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ProductInformation

Anti-GRP94
Produced in Rabbit, IgG Fraction of Antiserum

Product Number **G 4545**

Product Description

Anti-GRP94 is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 63-80 located near the N-terminus of human GRP94, conjugated to KLH. This sequence is identical in mouse, rat, dog, porcine and bovine GRP94 and highly conserved (2 amino acid substitutions) in chicken and xenopus GRP94. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-GRP94 specifically recognizes GRP94 by various applications including immunoblotting (94 kDa) and immunocytochemistry. Staining of the GRP94 band in immunoblotting is specifically inhibited with the GRP94 immunizing peptide (human, amino acids 63-80).

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 newly synthesized proteins to facilitate their correct folding and assembly. The GRP94 (glucose-regulated protein 94, also known as gp96, endoplasmin precursor, tumor rejection antigen 1), is a 94 kDa Ca^{2+}-binding glycoprotein that belongs to a subfamily of the heat shock proteins Hsp90.[1-4] Other members of the GRPs family include GRP75 and GRP78/BiP. GRPs are unresponsive to heat stress and are induced by stress related to glucose starvation or defects in glycoprotein processing. GRP94 is a chaperone protein constitutively localized to the endoplasmic reticulum (ER) of mammalian cells.[1, 2, 5] GRP94 displays diverse functions in the ER including protein folding, sorting and secretion, and binding of immunogenic peptides. The N-terminal region of GRP94 is highly conserved in Hsp90 and serves as the peptide binding site. GRP94 is involved in peptide antigen presentation to major histocompatibility complex class I molecules of antigen presenting cells (APCs).[1, 6] GRP94/gp96 binds specifically to CD91 (α2-macroglobulin receptor), and possibly to the Toll-like receptors (TLRs) on the surface of APCs.[7, 8] GRPs are induced as a survival response to various stress conditions including glucose starvation, depletion of Ca^{2+} stores, acidosis, and hypoxia conditions that are also common in poorly vascularized tumor tissues. Overexpression of GRP94 has been associated with cellular transformation and tumorigenesis. In a variety of cancer cell lines (rodent tumor models and human biopsies), the level of GRP94 is elevated correlating with increased tumor proliferation and increased resistance to cancer treatments.[9, 10]

Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in “frost-free” freezers is also 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

By immunoblotting, a working antibody dilution of 1:1,000-1:2,000 is recommended using whole cell extracts of the human epitheloid carcinoma HeLa cells, Madin-Darby canine kidney (MDCK) cells, and mouse fibroblasts NIH3T3 cells.

By indirect immunofluorescence, a working antibody dilution of 1:250-1:500 is recommended using HeLa cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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KAA/EK 08/05