

# QTRT1 siRNA (h): sc-97223

## 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 Zn<sup>2+</sup> 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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5. Chen, Y.C., Brooks, A.F., Goodenough-Lashua, D.M., Kittendorf, J.D., Showwalter, H.D. and Garcia, G.A. 2010. Evolution of eukaryal tRNA-guanine transglycosylase: insight gained from the heterocyclic substrate recognition by the wild-type and mutant human and *Escherichia coli* tRNA-guanine transglycosylases. *Nucleic Acids Res.* 39: 2834-2844.
6. Chen, Y.C., Kelly, V.P., Stachura, S.V. and Garcia, G.A. 2010. Characterization of the human tRNA-guanine transglycosylase: confirmation of the heterodimeric subunit structure. *RNA* 16: 958-968.

## CHROMOSOMAL LOCATION

Genetic locus: QTRT1 (human) mapping to 19p13.2.

## PRODUCT

QTRT1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see QTRT1 shRNA Plasmid (h): sc-97223-SH and QTRT1 shRNA (h) Lentiviral Particles: sc-97223-V as alternate gene silencing products.

For independent verification of QTRT1 (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-97223A, sc-97223B and sc-97223C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

QTRT1 siRNA (h) is recommended for the inhibition of QTRT1 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  $\mu$ M in 66  $\mu$ l. 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

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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> 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 (h)-PR: sc-97223-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.