

# MtRPOL (B-1): sc-365082

## BACKGROUND

The circular mitochondrial genome contains 37 genes that encode the RNA constituents of the mitochondrial translational apparatus. Gene expression in mitochondria relies upon several nuclear genes that encode protein components required for transcription and translation of MtDNA-encoded genes, as well as protein and RNA components necessary for MtDNA replication. Mitochondrial RNA polymerase (MtRPOL) modulates gene expression in the mitochondria by providing the RNA primers for replication/initiation. It also participates in the maintenance and propagation of the mitochondrial genome. Genes involved in the replication and expression of MtRPOL may be candidates for various human disorders. MtRPOL consists of 1,230 amino acid residues, the sequence of which demonstrates substantial homology with sequences corresponding to mitochondrial RNA polymerases from lower eukaryotes and to RNA polymerases from several bacteriophages.

## CHROMOSOMAL LOCATION

Genetic locus: POLRMT (human) mapping to 19p13.3.

## SOURCE

MtRPOL (B-1) is a mouse monoclonal antibody raised against amino acids 841-1140 mapping near the C-terminus of MtRPOL 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-365082 X, 200 µg/0.1 ml.

MtRPOL (B-1) is available conjugated to agarose (sc-365082 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365082 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365082 PE), fluorescein (sc-365082 FITC), Alexa Fluor® 488 (sc-365082 AF488), Alexa Fluor® 546 (sc-365082 AF546), Alexa Fluor® 594 (sc-365082 AF594) or Alexa Fluor® 647 (sc-365082 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365082 AF680) or Alexa Fluor® 790 (sc-365082 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

MtRPOL (B-1) is recommended for detection of DNA-directed RNA polymerase, mitochondrial precursor (MtRPOL) 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 MtRPOL siRNA (h): sc-61099, MtRPOL shRNA Plasmid (h): sc-61099-SH and MtRPOL shRNA (h) Lentiviral Particles: sc-61099-V.

MtRPOL (B-1) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

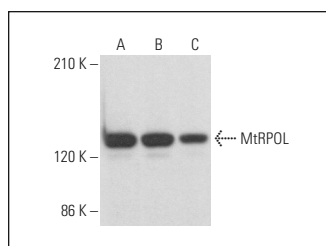
Molecular Weight of MtRPOL: 135 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HEL 92.1.7 cell lysate: sc-2270 or SK-BR-3 cell lysate: sc-2218.

## 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



MtRPOL (B-1): sc-365082. Western blot analysis of MtRPOL expression in K-562 (A), HEL 92.1.7 (B) and SK-BR-3 (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Qu, J., et al. 2016. Suppression of mitochondrial transcription initiation complexes changes the balance of replication intermediates of mitochondrial DNA and reduces 7S DNA in cultured human cells. *J. Biochem.* 160: 49-57.
- Santamaría Nuñez, G., et al. 2016. Lurbinedectin specifically triggers the degradation of phosphorylated RNA polymerase II and the formation of DNA breaks in cancer cells. *Mol. Cancer Ther.* 15: 2399-2412.
- Bostwick, A.M., et al. 2020. Phosphorylation of mitochondrial transcription factor B2 controls mitochondrial DNA binding and transcription. *Biochem. Biophys. Res. Commun.* 528: 580-585.
- Inatomi, T., et al. 2021. TFB2M and POLRMT are essential for mammalian mitochondrial DNA replication. *Biochim. Biophys. Acta Mol. Cell Res.* 1869: 119167.

## 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.

## PROTOCOLS

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

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