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GRP78 (Bip) Protein

Active Human Recombinant GRP78 (Bip) Protein
Catalog No. SPR-107



Discovery through partnership | Excellence through quality

Overview

Product Name

GRP78 (Bip) Protein

Description

Active Human Recombinant GRP78 (Bip) Protein

Applications

WB, SDS-PAGE, ATPase Activity Assay, Functional Assay, ELISA

Concentration

1.87 mg/ml

Conjugates

His tag

Nature

Recombinant

Species

Human

Expression System

E. coli

Amino Acid Sequence

MKLSLVAAMLLLLSAARAEEDKKEDVGTWVGIDLGTTYSCVGVFKNRVEIANDQGNRITPSYVAFTPEGERLIGDAAKNQLTSNPENTVFDAKRLIGRTW
NDPSVQQDIKFLPFKWEKTKPYIQVDIGGGQTKTFAPEEISAMVLTKMKETAAYLGKKVTHAWVTPAYFNDAQRQATKDAGTIAGLNVMRII

Biological Activity

ATPase active

Properties

Storage Buffer

20mM Tris, 50mM KCl, 5mM MgCl₂, 1mM DTT, pH7.5

Storage Temperature

-20°C

Shipping Temperature

Blue Ice or 4°C

Purification

Affinity Purified

Specificity

~78 kDa

Cite This Product

Human Recombinant GRP78 (Bip) Protein (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-107)

Certificate Of Analysis

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 (pH 8) in the presence of 20ul of 1mM ATP using a Malachite Green assay.

Biological Description

Alternative Names

BIP Protein, Grp78 Protein, HSPA5 Protein, MIF2 Protein, immunoglobulin heavy chain binding Protein

Research Areas

Cancer, Heat Shock, Cell Signaling, Chaperones, Organelle Markers, Trafficking

Cellular Localization

Endoplasmic reticulum lumen, Melanosome

Accession Number

NM_005347

Gene ID

3309

Swiss Prot

P11021

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' non-translated 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 possible lead to drug resistance to anti-tumor drugs (6, 7).

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.
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Product Images



SDS-PAGE of 78kDa Grp78 (Bip) protein (SPR-107).

Product Citations (3)

ATPase Activity Assay

Generation of human ER chaperone BiP in yeast *Saccharomyces cerevisiae*.

Ciplys, E., Au Ynait, A., Slibinskas, R. (2014) *Microb Cell Fact.* 13(1):22.

PubMed ID: 24512104 **Applications:** ATPase activity assay

ELISA

Isthmin targets cell-surface GRP78 and triggers apoptosis via induction of mitochondrial dysfunction.

Chen, M. et al. (2014) *Cell Death Differ.* 21(5):797-810.

PubMed ID: 24464222 **Applications:** ELISA

Other Citations

Identification of Phosphorylation-Dependent Binding Partners of Aquaporin-2 Using Protein Mass Spectrometry.

Zwang, N.A. et al. (2009) *J Proteome Res.* 8 (3): 1540-1554.

PubMed ID: 19209902 **Applications:** Western Blot Control

Reviews

Based on validation through cited publications.



StressMarq Biosciences
June 15, 2016: