

TGF β RII siRNA (m): sc-36658

BACKGROUND

A total of three members of the TGF β family, TGF β 1, TGF β 2 and TGF β 3, have been identified in mammals. Each is synthesized as a latent precursor that is subsequently cleaved forming the 112 amino acid growth factor which becomes active upon dimerization. TGF β s mediate their activity by high affinity binding to the type II receptor (TGF β RII) transmembrane protein with a cytoplasmic serine-threonine kinase domain. TGF β RII (TGF- β receptor type-2), also known as TGFBR2, is a 567 amino acid single-pass type I membrane protein that contains one protein kinase domain and is a member of the protein kinase superfamily, TKL Ser/Thr protein kinase family and TGF β receptor subfamily. For signaling growth inhibition and early gene responses, TGF β RII requires both its kinase activity and association with a TGF β -binding protein, designated the type I receptor. TGF β RII exists as two alternatively spliced isoforms that are encoded by a gene that maps to human chromosome 3.

REFERENCES

1. Anzano, M.A., et al. 1983. Sarcoma growth factor from conditioned medium of virally transformed cells is composed of both type α and type β transforming growth factors. *Proc. Natl. Acad. Sci. USA* 80: 6264-6268.
2. Derynck, R., et al. 1985. Human transforming growth factor β cDNA sequence and expression in tumor cell lines. *Nature* 316: 701-705.
3. ten Dijke, P., et al. 1988. Identification of a new member of the transforming growth factor type β gene family. *Proc. Natl. Acad. Sci. USA* 85: 4715-4719.
4. Cheifetz, S., et al. 1990. Distinct transforming growth factor β receptor subsets as determinants of cellular responsiveness to three TGF β isoforms. *J. Biol. Chem.* 265: 20533-20538.

CHROMOSOMAL LOCATION

Genetic locus: Tgfbr2 (mouse) mapping to 9 F3.

PRODUCT

TGF β RII 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TGF β RII shRNA Plasmid (m): sc-36658-SH and TGF β RII shRNA (m) Lentiviral Particles: sc-36658-V as alternate gene silencing products.

For independent verification of TGF β RII (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-36658A, sc-36658B and sc-36658C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$ C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$ C, avoid contact with RNAses and repeated freeze thaw cycles.

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

APPLICATIONS

TGF β RII siRNA (m) is recommended for the inhibition of TGF β RII 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 μ M in 66 μ 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

TGF β RII (C-4): sc-17791 is recommended as a control antibody for monitoring of TGF β RII 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 κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 TGF β RII gene expression knockdown using RT-PCR Primer: TGF β RII (m)-PR: sc-36658-PR (20 μ l, 455 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Erdogan, M., et al. 2008. Transforming growth factor- β (TGF β) and TGF β -associated kinase 1 are required for R-Ras-mediated transformation of mammary epithelial cells. *Cancer Res.* 68: 6224-6231.

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.