

TEFM (S-13): sc-138163

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. TEFM (transcription elongation factor, mitochondrial), also known as C17orf42, is a 360 amino acid transcription elongation factor that regulates transcription of the mitochondrial genome. Existing as two alternatively spliced isoforms, TEFM is suggested to strongly promote MtrPOL processivity. The gene encoding TEFM is located on human chromosome 17q11.2.

REFERENCES

1. Anderson, S., et al. 1981. Sequence and organization of the human mitochondrial genome. *Nature* 290: 457-465.
2. Tiranti, V., et al. 1997. Identification of the gene encoding the human mitochondrial RNA polymerase (h-mtRPOL) by cyberscreening of the expressed sequence tags database. *Hum. Mol. Genet.* 6: 615-625.
3. Fish, J., et al. 2004. Discovery of a major D-loop replication origin reveals two modes of human mtDNA synthesis. *Science* 306: 2098-2101.
4. Kravchenko, J.E., et al. 2005. Transcription of mammalian messenger RNAs by a nuclear RNA polymerase of mitochondrial origin. *Nature* 436: 735-739.
5. Minczuk, M., et al. 2011. TEFM (c17orf42) is necessary for transcription of human mtDNA. *Nucleic Acids Res.* 39: 4284-4299.
6. Posse, V., et al. 2015. TEFM is a potent stimulator of mitochondrial transcription elongation *in vitro*. *Nucleic Acids Res.* 43: 2615-2624.
7. Agaronyan, K., et al. 2015. Mitochondrial biology. Replication-transcription switch in human mitochondria. *Science* 347: 548-551.

CHROMOSOMAL LOCATION

Genetic locus: TEFM (human) mapping to 17q11.2.

SOURCE

TEFM (S-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TEFM 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-138163 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

TEFM (S-13) is recommended for detection of TEFM of 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 TEFM family members .

Suitable for use as control antibody for TEFM siRNA (h): sc-94086, TEFM shRNA Plasmid (h): sc-94086-SH and TEFM shRNA (h) Lentiviral Particles: sc-94086-V.

Molecular Weight (predicted) of TEFM isoforms 1/2: 42/20 kDa.

Molecular Weight (observed) of TEFM: 47 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.

PROTOCOLS

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