SANTA CRUZ BIOTECHNOLOGY, INC.

β-Galactosidase (SPM373): sc-56394

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: 19-127.
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.

SOURCE

β-Galactosidase (SPM373) is a mouse monoclonal antibody raised against β-Galactosidase of *E. coli* origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

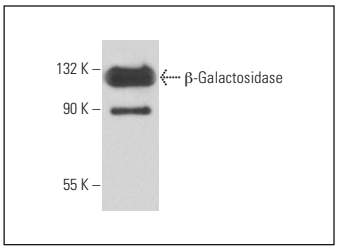
β-Galactosidase (SPM373) is recommended for detection of β-Galactosidase of *E. coli* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of β-Galactosidase: 116 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



β-Galactosidase (SPM373): sc-56394. Western blot analysis of recombinant β-Galactosidase.

SELECT PRODUCT CITATIONS

1. Choudhury, R., et al. 2012. Engineering RNA endonucleases with customized sequence specificities. Nat. Commun. 3: 1147.

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.

CONJUGATES

See **β-Galactosidase (40-1a): sc-65670** for β-Galactosidase antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.