

## HSP90 alpha Protein, Human, Recombinant (His)

### General Information

|                       |  |
|-----------------------|--|
| Synonyms:             | EL52;HSP89A;heat shock protein 90kDa alpha (cytosolic), class A member 1;HSPN;HSPCAL4;HSPCA;HSP90N;heat shock protein 90kDa $\alpha$ (cytosolic), class A member 1;HSPCAL1;Hsp90 $\alpha$ ;HSPC1;LAP2;Hsp89;LAP-2;HSP86;Hsp90;HSP90A |
| Protein Construction: | A DNA sequence encoding the Human HSP90AA1 (NP_005339.3) (Met1-Asp732) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met  |
| Species:              | Human  |
| Expression Host:      | Baculovirus Insect Cells   |
| Accession:            | NP_005339.3  |
| Molecular Weight:     | 87.06 kDa (predicted); 79.81 kDa (reducing conditions)   |

### QC Testing

|                      |  |
|----------------------|--|
| Biological Activity: | Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.   |
| Purity:              | $\geq 90$ % as determined by SDS-PAGE.   |
| Endotoxin:           | $< 1.0$ EU/ $\mu$ g of the protein as determined by the LAL method.  |
| Formulation:         | Lyophilized from a solution filtered through a 0.22 $\mu$ m filter, containing 20 mM Pb, 300 mM Nacl, 10% glycerol, 0.5 mM PMSF, pH 7.0. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization. |

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at  $-80^{\circ}\text{C}$ . For reconstituted protein solutions, the solution can be stored at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$  for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Heat shock protein 90 (90 kDa heat-shock protein, HSP90) is a molecular chaperone involved in the trafficking of proteins in the cell. It is a remarkably versatile protein involved in the stress response and normal homeostatic control mechanisms. HSP90 interacts with 'client proteins', including protein kinases, transcription factors, and

others, and either facilitates their stabilization and activation or directs them for proteasomal degradation. By this means, HSP90 displays a multifaceted ability to influence signal transduction, chromatin remodeling and epigenetic regulation, development, and morphological evolution. HSP90 operates as a dimer in a conformational cycle driven by ATP binding and hydrolysis at the N-terminus. Disruption of HSP90 leads to client protein degradation and often cell death. Under stressful conditions, HSP90 stabilizes its client proteins and protects the cell against cellular stressors such as in cancer cells. Especially, several oncoproteins act as HSP90 client proteins and tumor cells require higher HSP90 activity than normal cells to maintain their malignancy. For this reason, Hsp90 has emerged as a promising target for anti-cancer drug development.

### Reference

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Holzbeierlein JM, et al. (2010) Hsp90: a drug target? *Curr Oncol Rep.* 12(2): 95-101.

Trepel J, et al. (2010) Targeting the dynamic HSP90 complex in cancer. *Nat Rev Cancer.* 10(8): 537-49.

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