α-D-Mannosidase from *Bacteroides thetaiotaomicron* (Lot 150802b)

Recombinant

E-AMANBT **02/20**

(EC 3.2.1.24) alpha-mannosidase, alpha-D-mannoside mannohydrolase
CAZy Family: GH92
CAS: 9025-42-7

PROPERTIES

1. ELECTROPHORETIC PURITY:

- Single band on SDS-gel electrophoresis (MW ~ 87,000)
- One major band on isoelectric focusing (pI ~ 6.53)

2. SPECIFIC ACTIVITY:

~1.0 U/mg protein (on *p*NP-α-D-mannopyranoside) at pH 6.5 and 40°C

One Unit of α-D-mannosidase activity is defined as the amount of enzyme required to release one µmole of *p*-nitrophenol (*p*NP) per minute from *p*-nitrophenyl-α-D-mannopyranoside (5 mM) in MES buffer (100 mM) and $CaCl_2$ (2.5 mM) at pH 6.5 at 40°C.

3. SPECIFICITY:

Hydrolysis of terminal, non-reducing alpha-D-mannose residues in α-(1,3), α-(1,4) and α-(1,6)-D-mannosides.

4. RELATIVE RATES OF HYDROLYSIS OF SUBSTRATES:

Substrate	%
*p*NP-α-D-mannopyranoside	100
*p*NP-β-D-mannopyranoside	< 0.2
*p*NP-α-D-glucopyranoside	< 0.8
*p*NP-β-D-glucopyranoside	< 0.2
*p*NP-α-D-galactopyranoside	< 0.1
*p*NP-β-D-galactopyranoside	< 0.3

Action on *p*NP substrates was determined at a final substrate concentration of 5 mM in MES buffer (100 mM) pH 6.5 and $CaCl_2$ (2.5 mM) at 40°C.

5. ACTIVITY ON OTHER LINKAGES:

Hydrolyses α-(1,3), α-(1,4) and α-(1,6)-mannobiose.

Action on mannobiose linkages was determined at a final substrate concentration of 5 mg/mL in MES buffer (100 mM) pH 6.5 plus $CaCl_2$ (2.5 mM) at 40°C. Release of free mannose was determined using the Megazyme D-Mannose/D-Fructose/D-Glucose Assay Kit (Megazyme cat. no. **K-MANGL**).

6. PHYSICOCHEMICAL PROPERTIES:

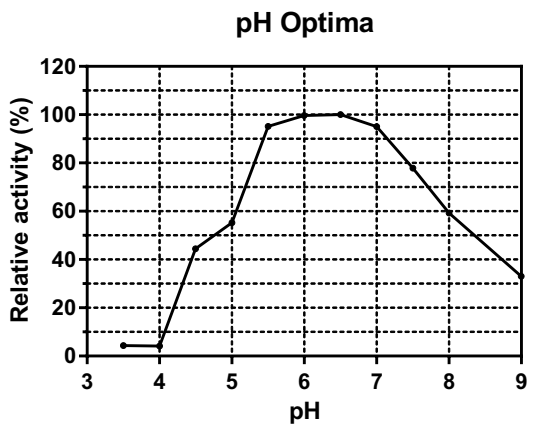
Recommended conditions of use are at pH 6.5 and up to 40°C

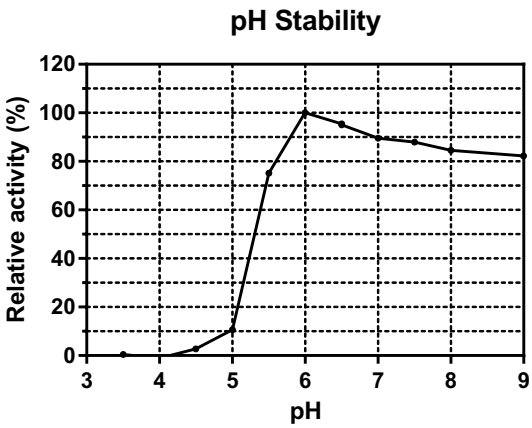
pH Optima:	6.5
pH Stability:	5.5-8.0 (> 75% control activity after 24 h at 4°C)
Temperature Optima:	40°C (9 min reaction)
Temperature Stability:	up to 50°C

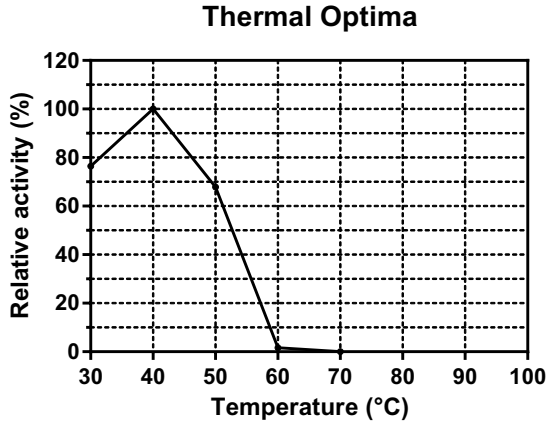
7. STORAGE CONDITIONS:

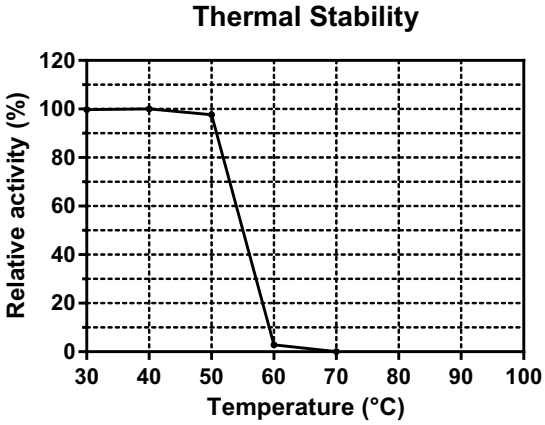
The enzyme is supplied as an ammonium sulphate suspension in 0.02% (w/v) sodium azide and should be stored at 4°C. For assay, this enzyme should be diluted in MES buffer (100 mM) pH 6.5 containing $CaCl_2$ (2.5 mM) plus 1 mg/mL BSA. **Swirl to mix the enzyme immediately prior to use.**

8. EXPERIMENTAL DATA:









9. REFERENCES:

Zhu *et al.* (2009). Mechanistic insights into a Ca^{2+}-dependent family of α-mannosidases in a human gut symbiont. *Nat. Chem. Biol.*, 6, 125–132.