

## Product Information

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

Type HP-2, aqueous solution,  $\geq 100,000$  units/mL**G7017**

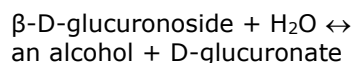
### Product Description

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 HP-2 has been used for the enzymatic hydrolysis of glucuronides from urine,<sup>2-4</sup> blood,<sup>3</sup> and serum<sup>4</sup> prior to analysis by enzyme immunoassay, mass spectrometry, high performance liquid chromatography, or other methods. Amounts used for the enzymatic hydrolysis of glucuronides present in urine have ranged from about 300-50,000 units/mL.<sup>2-4</sup> Approximately 70 units of enzyme have been used per mL of serum,<sup>4</sup> whereas 5,000 units of enzyme have been used per mL of plasma.<sup>3</sup> The exact amount needed will depend on the specific conditions used and must be determined empirically.

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

Several theses<sup>5-7</sup> and dissertations<sup>8-14</sup> have cited use of product G7017 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:**  $\geq 100,000$  units/mL

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:**  $\leq 7,500$  units/mL

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 2-8 °C. When stored at 2-8 °C, the enzyme retains activity for at least one year.

## References

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11. Donzelli, Massimiliano, "Development, Validation and Application of the Basel Phenotyping Cocktail". Universität Basel, Ph.D. dissertation, p. 43 (2015).
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