

# GRP 94 (SPM249): sc-56399

## BACKGROUND

Heat shock protein (HSP) molecular chaperones are environmental stress-inducible gene products. The human HSP 90 family includes 17 genes that fall into four classes: HSP90AA, HSP90AB, HSP90B and TRAP. HSP 90 family members guide the normal folding, intracellular disposition and proteolytic turnover of many key regulators of cell growth, differentiation and survival. HSP 90 $\alpha$ , also designated HSP90A, HSP 86 and LPS-associated protein 2 (LAP2), is a cytosolic enhancer of inducible nitric-oxide synthase (iNOS), with chaperone activity that is important for the transcriptional activity of p53. HSP 90 $\beta$ , also designated HSP90B, HSP 84 and HSPC2, is a cytosolic protein that participates in signaling pathways with PKC  $\epsilon$  to protect cells from external damage, particularly in heat shock-mediated events. GRP 94, also known as tumor rejection antigen 1 (TRA1), ECGP and GP96, localizes to the ER, is highly expressed in BGC-823 human gastric carcinoma cells and is upregulated in human endothelial cells in response to hypoxia by HIF-1. TRAP-1 (TNF receptor-associated protein-1), also designated HSP 75, is a mitochondrial matrix component that plays a role in the induction of apoptosis in response to reactive oxygen species.

## REFERENCES

1. Wu, J.M., et al. 2003. PKC  $\epsilon$  is a unique regulator for HSP 90 $\beta$  gene in heat shock response. *J. Biol. Chem.* 278: 51143-51149.
2. Whitesell, L. and Lindquist, S.L. 2005. HSP 90 and the chaperoning of cancer. *Nat. Rev. Cancer* 5: 761-772.
3. Cowen, L.E. and Lindquist, S. 2005. HSP 90 potentiates the rapid evolution of new traits: drug resistance in diverse fungi. *Science* 309: 2185-2189.
4. Aoyagi, S. and Archer, T.K. 2005. Modulating molecular chaperone HSP 90 functions through reversible acetylation. *Trends Cell Biol.* 15: 565-567.
5. Chen, B., et al. 2005. The HSP 90 family of genes in the human genome: insights into their divergence and evolution. *Genomics* 86: 627-637.
6. Zhao, R. and Houry, W.A. 2005. HSP 90: a chaperone for protein folding and gene regulation. *Biochem. Cell Biol.* 83: 703-710.

## CHROMOSOMAL LOCATION

Genetic locus: HSP90B1 (human) mapping to 12q23.3; Hsp90b1 (mouse) mapping to 10 C1.

## SOURCE

GRP 94 (SPM249) is a rat monoclonal antibody raised against purified GRP 94 from oviduct of chicken origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

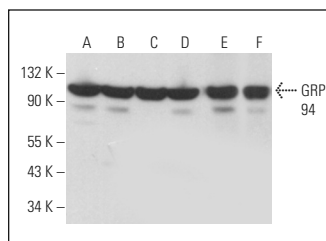
GRP 94 (SPM249) is recommended for detection of GRP 94 of mouse, rat, human, avian, porcine and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for GRP 94 siRNA (h): sc-35523, GRP 94 siRNA (m): sc-35524, GRP 94 shRNA Plasmid (h): sc-35523-SH, GRP 94 shRNA Plasmid (m): sc-35524-SH, GRP 94 shRNA (h) Lentiviral Particles: sc-35523-V and GRP 94 shRNA (m) Lentiviral Particles: sc-35524-V.

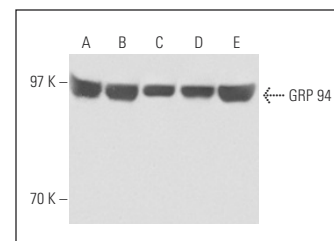
Molecular Weight of GRP 94: 94 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

## DATA



GRP 94 (SPM249): sc-56399. Western blot analysis of GRP 94 expression in HeLa (A), SW480 (B), SK-MEL-24 (C), F9 (D) and A-10 (E) whole cell lysates and mouse postnatal kidney tissue extract (F).



GRP 94 (SPM249): sc-56399. Western blot analysis of GRP 94 expression in NIH/3T3 (A), HeLa (B), K-562 (C), KNRK (D) and T-47D (E) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Rovetta, F., et al. 2013. Cobalt triggers necrotic cell death and atrophy in skeletal C2C12 myotubes. *Toxicol. Appl. Pharmacol.* 271: 196-205.
2. Wu, B., et al. 2015. Heat shock protein gp96 decreases p53 stability by regulating Mdm2 E3 ligase activity in liver cancer. *Cancer Lett.* 359: 325-334.
3. Stacchiotti, A., et al. 2018. Taurine supplementation alleviates puromycin aminonucleoside damage by modulating endoplasmic reticulum stress and mitochondrial-related apoptosis in rat kidney. *Nutrients* 10 pii: E689.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## CONJUGATES

See **GRP 94 (9G10): sc-32249** for GRP 94 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.