

GRP 78 (N-20): sc-1050

BACKGROUND

The HSP 70 family is composed of four highly conserved proteins: HSP 70, HSC 70, GRP 75 and GRP 78. These proteins serve a variety of roles: they act as molecular chaperones facilitating the assembly of multi-protein complexes, participate in the translocation of polypeptides across cell membranes and to the nucleus, and aid in the proper folding of nascent polypeptide chains. All members of the family, except HSP 70, are constitutively expressed in primate cells. HSP 70 expression is strongly induced in response to heat stress. HSP 70 and HSC 70 play key roles in the cytosolic endoplasmic reticulum and mitochondrial import machinery and are found in both the cytosol and nucleus of mammalian cells. Both HSP 70 and HSC 70 are involved in the chaperoning of nascent polypeptide chains and in protecting cells against the accumulation of improperly folded proteins. GRP 78 is localized in the endoplasmic reticulum, where it receives imported secretory proteins and is involved in the folding and translocation of nascent peptide chains. GRP 75 expression is restricted to the mitochondrial matrix and aids in the translocation and folding of nascent polypeptide chains of both nuclear and mitochondrial origin. GRP 75 and GRP 78 are unresponsive to heat stress and are induced by glucose deprivation. It has been postulated that members of the HSP 70 family act as force-generating motors, relying on the hydrolysis of ATP for their activity.

CHROMOSOMAL LOCATION

Genetic locus: HSPA5 (human) mapping to 9q33.3; Hspa5 (mouse) mapping to 2 B.

SOURCE

GRP 78 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of GRP 78 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-1050 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GRP 78 (N-20) is recommended for detection of GRP 78 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with HSP 70, HSP 70-2, HSPA1L, HSPA2, HSPA6, HSC 70 and GRP 75. GRP 78 (N-20) is also recommended for detection of GRP 78 in additional species, including canine, bovine, porcine and avian.

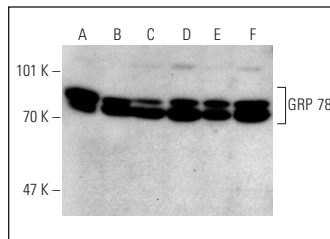
Suitable for use as control antibody for GRP 78 siRNA (h): sc-29338, GRP 78 siRNA (m): sc-35522, GRP 78 shRNA Plasmid (h): sc-29338-SH, GRP 78 shRNA Plasmid (m): sc-35522-SH, GRP 78 shRNA (h) Lentiviral Particles: sc-29338-V and GRP 78 shRNA (m) Lentiviral Particles: sc-35522-V.

Molecular Weight of GRP 78: 78 kDa.

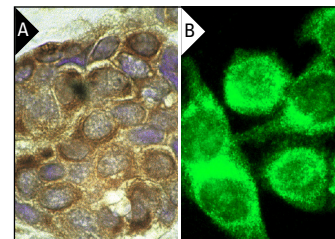
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



GRP 78 (N-20): sc-1050. Western blot analysis of GRP 78 expression in Hep G2 (A), c4 (B), Jurkat (C), SK-N-SH (D), IMR-32 (E) and JAR (F) whole cell lysates.



GRP 78 (N-20): sc-1050. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue (A). Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Sakashita, N., et al. 2000. Localization of human acyl-coenzyme A: cholesterol acyltransferase-1 (ACAT-1) in macrophages and in various tissues. *Am. J. Pathol.* 156: 227-236.
2. Nugent, A.E., et al. 2011. The presence of extracellular matrix alters the chondrocyte response to endoplasmic reticulum stress. *J. Cell. Biochem.* 112: 1118-1129.
3. Higa, A., et al. 2011. Role of pro-oncogenic protein disulfide isomerase (PDI) family member anterior gradient 2 (AGR2) in the control of endoplasmic reticulum homeostasis. *J. Biol. Chem.* 286: 44855-44868.
4. Thongtan, T., et al. 2012. Characterization of putative Japanese encephalitis virus receptor molecules on microglial cells. *J. Med. Virol.* 84: 615-623.
5. Gorbatyuk, M.S., et al. 2012. Glucose regulated protein 78 diminishes α -synuclein neurotoxicity in a rat model of Parkinson disease. *Mol. Ther.* 20: 1327-1337.
6. Yang, Y.C., et al. 2013. Androgen receptor inclusions acquire GRP78/BiP to ameliorate androgen-induced protein misfolding stress in embryonic stem cells. *Cell Death Dis.* 4: e607.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **GRP 78 (A-10): sc-376768** or **GRP 78 (76-E6): sc-13539**, our highly recommended monoclonal alternatives to GRP 78 (N-20). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **GRP 78 (A-10): sc-376768**.