

# GLUD1/2 (C-10): sc-515542

## BACKGROUND

GLUD1 (glutamate dehydrogenase 1), also known as GDH, GDH1 or GLUD, and GLUD2 (glutamate dehydrogenase 2), also known as GDH2 or GLUDP1, are both mitochondrial matrix enzymes belonging to the Glu/Leu/Phe/Val dehydrogenases family. Existing as homo-hexamers, GLUD1 catalyzes the oxidative deamination of glutamate to  $\alpha$ -ketoglutarate and ammonia while GLUD2 is involved in the recycling of glutamate during neurotransmission. GLUD1 is critical for regulating amino acid induced Insulin secretion and is allosterically activated by ADP and inhibited by GTP and ATP. Mutations in the gene encoding GLUD1 causes hyperinsulinism-hyperammonemia syndrome (HHS), which is an inherited condition characterized by high Insulin and ammonia levels in the blood. GLUD1 may also be involved in learning and memory reactions by increasing the turnover of the excitatory neurotransmitter glutamate. GLUD2 is expressed in testis and retina, with lower levels found in brain.

## CHROMOSOMAL LOCATION

Genetic locus: GLUD1 (human) mapping to 10q23.2, GLUD2 (human) mapping to Xq24; Glud1 (mouse) mapping to 14 B.

## SOURCE

GLUD1/2 (C-10) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of GLUD1 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.

GLUD1/2 (C-10) is available conjugated to agarose (sc-515542 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515542 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515542 PE), fluorescein (sc-515542 FITC), Alexa Fluor<sup>®</sup> 488 (sc-515542 AF488), Alexa Fluor<sup>®</sup> 546 (sc-515542 AF546), Alexa Fluor<sup>®</sup> 594 (sc-515542 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-515542 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-515542 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-515542 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

GLUD1/2 (C-10) is recommended for detection of GLUD1 and GLUD2 of human origin, and GLUD1 of mouse and rat 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 GLUD1 siRNA (m): sc-145446, GLUD1 shRNA Plasmid (m): sc-145446-SH and GLUD1 shRNA (m) Lentiviral Particles: sc-145446-V.

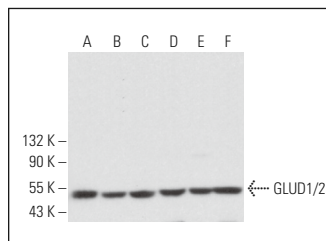
Molecular Weight (predicted) of GLUD1/2: 61 kDa.

Molecular Weight (observed) of GLUD1/2: 50-55 kDa.

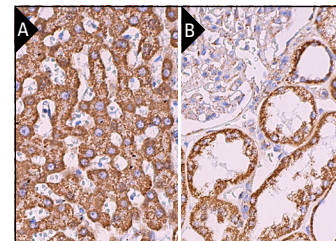
## STORAGE

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

## DATA



GLUD1/2 (C-10): sc-515542. Western blot analysis of GLUD1/2 expression in HL-60 (A), AN3 CA (B), THP-1 (C), C2C12 (D), P19 (E) and C6 (F) whole cell lysates.



GLUD1/2 (C-10): sc-515542. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (B).

## SELECT PRODUCT CITATIONS

- Zhang, W., et al. 2020. Functional validation of a human GLUD2 variant in a murine model of Parkinson's disease. *Cell Death Dis.* 11: 897.
- Lacaille, H., et al. 2022. Preterm birth alters the maturation of the GABAergic system in the human prefrontal cortex. *Front. Mol. Neurosci.* 14: 827370.
- Zhu, T., et al. 2022. Oncogenic circTICRR suppresses autophagy via binding to HuR protein and stabilizing GLUD1 mRNA in cervical cancer. *Cell Death Dis.* 13: 479.
- Yao, Y., et al. 2022. Improvements of autism-like behaviors but limited effects on immune cell metabolism after mitochondrial replacement in BTBR T<sup>+</sup>tpr3<sup>fl</sup>/J mice. *J. Neuroimmunol.* 368: 577893.
- Zhao, Y.Z., et al. 2022. Glutamate-aspartate transporter 1 attenuates oxygen-glucose deprivation-induced injury by promoting glutamate metabolism in primary cortical neurons. *J. Cell. Physiol.* 237: 3044-3056.
- Qin, J., et al. 2024. GDH1 exacerbates renal fibrosis by inhibiting the transcriptional activity of peroxisome proliferator-activated receptor  $\gamma$ . *FEBS J.* 291: 4581-4601.
- Shi, J., et al. 2024. ABCG2 and SLC1A5 functionally interact to rewire metabolism and confer a survival advantage to cancer cells under oxidative stress. *J. Biol. Chem.* 300: 107299.
- Tian, Q., et al. 2024. Glutamine- $\alpha$ KG axis affects dentin regeneration and regulates osteo/odontogenic differentiation of mesenchymal adult stem cells via IGF2 m6A modification. *Stem Cell Res. Ther.* 15: 479.

## RESEARCH USE

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

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