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AR03021PU-N Recombinant Human GRP78 (BIP) (Active) - His-tagged

Alternate names: 78 kDa glucose-regulated protein, BiP, Endoplasmic reticulum lumenal Ca(2+)-binding protein grp78, Heat shock 70 kDa protein 5, Immunoglobulin heavy chain-binding protein

Quantity: 0.1 mg

Concentration: 1.2 mg/ml (lot specific)

Background: GRP78 is a ubiquitously expressed, 78-kDa glucoseregulated protein, and is commonly referred to as an immunoglobin 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 possible lead to drug resistance to anti-tumor drugs (6,7).

Uniprot ID: P11021

NCBI: NP_005338.1

GeneID: 3309

Species: Human

Source: E. coli

Format:
State: Liquid purified protein
Purity: >90% pure as determined by SDS-PAGE analysis
Buffer System: 50 mM Tris/HCl, pH 7.5, 150 mM NaCl and 10% Glycerol

Applications:
Western Blot Control.
ATPase activity.
This protein has ATPase activity at the time of manufacture of 2.3 µM Phosphate liberated/hr/µg protein in a 200 µl reaction at 37°C (pH 8) in the presence of 20 µl of 1mM ATP using Malachite Green Assay.
Binding Assay.
ELISA reference standard.
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Description: Recombinant Human GRP78 Protein with ATPase activity, His-tagged.
Molecular weight: ~78 kDa

Storage:

Upon receipt, store undiluted (in aliquots) at -20°C.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

General Readings:

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.

Pictures:

SDS PAGE of 78 kDa Grp78 (Bip) protein
Cat.-No AR03021PU.