SANTA CRUZ BIOTECHNOLOGY, INC.

EF-1 ε1 (E-4): sc-376019

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 amino-acyl-tRNAs to the ribosome, thereby elongating mRNA. EF-1 ε1 (eukaryotic translation elongation factor 1 ε-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 ε1 binds to a macromolecular tRNA synthtase complex that catalyzes the ligation of specific amino acids to their cognate tRNAs. Upon DNA damage, EF-1 ε1 translocates to the nucleus where it interacts with ATM and ATR, resulting in p53 activation. In mice, loss of EF-1 ε1 results in high susceptibility to spontaneous tumors, strongly suggesting that EF-1 ε1 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/

CHROMOSOMAL LOCATION

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

SOURCE

EF-1 ε1 (E-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 3-37 near the N-terminus of EF-1 ε1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

EF-1 ε1 (E-4) is available conjugated to agarose (sc-376019 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376019 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376019 PE), fluorescein (sc-376019 FITC), Alexa Fluor® 488 (sc-376019 AF488), Alexa Fluor® 546 (sc-376019 AF546), Alexa Fluor® 594 (sc-376019 AF594) or Alexa Fluor® 647 (sc-376019 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376019 AF680) or Alexa Fluor® 790 (sc-376019 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376019 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

EF-1 ε1 (E-4) is recommended for detection of EF-1 ε1 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

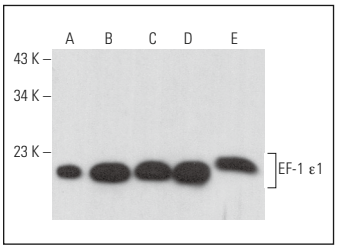
EF-1 ε1 (E-4) is also recommended for detection of EF-1 ε1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for EF-1 ε1 siRNA (h): sc-77233, EF-1 ε1 siRNA (m): sc-77234, EF-1 ε1 shRNA Plasmid (h): sc-77233-SH, EF-1 ε1 shRNA Plasmid (m): sc-77234-SH, EF-1 ε1 shRNA (h) Lentiviral Particles: sc-77233-V and EF-1 ε1 shRNA (m) Lentiviral Particles: sc-77234-V.

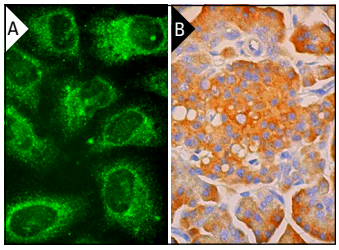
Molecular Weight of EF-1 ε1: 18 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or Jurkat whole cell lysate: sc-2204.

DATA



EF-1 ε1 (E-4): sc-376019. Western blot analysis of EF-1 ε1 expression in HeLa (**A**), Jurkat (**B**), Hep G2 (**C**), HL-60 (**D**) and KNRK (**E**) whole cell lysates.



EF-1 ε1 (E-4): sc-376019. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of exocrine glandular cells and Islets of Langerhans (**B**).

SELECT PRODUCT CITATIONS

1. Kim, S.M., et al. 2018. AIMP3 depletion causes genome instability and loss of stemness in mouse embryonic stem cells. Cell Death Dis. 9: 972.
2. Schwarz, M.A., et al. 2018. Aminoacyl tRNA synthetase complex interacting multifunctional protein 1 simultaneously binds glutamyl-prolyl-tRNA synthetase and scaffold protein aminoacyl tRNA synthetase complex interacting multifunctional protein 3 of the multi-tRNA synthetase complex. Int. J. Biochem. Cell Biol. 99: 197-202.

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.