

EF-1 ϵ 1 (D-16): sc-68324

BACKGROUND

EF-1 (elongation factor-1) is a multi-protein complex that is comprised of α , β , γ and δ subunits, all of which work together to ensure the delivery of aminoacyl-tRNAs to the ribosome, thereby elongating mRNA. EF-1 ϵ 1 (eukaryotic translation elongation factor 1 epsilon-1), also known as multisynthetase complex auxiliary component p18, is a 174 amino acid protein that shares sequence similarity with the amino-terminal ends of the β and γ subunits of EF-1. By specifically interacting with MetRS, EF-1 ϵ 1 binds to a macromolecular tRNA synthetase complex that catalyzes the ligation of specific amino acids to their cognate tRNAs. Upon DNA damage, EF-1 ϵ 1 translocates to the nucleus where it interacts with ATM and ATR, resulting in p53 activation. In mice, loss of EF-1 ϵ 1 results in high susceptibility to spontaneous tumors, strongly suggesting that EF-1 ϵ 1 is a tumor suppressor.

REFERENCES

1. Quevillon, S. and Mirande, M. 1996. The p18 component of the multisynthetase complex shares a protein motif with the β and γ subunits of eukaryotic elongation factor 1. *FEBS Lett.* 395: 63-67.
2. Mao, M., et al. 1998. Identification of genes expressed in human CD34+ hematopoietic stem/progenitor cells by expressed sequence tags and efficient full-length cDNA cloning. *Proc. Natl. Acad. Sci. USA* 95: 8175-8180.
3. Park, B.J., et al. 2005. The haploinsufficient tumor suppressor p18 upregulates p53 via interactions with ATM/ATR. *Cell* 120: 209-221.
4. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 609206. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Park, B.J., et al. 2006. AIMP3 haploinsufficiency disrupts oncogene-induced p53 activation and genomic stability. *Cancer Res.* 66: 6913-6918.
6. Mamo, S., et al. 2007. Quantitative evaluation and selection of reference genes in mouse oocytes and embryos cultured *in vivo* and *in vitro*. *BMC Dev. Biol.* 7: 14.
7. Kim, M.S., et al. 2008. Absence of somatic mutation of a tumor suppressor gene eukaryotic translation elongation factor 1, ϵ -1 (EEF1E1), in common human cancers. *APMIS* 116: 832-833.
8. Pagmantidis, V., et al. 2008. Supplementation of healthy volunteers with nutritionally relevant amounts of selenium increases the expression of lymphocyte protein biosynthesis genes. *Am. J. Clin. Nutr.* 87: 181-189.
9. Kim, K.J., et al. 2008. Determination of three-dimensional structure and residues of the novel tumor suppressor AIMP3/p18 required for the interaction with ATM. *J. Biol. Chem.* 283: 14032-14040.

CHROMOSOMAL LOCATION

Genetic locus: EEF1E1 (human) mapping to 6p24.3; Eef1e1 (mouse) mapping to 13 A3.3.

SOURCE

EF-1 ϵ 1 (D-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of EF-1 ϵ 1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-68324 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

EF-1 ϵ 1 (D-16) is recommended for detection of EF-1 ϵ 1 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).

EF-1 ϵ 1 (D-16) is also recommended for detection of EF-1 ϵ 1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for EF-1 ϵ 1 siRNA (h): sc-77233, EF-1 ϵ 1 siRNA (m): sc-77234, EF-1 ϵ 1 shRNA Plasmid (h): sc-77233-SH, EF-1 ϵ 1 shRNA Plasmid (m): sc-77234-SH, EF-1 ϵ 1 shRNA (h) Lentiviral Particles: sc-77233-V and EF-1 ϵ 1 shRNA (m) Lentiviral Particles: sc-77234-V.

Molecular Weight of EF-1 ϵ 1: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

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.