

## Recombinant Enzyme Product Specification Sheet

<b>Cat. No.:</b>	PRO-E0006
<b>LOT:</b>	2008-0006
<b>Activity:</b>	Chitinase
<b>Synonyms:</b>	Chitodextrinase; 1,4- $\beta$ -poly- <i>N</i> -acetylglucosaminidase; poly- $\beta$ -glucosaminidase; $\beta$ -1,4-poly- <i>N</i> -acetyl glucosaminidase; poly[1,4-( <i>N</i> -acetyl- $\beta$ -D-glucosaminide)] glycanohydrolase; (1 $\rightarrow$ 4)-2-acetamido-2-deoxy- $\beta$ -D-glucan glycanohydrolase; 1,4-beta-poly- <i>N</i> -acetylglucosaminidase; poly-beta-glucosaminidase; beta-1,4-poly- <i>N</i> -acetyl glucosaminidase; poly[1,4-( <i>N</i> -acetyl-beta-D-glucosaminide)] glycanohydrolase; (1 $\rightarrow$ 4)-2-acetamido-2-deoxy-beta-D-glucan glycanohydrolase
<b>Nomenclature:</b>	<a href="#">CAZy [GH18, glycoside hydrolase family 18, member of clan GH-K]</a> , Chitinase 18A, ChiA
<b>Source organism:</b>	<i>Clostridium thermocellum</i> ATCC 27405
<b>Enzyme Commission No.:</b>	<a href="#">3.2.1.14</a>
<b>Activity:</b>	5 U/vial
<b>Specific activity:</b>	25 U/mg
	} (60°C; pH 6.5; <i>p</i> -nitrophenyl- $\beta$ -D-triacetylchitotriose)
<b>Purity:</b>	> 80 % as judged by SDS-PAGE
<b>Form and storage:</b>	Lyophilised powder, store at -20°C (shipped at room temperature)
<b>pH optimum:</b>	6.5 (stable from 4.5 – 6.5)
<b>Temperature optimum:</b>	60°C (stable up to 65°C)
<b>[Protein]:</b>	0.2 mg/vial
<b>Sequence length:</b>	371 amino acids ( <a href="#">view sequence</a> )
<b>Accession No.:</b>	<a href="#">ABN51509.1</a>
<b>Molecular weight:</b>	43927.1 Da (theoretical)
	~ 44100 Da (observed by SDS-PAGE)
	- (observed by mass spectrometry)
<b>Biological function:</b>	Catalyses the random hydrolysis of <i>N</i> -acetyl- $\beta$ -D-glucosaminide (1 $\rightarrow$ 4)- $\beta$ -linkages in chitin and chitodextrins
<b>Potential application(s):</b>	<a href="#">Biomass conversion</a> , <a href="#">carbohydrate research</a>
<b>Comments:</b>	This enzyme is a truncated form lacking the C-terminal dockerin domain

**Usage:** Dissolve to 0.2 mg/mL in phosphate-citrate (PC) buffer (50 mM K<sub>2</sub>HPO<sub>4</sub>, 12 mM citric acid, pH 6.5), 20 mM NaCl with 1 mg/mL BSA and aliquot for storage at -20°C. The enzyme should be stable for 6 months when stored in this manner

**Assay:** One unit is defined as the amount of enzyme required to release 1 µmol of *p*-nitrophenol per minute from *p*-nitrophenyl-β-D-triacetylchitotriose in phosphate-citrate (PC) buffer (50 mM K<sub>2</sub>HPO<sub>4</sub>, 12 mM citric acid, pH 6.5) at 60°C

**Primary sequence:**

MQDDSLPTKRIVGYFAEWNIYLENNYYEVSDIPWDMVTHINYAFAKIENGRIAIIDKWAAIQKPFGDDTWDTPIR  
GHFGQLIKYKEQYPHVKTLISVGGWTESKYFSDVALTEESRNTFADSCVEFIRTYRFDGVDIDWEYPVSGGMPEN  
IRRPEDKQNF'TLLKCLREKLDAAAGAEDGKHLLTIAAPAGSFNIKNTPEIYHQYLDFINIMTYDYSGSWENVA  
NHLAPLYMNPNDPSYPERKEKFNVDWTVKEYLRLGVPAEKINVGVPYYAAGWQEVNNGGINGLFGTSSKPLSSTQF  
HYINSLKSPDLGFTRYWDEYAMVPYLWNPESATFYSYEDEISLKNKCDYVIENNLGGIMIWELSGDYPAE

**Literature:** 1. Zverlov *et al.* (2002) *Appl. Envir. Microbiol.* **68**, 3176-3179