

# ArgRS (ZB-12): sc-100990

## BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. ArgRS (Arginyl-tRNA synthetase), also known as RARS or DALRD1, belongs to the class-I aminoacyl-tRNA synthetase family that includes the related proteins LeuRS, ValRS and IleRS. These proteins are large monomeric proteins and play a major role in catalyzing the aminoacylation of tRNA by their cognate amino acid. ArgRS localizes to the cytoplasm and exists as a monomer but can also associate with other tRNA synthetases and auxiliary proteins to form a multisubunit complex. In the presence of ATP, arginine (Arg) and tRNA, ArgRS joins Arg to tRNA(Arg) at its synthetic active site. Two cytoplasmic forms of ArgRS have been described in mammals, differing by the addition of a 73 amino acid sequence that is required for ArgRS assembly into the multisubunit complex.

## REFERENCES

1. Lazard, M. and Mirande, M. 1993. Cloning and analysis of a cDNA encoding mammalian arginyl-tRNA synthetase, a component of the multisynthetase complex with a hydrophobic N-terminal extension. *Gene* 132: 237-245.
2. Girjes, A.A., Hobson, K., Chen, P. and Lavin, M.F. 1995. Cloning and characterization of cDNA encoding a human arginyl-tRNA synthetase. *Gene* 164: 347-350.
3. Quevillon, S., Robinson, J.C., Berthonneau, E., Siatecka, M. and Mirande, M. 1999. Macromolecular assemblage of aminoacyl-tRNA synthetases: identification of protein-protein interactions and characterization of a core protein. *J. Mol. Biol.* 285: 183-195.
4. Robinson, J.C., Kerjan, P. and Mirande, M. 2000. Macromolecular assemblage of aminoacyl-tRNA synthetases: quantitative analysis of protein-protein interactions and mechanism of complex assembly. *J. Mol. Biol.* 304: 983-994.
5. Li, J., Yao, Y.N., Liu, M.F. and Wang, E.D. 2003. Arginyl-tRNA synthetase with signature sequence KMSK from *Bacillus stearothermophilus*. *Biochem. J.* 376: 773-779.
6. Guigou, L., Shalak, V. and Mirande, M. 2004. The tRNA-interacting factor p43 associates with mammalian arginyl-tRNA synthetase but does not modify its tRNA aminoacylation properties. *Biochemistry* 43: 4592-4600.
7. Yao, Y.N., Zhang, Q.S., Yan, X.Z., Zhu, G. and Wang, E.D. 2004. *Escherichia coli* tRNA(4)(Arg)(UCU) induces a constrained conformation of the crucial Omega-loop of arginyl-tRNA synthetase. *Biochem. Biophys. Res. Commun.* 313: 129-134.

## STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## CHROMOSOMAL LOCATION

Genetic locus: RARS (human) mapping to 5q35.1.

## PRODUCT

Each vial contains 200 µl ascites containing IgM with < 0.1% sodium azide.

## SOURCE

ArgRS (ZB-12) is a mouse monoclonal antibody raised against recombinant ArgRS of human origin.

## APPLICATIONS

ArgRS (ZB-12) is recommended for detection of ArgRS of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:100-1:5000).

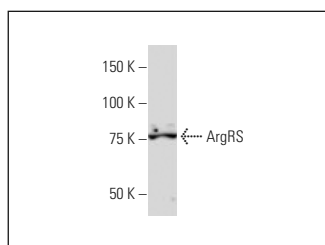
Suitable for use as control antibody for ArgRS siRNA (h): sc-72532, ArgRS shRNA Plasmid (h): sc-72532-SH and ArgRS shRNA (h) Lentiviral Particles: sc-72532-V.

Molecular Weight of free form ArgRS: 60 kDa.

Molecular Weight of complexed form ArgRS: 74 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201.

## DATA



ArgRS (ZB-12): sc-100990. Western blot analysis of ArgRS expression in A-431 whole cell lysate.

## RESEARCH USE

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