

## Beta-galactosidase Protein, E. coli, Recombinant

### General Information

Synonyms:	Beta-gal;Beta-galactosidase;lacZ; $\beta$ -galactosidase Protein; $\beta$ -galactosidase;Lactase; $\beta$ -gal
Protein Construction:	Met1-Lys1024(12-41AA deletion)
Species:	E. coli
Expression Host:	E. coli
Accession:	P00722
Molecular Weight:	115 KDa (reducing condition)
AA Sequence:	Met1-Lys1024(12-41AA)

### QC Testing

Biological Activity:	Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Endotoxin:	< 0.1 ng/ $\mu$ g (1 EU/ $\mu$ g) as determined by LAL test.
Formulation:	Supplied as a 0.2 $\mu$ m filtered solution of PBS, pH 7.4.

### Preparation and Storage

#### Stability & Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

Proteins are shipped with blue ice.

### Protein Background

$\beta$ -galactosidase is an exoglycosidase which hydrolyzes the  $\beta$ -glycosidic bond formed between a galactose and its organic moiety. It may also cleave fucosides and arabinosides but with much lower efficiency.  $\beta$ -galactosides include carbohydrates containing galactose where the glycosidic bond lies above the galactose molecule. Substrates of different  $\beta$ -galactosidases include ganglioside GM1, lactosylceramides, lactose, and various glycoproteins. It is an essential enzyme in the human body. Deficiencies in the protein can result in galactosialidosis or Morquio B syndrome. In E. coli, the gene of  $\beta$ -galactosidase, the lacZ gene, is present as part of the inducible system lac operon which is activated in the presence of lactose when glucose level is low.  $\beta$ -galactosidase is important for organisms as it is a key provider in the production of energy and a source of carbons through the break down of lactose to galactose and glucose.

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