

# GRP 75 (D-9): sc-133137



The Power to Question

## 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. 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. 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.

## REFERENCE

- Martin, J., et al. 1992. Prevention of protein denaturation under heat stress by the chaperonin HSP 60. *Science* 258: 995-998.
- Hatayama, T., et al. 1992. Effects of low culture temperature on the induction of HSP 70 mRNA and the accumulation of HSP 70 and HSP 105 in mouse FM3A cells. *J. Biochem.* 111: 484-490.

## CHROMOSOMAL LOCATION

Genetic locus: HSPA9B (human) mapping to 5q31.2; Hspa9a (mouse) mapping to 18 B1.

## SOURCE

GRP 75 (D-9) is a mouse monoclonal antibody raised against amino acids 525-679 of GRP 75 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GRP 75 (D-9) is available conjugated to agarose (sc-133137 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-133137 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133137 PE), fluorescein (sc-133137 FITC), Alexa Fluor® 488 (sc-133137 AF488), Alexa Fluor® 546 (sc-133137 AF546), Alexa Fluor® 594 (sc-133137 AF594) or Alexa Fluor® 647 (sc-133137 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133137 AF680) or Alexa Fluor® 790 (sc-133137 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## STORAGE

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

## APPLICATIONS

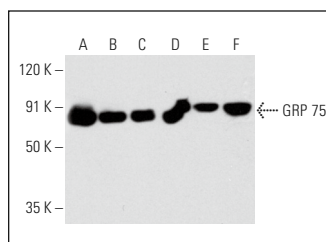
GRP 75 (D-9) is recommended for detection of GRP 75 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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).

Suitable for use as control antibody for GRP 75 siRNA (h): sc-35520, GRP 75 siRNA (m): sc-35521, GRP 75 shRNA Plasmid (h): sc-35520-SH, GRP 75 shRNA Plasmid (m): sc-35521-SH, GRP 75 shRNA (h) Lentiviral Particles: sc-35520-V and GRP 75 shRNA (m) Lentiviral Particles: sc-35521-V.

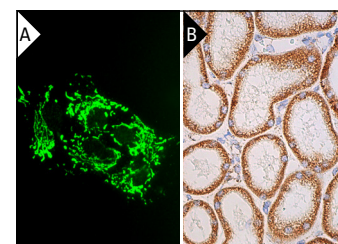
Molecular Weight of GRP 75: 75 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, K-562 whole cell lysate: sc-2203 or NIH/3T3 whole cell lysate: sc-2210.

## DATA



GRP 75 (D-9): sc-133137. Western blot analysis of GRP 75 expression in K-562 (A), Jurkat (B), NIH/3T3 (C), Neuro-ZA (D), KNRK (E) and RIN-m5F (F) whole cell lysates.



GRP 75 (D-9): sc-133137. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (B).

## SELECT PRODUCT CITATIONS

- Wu, P.K., et al. 2013. A mortalin/HSPA9-mediated switch in tumor-suppressive signaling of Raf/MEK/extracellular signal-regulated kinase. *Mol. Cell. Biol.* 33: 4051-4067.
- Starenki, D., et al. 2019. Mortalin (GRP75/HSPA9) promotes survival and proliferation of thyroid carcinoma cells. *Int. J. Mol. Sci.* 20: 2069.
- Li, Z., et al. 2020. Effect of fosinopril on the renal cortex protein expression profile of Otsuka Long-Evans Tokushima Fatty rats. *Exp. Ther. Med.* 19: 172-182.
- Sun, Y., et al. 2021. Beclin-1 improves mitochondria-associated membranes in the heart during endotoxemia. *FASEB Bioadv.* 3: 123-135.
- Hong, S.K., et al. 2022. Analogs of the heat shock protein 70 inhibitor MKT-077 suppress medullary thyroid carcinoma cells. *Int. J. Mol. Sci.* 23: 1063.

## RESEARCH USE

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

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