

Product Information

β -Glucuronidase

Type HP-2S

from *Helix pomatia*

Product Number **G7770**

Storage Temperature 2–8 °C

CAS# 9001-45-0

EC 3.2.1.31

Synonyms: 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 \leftrightarrow an alcohol + D-glucuronate

β -Glucuronidase Type HP-2S has been used for the enzymatic hydrolysis of these metabolites from urine^{2,3} and plasma³ prior to analysis by various means. For example, 30 μ l of the enzyme was used to hydrolyze conjugated metabolites of quercetin, a plant flavonol, in 500 μ l of human plasma or urine (pH 5, 37 °C, 1 hour) prior to analysis by HPLC.³

This product has also been used for the digestion of fungal cell walls for the formation of spheroplasts.^{4,5} *Candida albicans* cells were grown to late-log phase to a density of 1-2 x 10⁷ cells/ml. Fifty ml of these cells were pelleted, washed, and resuspended in 5 ml of 0.1 M sodium citrate buffer, pH 5.8, with 1 M sorbitol and 25 mM EDTA, to which 50 μ l of β -Glucuronidase Type HP-2S (~100,000 units/ml) was added. The cells were incubated for 5 minutes at 30 °C and harvested.⁵ The exact amount needed will depend on the specific conditions used and must be determined empirically.

β -Glucuronidase Type HP-2S from *Helix pomatia* is a sterile-filtered, 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
(Product 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	B6519
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:

~100,000 units/ml
Unit Definition: One Sigma or modified Fishman unit will liberate 1.0 μ g of phenolphthalein from phenolphthalein glucuronide per hour at 37 °C at pH 5.0 (30 min assay).

Sulfatase Activity:

\leq 7,500 units/ml
Unit Definition: One unit of sulfatase will hydrolyze 1.0 μ mole *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

Store the product at 2–8 °C.

References

1. Tephly, T.R., *et al.*, *Adv. Pharmacol.*, **42**, 343-346 (1998).
2. Emery, M.G., *et al.*, *J. Pharmacol. Exp. Ther.*, **291**, 213-219 (1999).
3. Graefe, E.U., *et al.*, *J. Clin. Pharmacol.*, **41**, 492-499 (2001).
4. Howard, T.L., *et al.*, *J. Cell Sci.*, **114**, 2395-2404 (2001).
5. Hube, B., *et al.*, *Inf. Imm.*, **65**, 3529-3538 (1997).

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