

GRP 78 (A-10): sc-376768

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 (A-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 19-50 near the N-terminus of GRP 78 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GRP 78 (A-10) is available conjugated to Alexa Fluor[®] 488 (sc-376768 AF488), 200 µg/ml, for IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-376768 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor[®] is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

GRP 78 (A-10) is recommended for detection of GRP 78 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

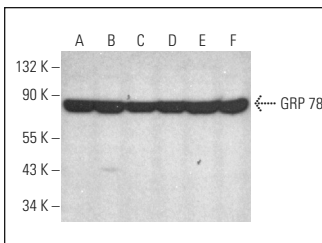
GRP 78 (A-10) is also recommended for detection of GRP 78 in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for GRP 78 siRNA (h): sc-29338, GRP 78 siRNA (m): sc-35522, GRP 78 siRNA (r): sc-156167, GRP 78 shRNA Plasmid (h): sc-29338-SH, GRP 78 shRNA Plasmid (m): sc-35522-SH, GRP 78 shRNA Plasmid (r): sc-156167-SH, GRP 78 shRNA (h) Lentiviral Particles: sc-29338-V, GRP 78 shRNA (m) Lentiviral Particles: sc-35522-V and GRP 78 shRNA (r) Lentiviral Particles: sc-156167-V.

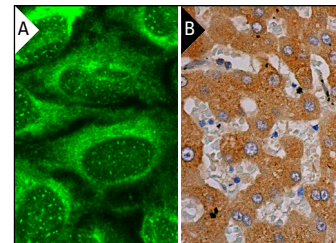
Molecular Weight of GRP 78: 78 kDa.

Positive Controls: JAR cell lysate: sc-2276, KNRK whole cell lysate: sc-2214 or Jurkat whole cell lysate: sc-2204.

DATA



GRP 78 (A-10): sc-376768. Western blot analysis of GRP 78 expression in Jurkat (A), SK-N-SH (B), IMR-32 (C), JAR (D), NIH/3T3 (E) and KNRK (F) whole cell lysates.



GRP 78 (A-10): sc-376768. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (B).

SELECT PRODUCT CITATIONS

- Bertrand, J., et al. 2013. Evaluation of ubiquitinated proteins by proteomics reveals the role of the ubiquitin proteasome system in the regulation of Grp 75 and Grp 78 chaperone proteins during intestinal inflammation. *Proteomics* 13: 3284-3292.
- Zhang, L., et al. 2013. Hsp70 inhibition induces myeloma cell death via the intracellular accumulation of immunoglobulin and the generation of proteotoxic stress. *Cancer Lett.* 339: 49-59.
- Tucker, B.A., et al. 2013. Patient-specific iPSC-derived photoreceptor precursor cells as a means to investigate retinitis pigmentosa. *Elife* 2: e00824.

RESEARCH USE

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