SANTA CRUZ BIOTECHNOLOGY, INC.

Thyroglobulin siRNA (m): sc-63347

BACKGROUND

Thyroglobulin is a large preprotein containing multiple glycosylation sites. Located in the thyroid gland, thyroglobulin is the precursor of the iodinated thyroid hormones thyroxine and triiodothyronine. Thyroglobulin monomers undergo conformational maturation in the endoplasmic reticulum, prior to forming dimers. This dimerization, as well as export of thyroglobulin to the Golgi complex, has been shown to require Ca^{2+}. Defects in thyroglobulin are known to cause some types of goiter (an enlargement of the thyroid gland). This condition is thought to result from defective dimerization and transport of thyroglobulin to the Golgi complex.

REFERENCES

1. Malthiery, Y. and Lissitzky, S. 1987. Primary structure of human thyroglobulin deduced from the sequence of its 8448-base complementary DNA. Eur. J. Biochem.165: 491-498.
2. Mallet, B., et al. 1995. N-glycans modulate *in vivo* and *in vitro* thyroid hormone synthesis. Study at the N-terminal domain of thyroglobulin. J. Biol. Chem. 270: 29881-29888.
3. Prabakaran, D., et al. 1996. Oligomeric assembly of thrombospondin in the endoplasmic reticulum of thyroid epithelial cells. Eur. J. Cell Biol. 70: 134-141.
4. Muresan, Z. and Arvan, P. 1998. Enhanced binding to the molecular chaperone BiP slows thyroglobulin export from the endoplasmic reticulum. Mol. Endocrinol. 12: 458-467.
5. Di Jeso, B., et al. 1998. Demonstration of a Ca^{2+} requirement for thyroglobulin dimerization and export to the Golgi complex. Eur. J. Biochem. 252: 583-590.
6. Hishinuma, A., et al. 1998. Missense mutation (C1263R) in the thyroglobulin gene causes congenital goiter with mild hypothyroidism by impaired intracellular transport. Endocr. J. 45: 315-327.
7. Lazar, V., et al. 1999. Expression of the Na^{+}/I^{-} symporter gene in human thyroid tumors: a comparison study with other thyroid-specific genes. J. Clin. Endocrinol. Metab. 84: 3228-3234.

CHROMOSOMAL LOCATION

Genetic locus: Tg (mouse) mapping to 15 D2.

PRODUCT

Thyroglobulin siRNA (m) 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 Thyroglobulin shRNA Plasmid (m): sc-63347-SH and Thyroglobulin shRNA (m) Lentiviral Particles: sc-63347-V as alternate gene silencing products.

For independent verification of Thyroglobulin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-63347A, sc-63347B and sc-63347C.

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

Thyroglobulin siRNA (m) is recommended for the inhibition of Thyroglobulin expression in mouse 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

Thyroglobulin (D-9): sc-365997 is recommended as a control antibody for monitoring of Thyroglobulin 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 Thyroglobulin gene expression knockdown using RT-PCR Primer: Thyroglobulin (m)-PR: sc-63347-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.