SANTA CRUZ BIOTECHNOLOGY, INC.

# ProRS siRNA (h): sc-76254

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*The Power to Question*

## BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. ProRS (prolyl-tRNA synthetase), also known as EPRS, EARS, PARS, QARS, QPRS, PIG32 or GLUPRORS, is a 1,512 amino acid protein that contains three WHEP-TRS domains and belongs to both the class-I and class-II aminoacyl-tRNA synthetase family. Functioning as a component of the multisynthase complex, ProRS uses ATP to catalyze the conversion of L-glutamate and tRNA(Glu) to L-glutamyl-tRNA(Glu), as well as the conversion of L-proline and tRNA(Pro) to L-prolyl-tRNA(Pro).

## REFERENCES


1. Kunze, N., et al. 1990. The human QARS locus: assignment of the human gene for glutaminyl-tRNA synthetase to chromosome 1q32-42. Hum. Genet. 85: 527-530.
2. Kaiser, E., et al. 1994. The human EPRS locus (formerly the QARS locus): a gene encoding a class I and a class II aminoacyl-tRNA synthetase. Genomics 19: 280-290.
3. Rho, S.B., et al. 1998. A multifunctional repeated motif is present in human bifunctional tRNA synthetase. J. Biol. Chem. 273: 11267-11273.
4. Quevillon, S., et al. 1999. Macromolecular assemblage of aminoacyl-tRNA synthetases: identification of protein-protein interactions and characterization of a core protein. J. Mol. Biol. 285: 183-195.
5. Jeong, E.J., et al. 2000. Structural analysis of multifunctional peptide motifs in human bifunctional tRNA synthetase: identification of RNA-binding residues and functional implications for tandem repeats. Biochemistry 39: 15775-15782.
6. Kang, J., et al. 2000. Heat shock protein 90 mediates protein-protein interactions between human aminoacyl-tRNA synthetases. J. Biol. Chem. 275: 31682-31688.


## CHROMOSOMAL LOCATION

Genetic locus: EPRS (human) mapping to 1q41.

## PRODUCT

ProRS 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 ProRS shRNA Plasmid (h): sc-76254-SH and ProRS shRNA (h) Lentiviral Particles: sc-76254-V as alternate gene silencing products.

For independent verification of ProRS (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-76254A, sc-76254B and sc-76254C.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## 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

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

ProRS (A-2): sc-393505 is recommended as a control antibody for monitoring of ProRS 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 ProRS gene expression knockdown using RT-PCR Primer: ProRS (h)-PR: sc-76254-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.