

MtRPOL (H-18): sc-49301

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.

REFERENCES

1. Anderson, S., et al. 1981. Sequence and organization of the human mitochondrial genome. *Nature* 290: 457-465.
2. Humphery-Smith, I., et al. 1995. Polypeptide cartography of *Spiroplasma taiwanense*. *Electrophoresis* 15: 1212-1217.
3. Wasinger, V.C., et al. 1996. Progress with gene-product mapping of the Mollicutes: *Mycoplasma genitalium*. *Electrophoresis* 16: 1090-1094.
4. Tiranti, V., et al. 1997. Identification of the gene encoding the human mitochondrial RN (h-mtRPOL) by cyberscreening of the expressed sequence tags database. *Hum. Mol. Genet.* 6: 615-625.
5. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601778. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Fish, J., et al. 2004. Discovery of a major D-loop replication origin reveals two modes of human mtDNA synthesis. *Science* 306: 2098-2101.
7. Kravchenko, J.E., et al. 2005. Transcription of mammalian messenger RNAs by a nuclear RNA polymerase of mitochondrial origin. *Nature* 436: 735-739.

CHROMOSOMAL LOCATION

Genetic locus: POLRMT (human) mapping to 19p13.3; Polrmt (mouse) mapping to 10 C1.

SOURCE

MtRPOL (H-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MtRPOL 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-49301 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-49301 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MtRPOL (H-18) is recommended for detection of DNA-directed RNA polymerase, mitochondrial precursor (MtRPOL) 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).

MtRPOL (H-18) is also recommended for detection of DNA-directed RNA polymerase, mitochondrial precursor (MtRPOL) in additional species, including canine and bovine.

Suitable for use as control antibody for MtRPOL siRNA (h): sc-61099, MtRPOL siRNA (m): sc-61100, MtRPOL shRNA Plasmid (h): sc-61099-SH, MtRPOL shRNA Plasmid (m): sc-61100-SH, MtRPOL shRNA (h) Lentiviral Particles: sc-61099-V and MtRPOL shRNA (m) Lentiviral Particles: sc-61100-V.

MtRPOL (H-18) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of MtRPOL: 135 kDa.

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.

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 or our catalog for detailed protocols and support products.



Try **MtRPOL (B-1): sc-365082**, our highly recommended monoclonal alternative to MtRPOL (H-18).