

# GlyRS (F-5): sc-365442



The Power to Question

## 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. GlyRS (Glycyl-tRNA synthetase), also known as Glycine-tRNA ligase, is a 739 amino acid class II synthetase that is widely expressed, including in the brain and spinal cord. Defects in the gene encoding GlyRS is the cause of Charcot-Marie-Tooth disease type 2D (CMT2D), which is an autosomal dominant inherited disease characterized by severe weakness, atrophy and absence of deep tendon reflexes in the upper extremities. Defects in the GlyRS gene is also the cause of distal hereditary muscular neuropathy type V (HMN5), a disease similar to CMT2D, though the distal sensory involvement is less severe in HMN5 patients.

## REFERENCES

1. Shiba, K., et al. 1994. Human glycyl-tRNA synthetase. Wide divergence of primary structure from bacterial counterpart and species-specific amino-acylation. *J. Biol. Chem.* 269: 30049-30055.
2. Williams, J., et al. 1995. Cloning, sequencing and bacterial expression of human glycine tRNA synthetase. *Nucleic Acids Res.* 23: 1307-1310.
3. Antonellis, A., et al. 2003. Glycyl tRNA synthetase mutations in Charcot-Marie-Tooth disease type 2D and distal spinal muscular atrophy type V. *Am. J. Hum. Genet.* 72: 1293-1299.
4. Antonellis, A., et al. 2006. Functional analyses of glycyl-tRNA synthetase mutations suggest a key role for tRNA-charging enzymes in peripheral axons. *J. Neurosci.* 26: 10397-10406.

## CHROMOSOMAL LOCATION

Genetic locus: GARS (human) mapping to 7p14.3; Gars (mouse) mapping to 6 B3.

## SOURCE

GlyRS (F-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 136-165 within an internal region of GlyRS of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-365442 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-365442 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

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

## APPLICATIONS

GlyRS (F-5) is recommended for detection of GlyRS 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).

GlyRS (F-5) is also recommended for detection of GlyRS in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GlyRS siRNA (h): sc-75153, GlyRS siRNA (m): sc-75154, GlyRS shRNA Plasmid (h): sc-75153-SH, GlyRS shRNA Plasmid (m): sc-75154-SH, GlyRS shRNA (h) Lentiviral Particles: sc-75153-V and GlyRS shRNA (m) Lentiviral Particles: sc-75154-V.

GlyRS (F-5) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

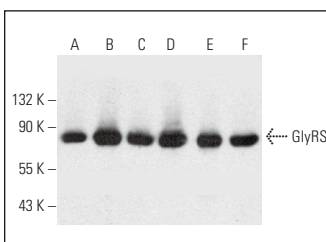
Molecular Weight of GlyRS: 75-80 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, RAW 264.7 whole cell lysate: sc-2211 or Neuro-2A whole cell lysate: sc-364185.

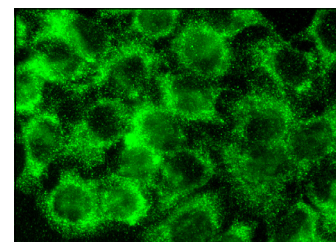
## RECOMMENDED SUPPORT REAGENTS

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



GlyRS (F-5): sc-365442. Western blot analysis of GlyRS expression in A-431 (A), Raji (B), RAW 264.7 (C), Neuro-2A (D), C6 (E) and NRK (F) whole cell lysates.



GlyRS (F-5): sc-365442. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Jeong, H.S., et al. 2022. Therapeutic potential of CKD-504, a novel selective histone deacetylase 6 inhibitor, in a zebrafish model of neuromuscular junction disorders. *Mol. Cells* 45: 231-242.

## RESEARCH USE

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