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Product Information

Anti-GRP78/BiP (ET-21)
produced in rabbit, IgG fraction of antiserum

Product Number **G9043**

Product Description

Anti-GRP78/BiP (ET-21) is produced in rabbit using as the immunogen a synthetic peptide located near the N-terminus of human GRP78/BiP, conjugated to KLH. This GRP78/BiP sequence is identical in several species including mouse, rat, hamster, chicken, and *Xenopus,* and is highly conserved (2 amino acid substitutions) in *Drosophila* GRP78. Whole antiserum is purified to provide an IgG fraction of antiserum

Anti-GRP78/BiP (ET-21) recognizes human, chicken, hamster, mouse, and rat GRP78/BiP (78 kDa). Applications include the detection of GRP78/BiP by immunoblotting and immunocytochemistry. Staining of GRP78/BiP in immunoblotting is specifically inhibited with the GRP78/BiP immunizing peptide. An additional band of ~73 kDa may be observed in some preparations, representing GRP78/BiP degradation products.

Heat shock proteins (Hsp) are a class of stress proteins, which includes Hsp20, Hsp60, Hsp70, and Hsp90. These proteins are considered to function as molecular chaperones by transiently binding to other proteins to facilitate their correct folding. The GRP78 (78-kDa **g**lucose-**r**egulated **p**rotein) (also termed immunoglobulin heavy chain binding protein or BiP), belongs to a subfamily of the heat shock proteins Hsp70.[1] Other members of the GRP78 subfamily include mtHsp70/GRP75 and GRP94. GRP78/BiP is a Ca^{2+}-binding molecular chaperone located in the endoplasmic reticulum (ER).[1,2] It is a highly conserved protein that is essential for cell viability. GRP78/BiP is required for proper glycosylation, folding and assembly of many newly synthesized membrane bound or secretory proteins, and retention of mutant or defective proteins that are improperly folded, thus preventing translocation of defective proteins from the cytosol to the ER lumen.[1-4]

GRP78/BiP is induced by stress-inducing agents or by conditions that adversely affect ER function, including oxidative stress, chemical toxicity, Ca^{2+} ionophores, inhibition of the ER Ca^{2+}-ATPase, inhibitors of glycosylation and hypoxia.[1,5-8] GRP78/BiP is critical for maintenance of cell homeostasis and the prevention of apoptosis. GRP78/BiP levels have been shown to be a reliable biomarker of hypoglycemia. In tumor cells, the induction of GRP78/BiP has been associated with protection against apoptosis, immune system attack, and development of drug-resistance to anti-tumor drugs.[9-11] GRP78/BiP is thought to play a neuroprotective function in neurons exposed to glutamate exotoxicity and oxidative stress.[12] GRP78/BiP levels are reduced in Alzheimer's disease brains and the decreased expression of GRP78/BiP is found associated with missense mutations in presenilin-1 (PS-1).[13]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a minimum working antibody dilution of 1:3,000 is recommended using human epitheloid carcinoma HeLa whole cell extract.

Immunocytochemistry: a minimum working antibody dilution of 1:1,000 is recommended using the mouse fibroblasts NIH3T3 cells.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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VS,MG,KAA,PHC,MAM 04/19-1