SANTA CRUZ BIOTECHNOLOGY, INC.

AlaRS (h3): 293T Lysate: sc-170661

BACKGROUND

Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. Class II tRNA synthases are a highly conserved subfamily of tRNA synthetases that have a catalytic domain through which they interact with the amino acid acceptor of the tRNA and a second domain through which they interact with the rest of the tRNA mol-ecule. AlaRS (alanyl-tRNA synthetase), also known as AARS, is a 968 amino acid cytoplasmic protein that belongs to the class II subfamily of tRNA synthases. Functioning as a monomer, AlaRS catalyzes the ATP-dependent attachment of alanine to a corresponding $tRNA^{Ala}$, thereby producing alanyl-$tRNA^{Ala}$. Defects in the gene encoding AlaRS may lead to an accumulation of misfolded proteins within the cell, ultimately leading to cell death.

REFERENCES

1. Francklyn, C. and Schimmel, P. 1989. Aminoacylation of RNA minihelices with alanine. Nature 337: 478-481.
2. Shiba, K., et al. 1995. Human alanyl-tRNA synthetase: conservation in evolution of catalytic core and microhelix recognition. Biochemistry 34: 10340-10349.
3. Nichols, R.C., et al. 1995. Localization of two human autoantigen genes by PCR screening and *in situ* hybridization—glycyl-tRNA synthetase locates to 7p15 and alanyl-tRNA synthetase locates to 16q22. Genomics 30: 131-132.
4. Ripmaster, T.L., et al. 1995. Wide cross-species aminoacyl-tRNA synthetase replacement *in vivo:* yeast cytoplasmic alanine enzyme replaced by human polymyositis serum antigen. Proc. Natl. Acad. Sci. USA 92: 4932-4936.
5. Chihade, J.W., et al. 2000. Origin of mitochondria in relation to evolutionary history of eukaryotic alanyl-tRNA synthetase. Proc. Natl. Acad. Sci. USA 97: 12153-12157.
6. Lovato, M.A., et al. 2001. Translocation within the acceptor helix of a major tRNA identity determinant. EMBO J. 20: 4846-485.
7. Sang Lee, J., et al. 2002. Interaction network of human aminoacyl-tRNA synthetases and subunits of elongation factor 1 complex. Biochem. Biophys. Res. Commun. 291: 158-164.
8. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601065. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
9. Lee, J.W., et al. 2006. Editing-defective tRNA synthetase causes protein misfolding and neurodegeneration. Nature 443: 50-55.

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.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: AARS (human) mapping to 16q22.1.

PRODUCT

AlaRS (h3): 293T Lysate represents a lysate of human AlaRS transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

AlaRS (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive AlaRS antibodies. Recommended use: 10-20 µl per lane.

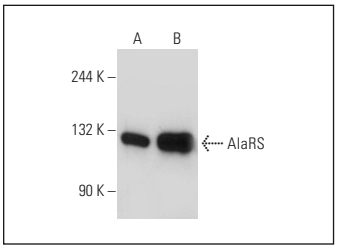
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

AlaRS (H-5): sc-165992 is recommended as a positive control antibody for Western Blot analysis of enhanced human AlaRS expression in AlaRS transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

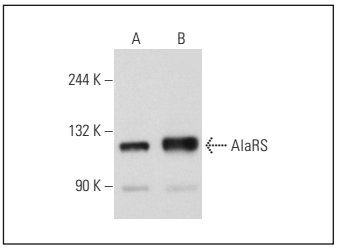
RECOMMENDED SUPPORT REAGENTS

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



AlaRS (H-5): sc-165992. Western blot analysis of AlaRS expression in non-transfected: sc-117752 (**A**) and human AlaRS transfected: sc-170661 (**B**) 293T whole cell lysates.



AlaRS (A-6): sc-165990. Western blot analysis of AlaRS expression in non-transfected: sc-117752 (**A**) and human AlaRS transfected: sc-170661 (**B**) 293T whole cell lysates.

RESEARCH USE

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