SANTA CRUZ BIOTECHNOLOGY, INC.

FARSLB siRNA (h): sc-94531

BACKGROUND

Aminoacyl-tRNA synthetases are a class of enzymes that add specific amino acid residues to various tRNAs. FARSLB (Phenylalanine—tRNA ligase β chain), also known as FARSB, FRSB, PheHB or PheRS, is a 589 amino acid cytoplasmic protein that is the regulatory beta subunit of phenylalanine-tRNA synthetase. A highly conserved member of the aminoacyl-tRNA synthetase class IIc subfamily, FARSLB functions to enzymatically attach L-phenylalanine residues to terminal adenosines on tRNA(Phe). This is an ATP-dependent reaction that yields AMP, a diphosphate and an L-phenylalanine-tagged tRNA(Phe). FARSLB is expressed in brain, heart, kidney, pancreas, placenta and skeletal muscle and its expression is increased in malignant cell lines, suggesting a possible role for FARSLB in carcinogenesis.

REFERENCES

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. Yu, X.Y., et al. 2004. A series of spirocyclic analogues as potent inhibitors of bacterial phenylalanyl-tRNA synthetases. Bioorg. Med. Chem. Lett. 14: 1339-1342.

CHROMOSOMAL LOCATION

Genetic locus: FARSB (human) mapping to 2q36.1.

PRODUCT

FARSLB siRNA (h) 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 FARSLB shRNA Plasmid (h): sc-94531-SH and FARSLB shRNA (h) Lentiviral Particles: sc-94531-V as alternate gene silencing products.

For independent verification of FARSLB (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-94531A, sc-94531B and sc-94531C.

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

FARSLB siRNA (h) is recommended for the inhibition of FARSLB 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

FARSLB (J-02): sc-100985 is recommended as a control antibody for monitoring of FARSLB 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 FARSLB gene expression knockdown using RT-PCR Primer: FARSLB (h)-PR: sc-94531-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.