

Native Escherichia coli β -Galactosidase

Cat. No. DIA-189

Lot. No. (See product label)

Introduction

Description β -galactosidase, also called beta-gal or β -gal, is a hydrolase enzyme that catalyzes the hydrolysis of β -galactosides into monosaccharides. Substrates of different β -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 β -galactosidase; beta-gal; β -gal; EC 3.2.1.23; lactase; β -lactosidase; maxilact; hydrolact; β -D-lactosidase; S 2107; lactozym; trilactase; β -D-galactanase; oryzatym; sumiklat; β -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 α -galactosidase < $1 \times 10^{-4}\%$ α -glucosidase < $1 \times 10^{-4}\%$ β -glucosidase < $2 \times 10^{-3}\%$ α -mannosidase < $1 \times 10^{-4}\%$ β -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 $3.0 \times 10^{-4}\text{M}$ (o-Nitrophenyl- β -D-galactoside), $6.7 \times 10^{-5}\text{M}$ (p-Nitrophenyl- β -D-galactoside), $2.3 \times 10^{-4}\text{M}$ (Phenyl- β -D-galactoside), $2.5 \times 10^{-3}\text{M}$ (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 β -D-galactosyl linkage

Inhibitors n-Chloromercuribenzoate, Iodoacetamide, heavy metal ions (Zn^{++} , Fe^{+++} , Cd^{++} , Cu^{++} , Pb^{++} , Ag^+ , Hg^{+++})

Inhibitors p-Chloromercuribenzoate, iodoacetamide, heavy metal ions (Zn^{2+} , Pb^{2+} , Cd^{2+} , Cu^{2+} , Hg^{2+} , Ag^{+} , Ni^{2+}), ionic detergents (SDS, DAC, etc.)

Stabilizers Mg^{++}

Storage and Shipping Information

Stability Stable at -20°C for at least 6 months