

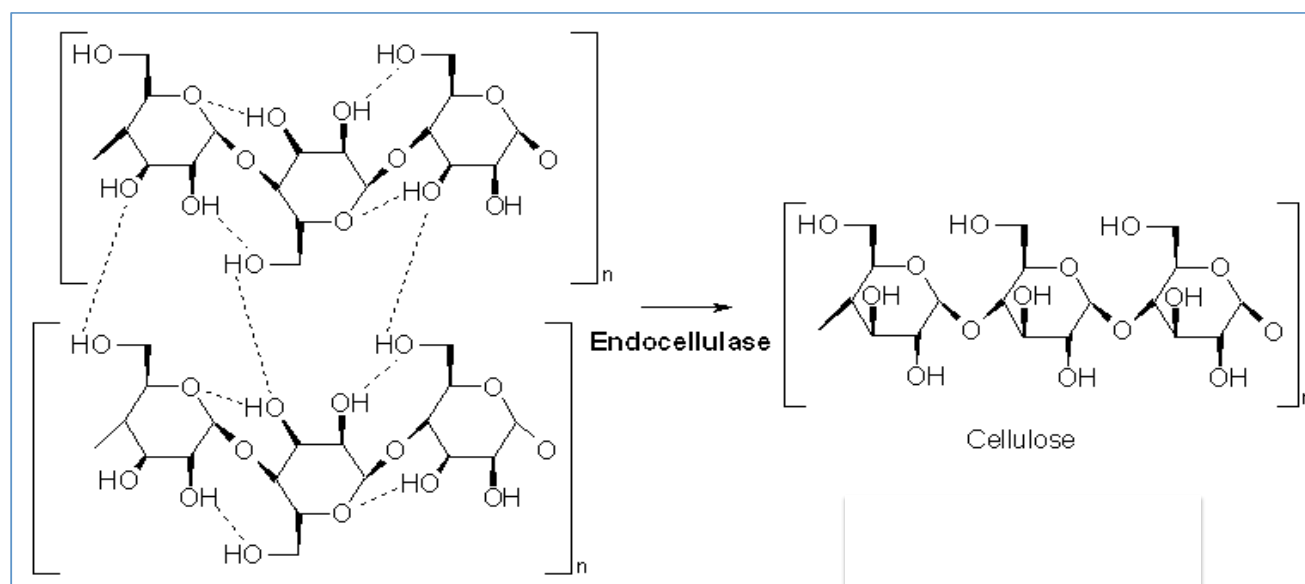
Endoglucanase E1 (endo-1,4-β-D-glucanase)

 A recombinant endoglucanase from *Acidothermus cellulolyticus*

01/2017

Infinite Enzymes E1 is an endoglucanase (also called endocellulase) (E.C.3.2.1.4) from *Acidothermus cellulolyticus*. It is produced from a recombinant corn seed production system. It will be provided as an ammonium sulfate precipitate. Activity is determined using methyl-umberiferyl β-D cellobioside (MUC).

Endo-1,4-β-D-glucanase is a bacterial enzyme. It is a monomer of 42 kDa with a catalytic domain and a cellulose binding domain of 20 kDa. It specifically cleaves the internal bonds of the cellulose chain:



	E1
Family	5—E.C.3.2.1.4
Native source	Bacterial
Calculated MW	56,500 Da
(catalytic domain)	40,610 Da
Glycosylated native protein	No
pI holoenzyme	5.2
Catalytic domain	4.87
pH optimum	5-6
Temperature optimum	81 °C
Bond cleaved	b-1,4-glycosidic

Mechanism	Retained anomeric configuration ¹
Substrates	Cellulose fibrils; purified cellulose preparations (Solka-floc, Sigmacell, Avicel); para-nitrophenyl-b-1,4-D-cellobiose (pNPC); methylumbelliferyl-b-1,4-D-cellobioside (MUC)
Primary reaction products	Decreased degree of polymerization (dp), long-chain, water-insoluble cellulose

¹Source: (Schulein 2000); <http://www.expasy.ch/cgi-bin/lists?glycosid.txt>;

APPLICATION

Infinite Enzymes E1 can be used in combination with cellobiohydrolase and β -glucosidase to produce glucose from cellulose. Its activity is dependent on several factors including inhibitors in the substrate (pure cellulose versus plant-derived cellulose), enzyme dose, concentration of other enzymes, feedback inhibition of products, temperature and pH.

EFFECT OF TEMPERATURE AND PH ON ACTIVITY

This is a thermostable enzyme. Its optimum temperature is 81° Celsius. It's pH optimum is 5.5.

PRODUCT CHARACTERISTICS

Infinite Enzymes' E1 is a suspension of 10 mg enzyme per mL 50 in mM sodium acetate pH 5 with 3.2M ammonium sulfate, standardized in MUC activity units.

The enzyme is produced from recombinant maize that is grown under compliance with USDA regulatory guidelines. Purified enzyme is being produced without typical impurities (other cellulase activities) found in fungal-produced enzymes.

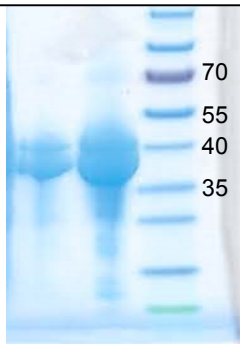
STORAGE CONDITIONS

The enzyme should be stored at 4°C after desalting.

The desalted enzyme can be stored at 4°C for up to 1 month without loss of activity.

Coomassie Blue stained gel of purified E1 with MW standards

2 ug	4 ug	MW kDa
		markers



Sp. Act. >5 U/mg using MUC substrate. Purity: >95%