

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.

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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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.

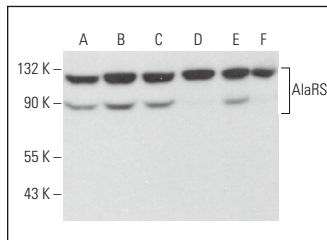
Molecular Weight of AlaRS: 107 kDa.

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

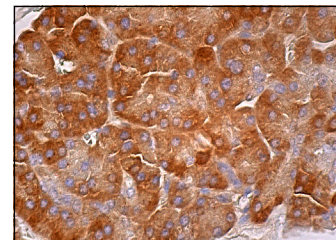
RECOMMENDED SUPPORT REAGENTS

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

- Vo, M.N., et al. 2018. ANKRD16 prevents neuron loss caused by an editing-defective tRNA synthetase. *Nature* 557: 510-515.
- Mao, Y., et al. 2024. Hypoxia induces mitochondrial protein lactylation to limit oxidative phosphorylation. *Cell Res.* 34: 13-30.
- Zong, Z., et al. 2024. Alanyl-tRNA synthetase, AARS1, is a lactate sensor and lactyltransferase that lactylates p53 and contributes to tumorigenesis. *Cell* 187: 2375-2392.e33.

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.

PROTOCOLS

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