SANTA CRUZ BIOTECHNOLOGY, INC.

# LysRS (D-4): sc-393645

## 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.


## CHROMOSOMAL LOCATION

Genetic locus: KARS (human) mapping to 16q23.1; Kars (mouse) mapping to 8 E1.

## SOURCE

LysRS (D-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 490-519 within an internal region of LysRS of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_3$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-393645 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

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

## APPLICATIONS

LysRS (D-4) is recommended for detection of LysRS 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).

LysRS (D-4) is also recommended for detection of LysRS in additional species, including equine.

Suitable for use as control antibody for LysRS siRNA (h): sc-75718, LysRS siRNA (m): sc-75719, LysRS shRNA Plasmid (h): sc-75718-SH, LysRS shRNA Plasmid (m): sc-75719-SH, LysRS shRNA (h) Lentiviral Particles: sc-75718-V and LysRS shRNA (m) Lentiviral Particles: sc-75719-V.

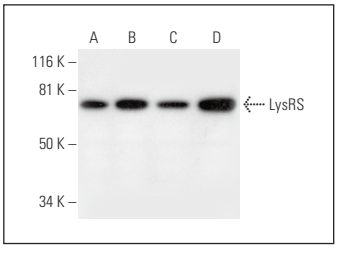
Molecular Weight of LysRS: 68 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or COLO 320DM cell lysate: sc-2226.

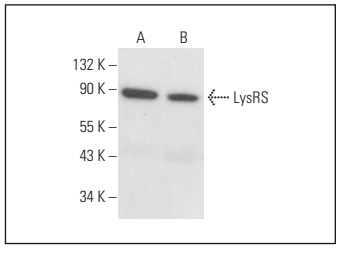
## RECOMMENDED SUPPORT REAGENTS

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




LysRS (D-4): sc-393645. Western blot analysis of LysRS expression in HeLa (**A**), Jurkat (**B**), Caki-1 (**C**) and COLO 320DM (**D**) whole cell lysates.




LysRS (D-4): sc-393645. Western blot analysis of LysRS expression in HeLa (**A**) and A549 (**B**) whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Guo, Y., et al. 2023. MRGPRX2 signaling involves the Lysyl-tRNA synthetase and MITF pathway. Front. Immunol. 14: 1154108.


## RESEARCH USE

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