

QTRT1 shRNA Plasmid (m): sc-152616-SH

BACKGROUND

QTRT1 (queuine tRNA-ribosyltransferase 1) is a 403 amino acid protein that belongs to the queuine tRNA-ribosyltransferase family. QTRT1 interacts with QTRTD1 to form an active queuine tRNA-ribosyltransferase. This enzyme exchanges queuine for the guanine at the wobble position of tRNAs with GUN anticodons, thereby forming the hypermodified nucleoside queuosine. In both QTRT1 and QTRTD1, the four key residues responsible for Zn²⁺ binding, Cys302, Cys304, Cys307, and His333, are conserved. QTRT1 binds one zinc ion per subunit. The QTRT1 gene is conserved in chimpanzee, canine, bovine, mouse, rat, zebrafish, fruit fly, mosquito, *C. elegans*, *S. pombe*, *M. grisea*, *N. crassa*, rice and *P. falciparum*, and maps to human chromosome 19p13.2.

REFERENCES

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CHROMOSOMAL LOCATION

Genetic locus: Qtrt1 (mouse) mapping to 9 A3.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PRODUCT

QTRT1 shRNA Plasmid (m) is a target-specific lentiviral vector plasmid encoding a 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each plasmid contains a puromycin resistance gene for the selection of cells stably expressing shRNA. Each vial contains 20 µg of lyophilized shRNA plasmid DNA. Suitable for up to 20 transfections. Also see QTRT1 siRNA (m): sc-152616 and QTRT1 shRNA (m) Lentiviral Particles: sc-152616-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized shRNA plasmid DNA at 4° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at 4° C for short term storage or -80° C for long term storage. Avoid repeated freeze thaw cycles.

Resuspend lyophilized shRNA plasmid DNA in 200 µl of the deionized water provided. Resuspension of the shRNA plasmid DNA in 200 µl of deionized water makes a 0.1 µg/µl solution in a 10 mM Tris, 1 mM EDTA buffered solution.

APPLICATIONS

QTRT1 shRNA Plasmid (m) is recommended for the inhibition of QTRT1 expression in mouse cells.

SUPPORT REAGENTS

For optimal shRNA Plasmid transfection efficiency, Santa Cruz Biotechnology's shRNA Plasmid Transfection Reagent: sc-108061 (0.2 ml) and shRNA Plasmid Transfection Medium: sc-108062 (20 ml) are recommended. Control shRNAs are available as 20 µg lyophilized plasmid DNA. Each encodes a scrambled shRNA sequence that will not lead to the specific degradation of any known cellular mRNA. Control shRNA Plasmids include: sc-108060, sc-108065 and sc-108066.

GENE EXPRESSION MONITORING

QTRT1 (D-7): sc-398918 is recommended as a control antibody for monitoring of QTRT1 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 QTRT1 gene expression knockdown using RT-PCR Primer: QTRT1 (m)-PR: sc-152616-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.