α-(1-2,3,4,6)-D-MANNOSIDASE from *Thermotoga maritima* (Lot 161002b)

Recombinant

E-AMANTM **12/19**

(EC 3.2.1.24) alpha-mannosidase, alpha-D-mannoside mannohydrolase
CAZy Family: GH38
CAS: 9025-42-7

PROPERTIES

1. ELECTROPHORETIC PURITY:

- Single band on SDS-gel electrophoresis (MW ~ 119,000)
- One major band on isoelectric focusing (pI ~ 5.64)

2. SPECIFIC ACTIVITY:

20 U/mg protein (on *p*NP-α-D-mannopyranoside) at pH 6.0 and 90°C;
~ 0.8 U/mg protein (on *p*NP-α-D-mannopyranoside) at pH 6.0 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 min from *p*-nitrophenyl-α-D-mannopyranoside (2 mM) in MES buffer (100 mM) and $CoCl_2$ (1 mM) at pH 6.0 at the temperatures indicated.

3. SPECIFICITY:

Broad specificity; Hydrolysis of terminal, non-reducing alpha-D-mannose residues in alpha-D-mannosides.

4. RELATIVE RATES OF HYDROLYSIS OF SUBSTRATES:

Substrate	%
*p*NP-α-D-mannopyranoside	100
*p*NP-β-D-mannopyranoside	~ 0.74
*p*NP-α-D-glucopyranoside	~ 5.25
*p*NP-β-D-glucopyranoside	~ 0.72
*p*NP-α-D-galactopyranoside	~ 4.66
*p*NP-β-D-galactopyranoside	~ 0.81

Action on *p*NP substrates was determined at a final substrate concentration of 2 mM in MES buffer (100 mM), $CoCl_2$ (1 mM) pH 6.0 at 90°C.

5. ACTIVITY ON OTHER LINKAGES:

Hydrolyses α1,2-, α1,3-, α1,4-, and α1,6-mannobiose.

Action on mannobiose linkages was determined at a final substrate concentration of 5 mg/mL in MES buffer (100 mM), $CoCl_2$ (1 mM) pH 6.0 at 90°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 6.0 and up to 80°C

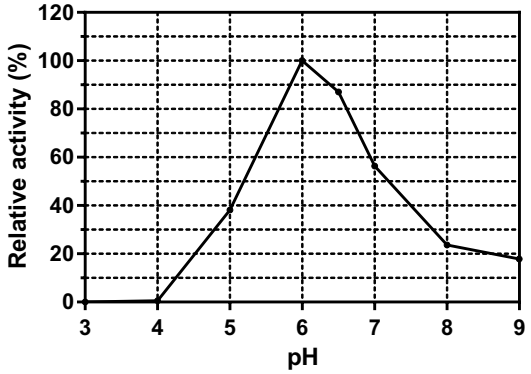
pH Optima:	6.0
pH Stability:	3.0-9.0 (> 75% control activity after 24 h at 4°C)
Temperature Optima:	90°C (9 min reaction)
Temperature Stability:	up to 80°C

7. STORAGE CONDITIONS:

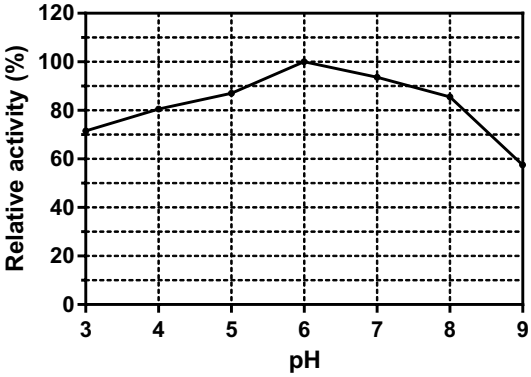
The enzyme is supplied in 50% glycerol containing 0.02% (w/v) sodium azide and should be stored below -10°C. For assay, this enzyme should be diluted in MES buffer (100 mM) containing $CoCl_2$ (1 mM) and BSA (1 mg/mL), pH 6.0. **Swirl to mix the enzyme immediately prior to use.**

8. EXPERIMENTAL DATA:

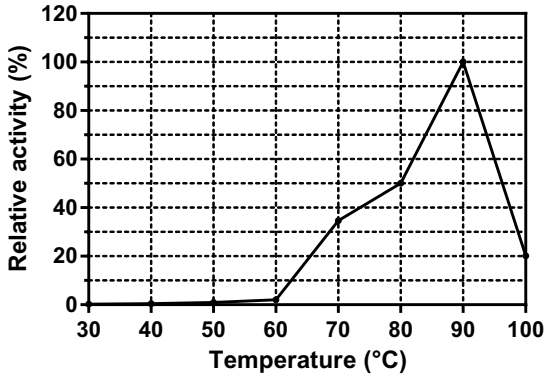
pH Optima



pH Stability



Thermal Optima



Thermal Stability