

# MRM1 (E-12): sc-514446

## BACKGROUND

MRM1 (mitochondrial rRNA methyltransferase 1) is a 353 amino acid protein that localizes to the mitochondrion and belongs to the RNA methyltransferase trmH family. Expressed as two alternatively spliced isoforms, MRM1 specifically methylates the ribose of guanosine G-2270 in the peptidyl transferase center of the mitochondrial large ribosomal RNA (21S). The gene encoding MRM1 maps to human chromosome 17, which comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

## REFERENCES

1. Zhang, Z.Y., et al. 2006. Expression of MAC30 in rectal cancers with or without preoperative radiotherapy. *Oncology* 71: 259-265.
2. Wilcox, C.B., et al. 2007. Coordinate up-regulation of TMEM97 and cholesterol biosynthesis genes in normal ovarian surface epithelial cells treated with progesterone: implications for pathogenesis of ovarian cancer. *BMC Cancer* 7: 223.
3. Nusbaum, R., et al. 2006-2007. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. *Breast Dis.* 27: 21-50.
4. Ropolo, A., et al. 2007. The pancreatitis-induced vacuole membrane protein 1 triggers autophagy in mammalian cells. *J. Biol. Chem.* 282: 37124-37133.
5. Tai, Y.C., et al. 2007. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J. Natl. Cancer Inst.* 99: 1811-1814.

## CHROMOSOMAL LOCATION

Genetic locus: MRM1 (human) mapping to 17q12.

## SOURCE

MRM1 (E-12) is a mouse monoclonal antibody raised against amino acids 201-272 mapping within an internal region of MRM1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MRM1 (E-12) is available conjugated to agarose (sc-514446 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514446 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514446 PE), fluorescein (sc-514446 FITC), Alexa Fluor® 488 (sc-514446 AF488), Alexa Fluor® 546 (sc-514446 AF546), Alexa Fluor® 594 (sc-514446 AF594) or Alexa Fluor® 647 (sc-514446 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514446 AF680) or Alexa Fluor® 790 (sc-514446 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

MRM1 (E-12) is recommended for detection of MRM1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MRM1 siRNA (h): sc-94135, MRM1 shRNA Plasmid (h): sc-94135-SH and MRM1 shRNA (h) Lentiviral Particles: sc-94135-V.

Molecular Weight of MRM1 isoforms 1/2: 39/17 kDa.

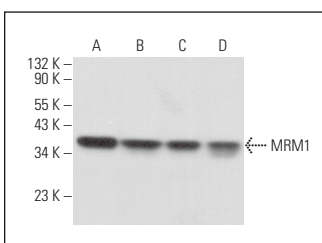
Positive Controls: MRM1 (h2): 293T Lysate: sc-370709, SW480 cell lysate: sc-2219 or COLO 320DM cell lysate: sc-2226.

## RECOMMENDED SUPPORT REAGENTS

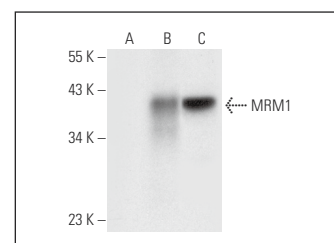
To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



MRM1 (E-12): sc-514446. Western blot analysis of MRM1 expression in COLO 205 (A), SW480 (B), A2058 (C) and Caki-1 (D) whole cell lysates.



MRM1 (E-12): sc-514446. Western blot analysis of MRM1 expression in non-transfected 293T: sc-117752 (A), human MRM1 transfected 293T: sc-370709 (B) and COLO 320DM (C) whole cell lysates.

## STORAGE

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

## RESEARCH USE

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

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