SANTA CRUZ BIOTECHNOLOGY, INC.

eIF4E3 siRNA (h): sc-78455

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. The eukaryotic initiation complex eIF4F exists *in vitro* as a trimeric structure composed of eIF4G, eIF4E and eIF4A. Together, these proteins allow ribosome binding to mRNA by inducing the unwinding of mRNA secondary structures. eIF4E binds to the mRNA "cap" during an early step in the initiation of protein synthesis. eIF4A acts as an ATP-dependent RNA helicase and eIF4G acts as a bridge between eIF4E, eIF4A and the eIF3 complex. eIF4E3 (eukaryotic translation initiation factor 4E type 3) is a 224 amino acid protein that has residues that are specific for interactions with eIF4G and 4E-BP1. Also, eIF4E3 can recognize and bind the 7-methylguanosine-containing mRNA cap. There are two isoforms of eIF4E3 that exist as a result of alternative splicing events.

REFERENCES

1. Joshi, B., et al. 2004. Characterization of mammalian eIF4E-family members. Eur. J. Biochem. 271: 2189-2203.
2. Hernández, G., et al. 2005. Functional analysis of seven genes encoding eight translation initiation factor 4E (eIF4E) isoforms in *Drosophila*. Mech. Dev. 122: 529-543.
3. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 609896. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Lin, S.L., et al. 2007. Hyaluronan stimulates transformation of androgen-independent prostate cancer. Carcinogenesis 28: 310-320.
5. Huang, B.P., et al. 2008. Blocking eukaryotic initiation factor (eIF) 4F complex formation does not inhibit the mTORC1-dependent activation of protein synthesis in cardiomyocytes. Am. J. Physiol. Heart Circ. Physiol. 296: H505-H514.
6. Evsikov, A.V., et al. 2008. Evolutionary origin and phylogenetic analysis of the novel oocyte-specific eukaryotic translation initiation factor 4E in Tetrapoda. Dev. Genes Evol. 219: 111-118.

CHROMOSOMAL LOCATION

Genetic locus: EIF4E3 (human) mapping to 3p13.

PRODUCT

eIF4E3 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 eIF4E3 shRNA Plasmid (h): sc-78455-SH and eIF4E3 shRNA (h) Lentiviral Particles: sc-78455-V as alternate gene silencing products.

For independent verification of eIF4E3 (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-78455A, sc-78455B and sc-78455C.

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

eIF4E3 siRNA (h) is recommended for the inhibition of eIF4E3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor eIF4E3 gene expression knockdown using RT-PCR Primer: eIF4E3 (h)-PR: sc-78455-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.