

# Hsp27 Protein–Low Endotoxin



## TECHNICAL SPECIFICATIONS

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## Recombinant Human Hsp27 Protein–Low Endotoxin Product #: ESP-715

### Scientific Background

Human Hsp27, mouse Hsp25 and  $\alpha\beta$ -crystallin are part of a diverse family of small heat shock proteins which are produced in all organisms. They function as chaperone-like proteins by binding unfolded polypeptides and preventing uncontrolled protein aggregation. Hsp27 is believed to exist mainly as oligomers of as many as 8-40 Hsp27 protein monomers in cells and data suggests that the large oligomers of Hsp27 have a chaperone-like activity by serving as a site where unfolding proteins may bind until ATP and Hsp70-dependent refolding can occur (1). The state of phosphorylation and oligomerization of Hsp27 has been suggested to regulate microfilament organization because data demonstrates that only the nonphosphorylated lower molecular weight forms of Hsp27 bind actin barbed ends and inhibit polymerization (2). Hsp27 is also believed to protect cells by enhancing cellular glutathione levels and elevated glutathione levels have been measured in cells overexpressing Hsp27. Data from studies using wild-type Hsp27 and mutant forms in which the serine phosphorylation sites were mutated to alanines, glycines or aspartates, have shown that cellular glutathione levels depend on the oligomerization of Hsp27 (3). Recent findings indicate a novel function for Hsp27, which is that Hsp27 is a negative regulator of cytochrome c-dependent activation of procaspase-3 (4). Recent data suggests a novel function for Hsp27 as a negative regulator of cytochrome c-dependent activation of procaspase-3 (4).

### References

1. Ehrnsperger, M., Graber, S., Gaestel, M. and Buchner, J. (1997) *EMBO J.* **16**: 221-229.
2. Benndorf, R., Hayess, K., Ryazantsev, S., Wieske, M., Behlke, J and Lutsch, G. (1994) *J. Biol. Chem.* **269**: 20780-20784.
3. Mehlen, P., Hickey, E., Weber, L.A. and Arrigo, A-P. (1997) *Biochem. Biophys. Res. Commun.* **241**: 187-192.
4. Pandey, P., Farber, R., Nakazawa, A., Kumar, S., Bharti, A., Nalin, C., Weichselbaum, R., Kufe, D. and Kharbanda, S. (2000) *Oncogene* **19**: 1975-1981.

Rev: 12/07/06

## CERTIFICATE OF ANALYSIS

### Hsp27 Protein–Low Endotoxin

#### Product #: ESP-715

**Format:** Purified human Hsp27 in 1 x DPBS (2.7mM KCl, 1.5mM  $\text{KH}_2\text{PO}_4$ , 137mM NaCl and 8.1mM  $\text{Na}_2\text{HPO}_4$ ).

**Purity:** This protein is >90% pure as determined by SDS-PAGE analysis.

#### Endotoxin

**Concentration:** <50 EU/mg as determined by Limulus Amebocyte Lysate (LAL) gel clot assay.

**STORAGE & SHIPPING:** Store frozen product at or below  $-70^\circ\text{C}$ . Thawed product may be stored for 2-4 weeks at  $4^\circ\text{C}$ . For optimal storage, aliquot to smaller portions and store at  $-70^\circ\text{C}$ . Avoid repeated freeze/thaw cycles. For maximum product recovery, after thawing, centrifuge the product vial before removing cap. Shipped on gel packs.



**FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES:** This product is not to be used for diagnostic nor therapeutic purposes. By accepting this product, the user confirms that it will be used for research purposes only. Stressgen warrants that its products conform to the information published by Stressgen. Purchaser must determine the suitability of the product for their particular use. Please refer to the MSDS for product safety information.

# MATERIAL SAFETY DATA SHEET

## Section 1 - Product Identification and Use

**Product Name:** Recombinant Human Hsp27 **Product#** ESP-715

*This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.*

Manufacturer's Name: Assay Designs  
Street Address: 5777 Hines Drive  
City, State, Zip Code: Ann Arbor, MI 48108 USA  
Phone: (800) 833-8651 (Toll Free in North America)  
Fax: (734) 668-2793

## Section 2 - Hazardous Ingredients

NOT AVAILABLE. We are not aware of any hazards associated with this product or its ingredients, but the chemical, physical, and toxicological properties of this product have not been investigated thoroughly. Observe normal laboratory precautions.

## Section 3 - Physical Data

This product consists of purified protein in DPBS buffer shipped on gel packs (dry ice overseas). The physical properties of this product have not been investigated thoroughly.

## Section 4 - Fire and Explosion Hazard

NOT APPLICABLE

## Section 5 - Reactivity Data

NOT APPLICABLE

## Section 6 - Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

## Section 7 - Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

\*\*\*\*\*MULTIPLE COMPONENT SPILL OR LEAK PROCEDURES\*\*\*\*\*

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations.

## Section 8 - First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

## Section 9 - Preparation

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|-------------------------------|---|----------------------|-----------------------|
| Prepared by:<br>Assay Designs | Phone#:<br>(734) 668-6113<br>Toll Free in North America: (800) 833-8651 | Created:<br>09/19/02 | Modified:<br>12/07/06 |
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Stressgen shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.