SANTA CRUZ BIOTECHNOLOGY, INC.

4E-BP2 siRNA (h): sc-77246

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. These interactions are facilitated, in part, by the eukaryotic initiation factor 4 family (eIF4) of proteins that are involved in the early initiation of protein synthesis. 4E-BP2, also known as EIF4EBP2 (eukaryotic translation initiation factor 4E binding protein 2) or PHASII, is a 120 amino acid protein that regulates eIF4E activity, thereby preventing it from associating with the eIF4F complex. A member of the eIF4E-binding protein family, 4E-BP2 influences protein translation by modulating growth factors and hormones in the MAP kinase pathway and undergoes post-translational phosphorylation in response to PDGF, EGF and Insulin on multiple serine and threonine residues. The gene encoding 4E-BP2 maps to human chromosome 10q22.1.

REFERENCES

1. Tsukiyama-Kohara, K., et al. 1996. Tissue distribution, genomic structure, and chromosome mapping of mouse and human eukaryotic initiation factor 4E-binding proteins 1 and 2. Genomics 38: 353-363.
2. Joshi, B., et al. 2004. Characterization of mammalian eIF4E-family members. Eur. J. Biochem. 271: 2189-2203.
3. Abiko, F., et al. 2007. Binding preference of eIF4E for 4E-binding protein isoform and function of eIF4E N-terminal flexible region for interaction, studied by SPR analysis. Biochem. Biophys. Res. Commun. 355: 667-672.
4. Rui, L. 2007. A link between protein translation and body weight. J. Clin. Invest. 117: 310-313.
5. Le Bacquer, O., et al. 2007. Elevated sensitivity to diet-induced obesity and Insulin resistance in mice lacking 4E-BP1 and 4E-BP2. J. Clin. Invest. 117: 387-396.
6. Banko, J.L., et al. 2007. Behavioral alterations in mice lacking the translation repressor 4E-BP2. Neurobiol. Learn. Mem. 87: 248-256.
7. Mizuno, A., et al. 2008. Importance of C-terminal flexible region of 4E-binding protein in binding with eukaryotic initiation factor 4E. FEBS Lett. 582: 3439-3444.

CHROMOSOMAL LOCATION

Genetic locus: EIF4EBP2 (human) mapping to 10q22.1.

PRODUCT

4E-BP2 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 4E-BP2 shRNA Plasmid (h): sc-77246-SH and 4E-BP2 shRNA (h) Lentiviral Particles: sc-77246-V as alternate gene silencing products.

For independent verification of 4E-BP2 (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-77246A, sc-77246B and sc-77246C.

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

4E-BP2 siRNA (h) is recommended for the inhibition of 4E-BP2 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 4E-BP2 gene expression knockdown using RT-PCR Primer: 4E-BP2 (h)-PR: sc-77246-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.