

# AlaRS (H-268): sc-98547

## 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 synthetases 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 synthetases. Functioning as a monomer, AlaRS catalyzes the ATP-dependent attachment of alanine to a corresponding tRNA<sup>Ala</sup>, thereby producing alanyl-tRNA<sup>Ala</sup>. Defects in the gene encoding AlaRS may lead to an accumulation of misfolded proteins within the cell, ultimately leading to cell death.

## REFERENCES

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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.
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.

## CHROMOSOMAL LOCATION

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

## SOURCE

AlaRS (H-268) is a rabbit polyclonal antibody raised against amino acids 701-968 mapping at the C-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.

## APPLICATIONS

AlaRS (H-268) 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 (H-268) is also recommended for detection of AlaRS in additional species, including equine, canine and bovine.

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.

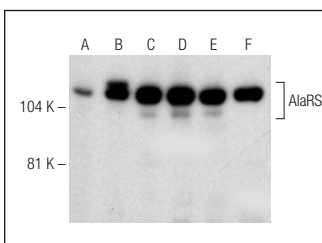
Molecular Weight of AlaRS: 107 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, K-562 whole cell lysate: sc-2203 or AlaRS (h2): 293T Lysate: sc-159852.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



AlaRS (H-268): sc-98547. 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.

## STORAGE

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

## RESEARCH USE

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