

# GRP78 (BiP) Protein (Active)

Catalog# SPR-107A/B /C

Size: 50/100/200µg

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This product is for *in vitro* research use only and is not intended for use in humans or animals

## StressMarq

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Product	Recombinant Human GRP78 Protein with ATPase activity, his-tagged
Source	Recombinant human GRP78 expressed in <i>E.coli</i>
Cited Applications	WB control, ATPase activity, Binding Assays, ELISA reference standard
Purity	This protein is >90% pure as determined by SDS-PAGE analysis
Format	Purified human GRP78 in 20mM Tris/HCl pH7.5, 1mM EDTA
Concentration and working dilution	1.7ug/uL
Storage and stability	-20°C; 1 year+; shipped on cold packs

#### Scientific Background

GRP78 is a ubiquitously expressed, 78-kDa glucose-regulated protein, and is commonly referred to as an immunoglobulin chain binding protein (BiP). The BiP proteins are categorized as stress response proteins because they play an important role in the proper folding and assembly of nascent protein and in the scavenging of misfolded proteins in the endoplasmic reticulum lumen. Translation of BiP is directed by an internal ribosomal entry site (IRES) in the 5' nontranslated region of the BiP mRNA. BiP IRES activity increases when cells are heat stressed (1).

GRP78 is also critical for maintenance of cell homeostasis and the prevention of apoptosis (2). Luo et al. have provided findings that suggest GRP78 is essential for embryonic cell growth and pluripotent cell survival (3). In terms of diseases, GRP78 has been shown to be a reliable biomarker of hypoglycemia (Barnes), to serve a neuroprotective function in neurons exposed to glutamate and oxidative stress (4), and its protein levels are reduced in the brains of Alzheimer's patients (5). Also, the induction of the GRP78 protein that results in severe glucose and oxygen deprivation could possibly lead to drug resistance to anti-tumor drugs (6, 7).

#### Selected References

1. Cho, S. et al (2007). Mol Cell Biol 27(1): 368-83.
2. Yang, Y. et al. (1998) J Biol Chem 273:25552-25555.
3. Luo, S. et al (2006) 26 (15): 5688-97.
4. Yu, Z. et al. (1999) Exp Neurol. 15: 302-314.
5. Koomagi, R. et al. (1999) Anticancer Res. 19: 4333-4336.
6. Laquerre, S. et al. (1998) J. Virology 72: 4940-4949.
7. Dong, D. et al. (2005) Cancer Res 65(13): 5785-91.

#### Certificate of Analysis

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This product has been certified >90% pure using SDS-PAGE analysis.

The protein has ATPase activity at the time of manufacture of 2.3µM phosphate liberated/hr/µg protein in a 200µl reaction at 37°C (pH7.5) in the presence of 20ul of 1mM ATP using a Malachite Green assay.

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# Material Safety Data Sheet

## GRP78 (BIP) Protein SPR-107

This product is for *in vitro* research use only and is not intended for use in humans or animals

The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq 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.

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### Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

<u>Known Hazardous Components</u>	<u>CAS Number</u>	<u>Percent</u>
None		

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### Physical Data

This product consists of purified protein in 20mM sodium phosphate, 0.15M NaCl, 120mM Imidazole and 10% glycerol shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

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### Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

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### 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.

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### Preventative Measures

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

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### Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- 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.

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### 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.

Authorized: StressMarq Biosciences Inc.  
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