



## Product Information

### Endo- $\beta$ -Galactosidase from *Bacteroides fragilis*, recombinant expressed in *E. coli*

Product Number **G6920**

Storage Temperature 2–8 °C

EC 3.2.1.103

Synonyms: keratan sulfate 1,4- $\beta$ -D-galactanohydrolase

#### Product Description

Endo- $\beta$ -galactosidase is useful for identifying and removing poly-N-acetyllactosamine structures on many biologically important glycoconjugates. It cleaves internal  $\beta$ -1 $\rightarrow$ 4 galactose linkages in the preferred substrate, unbranched, repeating poly-N-acetyl-lactosamine structures [GlcNAc  $\beta$ (1 $\rightarrow$ 3)Gal  $\beta$ (1 $\rightarrow$ 4)]. Sulfated structures such as keratan sulfate are also cleaved. Sulfation of C-6 on galactose will block cleavage. Branching and/or fucosylation of the substrate may decrease or eliminate cleavage. Oligosaccharides of the neolacto-group are cleaved at greatly reduced rates depending on the deviation from the preferred substrate. For example, Gal  $\beta$ (1 $\rightarrow$ 3)GlcNAc  $\beta$ (1 $\rightarrow$ 3)Gal  $\beta$ (1 $\rightarrow$ 4)Glc is cleaved at  $5 \times 10^{-5}$  times the rate of keratan sulfate.

Molecular Weight: ~32 kDa

pH Optimum: 5.8

Specific activity:  $\geq 140$  units/mg protein

Unit Definition: One unit will release 1.0  $\mu$ mole of reducing sugar per minute at 37 °C and pH 5.8 from bovine corneal keratan sulfate.

The production strain of *E. coli* has been extensively tested and does not produce any other detectable glycosidases. No protease activity is detected.

#### Reaction With Glycoproteins:

1. Add up to 100  $\mu$ g of glycoprotein to a tube.
2. Bring volume to 19  $\mu$ l with 50 mM sodium phosphate, pH 5.8.
3. Add 1  $\mu$ l of enzyme solution.
4. Incubate at 37 °C for 2 hours.

Reaction With Oligosaccharides: Same as glycoprotein procedure, except incubate from several hours to several days depending on the substrate.

#### Components

Supplied as a sterile filtered solution in 20 mM Tris-HCl, pH 7.5.

#### 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

It is recommended to store the product at 2–8 °C and it is stable for at least 1 year. Exposure for several days to ambient temperature will not reduce activity. Active for at least 5 days under reaction conditions.

#### References

1. Scudder, P., *et al.*, Isolation and characterization of an endo- $\beta$ -galactosidase from *Bacteroides fragilis*, *Biochem. J.*, **213**, 485-494 (1983).
2. Scudder, P., *et al.*, Endo- $\beta$ -galactosidases of *Bacteroides fragilis* and *Escherichia freundii* hydrolyze linear but not branched oligosaccharide domains of glycolipids of the neolacto series. *J. Biol. Chem.*, **259**, 6586-6592 (1983).
3. Scudder, P., *et al.*, Isolation and characterization of sulfated oligosaccharides released from bovine corneal keratan sulphate by the action of endo- $\beta$ -galactosidase. *Eur. J. Biochem.*, **157**, 365-373 (1986).
4. Murata, T., *et al.*, Kinetic studies on endo- $\beta$ -galactosidase by a novel colorimetric assay and synthesis of N-acetyllactosamine-repeating oligosaccharide  $\beta$ -glycosides using its transglycosylation activity. *Eur. J. Biochem.*, **270**, 3709-3719 (2003).

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