

β -Gal (B-12): sc-377257



The Power to Question

BACKGROUND

The human β -galactosidase gene, known as the LacZ gene, maps to chromosome 3p22.3 and encodes a 677 amino acid protein with an optimum functional pH range of 6 to 8. Catalytically active β -galactosidase (β -Gal) is a tetramer of four identical subunits, each with an active site, which can independently catalyze the cleavage of terminal galactose. Monovalent cations have a stimulatory effect on the enzymatic reaction, which likely involves a galactosyl-enzyme complex intermediate. β -Gals are widespread in animals, microorganisms and plants. The LacZ gene is widely used as a reporter gene with a variety of colored or fluorescent compounds capable of being produced from appropriate substrates, such as Xgal, which produces a blue color. For this reason, LacZ is incorporated into numerous plasmid vectors as a marker.

CHROMOSOMAL LOCATION

Genetic locus: GLB1 (human) mapping to 3p22.3; Glb1 (mouse) mapping to 9 F3.

SOURCE

β -Gal (B-12) is a mouse monoclonal antibody raised against amino acids 496-575 of β -Gal of human origin.

PRODUCT

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

β -Gal (B-12) is available conjugated to agarose (sc-377257 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377257 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377257 PE), fluorescein (sc-377257 FITC), Alexa Fluor[®] 488 (sc-377257 AF488), Alexa Fluor[®] 546 (sc-377257 AF546), Alexa Fluor[®] 594 (sc-377257 AF594) or Alexa Fluor[®] 647 (sc-377257 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-377257 AF680) or Alexa Fluor[®] 790 (sc-377257 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

β -Gal (B-12) is recommended for detection of β -Gal of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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 β -Gal siRNA (h): sc-43792, β -Gal siRNA (m): sc-61342, β -Gal shRNA Plasmid (h): sc-43792-SH, β -Gal shRNA Plasmid (m): sc-61342-SH, β -Gal shRNA (h) Lentiviral Particles: sc-43792-V and β -Gal shRNA (m) Lentiviral Particles: sc-61342-V.

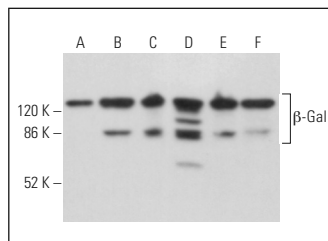
Molecular Weight of β -Gal: 76 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A549 cell lysate: sc-2413 or Jurkat whole cell lysate: sc-2204.

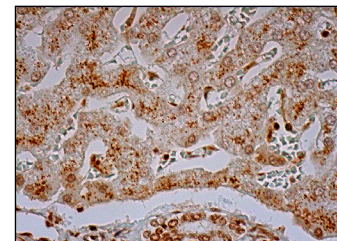
STORAGE

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

DATA



β -Gal (B-12): sc-377257. Western blot analysis of β -Gal expression in SH-SY5Y (A), HeLa (B), A549 (C), Jurkat (D), MCF7 (E) and MIA PaCa-2 (F) whole cell lysates.



β -Gal (B-12): sc-377257. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic and nuclear staining of hepatocytes and perinuclear staining of bile duct cells.

SELECT PRODUCT CITATIONS

- Dun, Y., et al. 2013. Independent roles of methionine sulfoxide reductase A in mitochondrial ATP synthesis and as antioxidant in retinal pigment epithelial cells. *Free Radic. Biol. Med.* 65: 1340-1351.
- Ho, D.H., et al. 2019. Upregulation of the p53-p21 pathway by G2019S LRRK2 contributes to the cellular senescence and accumulation of α -synuclein. *Cell Cycle* 18: 467-475.
- Müller, A., et al. 2020. The CDK4/6-EZH2 pathway is a potential therapeutic target for psoriasis. *J. Clin. Invest.* 130: 5765-5781.
- Colapietro, A., et al. 2020. Antitumorigenic effects of inhibiting ephrin receptor kinase signaling by GLPG1790 against colorectal cancer cell lines *in vitro* and *in vivo*. *J. Oncol.* 2020: 9342732.
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- Ho, D.H., et al. 2021. LRRK2 kinase inhibitor rejuvenates oxidative stress-induced cellular senescence in neuronal cells. *Oxid. Med. Cell. Longev.* 2021: 9969842.
- Bhattacharai, K.R., et al. 2021. TMBIM6 regulates redox-associated post-translational modifications of IRE1 α and ER stress response failure in aging mice and humans. *Redox Biol.* 47: 102128.
- Zou, C., et al. 2022. CASPorter: a novel inducible human CASP1/NALP3/ASC inflammasome biosensor. *J. Inflamm. Res.* 15: 1183-1194.
- Chen, S.Y., et al. 2022. Amelioration of experimental tendinopathy by lentiviral CD44 gene therapy targeting senescence-associated secretory phenotypes. *Mol. Ther. Methods Clin. Dev.* 26: 157-168.
- Ruz, C., et al. 2022. Saposin C, key regulator in the α -synuclein degradation mediated by lysosome. *Int. J. Mol. Sci.* 23: 12004.

RESEARCH USE

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