

## β-D-XYLOSIDASE (*Selenomous ruminantium*) (Lot 151001C)

### Recombinant

**E-BXSR-1KU**

09/22

EC: 3.2.1.37

Synonyms: xylan 1,4-beta-xylosidase; 4-beta-D-xylan xylohydrolase

CAZy Family: GH43

CAS: 9025-53-0

### PROPERTIES

#### 1. ELECTROPHORETIC PURITY:

- Single band on SDS-gel electrophoresis (MW ~ 61,900)
- One major band on isoelectric focusing (pI ~ 5.4)

#### 2. SPECIFIC ACTIVITY:

**90 U/mg protein (on *p*NP-β-D-xyloside) at pH 5.3 and 40°C**

~ 300 U/mg protein (on xylobiose) at pH 5.3 and 40°C

**One Unit** One Unit of β-xylosidase activity is defined as the amount of enzyme required to release one μmole of *p*-nitrophenol per minute from *p*-nitrophenyl-β-D-xylopyranoside (5 mM) in sodium succinate buffer (50 mM), pH 5.3 at 40°C.

#### 3. SPECIFICITY:

Hydrolysis of (1,4)-β-D-xylans and xylo-oligosaccharides to remove successive D-xylose residues from non-reducing termini.

#### 4. RELATIVE RATES OF HYDROLYSIS OF SUBSTRATES:

Substrate	%
<i>p</i> NP-β-D-xyloside	100
<i>p</i> NP-α-L-arabinofuranoside	~ 7.0
<i>p</i> NP-β-L-arabinopyranoside	< 0.01
<i>p</i> NP-α-D-glucopyranoside	< 0.01
<i>p</i> NP-β-D-glucopyranoside	< 0.01
<i>p</i> NP-β-D-glucuronide	< 0.01
<i>p</i> NP-α-D-xyloside	< 0.01
<i>p</i> NP-α-D-galactopyranoside	< 0.01
<i>p</i> NP-β-D-galactopyranoside	< 0.01
<i>p</i> NP-α-D-mannopyranoside	< 0.01
<i>p</i> NP-β-D-mannopyranoside	< 0.01

Action on *p*NP-substrates was determined at a final substrate concentration of 5 mM in sodium succinate buffer (50 mM), pH 5.3 at 40°C.

## 5. PHYSICOCHEMICAL PROPERTIES:

Recommended conditions of use are at pH 6.0-7.5 and up to 40°C

pH Optima: 5.0

pH Stability: 5.0-9.0 (> 75% control activity after 24 h at 4°C)

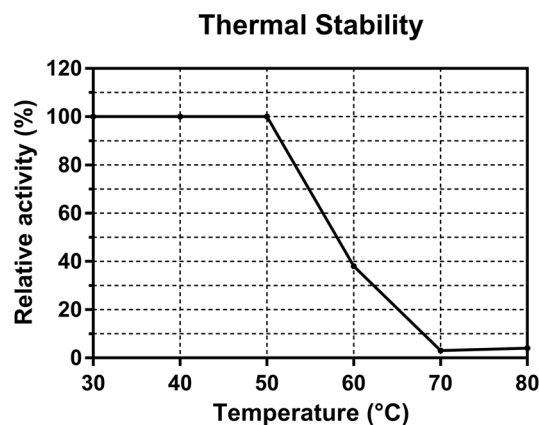
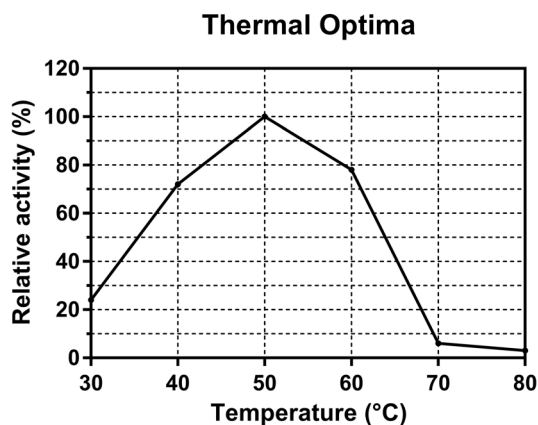
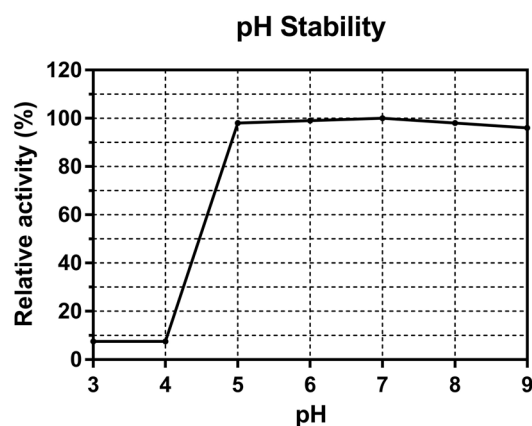
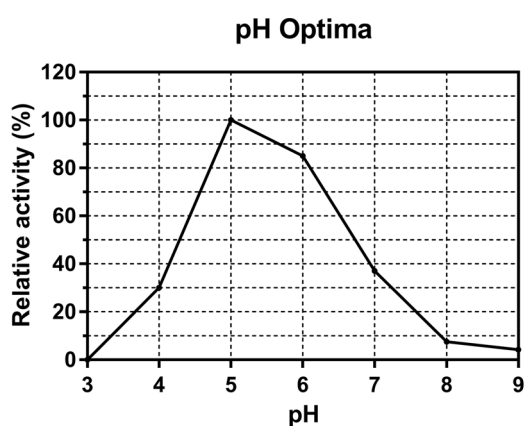
Temperature Optima: 50°C (10 min reaction)

Temperature Stability: up to 50°C (> 75% control activity after 15 min incubation at temperature)

## 6. STORAGE CONDITIONS:

The enzyme is supplied as an ammonium sulphate suspension containing 0.02% (w/v) sodium azide and should be stored at 4°C. For assay, this enzyme should be diluted in sodium succinate buffer (50 mM), pH 5.3 containing 1 mg/mL BSA. **Swirl to mix the enzyme immediately prior to use.**

## 7. EXPERIMENTAL DATA:



## 8. REFERENCES:

Jordan, D. B., Li, X-L., Dunlap, C. A., Whitehead, T. R. & Cotta, M. A. (2007).  $\beta$ -D-Xylosidase from *Selenomonas ruminantium* of Glycoside Hydrolase Family 43. *Appl. Biochem. Biotechnol.* **137-140**, 93-104.

Jordan, D. B. & Li, X-L. (2007). Variation in relative substrate specificity of bifunctional  $\beta$ -D-xylosidase/ $\alpha$ -L-arabinofuranosidase by single-site mutations: Roles of substrate distortion and recognition. *Biochimica et Biophysica Acta* **1774**, 1192-1198.

Jordan, D. B., Li, X-L., Dunlap, C. A., Whitehead, T. R. & Cotta, M. A. (2007). Structure-function relationships of a catalytically efficient  $\beta$ -D-xylosidase. *Appl. Biochem. Biotechnol.* **141**, 51-76.

Jordan, D. B. (2008).  $\beta$ -D-Xylosidase from *Selenomonas ruminantium*: Catalyzed Reactions with Natural and Artificial Substrates. *Appl. Biochem. Biotechnol.* **146**, 137-149.