

AlaRS (A-6): sc-165990

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^{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.

CHROMOSOMAL LOCATION

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

SOURCE

AlaRS (A-6) is a mouse monoclonal antibody raised against amino acids 701-968 mapping at the C-terminus of AlaRS of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AlaRS (A-6) is available conjugated to agarose (sc-165990 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-165990 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-165990 PE), fluorescein (sc-165990 FITC), Alexa Fluor® 488 (sc-165990 AF488), Alexa Fluor® 546 (sc-165990 AF546), Alexa Fluor® 594 (sc-165990 AF594) or Alexa Fluor® 647 (sc-165990 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-165990 AF680) or Alexa Fluor® 790 (sc-165990 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

AlaRS (A-6) is recommended for detection of AlaRS 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

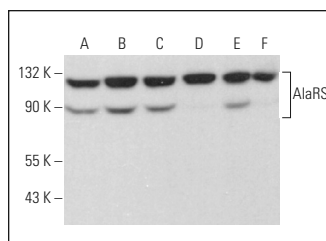
Molecular Weight of AlaRS: 107 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

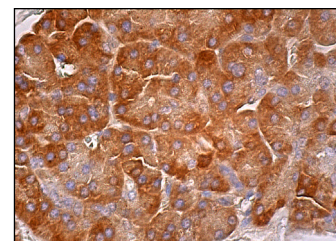
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



AlaRS (A-6): sc-165990. Western blot analysis of AlaRS expression in HeLa (A), K-562 (B), NIH/3T3 (C), Hep G2 (D), Jurkat (E) and Caki-1 (F) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



AlaRS (A-6): sc-165990. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Vo, M.N., et al. 2018. ANKRD16 prevents neuron loss caused by an editing-defective tRNA synthetase. *Nature* 557: 510-515.

RESEARCH USE

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