

IARS2 (B-1): sc-393654

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Proteins belonging to this family function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. IARS2 (Isoleucyl-tRNA synthetase), also known as IleRS (Isoleucine-tRNA ligase), is a 1,012 amino acid protein that is localized within the mitochondrial matrix. Specifically belonging to the class I mitochondrial aminoacyl-tRNA synthetase family, IARS2 contains a characteristic Rossmann fold, which is found in proteins that typically bind nucleotides. The gene encoding IARS2 maps to human chromosome one, which is the largest human chromosome spanning about 260 million base pairs and making up 8% of the human genome.

REFERENCES

1. Degoul, F., et al. 1998. Isoleucylation properties of native human mitochondrial tRNA^{Ile} and tRNA^{Ile} transcripts. Implications for cardiomyopathy-related point mutations (4269, 4317) in the tRNA^{Ile} gene. *Hum. Mol. Genet.* 7: 347-354.
2. Bonnefond, L., et al. 2005. Toward the full set of human mitochondrial aminoacyl-tRNA synthetases: characterization of AspRS and TyrRS. *Biochemistry* 44: 4805-4816.
3. Pelliccia, F., et al. 2007. Transcriptional profiling of genes at the human common fragile site FRA1H in tumor-derived cell lines. *Cancer Genet. Cytogenet.* 178: 144-150.
4. Salowe, S.P., et al. 2009. The catalytic flexibility of tRNA^{Ile}-lysine synthetase can generate alternative tRNA substrates for isoleucyl-tRNA synthetase. *J. Biol. Chem.* 284: 9656-9662.
5. Berglund, A.K., et al. 2009. Defining the determinants for dual targeting of amino acyl-tRNA synthetases to mitochondria and chloroplasts. *J. Mol. Biol.* 393: 803-814.
6. Yu, Z., et al. 2009. Search for primitive *Methanopyrus* based on genetic distance between Val- and Ile-tRNA synthetases. *J. Mol. Evol.* 69: 386-394.

CHROMOSOMAL LOCATION

Genetic locus: IARS2 (human) mapping to 1q41; lars2 (mouse) mapping to 1 H5.

SOURCE

IARS2 (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 249-272 within an internal region of IARS2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-393654 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

IARS2 (B-1) is recommended for detection of IARS2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

IARS2 (B-1) is also recommended for detection of IARS2 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for IARS2 siRNA (h): sc-88313, IARS2 siRNA (m): sc-146128, IARS2 shRNA Plasmid (h): sc-88313-SH, IARS2 shRNA Plasmid (m): sc-146128-SH, IARS2 shRNA (h) Lentiviral Particles: sc-88313-V and IARS2 shRNA (m) Lentiviral Particles: sc-146128-V.

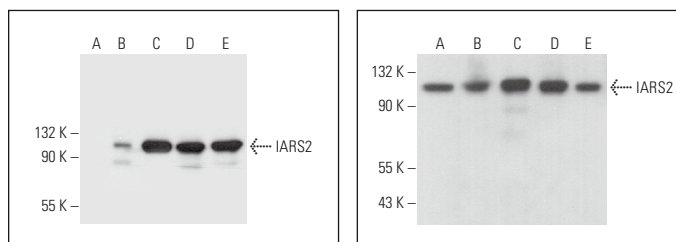
Molecular Weight of IARS2: 114 kDa.

Positive Controls: IARS2 (h3): 293T Lysate: sc-112283, K-562 whole cell lysate: sc-2203 or HEK293 whole cell lysate: sc-45136.

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.

DATA



IARS2 (B-1): sc-393654. Western blot analysis of IARS2 expression in non-transfected 293T: sc-117752 (A), human IARS2 transfected 293T: sc-112283 (B), K-562 (C), RAW 264.7 (D) and HEK293 (E) whole cell lysates.

IARS2 (B-1): sc-393654. Western blot analysis of IARS2 expression in K-562 (A), RT-4 (B), ZR-75-1 (C), NIH/3T3 (D) and PC-12 (E) whole cell lysates.

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.