

## Product Information

## $\beta$ -Glucuronidase from *Helix pomatia*

Type H-1, partially purified powder,  $\geq 300,000$  units/g solid

**G0751**

### Product Description

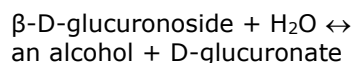
CAS Registry Number: 9001-45-0

Enzyme Commission (EC) Number: 3.2.1.31

Synonyms:  $\beta$ -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.<sup>1</sup> 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.

$\beta$ -glucuronidase catalyzes the general reaction:



$\beta$ -Glucuronidase Type H-1 has been used for the enzymatic hydrolysis of these metabolites from urine,<sup>2-4</sup> plasma,<sup>5</sup> serum,<sup>6,7</sup> and bile<sup>8</sup> prior to analysis by various means. The enzyme has also been used for the digestion of fungal mycelium.<sup>9</sup> Typically, between 1-20 units of glucuronidase are used per  $\mu\text{L}$  of plasma, urine, or bile for the enzymatic hydrolysis of glucuronides present in these samples.<sup>2-8</sup> The exact amount needed will depend on the specific conditions used and must be determined empirically.

$\beta$ -Glucuronidase Type H-1 from *Helix pomatia* is a partially purified, essentially salt-free powder of enzymes derived from the Roman snail. Many  $\beta$ -glucuronidases derived from mollusks also contain sulfatase activity. For this reason, sulfatase activity is also determined.

Several theses<sup>10</sup> and dissertations<sup>11-18</sup> have cited use of product G0751 in their protocols.

### Optimal pH

- Glucuronidase activity: 4.5 to 5.0
- Sulfatase activity:  $\sim 6.2$

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

### Glucuronidase Activity

$\geq 300,000$  units per gram solid

Unit Definition: One Sigma or modified Fishman unit will liberate 1.0  $\mu\text{g}$  of phenolphthalein from phenolphthalein glucuronide per hour at 37 °C at pH 5.0 (30-minute assay).

### Sulfatase Activity

$\geq 10,000$  units per gram solid

Unit Definition: One unit of sulfatase will hydrolyze 1.0  $\mu\text{mole}$  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.

## Storage/Stability

Store the product at -20 °C. When stored at -20 °C, the enzyme retains activity for at least 3 years.

## References

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