

AspRS (E-20): sc-74708

BACKGROUND

AspRS (mitochondrial aspartyl-tRNA synthetase), also known as aspartate-tRNA ligase or DARS2, is a 645 amino acid protein that belongs to the class-II aminoacyl-tRNA synthetase family. Localized to the mitochondrial matrix, AspRS exists as a homodimer and functions, primarily, to aminoacylate tRNA. Also, AspRS contains a 47 amino acid mitochondrial targeting signal, as well as several conserved residues involved in ATP binding, tRNA binding and aspartic acid recognition. The gene encoding AspRS maps to chromosome 1q25.1. Defects in this gene are a cause of leukoencephalopathy with brain stem and spinal cord involvement and lactate elevation (LBSL). LBSL is an autosomal recessive disease characterized by cerebellar ataxia, spasticity and dorsal column dysfunction, sometimes with a mild cognitive deficit.

REFERENCES

1. Thompson, D., et al. 2006. Molecular dynamics simulations show that bound Mg²⁺ contributes to amino acid and aminoacyl adenylate binding specificity in aspartyl-tRNA synthetase through long range electrostatic interactions. *J. Biol. Chem.* 281: 23792-23803.
2. Cardoso, A.M., et al. 2006. A non-discriminating aspartyl-tRNA synthetase from *Halobacterium salinarum*. *RNA Biol.* 3: 110-114.
3. Bernard, D., et al. 2007. Inhibition by L-aspartol adenylate of a nondiscriminating aspartyl-tRNA synthetase reveals differences between the interactions of its active site with tRNA(Asp) and tRNA(Asn). *J. Enzyme Inhib. Med. Chem.* 22: 77-82.
4. Kazakov, T., et al. 2007. Amino acid residues required for maturation, cell uptake, and processing of translation inhibitor microcin C. *J. Bacteriol.* 189: 2114-2118.
5. Scheper, G.C., et al. 2007. Mitochondrial aspartyl-tRNA synthetase deficiency causes leukoencephalopathy with brain stem and spinal cord involvement and lactate elevation. *Nat. Genet.* 39: 534-539.

CHROMOSOMAL LOCATION

Genetic locus: DARS2 (human) mapping to 1q25.1; Dars2 (mouse) mapping to 1 H2.1.

SOURCE

AspRS (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of AspRS 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.

Blocking peptide available for competition studies, sc-74708 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

AspRS (E-20) is recommended for detection of AspRS 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).

AspRS (E-20) is also recommended for detection of AspRS in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for AspRS siRNA (h): sc-72570, AspRS siRNA (m): sc-72571, AspRS shRNA Plasmid (h): sc-72570-SH, AspRS shRNA Plasmid (m): sc-72571-SH, AspRS shRNA (h) Lentiviral Particles: sc-72570-V and AspRS shRNA (m) Lentiviral Particles: sc-72571-V.

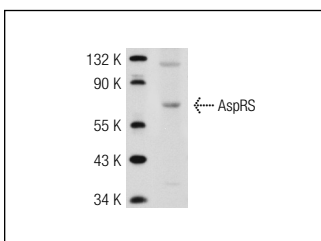
Molecular Weight of AspRS: 66 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



AspRS (E-20): sc-74708. Western blot analysis of AspRS expression in K-562 whole cell lysate.

RESEARCH USE

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

MONOS
Satisfaction
Guaranteed

Try **AspRS (C-6): sc-166535** or **AspRS (D-4): sc-166534**, our highly recommended monoclonal alternatives to AspRS (E-20).