

GRP 78 (C-20): sc-1051

BACKGROUND

The HSP 70 family comprises four highly conserved proteins, HSP 70, HSC 70, GRP 75 and GRP 78, which 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. HSC 70, GRP 75 and GRP 78 are constitutively expressed in primate cells. HSP 70 expression is strongly induced in response to heat stress. HSP 70 and HSC 70, which are found in both the cytosol and nucleus of mammalian cells, play key roles in the cytosolic endoplasmic reticulum and mitochondrial import machinery. They are involved in chaperoning nascent polypeptide chains and in protecting cells against the accumulation of improperly folded proteins. GRP 75 and GRP 78 are unresponsive to heat stress and are induced by glucose deprivation. 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 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. Research indicates that members of the HSP 70 family may 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 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of GRP 78 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-1051 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

GRP 78 (C-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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

GRP 78 (C-20) is also recommended for detection of GRP 78 in additional species, including avian.

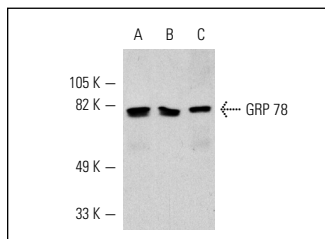
Suitable for use as control antibody for GRP 78 siRNA (h): sc-29338, GRP 78 siRNA (m): sc-35522, GRP 78 shRNA Plasmid (h): sc-29338-SH, GRP 78 shRNA Plasmid (m): sc-35522-SH, GRP 78 shRNA (h) Lentiviral Particles: sc-29338-V and GRP 78 shRNA (m) Lentiviral Particles: sc-35522-V.

Positive Controls: KNRK whole cell lysate: sc-2214, HeLa whole cell lysate: sc-2200 or HeLa + heat shock cell lysate: sc-2272.

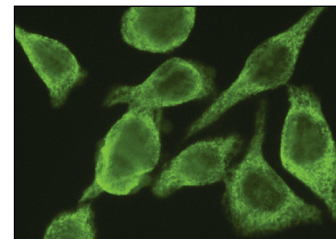
STORAGE

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

DATA



GRP 78 (C-20): sc-1051. Western blot analysis of GRP 78 expression in NIH/3T3 (A), KNRK (B) and HeLa (C) whole cell lysates.



GRP 78 (C-20): sc-1051. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic whole cell lysates.

SELECT PRODUCT CITATIONS

- Reddy, R.K., et al. 2003. Endoplasmic reticulum chaperone protein GRP78 protects cells from apoptosis induced by topoisomerase inhibitors: role of ATP binding site in suppression of caspase-7 activation. *J. Biol. Chem.* 278: 20915.
- Liu, C. 2003. *In vivo* interrogation of the molecular display of atherosclerotic lesion surfaces. *Am. J. Pathol.* 163: 1859-1871.
- Davidson, D.J., et al. 2005. Kringle 5 of human plasminogen induces apoptosis of endothelial and tumor cells through surface-expressed glucose-regulated protein 78. *Cancer Res.* 65: 4663-4672.
- Thurauf, D.J., et al. 2006. Activation of the unfolded protein response in infarcted mouse heart and hypoxic cultured cardiac myocytes. *Circ. Res.* 9: 275-282.
- Horke, S., et al. 2007. Paraoxonase-2 reduces oxidative stress in vascular cells and decreases endoplasmic reticulum stress-induced caspase activation. *Circulation.* 115: 2055-2064.
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- Su, R., et al. 2010. Grp78 promotes the invasion of hepatocellular carcinoma. *BMC Cancer* 10: 20.
- Unterstab, G., et al. 2010. The polyomavirus BK agnoprotein co-localizes with lipid droplets. *Virology* 399: 322-331.

RESEARCH USE

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