

LysRS (m3): 293T Lysate: sc-121459

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. LysRS (lysyl-tRNA synthetase), also known as KARS, KRS or KARS2, exists as both mitochondrial and cytoplasmic isoforms (625 and 576 amino acids, respectively) that belong to the tRNA synthetase family and are thought to play a role in autoimmune diseases, such as polymyositis or dermatomyositis. The gene encoding LysRS maps to human chromosome 16, which encodes over 900 genes and comprises nearly 3% of the human genome.

REFERENCES

1. Targoff, I.N., et al. 1993. Reaction of anti-OJ autoantibodies with components of the multi-enzyme complex of aminoacyl-tRNA synthetases in addition to isoleucyl-tRNA synthetase. *J. Clin. Invest.* 91: 2556-2564.
2. Nichols, R.C., et al. 1996. Assignment of two human autoantigen genes- isoleucyl-tRNA synthetase locates to 9q21 and lysyl-tRNA synthetase locates to 16q23-q24. *Genomics* 36: 210-213.
3. Tolkunova, E., et al. 2000. The human lysyl-tRNA synthetase gene encodes both the cytoplasmic and mitochondrial enzymes by means of an unusual alternative splicing of the primary transcript. *J. Biol. Chem.* 275: 35063-35069.
4. Maas, S., et al. 2001. Genomic clustering of tRNA-specific adenosine deaminase ADAT1 and two tRNA synthetases. *Mamm. Genome* 12: 387-393.
5. Park, S.G., et al. 2005. Human lysyl-tRNA synthetase is secreted to trigger proinflammatory response. *Proc. Natl. Acad. Sci. USA* 102: 6356-6361.
6. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 601421. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
7. Kawamata, H., et al. 2008. Lysyl-tRNA synthetase is a target for mutant SOD-1 toxicity in mitochondria. *J. Biol. Chem.* 283: 28321-28328.
8. Guo, M., et al. 2008. Crystal structure of tetrameric form of human lysyl-tRNA synthetase: Implications for multisynthetase complex formation. *Proc. Natl. Acad. Sci. USA* 105: 2331-2336.

CHROMOSOMAL LOCATION

Genetic locus: Kars (mouse) mapping to 8 E1.

PRODUCT

LysRS (m3): 293T Lysate represents a lysate of mouse LysRS transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

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.

APPLICATIONS

LysRS (m3): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive LysRS antibodies.

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

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.