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# Thrombin R siRNA (r): sc-270004

## BACKGROUND

Thrombin is a serine protease that is involved in platelet aggregation and blood coagulation. It is cleaved from its precursor, prothrombin, and converts fibrinogen to Fibrin in the final step of the clotting cascade. Thrombin mediates its regulatory effects by activating cell surface receptors. These receptors, including Thrombin R (also designated PAR-1, for protease-activated receptor-1), PAR-2 and PAR-3, are members of the G protein-coupled receptor family, and share a similar gene structure. Thrombin cleaves its receptor, releasing a 41 amino acid peptide that acts as a platelet agonist. Upon this activation by Thrombin, the Thrombin Rs trigger an increase in cytosolic Ca<sup>2+</sup> concentration. Unactivated Thrombin R cycles between the cell surface and an intracellular pool, while activated Thrombin R internalizes rapidly and is degraded in the lysosomes. The human Thrombin R is also known to be regulated by Sp1 and Sp3 transcription factors.

## REFERENCES

1. Goldsack, N.R., et al. 1998. Thrombin. *Int. J. Biochem. Cell Biol.* 30: 641-646.
2. Kahn, M.L., et al. 1998. Gene and locus structure and chromosomal localization of the protease-activated receptor gene family. *J. Biol. Chem.* 273: 23290-23296.
3. Furman, M.I., et al. 1998. The cleaved peptide of the Thrombin receptor is a strong platelet agonist. *Proc. Natl. Acad. Sci. USA* 95: 3082-3087.
4. Sullivan, R., et al. 1998. Analysis of a Ca<sup>2+</sup>-activated K<sup>+</sup> channel that mediates hyperpolarization via the Thrombin receptor pathway. *Am. J. Physiol.* 275: C1342-C1348.
5. Shapiro, M.J., et al. 1998. Separate signals for agonist-independent and agonist-triggered trafficking of protease-activated receptor-1. *J. Biol. Chem.* 273: 29009-29014.
6. Wu, Y., et al. 1998. Differential transcriptional regulation of the human Thrombin receptor gene by the Sp family of transcription factors in human endothelial cells. *Biochem. J.* 330: 1469-1474.

## CHROMOSOMAL LOCATION

Genetic locus: F2r (rat) mapping to 2q12.

## PRODUCT

Thrombin R siRNA (r) 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 Thrombin R shRNA Plasmid (r): sc-270004-SH and Thrombin R shRNA (r) Lentiviral Particles: sc-270004-V as alternate gene silencing products.

For independent verification of Thrombin R (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270004A, sc-270004B and sc-270004C.

## 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

Thrombin R siRNA (r) is recommended for the inhibition of Thrombin R expression in rat 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

Thrombin R (ATAP2): sc-13503 is recommended as a control antibody for monitoring of Thrombin R 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 Thrombin R gene expression knockdown using RT-PCR Primer: Thrombin R (r)-PR: sc-270004-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](http://www.scbt.com) for detailed protocols and support products.