

# GlnRS (C-1): sc-271078

## BACKGROUND

Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. GlnRS (glutaminyl-tRNA synthetase), also known as QARS, is a 775 amino acid member of the class-I aminoacyl-tRNA synthetase family. Localized to the cytoplasm, GlnRS is part of a multi-protein complex composed of nine aminoacyl-tRNA synthetases that are specific for nine amino acids, namely Arg, Asp, Glu, Gln, Ile, Leu, Lys, Met and Pro. In this complex, GlnRS functions to catalyze the ATP-dependent conversion of L-glutamine (Gln) and tRNA(Gln) to Gln-tRNA(Gln). While GlnRS is used to synthesize Gln-tRNA(Gln) in many eukaryotic cells, prokaryotes and organelles, such as mitochondria and chloroplasts, can synthesize Gln-tRNA(Gln) in a two step process involving misacylation and amidation reactions.

## REFERENCES

- Jahn, D., et al. 1990. Purification and functional characterization of the Glu-tRNA(Gln) amidotransferase from *Chlamydomonas reinhardtii*. J. Biol. Chem. 265: 8059-8064.
- Lamour, V., et al. 1994. Evolution of the Glx-tRNA synthetase family: the glutaminyl enzyme as a case of horizontal gene transfer. Proc. Natl. Acad. Sci. USA 91: 8670-8674.
- Durkin, M.E., et al. 1999. Characterization of the human Laminin  $\beta 2$  chain locus (LAMB2): linkage to a gene containing a nonprocessed, transcribed LAMB2-like pseudogene (LAMB2L) and to the gene encoding glutaminyl tRNA synthetase (QARS). Cytogenet. Cell Genet. 84: 173-178.

## CHROMOSOMAL LOCATION

Genetic locus: QARS (human) mapping to 3p21.31; Qars (mouse) mapping to 9 F2.

## SOURCE

GlnRS (C-1) is a mouse monoclonal antibody raised against amino acids 513-775 mapping at the C-terminus of GlnRS of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GlnRS (C-1) is available conjugated to agarose (sc-271078 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271078 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271078 PE), fluorescein (sc-271078 FITC), Alexa Fluor® 488 (sc-271078 AF488), Alexa Fluor® 546 (sc-271078 AF546), Alexa Fluor® 594 (sc-271078 AF594) or Alexa Fluor® 647 (sc-271078 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271078 AF680) or Alexa Fluor® 790 (sc-271078 AF790), 200  $\mu$ g/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

GlnRS (C-1) is recommended for detection of GlnRS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 GlnRS siRNA (h): sc-75144, GlnRS siRNA (m): sc-75145, GlnRS shRNA Plasmid (h): sc-75144-SH, GlnRS shRNA Plasmid (m): sc-75145-SH, GlnRS shRNA (h) Lentiviral Particles: sc-75144-V and GlnRS shRNA (m) Lentiviral Particles: sc-75145-V.

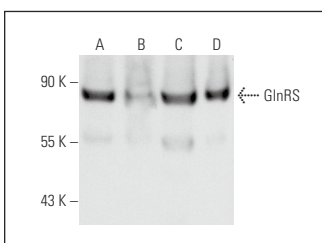
Molecular Weight of GlnRS: 88 kDa.

Positive Controls: KNRK whole cell lysate: sc-2214, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

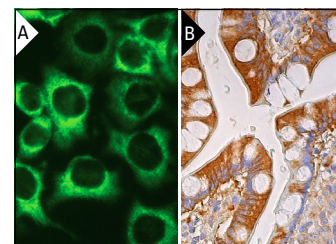
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



GlnRS (C-1): sc-271078. Western blot analysis of GlnRS expression in Jurkat (A), K-562 (B), NIH/3T3 (C) and KNRK (D) whole cell lysates.



GlnRS (C-1): sc-271078. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

- Hyatt, H.W., et al. 2022. Activation of calpain contributes to mechanical ventilation-induced depression of protein synthesis in diaphragm muscle. Cells 11: 1028.

## RESEARCH USE

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