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# SRP54b siRNA (m): sc-153824

## BACKGROUND

Signal recognition particle (SRP) is a ribonucleoprotein composed of an Alu domain and an S domain that contains six proteins. The S domain contains unique sequence SRP RNA and four SRP proteins: SRP19, SRP54, SRP68 and SRP72. The Alu domain contains two SRP proteins, SRP9 and SRP14. SRP interacts with ribosomes to bring translating membrane and secreted proteins to the endoplasmic reticulum (ER) for proper processing. SRP9 and SRP14 form a heterodimer before binding to SRP RNA, and SRP19 functions in the assembly of SRP and binds to free SRP RNA. This event is a prerequisite for the subsequent binding of SRP54 to helix 8 of SRP RNA in eukaryotes and involves an SRP19-induced conformational change in the RNA. SRP54 interacts with both the nascent signal peptide and SRP RNA. SRP68 binding to SRP RNA enhances SRP72 binding. SRP19, SRP68 and SRP72 are localized in the nucleolus and cytoplasm, whereas SRP54 is only localized in the cytoplasm. SRP68 also accumulates in the ER. Thus, the nucleolus is the site of assembly and/or interaction between the family of ribonucleoproteins involved in protein synthesis.

## REFERENCES

1. Walter, P. and Blobel, G. 1983. Subcellular distribution of signal recognition particle and 7SL-RNA determined with polypeptide-specific antibodies and complementary DNA probe. *J. Cell Biol.* 97: 1693-1699.
2. Lingelbach, K., et al. 1988. Isolation and characterization of a cDNA clone encoding the 19 kDa protein of signal recognition particle (SRP): expression and binding to 7SL RNA. *Nucleic Acids Res.* 16: 9431-9442.
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4. Gowda, K., et al. 1998. Protein SRP54 of human signal recognition particle: cloning, expression, and comparative analysis of functional sites. *Gene* 207: 197-207.
5. Politz, J.C., et al. 2000. Signal recognition particle components in the nucleolus. *Proc. Natl. Acad. Sci. USA* 97: 55-60.
6. Pederson, T. and Politz, J.C. 2000. The nucleolus and the four ribonucleoproteins of translation. *J. Cell Biol.* 148: 1091-1095.
7. Wild, K., et al. 2001. Crystal structure of an early protein-RNA assembly complex of the signal recognition particle. *Science* 294: 598-601.
8. Liu, L., et al. 2002. RNA interference of signal peptide-binding protein SRP54 elicits deleterious effects and protein sorting defects in trypanosomes. *J. Biol. Chem.* 277: 47348-47357.
9. Huang, Q., et al. 2002. Systematic site-directed mutagenesis of human protein SRP54: interactions with signal recognition particle RNA and modes of signal peptide recognition. *Biochemistry* 41: 11362-11371.

## CHROMOSOMAL LOCATION

Genetic locus: Srp54b (mouse) mapping to 12 C1.

## PROTOCOLS

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

## PRODUCT

SRP54b siRNA (m) is a target-specific 19-25 nt siRNA 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 SRP54b shRNA Plasmid (m): sc-153824-SH and SRP54b shRNA (m) Lentiviral Particles: sc-153824-V as alternate gene silencing 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

SRP54b siRNA (m) is recommended for the inhibition of SRP54b 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 SRP54b gene expression knockdown using RT-PCR Primer: SRP54b (m)-PR: sc-153824-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.