



## FARSLA siRNA (m): sc-145073

### BACKGROUND

Aminoacyl-tRNA synthetases consist of a family of enzymes that catalyze the specific aminoacylation of tRNA by their cognate amino acid in the initial step of ribosome-dependent protein biosynthesis. FARSLA, also known as FRSA, CML33, FARSL or PheHA (phenylalanyl-tRNA synthetase,  $\alpha$  subunit), is a member of the class-II aminoacyl-tRNA synthetase family and is highly expressed in proliferating cells of bone marrow. FARSLA is a cytoplasmic phenylalanine-tRNA synthetase that functions as a heterodimer consisting of a catalytic  $\alpha$ -subunit and a regulatory  $\beta$ -subunit. The  $\alpha$ -subunit is responsible for forming the amino acid binding pocket, mediating the ATP/aminoacyl adenylate binding, and interacts with the acceptor stem of the tRNA. FARSLA functions in a cell cycle-dependent and differentiation-dependent manner.

### REFERENCES

1. Ibba, M., et al. 1995. Increased rates of tRNA charging through modification of the enzyme-aminoacyl-adenylate complex of phenylalanyl-tRNA synthetase. *FEBS Lett.* 358: 293-296.
2. Aphasizhev, R., et al. 1996. Conservation in evolution for a small monomeric phenylalanyl-tRNA synthetase of the tRNA(Phe) recognition nucleotides and initial aminoacylation site. *Biochemistry* 35: 117-123.
3. Sen, S., et al. 1997. Expression of a gene encoding a tRNA synthetase-like protein is enhanced in tumorigenic human myeloid leukemia cells and is cell cycle stage- and differentiation-dependent. *Proc. Natl. Acad. Sci. USA* 94: 6164-6169.
4. Zhou, X., et al. 1999. Cloning of the cDNA encoding phenylalanyl tRNA synthetase regulatory  $\alpha$ -subunit-like protein whose expression is down-regulated during differentiation. *Gene* 233: 13-19.
5. Rodova, M., et al. 1999. Human phenylalanyl-tRNA synthetase: cloning, characterization of the deduced amino acid sequences in terms of the structural domains and coordinately regulated expression of the  $\alpha$  and  $\beta$  subunits in chronic myeloid leukemia cells. *Biochem. Biophys. Res. Commun.* 255: 765-773.
6. Moor, N., et al. 2002. Cloning and expression of human phenylalanyl-tRNA synthetase in *Escherichia coli*: comparative study of purified recombinant enzymes. *Protein Expr. Purif.* 24: 260-267.
7. Moor, N., et al. 2003. Prokaryotic and eukaryotic tetrameric phenylalanyl-tRNA synthetases display conservation of the binding mode of the tRNA (Phe) CCA end. *Biochemistry* 42: 10697-10708.

### CHROMOSOMAL LOCATION

Genetic locus: Farsa (mouse) mapping to 8 C3.

### PRODUCT

FARSLA 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 FARSLA shRNA Plasmid (m): sc-145073-SH and FARSLA shRNA (m) Lentiviral Particles: sc-145073-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

FARSLA siRNA (m) is recommended for the inhibition of FARSLA 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 FARSLA gene expression knockdown using RT-PCR Primer: FARSLA (m)-PR: sc-145073-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.

### PROTOCOLS

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