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TRβ2 siRNA (m): sc-45906

BACKGROUND

Thyroid hormone receptors (TRs) are ligand-dependent transcription factors that mediate the biological activities of thyroid hormone (T3). Thyroid hormone receptor β2 (TRβ2) is a high affinity receptor for triiodothyronine which belongs to the nuclear hormone receptor family and the NR1 subfamily. It is composed of three domains: a modulating N-terminal domain, a DNA-binding domain and a C-terminal steroid-binding domain. Defects in the receptor result in generalized thyroid hormone resistance (GTHR). GTHR is transmitted as an autosomal dominant trait, but an autosomal recessive form also exists. The disease is characterized by goiter, abnormal mental functions, increased susceptibility to infections, abnormal growth and bone maturation, tachycardia and deafness. GTHR patients also have high levels of circulating thyroid hormones (T3-T4), with normal or slightly elevated thyroid stimulating hormone.

REFERENCES

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2. Miller, L.D. 2004. Multi-tissue gene-expression analysis in a mouse model of thyroid hormone resistance. *Genome Biol.* 5:R31. Epub.
3. Wu, S.Y. 2005. Tissue responses to thyroid hormone in a kindred with resistance to thyroid hormone harboring a commonly occurring mutation in the thyroid hormone receptor β gene (P453T). *J. Lab. Clin. Med.* 146: 85-94.
4. Ying, H., et al. 2005. Dual functions of the steroid hormone receptor co-activator 3 in modulating resistance to thyroid hormone. *Mol. Cell. Biol.* 25: 7687-7695.
5. Cheng, S.Y. 2005. Thyroid hormone receptor mutations and disease: beyond thyroid hormone resistance. *Trends Endocrinol. Metab.* 16: 176-82.
6. Tian, H., et al. 2006. The N-terminal A/B domain of the thyroid hormone receptor-β2 isoform influences ligand-dependent recruitment of co-activators to the ligand binding domain. *Mol. Endocrinol.* 20: 2036-2051.

CHROMOSOMAL LOCATION

Genetic locus: *Thrb* (mouse) mapping to 14 A2.

PRODUCT

TRβ2 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 TRβ2 shRNA Plasmid (m): sc-45906-SH and TRβ2 shRNA (m) Lentiviral Particles: sc-45906-V as alternate gene silencing products.

For independent verification of TRβ2 (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-45906A, sc-45906B and sc-45906C.

RESEARCH USE

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

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

TRβ2 siRNA (m) is recommended for the inhibition of TRβ2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRβ2 gene expression knockdown using RT-PCR Primer: TRβ2 (m)-PR: sc-45906-PR (20 μl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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