SANTA CRUZ BIOTECHNOLOGY, INC.

Glyoxalase I (D-5): sc-133214

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The glyoxal pathway plays a role in the detoxification of glucose degradation products (GDP). Glyoxalase I (GLO1), a member of the glyoxalase family, is effective in eliminating GDP. Overexpression or silencing of Glyoxalase I in mouse brain suggests an association between Glyoxalase I and anxiety. Glyoxalase I has three isoforms generated from two alleles in the genome which forms two homodimers and one heterodimer, each subunit binding one zinc ion. Research demonstrates that GLO1 gene expression is induced in colon carcinoma. Both an Insulin response element (IRE) and a zinc metal response element (MRE) in the promoter region of the GLO1 gene have been identified.

CHROMOSOMAL LOCATION

Genetic locus: GLO1 (human) mapping to 6p21.2; Glo1 (mouse) mapping to 17 A3.3.

SOURCE

Glyoxalase I (D-5) is a mouse monoclonal antibody raised against amino acids 1-184 representing full length Glyoxalase I of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Glyoxalase I (D-5) is available conjugated to agarose (sc-133214 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-133214 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133214 PE), fluorescein (sc-133214 FITC), Alexa Fluor® 488 (sc-133214 AF488), Alexa Fluor® 546 (sc-133214 AF546), Alexa Fluor® 594 (sc-133214 AF594) or Alexa Fluor® 647 (sc-133214 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133214 AF680) or Alexa Fluor® 790 (sc-133214 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Glyoxalase I (D-5) is recommended for detection of Glyoxalase I 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 Glyoxalase I siRNA (h): sc-60703, Glyoxalase I siRNA (m): sc-60704, Glyoxalase I shRNA Plasmid (h): sc-60703-SH, Glyoxalase I shRNA Plasmid (m): sc-60704-SH, Glyoxalase I shRNA (h) Lentiviral Particles: sc-60703-V and Glyoxalase I shRNA (m) Lentiviral Particles: sc-60704-V.

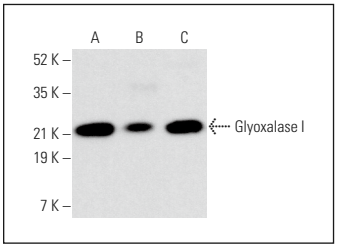
Molecular Weight of Glyoxalase I monomer: 24 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, K-562 whole cell lysate: sc-2203 or HEK293 whole cell lysate: sc-45136.

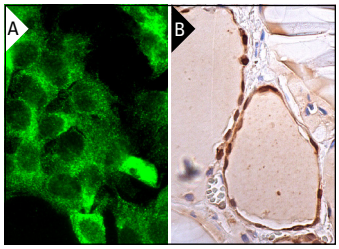
STORAGE

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

DATA



Glyoxalase I (D-5): sc-133214. Western blot analysis of Glyoxalase I expression in HEK293 (**A**), K-562 (**B**) and HL-60 (**C**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Glyoxalase I (D-5): sc-133214. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic and nuclear staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Ruiz-Meana, M., et al. 2019. Ryanodine receptor glycation favors mitochondrial damage in the senescent heart. Circulation 139: 949-964.
2. Frandsen, J., et al. 2020. Neural glyoxalase pathway enhancement by morin derivatives in an Alzheimer's disease model. ACS Chem. Neurosci. 11: 356-366.
3. Yoo, H.J., et al. 2020. Chebulic acid prevents methylglyoxal-induced mitochondrial dysfunction in INS-1 pancreatic β-cells. Antioxidants 9: 771.
4. Hollenbach, M., et al. 2021. Pitfalls in AR42J-model of cerulein-induced acute pancreatitis. PLoS ONE 16: e0242706.
5. Lee, D.Y., et al. 2021. Biochemical regulation of the glyoxalase system in response to Insulin signaling. Antioxidants 10: 326.
6. Hollenbach, M., et al. 2021. Glyoxalase I is upregulated in acute cerulein-induced pancreatitis: a new mechanism in pancreatic inflammation? Antioxidants 10: 1574.
7. Frandsen, J. and Narayanasamy, P. 2022. Effect of cannabidiol on the neural glyoxalase pathway function and longevity of several *C. elegans* strains including a *C. elegans* Alzheimer's disease model. ACS Chem. Neurosci. 13: 1165-1177.
8. Matthews, J.J., et al. 2023. Carnosine increases insulin-stimulated glucose uptake and reduces methylglyoxal-modified proteins in type-2 diabetic human skeletal muscle cells. Amino Acids 55: 413-420.
9. Blatt, E.B., et al. 2023. Critical role of antioxidant programs in enzalutamide-resistant prostate cancer. Oncogene 42: 2347-2359.

RESEARCH USE

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