SANTA CRUZ BIOTECHNOLOGY, INC.

AlaRS (F-16): sc-74699

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 molecule. 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., et al. 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: 4846-4853.

CHROMOSOMAL LOCATION

Genetic locus: AARS (human) mapping to 16q22.1; Aars (mouse) mapping to 8 E1.

SOURCE

AlaRS (F-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of AlaRS 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-74699 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

AlaRS (F-16) is recommended for detection of AlaRS 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).

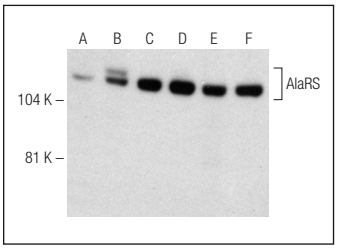
AlaRS (F-16) is also recommended for detection of AlaRS in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for AlaRS siRNA (h): sc-72474, AlaRS siRNA (m): sc-72475, AlaRS shRNA Plasmid (h): sc-72474-SH, AlaRS shRNA Plasmid (m): sc-72475-SH, AlaRS shRNA (h) Lentiviral Particles: sc-72474-V and AlaRS shRNA (m) Lentiviral Particles: sc-72475-V.

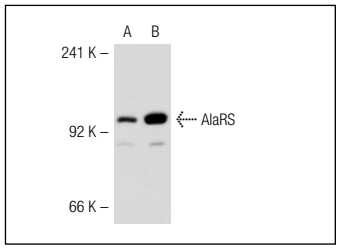
Molecular Weight of AlaRS: 107 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or AlaRS (h): 293T Lysate: sc-159852.

DATA



AlaRS (F-16): sc-74699. Western blot analysis of AlaRS expression in non-transfected 293T: sc-117752 (**A**), human AlaRS transfected 293T: sc-159852 (**B**), MCF7 (**C**), HeLa (**D**), K-562 (**E**) and Hep G2 (**F**) whole cell lysates.



AlaRS (F-16): sc-74699. Western blot analysis of AlaRS expression in 293T (**A**) and HeLa (**B**) whole cell lysates.

STORAGE

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

PROTOCOLS

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