SANTA CRUZ BIOTECHNOLOGY, INC.

EF-G1 siRNA (h): sc-78009

BACKGROUND

Protein translation consists of initiation, elongation and termination stages that are catalyzed by several protein factors. In mitochondria, the elongation stage requires three elongation factors: Ts, Tu and G. EF-G1 (elongation factor G1) is a 751 amino acid protein containing a GTP-binding elongation factor signature and a GTP-binding domain. This mitochondrial protein promotes the GTP-dependent translocation of the nascent protein chain from the ribosomal A-site to the P-site. Defects in the gene encoding EF-G1 lead to a mutated GTP-binding domain is the cause of combined oxidative phosphorylation deficiency (COXPD), a disease that results in early fatal progressive hepatoencephalopathy.

REFERENCES

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2. Hammarsund, M., et al. 2001. Identification and characterization of two novel human mitochondrial elongation factor genes, hEFG2 and hEFG1, phylogenetically conserved through evolution. Hum. Genet. 109: 542-550.
3. Zeviani, M., et al. 2004. Mitochondrial disorders. Brain 127: 2153-2172.
4. Coenen, M.J., et al. 2004. Mutant mitochondrial elongation factor G1 and combined oxidative phosphorylation deficiency. N. Engl. J. Med. 351: 2080-2086.
5. Smeitink, J.A., et al. 2006. Distinct clinical phenotypes associated with a mutation in the mitochondrial translation elongation factor EFTs. Am. J. Hum. Genet. 79: 869-877.
6. Valente, L., et al. 2007. Infantile encephalopathy and defective mitochondrial DNA translation in patients with mutations of mitochondrial elongation factors EFG1 and EFTu. Am. J. Hum. Genet. 80: 44-58.
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CHROMOSOMAL LOCATION

Genetic locus: GFM1 (human) mapping to 3q25.32.

PRODUCT

EF-G1 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-G1 shRNA Plasmid (h): sc-78009-SH and EF-G1 shRNA (h) Lentiviral Particles: sc-78009-V as alternate gene silencing products.

For independent verification of EF-G1 (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-78009A, sc-78009B and sc-78009C.

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-G1 siRNA (h) is recommended for the inhibition of EF-G1 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 EF-G1 gene expression knockdown using RT-PCR Primer: EF-G1 (h)-PR: sc-78009-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.