SANTA CRUZ BIOTECHNOLOGY, INC.

TRM61 siRNA (h): sc-92089

BACKGROUND

TRM61 (tRNA m^1A58 methyltransferase subunit TRM61), also known as GCD14, is one of two subunits (the other being TRM6) that function as heterotetramers to comprise the tRNA m^1A58 methyltransferase. The tRNA m^1A58 methyltransferase plays a role in tRNA modification and is specifically responsible for the formation of 1-methyladenosine. 1-methyladenosine is a modified nucleoside found at position 58 in tRNA and is required for maintaining the stability of initiator methionine tRNA ($tRNA_i^{Met}$) which is directly involved in the initiation of protein synthesis. This implies that TRM61 is crucial for proper tRNA structure and function. Mutations in the gene encoding TRM61 which cause structural changes in the substrate-binding pocket of tRNA m^1A58 methyltransferase can lead to instability of $tRNA_i^{Met}$.

REFERENCES

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3. Anderson, J., et al. 2000. The Gcd10p/Gcd14p complex is the essential two-subunit tRNA(1-methyladenosine) methyltransferase of *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA 97: 5173-5178.
4. Bujnicki, J.M. 2001. In silico analysis of the tRNA: m^1A58 methyltransferase family: homology-based fold prediction and identification of new members from eubacteria and archaea. FEBS Lett. 507: 123-127.
5. Kadaba, S., et al. 2004. Nuclear surveillance and degradation of hypomodified initiator tRNAMet in *S. cerevisiae*. Genes Dev. 18: 1227-1240.
6. Arhin, G.K., et al. 2004. Role of a 300 kDa nuclear complex in the maturation of *Trypanosoma brucei* initiator methionyl-tRNA. Eukaryotic Cell 3: 893-899.
7. Ozanick, S., et al. 2005. The bipartite structure of the tRNA m^1A58 methyltransferase from *S. cerevisiae* is conserved in humans. RNA 11: 1281-1290.
8. Hiley, S.L., et al. 2005. Detection and discovery of RNA modifications using microarrays. Nucleic Acids Res. 33: e2.
9. Ozanick, S.G., et al. 2007. Conserved amino acids in each subunit of the heteroligomeric tRNA m^1A58 Mtase from *Saccharomyces cerevisiae* contribute to tRNA binding. Nucleic Acids Res. 35: 6808-6819.

CHROMOSOMAL LOCATION

Genetic locus: TRMT61A (human) mapping to 14q32.32.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

TRM61 siRNA (h) is a pool of 2 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 TRM61 shRNA Plasmid (h): sc-92089-SH and TRM61 shRNA (h) Lentiviral Particles: sc-92089-V as alternate gene silencing products.

For independent verification of TRM61 (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-92089A and sc-92089B.

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

TRM61 siRNA (h) is recommended for the inhibition of TRM61 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

TRM61 (C145I165): sc-81062 is recommended as a control antibody for monitoring of TRM61 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRM61 gene expression knockdown using RT-PCR Primer: TRM61 (h)-PR: sc-92089-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.