

Product Information

β -Glucuronidase from *Helix pomatia*

Type H-2, aqueous solution, $\geq 85,000$ units/mL**G0876**

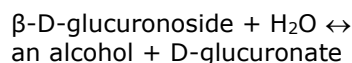
Product Description

CAS Registry Number: 9001-45-0

Enzyme Commission (EC) Number: 3.2.1.31

Synonyms: β -D-Glucuronide glucuronosohydrolase

Glucuronidation, or 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 that contain sulfhydryl, hydroxyl, aromatic amino, or carboxylic acid moieties. The resulting glucuronides are more polar (water-soluble) than the parent organic substrate and are generally excreted through the kidney.

 β -glucuronidase catalyzes the general reaction:

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 methods. 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.

Several theses⁷⁻⁹ and dissertations¹⁰⁻¹⁷ have cited use of product G0876 in their protocols.

Optimal pH

- Glucuronidase activity: 4.5 to 5.0
- Sulfatase activity: ~ 6.2

Inhibitors

- D-glucuronic acid (Cat. No. G5269)
- D-galacturonic acid (Cat. No. 48280)
- D-glucaro-1,4-lactone

Substrates

- 5-Bromo-6-chloro-3-indolyl β -D-glucuronide (Cat. No. B4532)
- 6-Bromo-2-naphthyl β -D-glucuronide (Cat. No. B7877)
- 5-Bromo-4-chloro-3-indolyl β -D-glucuronide sodium salt tablet (Cat. No. B8174)
- 8-Hydroxyquinoline glucuronide sodium salt (Cat. No. 38153)
- 4-Methylumbelliferyl β -D-glucuronide (Cat. No. M9130)
- 4-Nitrophenyl β -D-glucuronide (Cat. Nos. N1627, 73677)

Glucuronidase Activity: $\geq 85,000$ 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-minute assay).

Sulfatase Activity: $\leq 7,500$ units/mL

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

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

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Storage/Stability

Store the product at 2-8 °C. 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(2)**, 315-330 (2002).
3. Staimer, N. et al., *Anal. Chim. Acta*, **444(1)**, 27-36 (2001).
4. Zhai, P. et al., *Am. J. Physiol. Heart Circ. Physiol.*, **281(3)**, H1223-H1232 (2001).
5. Anderson, A. et al., *Cancer Chemother. Pharmacol.*, **44(5)**, 422-426 (1999).
6. Nobilis, M. et al., *J. Chromatogr. A*, **1031(1-2)**, 229-236 (2004).
7. West, Robert Edward, "Confirmation of Urinary Benzodiazepines by Gas Chromatography/Mass Spectrometry". University of Arizona, M.S. thesis, p. 47 (1989).
8. Paes, Cheryl Maria, "Soy Isoflavone Supplementation Does Not Alter Lymphocyte Proliferation and Cytokine Production in Postmenopausal Women". Virginia Polytechnic Institute, M.S. thesis, pp. 19, 43 (2001).
9. Barrett, Anna S., "Analysis of Polycyclic Aromatic Hydrocarbon Exposure in Road Paving Workers". University of Cincinnati, M.S. thesis, p. 9 (2014).
10. Ron, Benny, "Relationships Among Nutrition, Salinity, and the Exogenous Growth Promoter, 17 α -Methyltestosterone, and Growth in the Euryhaline Tilapia, *Oreochromis Mossambicus*". University of Hawaii, Ph.D. dissertation, p. 35 (1998).
11. Goyarts, Tanja, "Effects of the Fusarium toxin deoxynivalenol (DON) on protein synthesis immunological parameters and DON-kinetics in the pig". Tierärztliche Hochschule Hannover, Dr. med. vet. dissertation, pp. 58, 85, 111 (2006).
12. Ding, Shujing, "The application of mass spectrometry to *Ginkgo biloba* analysis and identification of phosphorylated proteins in response to elevated level of cCMP". University of Wales Swansea, Ph.D. dissertation, p. 179 (2006).
13. Medina, Bethan Ann, "Characterisation of the KA1 & KA2 Domains and Interaction with APC/C". University of Edinburgh, Ph.D. dissertation, p. 45 (2011).
14. Patterson, James Oliver, "Quantitative biology of cell cycle decision making". University College London, Ph.D. dissertation, p. 259 (2017).
15. Rezende, Josielle Santos, "The roles of AVR4 in fungal virulence, cercosporin biosynthesis and its potential use in host induced gene silencing for controlling cercospora leaf blight disease of soybeans". Louisiana State University, Ph.D. dissertation, p. 31 (2017).
16. Shin, Young Hwan, "Characterizing the Fate and Transport of Chemicals of Emerging Concern (CECs) from Swine Manure During Waste to Energy Processes". University of Illinois at Urbana-Champaign, Ph.D. dissertation, p. 55 (2018).
17. Martin, Miriam Sharon, "Investigation of pain and analgesic strategies in food animals". Kansas State University, Ph.D. dissertation, p. 299 (2021).

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