

Product Information

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103 USA

Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757

email: techservice@sial.com sigma-aldrich.com

β-Glucuronidase Type H-2 from *Helix pomatia*

Catalog Number **G0876**
Storage Temperature 2–8 °C

CAS RN 9001-45-0
EC 3.2.1.31
Synonym: β-D-Glucuronide glucuronosohydrolase

Product Description

Glucuronidation, conjugation with glucuronic acid, by the human UDP-glucuronosyltransferase (UGT) family of enzymes plays an important role in the metabolic fate of many drugs and other xenobiotics. This biosynthetic reaction also has a role in the conjugation and excretion of endogenous substrates, such as steroids, bilirubin, and bile acids.¹ UGT activity results in the conjugation of glucuronic acid to substrates containing sulfhydryl, hydroxyl, aromatic amino, or carboxylic acid moieties. The glucuronides formed are more polar (water soluble) than the parent organic substrate and are generally excreted through the kidney.

β-glucuronidase catalyzes the reaction:

β-D-glucuronoside + H₂O ↔ an alcohol + D-glucuronate

β-Glucuronidase Type H-2 has been used for the enzymatic hydrolysis of glucuronides from urine,^{2,3} plasma,^{4,5} and other fluids⁶ prior to analysis by enzyme immunoassay, mass spectrometry, high performance liquid chromatography, or other means. Typically, between 1–20 units of glucuronidase is used per μl of plasma, urine, or bile for the enzymatic hydrolysis of glucuronides present in these samples.²⁻⁶ The exact amount needed will depend on the specific conditions used and must be determined empirically.

β-Glucuronidase Type H-2 from *Helix pomatia* is a crude solution of enzymes derived from the Roman snail. Many β-glucuronidases derived from mollusks also contain sulfatase activity. For this reason, sulfatase activity of this preparation is also determined.

Optimal pH:
glucuronidase activity 4.5 to 5.0
sulfatase activity ~6.2

Inhibitors:
D-glucuronic acid
(Catalog No. G5269)
D-galacturonic acid
D-glucaro-1,4-lactone

Substrates:
5-Bromo-6-chloro-3-indolyl β-D-glucuronide B4532
6-Bromo-2-naphthyl β-D-glucuronide
5-Bromo-4-chloro-3-indolyl β-D-glucuronide
sodium salt tablet B8174
8-Hydroxyquinoline glucuronide H1254
4-Methylumbelliferyl β-D-glucuronide M5664
4-Nitrophenyl β-D-glucuronide 73677

Glucuronidase Activity: ≥85,000 units/ml

Unit Definition: One Sigma or modified Fishman unit will liberate 1.0 μg of phenolphthalein from phenolphthalein glucuronide per hour at 37 °C at pH 5.0 (30 min assay).

Sulfatase Activity: ≤7,500 units/ml

Unit Definition: One unit of sulfatase will hydrolyze 1.0 μmole *p*-nitrocatechol sulfate per hour at pH 5.0 at 37 °C.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on wet ice and storage at 2–8 °C is recommended. When stored at 2–8 °C, the enzyme retains activity for at least one year.

References

1. Tephly, T.R., *et al.*, *Adv. Pharmacol.*, **42**, 343-346 (1998).
2. Xu, X., *et al.*, *J. Chromatogr. B. Analyt. Technol. Biomed. Life Sci.*, **780**, 315-330 (2002).
3. Staimer, N., *et al.*, *Anal. Chim. Acta*, **444**, 27-36 (2001).
4. Zhai, P., *et al.*, *Am. J. Physiol. Heart Circ. Physiol.*, **281**, H1223-H1232 (2001).
5. Anderson, A. *et al.*, *Cancer Chemother. Pharmacol.*, **44**, 422-426 (1999).
6. Nobilis, M., *J. Chromatogr. A.*, **1031**, 229-236 (2004).

AC,MAM 01/08-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.