SANTA CRUZ BIOTECHNOLOGY, INC.

TYW4 siRNA (h): sc-90110

BACKGROUND

Wybutosine, a derivative of wyosine, is a tricyclic hypermodified guanosine found in eukaryotic and archaeal tRNAs. TYW4 (tRNA-yW synthesizing protein 4), also known as PPM2 (p21$^{WAF1/CIP1}$ promoter-interacting protein) or LCMT2 (leucine carboxyl methyltransferase 2), is a 686 amino acid protein belonging to the methyltransferase superfamily. A component of the wybutosine (yW) biosynthesis pathway, TYW4 may act as a S-adenosyl-L-methionine-dependent methyltransferase that catalyzes the final step of yW biosynthesis, methylation and methoxycarbonylation. TYW4 is encoded by a gene located on human chromosome 15, which houses over 700 genes and comprises nearly 3% of the human genome. Angelman syndrome, Prader-Willi syndrome, Tay-Sachs disease and Marfan syndrome are all associated with defects in chromosome 15-localized genes.

REFERENCES

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2. Noma, A. and Suzuki, T. 2006. Ribonucleome analysis identified enzyme genes responsible for wybutosine synthesis. Nucleic Acids Symp. Ser. 50: 65-66.
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5. Suzuki, Y., Noma, A., Suzuki, T., Senda, M., Senda, T., Ishitani, R. and Nureki, O. 2007. Crystal structure of the radical SAM enzyme catalyzing tricyclic modified base formation in tRNA. J. Mol. Biol. 372: 1204-1214.
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7. Suzuki, Y., Noma, A., Suzuki, T., Ishitani, R. and Nureki, O. 2009. Structural basis of tRNA modification with CO_2 fixation and methylation by wybutosine synthesizing enzyme TYW4. Nucleic Acids Res. 37: 2910-2925.

CHROMOSOMAL LOCATION

Genetic locus: LCMT2 (human) mapping to 15q15.3.

PROTOCOLS

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

PRODUCT

TYW4 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 TYW4 shRNA Plasmid (h): sc-90110-SH and TYW4 shRNA (h) Lentiviral Particles: sc-90110-V as alternate gene silencing products.

For independent verification of TYW4 (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-90110A, sc-90110B and sc-90110C.

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

TYW4 siRNA (h) is recommended for the inhibition of TYW4 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 TYW4 gene expression knockdown using RT-PCR Primer: TYW4 (h)-PR: sc-90110-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Joshita, S., et al. 2010. A case of granulocyte-colony stimulating factor-producing hepatocellular carcinoma confirmed by immunohistochemistry. J. Korean Med. Sci. 25: 476-480.

RESEARCH USE

For research use only, not for use in diagnostic procedures.