

PheRS (m): 293T Lysate: sc-122534

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., Cai, Y.C., Demeler, B. and Spremulli, L.L. 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 non-cognate aminoacyl-tRNA. *Biochemistry* 45: 9156-9162.
3. Sasaki, H.M., Sekine, S., Sengoku, T., Fukunaga, R., Hattori, M., Utsunomiya, Y., Kuroishi, C., Kuramitsu, S., Shirouzu, M. and Yokoyama, S. 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., Kessler, N., Moor, N., Klipcan, L., Koc, E., Templeton, P., Spremulli, L. and Safo, M. 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., Yadavalli, S.S. and Ibba, M. 2007. Phenylalanyl-tRNA synthetase editing defects result in efficient mistranslation of phenylalanine codons as tyrosine. *RNA* 13: 1881-1886.

CHROMOSOMAL LOCATION

Genetic locus: Fars2 (mouse) mapping to 13 A3.3.

PRODUCT

PheRS (m): 293T Lysate represents a lysate of mouse PheRS transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

PheRS (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive PheRS antibodies. Recommended use: 10-20 µl per lane.

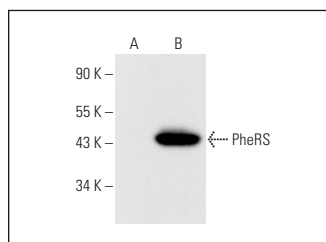
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PheRS (F-9): sc-166048 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse PheRS expression in PheRS transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



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 -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.