

LARS2 (K-12): sc-102651



The Power to Question

BACKGROUND

LARS2 (leucyl-tRNA synthetase 2, mitochondrial) is also known as LEURS (leucine-tRNA ligase) and is a 903 amino acid protein. LARS2 is a member of the class-I aminoacyl-tRNA synthetase family and is localized to the mitochondrial matrix. LARS2 catalyzes the aminoacylation of leucine to tRNA(Leu) via a two step reaction during protein synthesis. The two step reaction begins by LARS2 activating leucine with an ATP molecule which yields an adenylate intermediate that then transfers the activated leucine to the 3'-end of the target tRNA. tRNA(Leu) has a variable loop with a specific sequence and orientation which is thought to be important for interaction with LARS2. LARS2 is upregulated in bipolar disorder and schizophrenia and is thought to be over-expressed in an attempt to cause a mutated tRNA(Leu), tRNA(Leu)(UUR), to go through aminoacylation. Diabetes is also thought to be associated with upregulation of LARS2 which may promote intolerance of glucose.

REFERENCES

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- Munakata, K., et al. 2005. Mitochondrial DNA 3243A>G mutation and increased expression of LARS2 gene in the brains of patients with bipolar disorder and schizophrenia. *Biol. Psychiatry* 57: 525-532.
- 't Hart, L.M., et al. 2005. Evidence that the mitochondrial leucyl tRNA synthetase (LARS2) gene represents a novel type 2 diabetes susceptibility gene. *Diabetes* 54: 1892-1895.
- Zhai, Y., et al. 2007. Modulation of substrate specificity within the amino acid editing site of leucyl-tRNA synthetase. *Biochemistry* 46: 3331-3337.
- Lue, S.W. and Kelley, S.O. 2007. A single residue in leucyl-tRNA synthetase affecting amino acid specificity and tRNA aminoacylation. *Biochemistry* 46: 4466-4472.
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- Betha, A.K., et al. 2007. Isolated CP1 domain of *Escherichia coli* leucyl-tRNA synthetase is dependent on flanking hinge motifs for amino acid editing activity. *Biochemistry* 46: 6258-6267.

CHROMOSOMAL LOCATION

Genetic locus: LARS2 (human) mapping to 3p21.31; Lars2 (mouse) mapping to 9 F4.

SOURCE

LARS2 (K-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of LARS2 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-102651 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

LARS2 (K-12) is recommended for detection of LARS2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

LARS2 (K-12) is also recommended for detection of LARS2 in additional species, including equine and canine.

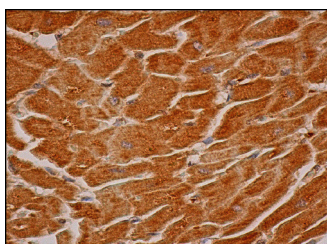
Suitable for use as control antibody for LARS2 siRNA (h): sc-78462, LARS2 siRNA (m): sc-146655, LARS2 shRNA Plasmid (h): sc-78462-SH, LARS2 shRNA Plasmid (m): sc-146655-SH, LARS2 shRNA (h) Lentiviral Particles: sc-78462-V and LARS2 shRNA (m) Lentiviral Particles: sc-146655-V.

Molecular Weight of LARS2: 102 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



LARS2 (K-12): sc-102651. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing cytoplasmic staining of myocytes.

RESEARCH USE

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