SANTA CRUZ BIOTECHNOLOGY, INC.

EF-1 ε1 siRNA (h): sc-77233

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 ε1 (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 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/
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.

CHROMOSOMAL LOCATION

Genetic locus: EEF1E1 (human) mapping to 6p24.3.

PRODUCT

EF-1 ε1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EF-1 ε1 shRNA Plasmid (h): sc-77233-SH and EF-1 ε1 shRNA (h) Lentiviral Particles: sc-77233-V as alternate gene silencing products.

For independent verification of EF-1 ε1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-77233A, sc-77233B and sc-77233C.

RESEARCH USE

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

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

EF-1 ε1 siRNA (h) is recommended for the inhibition of EF-1 ε1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

EF-1 ε1 (E-4): sc-376019 is recommended as a control antibody for monitoring of EF-1 ε1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor EF-1 ε1 gene expression knockdown using RT-PCR Primer: EF-1 ε1 (h)-PR: sc-77233-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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