

PheRS (F-9): sc-166048

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. PheRS (phenylalanyl-tRNA synthetase 2, mitochondrial), also known as FARS2, is a 451 amino acid mitochondrial matrix protein that belongs to the class II aminoacyl-tRNA synthetase family. Functioning as a monomer, PheRS catalyzes the ATP-dependent conversion of L-phenylalanine and tRNA(Phe) to L-phenylalanyl-tRNA(Phe), an event that is crucial for proper translation and protein expression. The gene encoding PheRS maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Bullard, J.M., et al. 1999. Expression and characterization of a human mitochondrial phenylalanyl-tRNA synthetase. *J. Mol. Biol.* 288: 567-577.
2. Roy, H. and Ibba, M. 2006. Phenylalanyl-tRNA synthetase contains a dispensable RNA-binding domain that contributes to the editing of noncognate aminoacyl-tRNA. *Biochemistry* 45: 9156-9162.
3. Sasaki, H.M., et al. 2006. Structural and mutational studies of the amino acid-editing domain from archaeal/eukaryal phenylalanyl-tRNA synthetase. *Proc. Natl. Acad. Sci. USA* 103: 14744-14749.
4. Levin, I., et al. 2007. Purification, crystallization and preliminary X-ray characterization of a human mitochondrial phenylalanyl-tRNA synthetase. *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* 63: 761-764.
5. Ling, J., et al. 2007. Phenylalanyl-tRNA synthetase editing defects result in efficient mistranslation of phenylalanine codons as tyrosine. *RNA* 13: 1881-1886.

CHROMOSOMAL LOCATION

Genetic locus: FARS2 (human) mapping to 6p25.1; Fars2 (mouse) mapping to 13 A3.3.

SOURCE

PheRS (F-9) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of PheRS of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PheRS (F-9) is available conjugated to agarose (sc-166048 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166048 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166048 PE), fluorescein (sc-166048 FITC), Alexa Fluor[®] 488 (sc-166048 AF488), Alexa Fluor[®] 546 (sc-166048 AF546), Alexa Fluor[®] 594 (sc-166048 AF594) or Alexa Fluor[®] 647 (sc-166048 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-166048 AF680) or Alexa Fluor[®] 790 (sc-166048 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

PheRS (F-9) is recommended for detection of PheRS of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PheRS siRNA (h): sc-76115, PheRS siRNA (m): sc-76116, PheRS shRNA Plasmid (h): sc-76115-SH, PheRS shRNA Plasmid (m): sc-76116-SH, PheRS shRNA (h) Lentiviral Particles: sc-76115-V and PheRS shRNA (m) Lentiviral Particles: sc-76116-V.

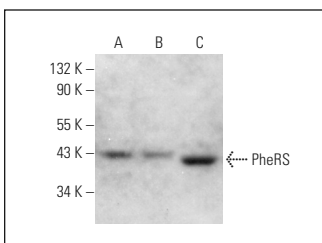
Molecular Weight of PheRS: 48 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, K-562 whole cell lysate: sc-2203 or PheRS (m): 293T Lysate: sc-122534.

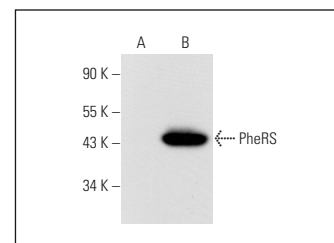
RECOMMENDED SUPPORT REAGENTS

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.

DATA



PheRS (F-9): sc-166048. Western blot analysis of PheRS expression in CCRF-CEM (A), K-562 (B) and NIH/3T3 (C) whole cell lysates.



PheRS (F-9): sc-166048. Western blot analysis of PheRS expression in non-transfected: sc-117752 (A) and mouse PheRS transfected: sc-122534 (B) 293T whole cell lysates.

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.

PROTOCOLS

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