SANTA CRUZ BIOTECHNOLOGY, INC.

DaRS (G-15): sc-167597

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 α1 (elongation factor α1). 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 α1 to interact with Asp-tRNA. This suggests that the N-terminus of DaRS plays a critical role in its catalytic function. DaRS contains two phosphorylations sites, forms homodimers and localizes to the cytoplasm.

REFERENCES

1. 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.
2. 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.
3. 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.
4. Escalante, C., et al. 1993. Expression of human aspartyl-tRNA synthetase in *Escherichia coli*. Functional analysis of the N-terminal putative amphiphilic helix. J. Biol. Chem. 268: 6014-6023.
5. Agou, F., et al. 1997. Aspartyl-tRNA synthetase from rat: *in vitro* functional analysis of its assembly into the multisynthetase complex. Eur. J. Biochem. 243: 259-267.
6. 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.
7. Cheong, H.K., et al. 2003. Structure of the N-terminal extension of human aspartyl-tRNA synthetase: implications for its biological function. Int. J. Biochem. Cell Biol. 35: 1548-1557.

CHROMOSOMAL LOCATION

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

SOURCE

DaRS (G-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of DaRS of human origin.

STORAGE

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

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-167597 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DaRS (G-15) is recommended for detection of DaRS 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).

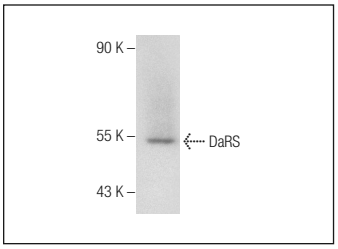
DaRS (G-15) is also recommended for detection of DaRS in additional species, including equine, canine, bovine, porcine and avian.

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: HL-60 whole cell lysate: sc-2209.

DATA



DaRS (G-15): sc-167597. Western blot analysis of DaRS expression in HL-60 whole cell lysate.

RESEARCH USE

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

PROTOCOLS

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