SANTA CRUZ BIOTECHNOLOGY, INC.

QTRTD1 siRNA (h): sc-78408

BACKGROUND

QTRTD1 (queuine tRNA-ribosyltransferase domain containing 1) is a 415 amino acid protein involved in tRNA modification and tRNA-queuosine biosynthesis. Localizing to cytoplasm, QTRTD1 also localizes to the mitochondrial outer membrane and associates with QTRT1 (queuine tRNA-ribosyltransferase domain containing 1) to form an active queuine tRNA-ribosyltransferase. At the wobble position of tRNAs with GUN anticodons, QTRTD1 exchanges queuine for guanine to form queuosine, a modified nucleoside. QTRTD1 is a member of the queuine tRNA-ribosyltransferase family, QTRTD1 subfamily and is encoded by a gene located on human chromosome 3, which houses over 1,100 genes, including a chemokine receptor (CKR) gene cluster and a variety of human cancer-related gene loci. Marfan syndrome, porphyria, von Hippel-Lindau syndrome, osteogenesis imperfecta and Charcot-Marie-Tooth disease are a few of the numerous genetic diseases associated with chromosome 3.

REFERENCES

1. Collod, G., et al. 1994. A second locus for Marfan syndrome maps to chromosome 3p24.2-p25. Nat. Genet. 8: 264-268.
2. De Jonghe, P., et al. 1997. Mutilating neuropathic ulcerations in a chromosome 3q13-q22 linked Charcot-Marie-Tooth disease type 2B family. J. Neurol. Neurosurg. Psychiatr. 62: 570-573.
3. Maho, A., et al. 1999. Mapping of the CCXCR1, CX3CR1, CCBP2 and CCR9 genes to the CCR cluster within the 3p21.3 region of the human genome. Cytogenet. Cell Genet. 87: 265-268.
4. Robinson, P.N. and Godfrey, M. 2000. The molecular genetics of Marfan syndrome and related microfibrillopathies. J. Med. Genet. 37: 9-25.
5. Braga, E.A., et al. 2003. New tumor suppressor genes in hot spots of human chromosome 3: new methods of identification. Mol. Biol. 37: 194-211.
6. Rasmussen, A., et al. 2010. Uptake of genetic testing and long-term tumor surveillance in von Hippel-Lindau disease. BMC Med. Genet. 11: 4.
7. Chen, Y.C., et al. 2010. Characterization of the human tRNA-guanine transglycosylase: confirmation of the heterodimeric subunit structure. RNA 16: 958-968.

CHROMOSOMAL LOCATION

Genetic locus: QTRTD1 (human) mapping to 3q13.31.

PRODUCT

QTRTD1 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 QTRTD1 shRNA Plasmid (h): sc-78408-SH and QTRTD1 shRNA (h) Lentiviral Particles: sc-78408-V as alternate gene silencing products.

For independent verification of QTRTD1 (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-78408A, sc-78408B and sc-78408C.

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

QTRTD1 siRNA (h) is recommended for the inhibition of QTRTD1 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.

GENE EXPRESSION MONITORING

QTRTD1 (E-4): sc-515572 is recommended as a control antibody for monitoring of QTRTD1(h) gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor QTRTD1 gene expression knockdown using RT-PCR Primer: QTRTD1 (h)-PR: sc-78408-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.