SANTA CRUZ BIOTECHNOLOGY, INC.

FARSLA siRNA (h): sc-97718

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, α 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 α-subunit and a regulatory β-subunit. The α-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 α-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 α and β 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.

CHROMOSOMAL LOCATION

Genetic locus: FARSA (human) mapping to 19p13.2.

PRODUCT

FARSLA siRNA (h) is a pool of 2 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 FARSLA shRNA Plasmid (h): sc-97718-SH and FARSLA shRNA (h) Lentiviral Particles: sc-97718-V as alternate gene silencing products.

For independent verification of FARSLA (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-97718A and sc-97718B.

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

FARSLA siRNA (h) is recommended for the inhibition of FARSLA expression in human 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

FARSLA (L-8): sc-100987 is recommended as a control antibody for monitoring of FARSLA 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 FARSLA gene expression knockdown using RT-PCR Primer: FARSLA (h)-PR: sc-97718-PR (20 µl). 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 for detailed protocols and support products.