

ProRS (D-12): sc-393103

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 glutamyl-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.
7. Sang Lee, J., et al. 2002. Interaction network of human aminoacyl-tRNA synthetases and subunits of elongation factor 1 complex. *Biochem. Biophys. Res. Commun.* 291: 158-164.
8. Sampath, P., et al. 2004. Noncanonical function of glutamyl-prolyl-tRNA synthetase: gene-specific silencing of translation. *Cell* 119: 195-208.

CHROMOSOMAL LOCATION

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

SOURCE

ProRS (D-12) is a mouse monoclonal antibody raised against amino acids 1213-1512 mapping at the C-terminus of ProRS of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ProRS (D-12) is recommended for detection of ProRS of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ProRS siRNA (h): sc-76254, ProRS shRNA Plasmid (h): sc-76254-SH and ProRS shRNA (h) Lentiviral Particles: sc-76254-V.

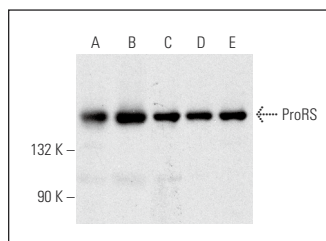
Molecular Weight of ProRS: 172 kDa.

Positive Controls: PANC-1 whole cell lysate: sc-364380, RT-4 whole cell lysate: sc-364257 or HEK293 whole cell lysate: sc-45136.

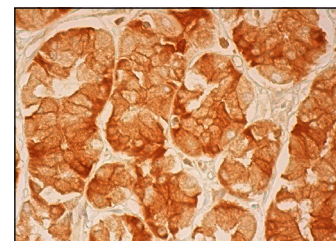
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



ProRS (D-12): sc-393103. Western blot analysis of ProRS expression in A-431 (A), PANC-1 (B), RT-4 (C), U-251-MG (D) and HEK293 (E) whole cell lysates.



ProRS (D-12): sc-393103. Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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