

MRP-S12 (C-12): sc-240708

BACKGROUND

Mitochondrial ribosomes consist of a large 39S subunit and a small 28S subunit, both of which are comprised of multiple mitochondrial ribosomal proteins (MRPs) that are encoded by nuclear genes and are essential for protein synthesis within mitochondria. MRP-S12 (mitochondrial ribosomal protein S12) is a 138 amino acid protein that localizes to the mitochondrion, where it exists as a component of the 28S ribosomal subunit and works in conjunction with other MRPs to mediate protein synthesis. In response to mitochondrial stress, bidirectional MRP-S12 promoter activity is strongly stimulated, an event that happens to correlate with mitochondrial reactive oxidative species (ROS) production. Due to its specific location on human chromosome 19, the gene encoding MRP-S12 may be a candidate gene for susceptibility to aminoglycoside ototoxicity and for the autosomal dominant deafness gene DFNA4.

REFERENCES

1. Spirin, A.S., et al. 1996. Topography of ribosomal proteins: reconsideration of protein map of small ribosomal subunit. *Biokhimiia* 61: 1928-1930.
2. Shah, Z.H., et al. 1997. Metazoan nuclear genes for mitoribosomal protein S12. *Gene* 204: 55-62.
3. Shah, Z.H., et al. 1998. Chromosomal locations of three human nuclear genes (RPSM12, TUFM, and AFG3L1) specifying putative components of the mitochondrial gene expression apparatus. *Genomics* 48: 384-388.
4. Johnson, D.F., et al. 1998. Characterization of the human mitochondrial ribosomal S12 gene. *Genomics* 52: 363-368.
5. Koc, E.C., et al. 2000. A proteomics approach to the identification of mammalian mitochondrial small subunit ribosomal proteins. *J. Biol. Chem.* 275: 32585-32591.
6. Cavdar Koc, E., et al. 2001. The small subunit of the mammalian mitochondrial ribosome. Identification of the full complement of ribosomal proteins present. *J. Biol. Chem.* 276: 19363-19374.
7. Online Mendelian Inheritance in Man, OMIM[™]. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 603021. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
8. Zanotto, E., et al. 2008. Modulation of MRP-S12/Sarsm promoter activity in response to mitochondrial stress. *Biochim. Biophys. Acta* 1783: 2352-2362.
9. Zanotto, E., et al. 2009. NF-Y influences directionality of transcription from the bidirectional MRP-S12/Sarsm promoter in both mouse and human cells. *Biochim. Biophys. Acta* 1789: 432-442.

CHROMOSOMAL LOCATION

Genetic locus: MRPS12 (human) mapping to 19q13.2; Mrps12 (mouse) mapping to 7 A3.

STORAGE

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

SOURCE

MRP-S12 (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MRP-S12 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-240708 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MRP-S12 (C-12) is recommended for detection of MRP-S12 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other MRP-S family members.

Suitable for use as control antibody for MRP-S12 siRNA (h): sc-97863, MRP-S12 siRNA (m): sc-149617, MRP-S12 shRNA Plasmid (h): sc-97863-SH, MRP-S12 shRNA Plasmid (m): sc-149617-SH, MRP-S12 shRNA (h) Lentiviral Particles: sc-97863-V and MRP-S12 shRNA (m) Lentiviral Particles: sc-149617-V.

Molecular Weight of MRP-S12: 12 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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