

DaRS (H-3): sc-393275

BACKGROUND

Aminoacyl-tRNA synthetases consist of a family of enzymes that catalyze the specific aminoacylation of cognate tRNA in the initial step of ribosome-dependent protein biosynthesis. DaRS is part of a multisubunit complex of aminoacyl-tRNA synthetases and is involved in the transfer of Asp-tRNA to EF-1 α 1 (elongation factor α 1). The N-terminus of DaRS in vertebrates is a newly evolved structure that contains a putative amphiphilic helix and is dissimilar between different species. The N-terminal extension acts as a switch that, when in its stretched form, reduces the rate of dissociation of Asp-tRNA from DaRS, thereby providing enough time for EF-1 α 1 to interact with Asp-tRNA. This suggests that the N-terminus of DaRS plays a critical role in its catalytic function. DaRS contains two phosphorylation sites, forms homodimers and localizes to the cytoplasm.

REFERENCES

- Lorber, B., et al. 1988. Properties of N-terminal truncated yeast aspartyl-tRNA synthetase and structural characteristics of the cleaved domain. *Eur. J. Biochem.* 174: 155-161.
- Jacobo-Molina, A., et al. 1989. cDNA sequence, predicted primary structure, and evolving amphiphilic helix of human aspartyl-tRNA synthetase. *J. Biol. Chem.* 264: 16608-16612.
- Mirande, M., et al. 1992. Engineering mammalian aspartyl-tRNA synthetase to probe structural features mediating its association with the multisynthetase complex. *Eur. J. Biochem.* 203: 459-466.

CHROMOSOMAL LOCATION

Genetic locus: DARS (human) mapping to 2q21.3; Dars (mouse) mapping to 1 E4.

SOURCE

DaRS (H-3) is a mouse monoclonal antibody raised against amino acids 170-467 mapping within an internal region of DaRS of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DaRS (H-3) is available conjugated to agarose (sc-393275 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393275 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393275 PE), fluorescein (sc-393275 FITC), Alexa Fluor® 488 (sc-393275 AF488), Alexa Fluor® 546 (sc-393275 AF546), Alexa Fluor® 594 (sc-393275 AF594) or Alexa Fluor® 647 (sc-393275 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393275 AF680) or Alexa Fluor® 790 (sc-393275 AF790), 200 μ g/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

DaRS (H-3) is recommended for detection of DaRS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 DaRS siRNA (h): sc-94475, DaRS siRNA (m): sc-142877, DaRS shRNA Plasmid (h): sc-94475-SH, DaRS shRNA Plasmid (m): sc-142877-SH, DaRS shRNA (h) Lentiviral Particles: sc-94475-V and DaRS shRNA (m) Lentiviral Particles: sc-142877-V.

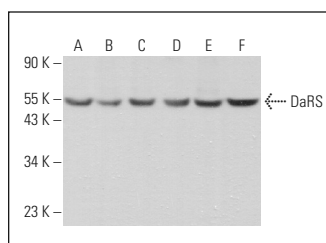
Molecular Weight of DaRS: 57 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, MDA-MB-231 cell lysate: sc-2232 or NIH/3T3 whole cell lysate: sc-2210.

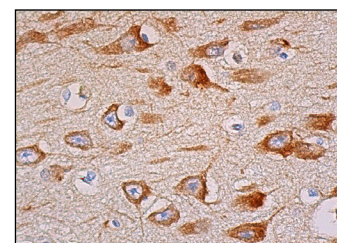
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



DaRS (H-3): sc-393275. Western blot analysis of DaRS expression in Jurkat (A), Y79 (B), BC₂H1 (C), MDA-MB-231 (D), C6 (E) and NIH/3T3 (F) whole cell lysates.



DaRS (H-3): sc-393275. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells, glial cells and endothelial cells.

SELECT PRODUCT CITATIONS

- Fröhlich, D., et al. 2018. Expression pattern of the aspartyl-tRNA synthetase DaRS in the human brain. *Front. Mol. Neurosci.* 11: 81.
- Fröhlich, D., et al. 2021. A hypomorphic Dars1^{D367Y} model recapitulates key aspects of the leukodystrophy HBSL. *Front. Cell. Neurosci.* 14: 625879.

RESEARCH USE

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