µg)
Lane 4: Hsp90α (1 µg)

Representative gel image shown; actual purity may vary between each batch but protein will be ≥80% pure.

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Description

Heat shock proteins (Hsps) are molecular chaperones that can account for upwards of 1-2% of all cellular protein.[1] The Hsp90 gene family consists of Hsp90A, Hsp90B, and TRAP subfamilies. The Hsp90A family is localized in the cytoplasm and can be further sub-divided into Hsp90AA (inducible) and Hsp90AB (constitutively expressed), yielding Hsp90α and Hsp90β proteins, respectively. Hsp90B codes for the ER-localized protein Grp94, while TRAP, producing TRAP1, is a mitochondrial chaperone.[2] Hsp90 acts as a dimer, which can be homo or heterodimers of the α and β isoforms, and functions to bind protein substrates that are unfolded and/or misfolded to assist in folding and prevent aggregation.[3] C-terminus dimerization of Hsp90, coupled with the ATPase molecular clamp activity cause a conformational change in the N-terminal nucleotide binding domain thus facilitating substrate binding.[4] Hsp90 associates with many co-chaperones including p23/Sba1, which help in recruiting substrates to the Hsp90 complex.[5] Hsp90 works on many different substrates, however its activity seems to be more specific for protein kinases involved in signal transduction, steroid receptors, and cytoskeletal proteins.[1]

References

1. Csermely, P., Schnaider, T., Soti, C., *et al.* The 90-kDa molecular chaperone family: Structure, function, and clinical applications. A comprehensive review. *Pharmacol. Ther.* **79(2)**, 129-168 (1998).
2. Chen, B., Piel, W.H., Gui, L., *et al.* The HSP90 family of genes in the human genome: Insights into their divergence and evolution. *Genomics* **86**, 627-637 (2005).
3. Fink, A.L. Chaperone-mediated protein folding. *Physiol. Rev.* **79(2)**, 425-449 (1999).
4. Prodromou, C., Panaretou, B., Chohan, S., *et al.* The ATPase cycle of Hsp90 drives a molecular 'clamp' *via* transient dimerization of the N-terminal domains. *EMBO J.* **19(16)**, 4383-4392 (2000).
5. Ali, M.M.U., Roe, S.M., Vaughan, C.K., *et al.* Crystal structure of an Hsp90-nucleotide-p23/Sba1 closed chaperone complex. *Nature* **440**, 1013-1017 (2006).

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