

GluRS (G-1): sc-271728

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. GluRS (glutamyl-tRNA synthetase 2), also known as EARS2 or MSE1, is a 523 amino acid protein that localizes to the mitochondrial matrix and belongs to the class I aminoacyl-tRNA synthetase family. Participating in protein biosynthesis, GluRS functions to catalyze the ATP-dependent attachment of glutamate to tRNA(Glu), a two-step reaction that involves the ATP-dependent activation of glutamate to form Glu-AMP and the subsequent transfer of the glutamate residue to tRNA(Glu).

REFERENCES

1. Frugier, M., et al. 1994. Identity switches between tRNAs aminoacylated by class I glutamyl- and class II aspartyl-tRNA synthetases. *Biochemistry* 33: 9912-9921.
2. Freist, W., et al. 1997. Glutamyl-tRNA synthetase. *Biol. Chem.* 378: 1313-1329.
3. Quevillon, S., et al. 1999. Macromolecular assemblage of aminoacyl-tRNA synthetases: identification of protein-protein interactions and characterization of a core protein. *J. Mol. Biol.* 285: 183-195.

CHROMOSOMAL LOCATION

Genetic locus: EARS2 (human) mapping to 16p12.2; Ears2 (mouse) mapping to 7 F3.

SOURCE

GluRS (G-1) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of GluRS of human origin.

PRODUCT

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

GluRS (G-1) is available conjugated to agarose (sc-271728 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271728 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271728 PE), fluorescein (sc-271728 FITC), Alexa Fluor[®] 488 (sc-271728 AF488), Alexa Fluor[®] 546 (sc-271728 AF546), Alexa Fluor[®] 594 (sc-271728 AF594) or Alexa Fluor[®] 647 (sc-271728 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271728 AF680) or Alexa Fluor[®] 790 (sc-271728 AF790), 200 µg/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

GluRS (G-1) is recommended for detection of GluRS 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), 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 GluRS siRNA (h): sc-75146, GluRS siRNA (m): sc-75147, GluRS shRNA Plasmid (h): sc-75146-SH, GluRS shRNA Plasmid (m): sc-75147-SH, GluRS shRNA (h) Lentiviral Particles: sc-75146-V and GluRS shRNA (m) Lentiviral Particles: sc-75147-V.

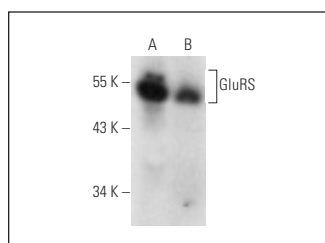
Molecular Weight of GluRS: 59 kDa.

Positive Controls: NTERA-2 cl.D1 whole cell lysate: sc-364181, F9 cell lysate: sc-2245 or mouse testis extract: sc-2405.

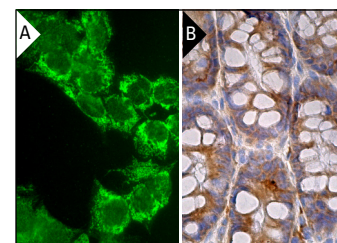
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



GluRS (G-1): sc-271728. Western blot analysis of GluRS expression in NTERA-2 cl.D1 (A) and F9 (B) whole cell lysates.



GluRS (G-1): sc-271728. Immunofluorescence staining of formalin-fixed Hep G2 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Kleffman, K., et al. 2022. Melanoma-secreted Amyloid β suppresses neuroinflammation and promotes brain metastasis. *Cancer Discov.* 12: 1314-1335.

RESEARCH USE

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