

β-Gal (H-80): sc-20161

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.

REFERENCES

- Oshima, A., et al. 1988. Cloning, sequencing, and expression of cDNA for human β-galactosidase. *Biochem. Biophys. Res. Commun.* 157: 238-244.
- Morreau, H., et al. 1989. Alternative splicing of β-galactosidase mRNA generates the classic lysosomal enzyme and a β-galactosidase-related protein. *J. Biol. Chem.* 264: 20655-20663.
- Takano, T., et al. 1993. Assignment of human β-galactosidase-A gene to 3p21.33 by fluorescence *in situ* hybridization. *Hum. Genet.* 92: 403-404.
- Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 230500. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: GLB1 (human) mapping to 3p22.3.

SOURCE

β-Gal (H-80) is a rabbit polyclonal antibody raised against amino acids 496-575 of β-Gal of human origin.

PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

β-Gal (H-80) is recommended for detection of β-Gal of human origin by Western Blotting (starting dilution 1:200, 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).

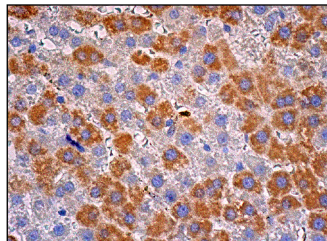
Suitable for use as control antibody for β-Gal siRNA (h): sc-43792, β-Gal shRNA Plasmid (h): sc-43792-SH and β-Gal shRNA (h) Lentiviral Particles: sc-43792-V.

Molecular Weight of β-Gal: 76 kDa.

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 (H-80): sc-20161. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes.

SELECT PRODUCT CITATIONS

- Sui, G., et al. 2004. Yin Yang 1 is a negative regulator of p53. *Cell* 117: 859-872.
- Park, K.Y., et al. 2008. Control of the calcitonin gene-related peptide enhancer by upstream stimulatory factor in trigeminal ganglion neurons. *J. Biol. Chem.* 283: 5441-5451.
- Schutzer, W.E., et al. 2011. Age-related β-adrenergic receptor-mediated vasorelaxation is changed by altering G protein receptor kinase 2 expression. *Vascul. Pharmacol.* 55: 178-188.
- Ballot, C., et al. 2012. Regulation by survivin of cancer cell death induced by F14512, a polyamine-containing inhibitor of DNA topoisomerase II. *Apoptosis* 17: 364-376.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.


 MONOS
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Try **β-Gal (B-12): sc-377257** or **β-Gal (148-4): sc-136149**, our highly recommended monoclonal alternatives to β-Gal (H-80).