SANTA CRUZ BIOTECHNOLOGY, INC.

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

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.

## REFERENCES


1. Himo, F. and Siegbahn, P.E. 2001. Catalytic mechanism of Glyoxalase I: a theoretical study. J. Am. Chem. Soc. 123: 10280-10289.
2. Rulli, A., et al. 2001. Expression of Glyoxalase I and II in normal and breast cancer tissues. Breast Cancer Res. Treat. 66: 67-72.
3. 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 $IgG_{2a}$ 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.

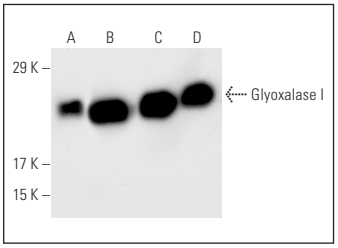
Molecular Weight of Glyoxalase I monomer: 24 kDa.

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

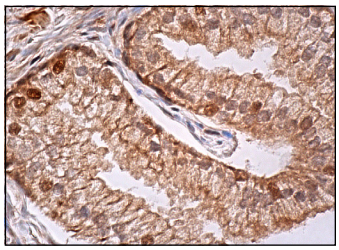
## STORAGE

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


1. 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.
2. 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.
3. Mey, J.T., et al. 2018. Dicarbonyl stress and glyoxalase enzyme system regulation in human skeletal muscle. Am. J. Physiol. Regul. Integr. Comp. Physiol. 314: R181-R190.
4. 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.
5. Motomura, H., et al. 2021. Glyoxalase 1 and protein kinase Cλ as potential therapeutic targets for late-stage breast cancer. Oncol. Lett. 22: 547.
6. Jiang, M., et al. 2022. Pyridoxamine ameliorates methylglyoxal-induced macrophage dysfunction to facilitate tissue repair in diabetic wounds. Int. Wound J. 19: 52-63.
7. Li, J., et al. 2023. PHPB attenuated cognitive impairment in type 2 diabetic KK-Ay mice by modulating SIRT1/Insulin signaling pathway and inhibiting generation of AGEs. Pharmaceuticals 16: 305.
8. Miranda, E.R., et al. 2024. Loss of NAMPT and SIRT2 but not SIRT1 attenuate GLO1 expression and activity in human skeletal muscle. Redox Biol. 75: 103300.
9. Bangar, N.S., et al. 2025. *Syzygium cumini (L.)* skeels mitigate diabetic nephropathy by regulating Nrf2 pathway and mitocyhondrial dysfunction: *in vitro* and *in vivo* studies. J. Ethnopharmacol. 336: 118684.


## RESEARCH USE

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