SANTA CRUZ BIOTECHNOLOGY, INC.

β-Galactosidase (BG-02): sc-51599

BACKGROUND

The β-Galactosidase (β-Gal) gene, known as the LacZ gene in bacteria, functions at an optimal pH range of 6 to 8. Catalytically active β-Galactosidase 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-Galactosidases are widespread in animals, microorganisms and plants. The bacterial 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

1. Thomas, D.Y., et al. 1982. *Escherichia coli* plasmid vectors containing synthetic translational initiation sequences and ribosome binding sites fused with the LacZ gene. Gene 19: 211-219.
2. Durbin, H., et al. 1987. A sensitive micro-immunoassay using β-Galactosidase/anti-β-Galactosidase complexes. J. Immunol. Methods 97: 19-27.
3. Oshima, A., et al. 1988. Cloning, sequencing, and expression of cDNA for human β-Galactosidase. Biochem. Biophys. Res. Commun. 157: 238-244.
4. Ho, D.Y., et al. 1988. β-Galactosidase as a marker in the peripheral and neural tissues of the herpes simplex virus-infected mouse. Virology 167: 279-283.
5. Shimohama, S., et al. 1989. Grafting genetically modified cells into the rat brain: characteristics of *E. coli* β-Galactosidase as a reporter gene. Brain Res. Mol. Brain Res. 5: 271-278.
6. 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.
7. Teeri, T.H., et al. 1989. Gene fusions to LacZ reveal new expression patterns of chimeric genes in transgenic plants. EMBO J. 8: 343-350.
8. 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.
9. 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/

SOURCE

β-Galactosidase (BG-02) is a mouse monoclonal antibody raised against purified β-Galactosidase of *E. coli* origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

β-Galactosidase (BG-02) is recommended for detection of non-catalytic center epitope of β-Galactosidase of *E. coli* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of β-Galactosidase: 116 kDa.

SELECT PRODUCT CITATIONS

1. Ota, S., et al. 2011. Intramuscular transplantation of muscle-derived stem cells accelerates skeletal muscle healing after contusion injury via enhancement of angiogenesis. Am. J. Sports Med. 39: 1912-1922.
2. Marques-Lopes, J., et al. 2012. Decrease in the expression of N-methyl-D-aspartate receptors in the nucleus tractus solitarii induces antinociception and increases blood pressure. J. Neurosci. 90: 356-366.
3. Cetkovská, K., et al. 2015. A novel interaction between TFII-I and Mdm2 with a negative effect on TFII-I transcriptional activity. PLoS ONE 10: e0144753.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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