

## Native Escherichia coli $\beta$ -Galactosidase

Cat. No. DIA-189

Lot. No. (See product label)

### Introduction

#### Description

$\beta$ -galactosidase, also called beta-gal or  $\beta$ -gal, is a hydrolase enzyme that catalyzes the hydrolysis of  $\beta$ -galactosides into monosaccharides. Substrates of different  $\beta$ -galactosidases include ganglioside GM1, lactosylceramides, lactose, and various glycoproteins.

#### Applications

This enzyme is useful for structural investigation of carbohydrates, the determination of lactose (foodstuff analysis) and as an enzyme label for enzyme immunoassay.

#### Synonyms

$\beta$ -galactosidase; beta-gal;  $\beta$ -gal; EC 3.2.1.23; lactase;  $\beta$ -lactosidase; maxilact; hydrolact;  $\beta$ -D-lactosidase; S 2107; lactozym; trilactase;  $\beta$ -D-galactanase; oryzatym; sumiklat;  $\beta$ -D-galactoside galactohydrolase

### Product Information

#### Source

Escherichia coli

#### Appearance

White amorphous powder, lyophilized.

#### Form

Freeze dried powder

#### EC Number

EC 3.2.1.23

#### CAS No.

9031-11-2

#### Molecular Weight

540 kDa

#### Activity

Gradell 500U/mg-solid or more

#### Contaminants

$\alpha$ -galactosidase <  $1 \times 10^{-4}\%$   $\alpha$ -glucosidase <  $1 \times 10^{-4}\%$   $\beta$ -glucosidase <  $2 \times 10^{-3}\%$   $\alpha$ -mannosidase <  $1 \times 10^{-4}\%$   $\beta$ -mannosidase <  $1 \times 10^{-4}\%$  proteinase < 10mAbs/mg-P

#### Isoelectric point

4.61

#### pH Stability

pH 6.5-8.5 (25°C, 20hr)

#### Optimum pH

7.0-7.5

#### Thermal stability

below 50°C (pH 7.3, 15min)

#### Optimum temperature

50-55°C

#### Michaelis Constant

$3.0 \times 10^{-4}$ M (o-Nitrophenyl- $\beta$ -D-galactoside),  $6.7 \times 10^{-5}$ M (p-Nitrophenyl- $\beta$ -D-galactoside),  $2.3 \times 10^{-4}$ M (Phenyl- $\beta$ -D-galactoside),  $2.5 \times 10^{-3}$ M (Lactose)

#### Structure

The enzyme is composed of four identical subunits having a molecular weight of ca.135,000. The amino acid analysis indicates approximately 1,170 residues per subunit.

#### Specificity

The enzyme specifically hydrolyzes  $\beta$ -D-galactosyl linkage

#### Inhibitors

n-Chloromercuribenzoate, Iodoacetamide, heavy metal ions ( $Zn^{++}$ ,  $Fe^{+++}$ ,  $Cd^{++}$ )

**Inhibitors**

p-Chloromercuribenzoate, iodoacetamide, heavy metal ions ( $\text{Zn}^{++}$ ,  $\text{Fe}^{++}$ ,  $\text{Cu}^{++}$ ,  $\text{Pb}^{++}$ ,  $\text{Ag}^{+}$ ,  $\text{Hg}^{++}$ ), Ionic detergents (SDS, DAC, etc.)

**Stabilizers**

$\text{Mg}^{++}$

**Storage and Shipping Information****Stability**

Stable at  $-20^{\circ}\text{C}$  for at least 6 months