SANTA CRUZ BIOTECHNOLOGY, INC.

eIF1B siRNA (m): sc-144612

BACKGROUND

In mammalian cells, translation is controlled at the level of polypeptide chain initiation by initiation factors. Eukaryotic translation initiation factor 1 (eIF1) is crucial for the scanning process *in vitro,* acting as a component of a complex involved in recognition of the initiator codon. Translation is also initiated by the role of eIF1 in regulating the activity of ribosomal subunits 43S, 48S and 40S. eIF1 enables 43S ribosomal complexes to discern between cognate and near-cognate initiation codons, sensing the nucleotide content of initiation codons. It is also a promotor, along with eukaryotic translation initiation factor 1A (eIF1A), for assembly of 48S ribosomal complexes at the initiation codon of a conventional capped mRNA. In addition, eIF1 and eIF1A, together with eukaryotic translation initiation factor 5 (eIF5), function in the formation of stable 40S ribosomal preinitiation complexes. Eukaryotic translation initiation factor 1B (eIF1B) is highly homologous to eIF1, sharing 92% identity at the amino acid level. The function of eIF1B has not been widely studied.

REFERENCES

1. Asano, K., Clayton, J., Shalev, A. and Hinnebusch, A.G. 2000. A multifactor complex of eukaryotic initiation factors, eIF1, eIF2, eIF3, eIF5 and initiator tRNA(Met) is an important translation initiation intermediate *in vivo.* Genes Dev. 14: 2534-2546.
2. Pestova, T.V. and Kolupaeva, V.G. 2002. The roles of individual eukaryotic translation initiation factors in ribosomal scanning and initiation codon selection. Genes Dev. 16: 2906-2922.
3. Majumdar, R., Bandyopadhyay, A. and Maitra, U. 2003. Mammalian translation initiation factor eIF1 functions with eIF1A and eIF3 in the formation of a stable 40S preinitiation complex. J. Biol. Chem. 278: 6580-6587.
4. Maag, D. and Lorsch, J.R. 2003. Communication between eukaryotic translation initiation factors 1 and 1A on the yeast small ribosomal subunit. J. Mol. Biol. 330: 917-924.
5. Valásek, L., Nielsen, K.H., Zhang, F., Fekete, C.A. and Hinnebusch, A.G. 2004. Interactions of eukaryotic translation initiation factor 3 (eIF3) subunit NIP1/c with eIF1 and eIF5 promote preinitiation complex assembly and regulate start codon selection. Mol. Cell. Biol. 24: 9437-9455.
6. Hinnebusch, A.G., Asano, K., Olsen, D.S., Phan, L., Nielsen, K.H. and Valásek, L. 2004. Study of translational control of eukaryotic gene expression using yeast. Ann. N.Y. Acad. Sci. 1038: 60-74.

CHROMOSOMAL LOCATION

Genetic locus: Eif1b (mouse) mapping to 9 F4.

PRODUCT

eIF1B siRNA (m) is a target-specific 19-25 nt siRNA 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 eIF1B shRNA Plasmid (m): sc-144612-SH and eIF1B shRNA (m) Lentiviral Particles: sc-144612-V as alternate gene silencing products.

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

eIF1B siRNA (m) is recommended for the inhibition of eIF1B expression in mouse 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 eIF1B gene expression knockdown using RT-PCR Primer: eIF1B (m)-PR: sc-144612-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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