SANTA CRUZ BIOTECHNOLOGY, INC.

LARS2 (E-16): sc-102650

SANTA CRUZ BIOTECHNOLOGY
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

1. Han, W., et al. 2001. Gene cloning, expression and purification of human mitochondrial tRNA(Leu(UUR)) and its mutant. Sci. China, C, Life Sci. 44: 113-120.
2. 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.
3. '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.
4. Zhai, Y., et al. 2007. Modulation of substrate specificity within the amino acid editing site of leucyl-tRNA synthetase. Biochemistry 46: 3331-3337.
5. 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.

CHROMOSOMAL LOCATION

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

SOURCE

LARS2 (E-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of LARS2 of human origin.

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-102650 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

LARS2 (E-16) 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), 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).

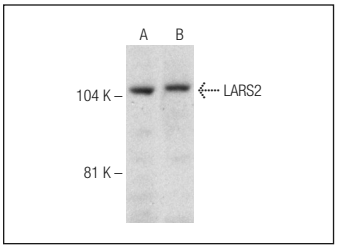
LARS2 (E-16) is also recommended for detection of LARS2 in additional species, including equine, canine, bovine, porcine and avian.

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.

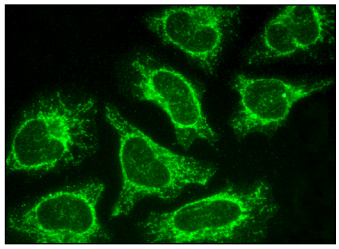
Molecular Weight of LARS2: 102 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

DATA



LARS2 (E-16): sc-102650. Western blot analysis of LARS2 expression in K-562 (**A**) and Jurkat (**B**) whole cell lysates.



LARS2 (E-16): sc-102650. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization.

RESEARCH USE

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

PROTOCOLS

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