

# Hsp71 Protein



## TECHNICAL SPECIFICATIONS

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## Recombinant *Mycobacterium tuberculosis* Hsp71 Protein Product #: SPP-885

### Scientific Background

The 71 kDa antigen from *M. tuberculosis* is recognized by antibodies and by T lymphocytes during infection (1) and sequence analysis indicates a relationship between this antigen and the highly conserved Hsp70 family (2). Biochemical as well as serological characterization of the *M. tuberculosis* 71kDa antigen confirms that it is a member of the Hsp70 family and metabolic labeling demonstrates that it is a major component of the mycobacterial response to heat stress. *M. tuberculosis* Hsp71 may have a biochemical role similar to that of DnaK which is involved in ATP-dependent protein-protein interactions and like eukaryotic Hsp70 homologs, is thought to participate in the assembly/disassembly of protein complexes (3, 4). Several studies have shown that during cellular rejection, the allograft undergoes a stress response which regulates the expression of stress proteins and triggers the recruitment and activation of hsp-reactive lymphocytes. Recent data using the rat model of heterotopic heart transplants, demonstrates that allograft-infiltrating lymphocytes respond to recombinant mycobacterial hsp71 and irradiated syngenic spleen cells as a source of self-APC. The hsp71-dependency of self-APC reactive T cell reactivity represents a previously unrecognized mechanism of cellular immunity to allografts. This mechanism might be related to the peptide binding properties of hsp71 and the ability of stress proteins to function as molecular chaperones in antigen processing (5).

### Application Note

This protein is separate and distinct from those under development for therapeutic applications by Stressgen. This protein is sold for use in Western blot analysis and is not suitable for other applications. For Westerns, resuspend the protein in 20  $\mu$ L (1 $\mu$ g/ $\mu$ L) of a 1 X SDS-PAGE sample buffer (6). On a 15-well minigel system, 100ng of protein per lane should be sufficient when used in a colorimetric Western blot with Stressgen antibodies SPA-885.

### References

1. Britton, W., Garcia, R.J., Hellquist, I., Watson, J.D., Basten, A. (1996) *Lepr. Rev.* **57**: 67-75.
2. Young, D., Lathigra, R., Hendrix, R., Sweetser, D., Young, R.A. (1988) *PNAS USA* **85**: 4267-4270.
3. Hightower, L.E. (1980) *J. Cell. Physiol.* **102**: 407-427.
4. Pelham, H.R.B. (1986) *Cell* **46**: 959-961.
5. Liu, K., Moliterno, R.A., Fu, X.F., Duquesnoy, R.J. (1997) *Transplant. Immunol.* **5**: 57-65.
6. Laemmli, U.K. (1970) *Nature* **227**: 680-685.

Rev: 07/27/04

## CERTIFICATE OF ANALYSIS

# Hsp71 Protein

**Product #:** SPP-885

**Size:** 20  $\mu$ g

**Lot #:** B407445

**Format:** Purified *M. tuberculosis* Hsp71 in 0.85% NaCl, 0.084% Triton X-114.

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

**Protein Concentration:** 1.0 mg/mL

**STORAGE & SHIPPING:** Store frozen product at or below -70°C. Thawed product may be stored for 2-4 weeks at 4°C. For optimal storage, aliquot to smaller portions and store at -70°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:** *Mycobacterial Hsp71* **Product#** **SPP-885**

*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  
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City, Prov. Postal Code: Ann Arbor, MI 48108  
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EMERGENCY PHONE: (734) 668-6113

## 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 NaCl/ Triton X-114 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<br>(800) 833-8651 | Created:<br>07/27/04 | Modified:<br>07/27/04 |
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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.