



## $\beta$ -D-XYLOSIDASE from *S. ruminantium* (Lot 151001a)

### **Recombinant**

#### **E-BXSR-1KU**

(EC 3.2.1.37) xylan 1,4-beta-xylosidase; 4-beta-D-xylan xylohydrolase

CAZy Family: GH43

CAS: 9025-53-0

09/18

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

#### **3. SPECIFICITY:**

Hydrolysis of (1,4)- $\beta$ -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- $\beta$ -D-xyloside	100
<i>p</i> -NP- $\alpha$ -L-arabinofuranoside	~ 7.0
<i>p</i> -NP- $\beta$ -L-arabinopyranoside	< 0.01
<i>p</i> -NP- $\alpha$ -D-glucopyranoside	< 0.01
<i>p</i> -NP- $\beta$ -D-glucopyranoside	< 0.01
<i>p</i> -NP- $\beta$ -D-glucuronide	< 0.01
<i>p</i> -NP- $\alpha$ -D-xyloside	< 0.01
<i>p</i> -NP- $\alpha$ -D-galactopyranoside	< 0.01
<i>p</i> -NP- $\beta$ -D-galactopyranoside	< 0.01
<i>p</i> -NP- $\alpha$ -D-mannopyranoside	< 0.01
<i>p</i> -NP- $\beta$ -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)

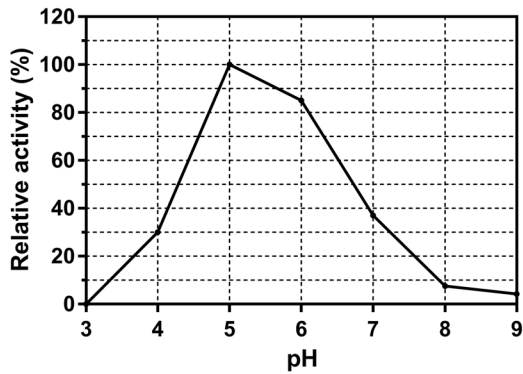
Temperature Stability: up to 50°C (> 75% control activity after 15 min incubation at temperature)

#### **6. STORAGE CONDITIONS:**

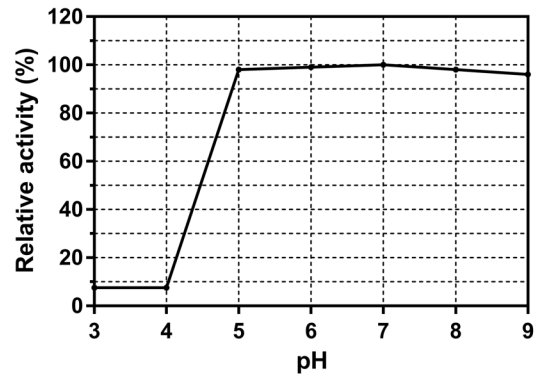
The enzyme is supplied as an ammonium sulphate suspension containing 0.02% (w/v) sodium azide and should be stored at 4°C. For assay, this enzyme should be diluted in sodium succinate buffer (50 mM), pH 5.3 containing 1 mg/mL BSA. **Swirl to mix the enzyme immediately prior to use.**

## 7. EXPERIMENTAL DATA:

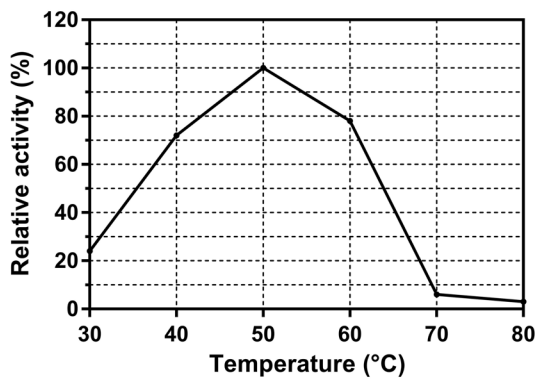
### pH Optima



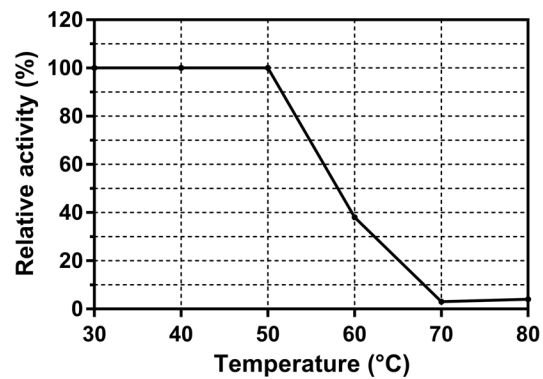
### pH Stability



### Thermal Optima



### Thermal Stability



## 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.