

R-Spondin3 siRNA (m): sc-152619

BACKGROUND

Roof plate-specific Spondins (R-Spondins) are secreted proteins that possess a Furin-like cysteine-rich domain and are involved in regulating β -catenin function. R-Spondin3, also known as RSP03, PWTSR, THSD2 or CRISTIN1, is a 272 amino acid secreted protein that contains one TSP type-1 domain and two furin-like repeats. Expressed ubiquitously with particularly high levels present in placenta, thymus and lymph node, R-Spondin3 functions to activate the β -catenin signaling cascade, ultimately leading to TCF-dependent gene activation. Multiple isoforms of R-Spondin3 exist due to alternative splicing events. The gene encoding R-Spondin3 maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome. Deletion of a portion of the q arm of chromosome 6 is associated with early onset intestinal cancer, suggesting the presence of a cancer susceptibility locus. Additionally, Porphyria cutanea tarda, Parkinson's disease, Stickler syndrome and a susceptibility to bipolar disorder are all associated with genes that map to chromosome 6.

REFERENCES

- Adams, J.C. and Tucker, R.P. 2000. The thrombospondin type 1 repeat (TSR) superfamily: diverse proteins with related roles in neuronal development. *Dev. Dyn.* 218: 280-299.
- Chen, J.Z., et al. 2002. Cloning and identification of a cDNA that encodes a novel human protein with thrombospondin type I repeat domain, hPWTSR. *Mol. Biol. Rep.* 29: 287-292.
- Hannah, B.L., et al. 2003. A polymorphism in thrombospondin-1 associated with familial premature coronary heart disease causes a local change in conformation of the Ca^{2+} -binding repeats. *J. Biol. Chem.* 278: 8929-8934.
- Kim, K.A., et al. 2006. R-Spondin proteins: a novel link to β -catenin activation. *Cell Cycle* 5: 23-26.
- Nam, J.S., et al. 2006. Mouse cristin/R-Spondin family proteins are novel ligands for the frizzled 8 and LRP6 receptors and activate β -catenin-dependent gene expression. *J. Biol. Chem.* 281: 13247-13257.
- Theodorou, V., et al. 2007. MMTV insertional mutagenesis identifies genes, gene families and pathways involved in mammary cancer. *Nat. Genet.* 39: 759-769.

CHROMOSOMAL LOCATION

Genetic locus: Rspo3 (mouse) mapping to 10 A4.

PRODUCT

R-Spondin3 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 R-Spondin3 shRNA Plasmid (m): sc-152619-SH and R-Spondin3 shRNA (m) Lentiviral Particles: sc-152619-V as alternate gene silencing products.

For independent verification of R-Spondin3 (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-152619A, sc-152619B and sc-152619C.

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

R-Spondin3 siRNA (m) is recommended for the inhibition of R-Spondin3 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 R-Spondin3 gene expression knockdown using RT-PCR Primer: R-Spondin3 (m)-PR: sc-152619-PR (20 μl). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

SELECT PRODUCT CITATIONS

- Greicius, G., et al. 2018. PDGFR α^{+} pericycral stromal cells are the critical source of Wnts and RSP03 for murine intestinal stem cells *in vivo*. *Proc. Natl. Acad. Sci. USA* 115: E3173-E3181.

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.