For life science research only.
Not for use in diagnostic procedures.

β-Galactosidase
from *Escherichia coli*
EIA grade

Version: 18
Content Version: June 2021

β-D-Galactoside galactohydrolase
Enzyme label for enzyme immunoassay.

Cat. No. 10 745 731 001 25 mg
approx. 100 mg lyophilizate

Store the product at −15 to −25°C.

1. General Information

1.1. Contents

Vial / bottle	Label	Function / description	Content
1	β-Galactosidase	▪ Lyophilized ▪ Contains enzyme protein, phosphate buffer, and sucrose.	1 vial, 100 mg

1.2. Storage and Stability

Storage Conditions (Product)

When stored at −15 to −25°C, the product is stable through the expiry date printed on the label.

Vial / bottle	Label	Storage
1	β-Galactosidase	Store at −15 to −25°C. Sealed under nitrogen. ⚠ ***No significant decrease in specific activity or in the number of free thiol groups occurs when stored under nitrogen. Similarly, no decrease in activity or in number of thiol groups will occur, when the preparation is stored at +15 to +25°C for some days, for example during shipment.***

1.3. Application

β-Galactosidase is used as an enzyme label for enzyme immunoassay. Substances which might interfere with the derivatization of NH_2 or SH groups such as 2-mercaptoethanol, ammonium salts, or primary amines have been removed. Thus, aqueous solutions of the lyophilizate can directly be used for derivatization of β-galactosidase without prior dialysis or gel permeation chromatography.

2. How to Use this Product

2.1. Before you Begin

General Considerations

Free thiol groups

Approximately 12 to 20 moles/mol enzyme (M_r = 540,000); for exact data, see the lot-specific Certificate of Analysis. The determination of the thiol groups is carried out with Ellman's reagent under non-denaturing conditions (+37°C, 10 mM sodium phosphate buffer, pH 8.0). After denaturation of the β-galactosidase by SDS, much higher SH values will be found.

2.2. Parameters

Absorption

Absorption coefficient at 405 nm:
2-nitrophenol = 3.5 [l × mM^{-1} × cm^{-1}]
4-nitrophenol = 18.5 [l × mM^{-1} × cm^{-1}]

EC-Number

EC 3.2.1.23

Molecular Weight

540,000 kDa

Specific Activity

- Approximately 750 to 950 U/mg protein, approximately 150 to 250 U/mg lyophilizate. For exact data, see the lot-specific Certificate of Analysis, (+37°C, 0.79 mg 2-nitrophenyl-β-galactoside/ml, in 50 mM potassium phosphate buffer, pH 7.8, 1 mM $MgCl_2$, 0.1 M 2-mercaptoethanol).
- Approximately 250 to 400 U/mg protein, approximately 60 to 100 U/mg lyophilizate. For exact data, see the lot-specific Certificate of Analysis, (+37°C, 1.57 mg 4-nitrophenyl-β-D-galactoside/ml, in 50 mM potassium phosphate buffer, pH 7.8, 1 mM $MgCl_2$, 0.1 M 2-mercaptoethanol).

Although enzyme activity with 2-nitrophenyl-β-D- galactoside as substrate is higher than with 4-nitrophenyl-β-D-galactoside, the enzyme reaction with the 4-isomer is more sensitive, due to the higher absorption coefficient of 4-nitrophenol.

3. Supplementary Information

3.1. Conventions

To make information consistent and easier to read, the following text conventions and symbols are used in this document to highlight important information:

Text convention and symbols	
Information Note: Additional information about the current topic or procedure.	
Important Note: Information critical to the success of the current procedure or use of the product.	
① ② ③ etc.	Stages in a process that usually occur in the order listed.
❶ ❷ ❸ etc.	Steps in a procedure that must be performed in the order listed.
* (Asterisk)	The Asterisk denotes a product available from Roche Diagnostics.

3.2. Changes to previous version

Layout changes.
Editorial changes.

3.3. Trademarks

All product names and trademarks are the property of their respective owners.

3.4. License Disclaimer

For patent license limitations for individual products please refer to:
List of biochemical reagent products.

3.5. Regulatory Disclaimer

For life science research only. Not for use in diagnostic procedures.

3.6. Safety Data Sheet

Please follow the instructions in the Safety Data Sheet (SDS).

3.7. Contact and Support

To ask questions, solve problems, suggest enhancements or report new applications, please visit our **Online Technical Support Site**.

To call, write, fax, or email us, visit **sigma-aldrich.com**, and select your home country. Country-specific contact information will be displayed.

0621.10881651001 ®

Roche Diagnostics GmbH
Sandhofer Strasse 116
68305 Mannheim
Germany