### 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-galactosidoses (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 µg IgG2a 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 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377257 HRP), 200 µg/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 µg/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 µg/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 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).


Molecular Weight of β-Gal: 76 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A549 cell lysate: sc-2413 or Mia PaCa-2 cell lysate: sc-2285.

### Recommended Support Reagents
To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgGx BP-HP: sc-516102 or m-IgGx BP-HP (Cruz Marker); sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGx BP-FITC: sc-516140 or m-IgGx BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359880. 4) Immunohistochemistry: use m-IgGx BP-BP: sc-516102 with DAB, 50X: sc-24982 and ImmunohistoMount: sc-45086, or Organo/Limonene Mount: sc-45087.

### Data

<table>
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<tr>
<th>β-Gal (B-12): sc-377257 Western blot analysis of β-Gal expression in SH-SY5Y</th>
<th>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.</th>
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<tbody>
<tr>
<td>A</td>
<td>B</td>
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<tr>
<td>120 K</td>
<td>88 K</td>
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### Select Product Citations


### 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.