

# Glyoxalase I (D-6): sc-133144

## 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.

## REFERENCES

- Himo, F. and Siegbahn, P.E. 2001. Catalytic mechanism of Glyoxalase I: a theoretical study. *J. Am. Chem. Soc.* 123: 10280-10289.
- Rulli, A., et al. 2001. Expression of Glyoxalase I and II in normal and breast cancer tissues. *Breast Cancer Res. Treat.* 66: 67-72.
- Junaid, M.A., et al. 2004. Proteomic studies identified a single nucleotide polymorphism in Glyoxalase I as autism susceptibility factor. *Am. J. Med. Genet. A* 131: 11-17.

## CHROMOSOMAL LOCATION

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

## SOURCE

Glyoxalase I (D-6) 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<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Glyoxalase I (D-6) 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.

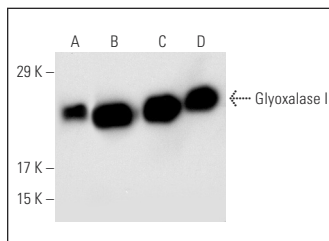
Molecular Weight of Glyoxalase I monomer: 24 kDa.

Positive Controls: Glyoxalase I (h2): 293T Lysate: sc-112198, NIH/3T3 whole cell lysate: sc-2210 or KNRK whole cell lysate: sc-2214.

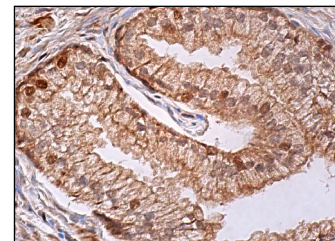
## STORAGE

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-6): sc-133144. Western blot analysis of Glyoxalase I expression in non-transfected 293T: sc-117752 (A), human Glyoxalase I transfected 293T: sc-112198 (B), NIH/3T3 (C) and KNRK (D) whole cell lysates.



Glyoxalase I (D-6): sc-133144. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic, membrane and nuclear staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Wang, Y., et al. 2014. Proteomic analysis indicates that overexpression and nuclear translocation of lactoylglutathione lyase (GLO1) is associated with tumor progression in murine fibrosarcoma. *Electrophoresis* 35: 2195-2202.
- Sakellariou, S., et al. 2016. Clinical significance of AGE-RAGE axis in colorectal cancer: associations with Glyoxalase I, adiponectin receptor expression and prognosis. *BMC Cancer* 16: 174.
- Antognelli, C., et al. 2017. Glyoxalase 2 drives tumorigenesis in human prostate cells in a mechanism involving androgen receptor and p53-p21 axis. *Mol. Carcinog.* 56: 2112-2126.
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- Xie, Z., et al. 2019. MMSET I acts as an oncoprotein and regulates GLO1 expression in t(4;14) multiple myeloma cells. *Leukemia* 33: 739-748.
- Li, H., et al. 2019. Ameliorating methylglyoxal-induced progenitor cell dysfunction for tissue repair in diabetes. *Diabetes* 68: 1287-1302.
- Antognelli, C., et al. 2019. Methylglyoxal acts as a tumor-promoting factor in anaplastic thyroid cancer. *Cells* 8: 547.
- Motomura, H., et al. 2021. Glyoxalase 1 and protein kinase C $\lambda$  as potential therapeutic targets for late-stage breast cancer. *Oncol. Lett.* 22: 547.
- Jiang, M., et al. 2021. Pyridoxamine ameliorates methylglyoxal-induced macrophage dysfunction to facilitate tissue repair in diabetic wounds. *Int. Wound J.* E-published.

## RESEARCH USE

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