SANTA CRUZ BIOTECHNOLOGY, INC.

FRG1B siRNA (h): sc-75067

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The Power to Question

BACKGROUND

The FRG1 (FSHD region gene 1) protein is a 258 amino acid nuclear protein that is thought to be involved in pre-messenger RNA splicing. FRG1 plays a role in processing pre-rRNA, assembling rRNA into ribosomal subunits and may also be involved in pre-mRNA splicing. Facioscapulohumeral muscular dystrophy (FSHD) is a disease that is associated with internal deletions among the tandem array of D4Z4 repeats on chromosome 4q35, a subtelomeric region of chromosome 4 that contains the FRG1 gene. The muscle degeneration that is common in patients with FSHD results from increased expression of genes proximal to the deletion, including FRG1. As a member of the FRG1 family, FRG1B is a 182 amino acid protein that shares significant sequence similarity to FRG1. The gene encoding FRG1B maps to human chromosome 20, which houses over 600 genes and comprises nearly 2% of the human genome. Since the FRGB1 gene is not localized to chromosome 4q35, it is unlikely that it is also implicated in FSHD.

REFERENCES

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2. Grewal, P.K., et al. 1997. The mouse homolog of FRG1, a candidate gene for FSHD, maps proximal to the myodystrophy mutation on chromosome 8. Mamm. Genome 8: 394-398.
3. Grewal, P.K., et al. 1998. FRG1, a gene in the FSH muscular dystrophy region on human chromosome 4q35, is highly conserved in vertebrates and invertebrates. Gene 216: 13-19.
4. Grewal, P.K., et al. 1999. Recent amplification of the human FRG1 gene during primate evolution. Gene 227: 79-88.
5. Tam, R., et al. 2004. The 4q subtelomere harboring the FSHD locus is specifically anchored with peripheral heterochromatin unlike most human telomeres. J. Cell Biol. 167: 269-279.
6. van Koningsbruggen, S., et al. 2004. FRG1P is localised in the nucleolus, Cajal bodies, and speckles. J. Med. Genet. 41: 46.
7. Gabellini, D., et al. 2006. Facioscapulohumeral muscular dystrophy in mice overexpressing FRG1. Nature 439: 973-977.
8. Osborne, R.J., et al. 2007. Expression profile of FSHD supports a link between retinal vasculopathy and muscular dystrophy. Neurology 68: 569-577.

CHROMOSOMAL LOCATION

Genetic locus: FRG1B (human) mapping to 20q11.21.

PRODUCT

FRG1B siRNA (h) 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 FRG1B shRNA Plasmid (h): sc-75067-SH and FRG1B shRNA (h) Lentiviral Particles: sc-75067-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

FRG1B siRNA (h) is recommended for the inhibition of FRG1B 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 FRG1B gene expression knockdown using RT-PCR Primer: FRG1B (h)-PR: sc-75067-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.