

## RNase 4 siRNA (m): sc-39302

### BACKGROUND

RNase 4 and RNase 5/Ang1 are unique among the RNase A ribonuclease genes in that they maintain a complex gene locus that is conserved across species with transcription initiated from tissue-specific dual promoters followed by differential exon splicing. Rnase4 (ribonuclease, RNase A family 4) gene can produce 2 transcripts both encoding 148 amino acid proteins. Rnase 4 is a member of the pancreatic-type of secretory ribonucleases, a subset of the ribonuclease A superfamily. RNase 4 prefers poly(C) as a substrate and hydrolyzes 2',3'-cyclic nucleotides, with a pH optimum near 8.0. mRNA encoding RNase 4 is detectable in human pancreas, lung, skeletal muscle, heart, kidney and placenta; liver represents the most abundant source.

### REFERENCES

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2. Mizuta, K., et al. 1990. Purification and characterization of three ribonucleases from human kidney: comparison with urine ribonucleases. *Arch. Biochem. Biophys.* 281: 144-151.
3. Haugg, M. and Schein, C.H. 1992. The DNA sequences of the human and hamster secretory ribonucleases determined with the polymerase chain reaction (PCR). *Nucleic Acids Res.* 20: 612-612.
4. Sakakibara, R., et al. 1992. Characterization of a unique nonsecretory ribonuclease from urine of pregnant women. *J. Biochem.* 111: 325-330.
5. Rodríguez, M., et al. 2006. A cytotoxic ribonuclease variant with a discontinuous nuclear localization signal constituted by basic residues scattered over three areas of the molecule. *J. Mol. Biol.* 360: 548-557.
6. Schienman, J.E., et al. 2006. Duplication and divergence of 2 distinct pancreatic ribonuclease genes in leaf-eating African and Asian colobine monkeys. *Mol. Biol. Evol.* 23: 1465-1479.

### CHROMOSOMAL LOCATION

Genetic locus: Rnase4 (mouse) mapping to 14 C1.

### PRODUCT

RNase 4 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RNase 4 shRNA Plasmid (m): sc-39302-SH and RNase 4 shRNA (m) Lentiviral Particles: sc-39302-V as alternate gene silencing products.

For independent verification of RNase 4 (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-39302A, sc-39302B and sc-39302C.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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

### APPLICATIONS

RNase 4 siRNA (m) is recommended for the inhibition of RNase 4 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  $\mu$ M in 66  $\mu$ 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.

### RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RNase 4 gene expression knockdown using RT-PCR Primer: RNase 4 (m)-PR: sc-39302-PR (20  $\mu$ l). 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.