Supplementary Information

Supplementary Method

Hydrolysis of cellodextrin by Gluc1C - Cello-oligosaccharides ranging from C2 to C6 (Megazyme), were used at a concentration of 5 mg/ml to evaluate hydrolysis by Gluc1C. These oligosaccharides were incubated with 4.5 units of Gluc1C for 3 hours at 40 °C and leftover products were measured using HPLC with Aminex 87H column (Bio-Rad).

Supplementary Table 1. Extent of hydrolysis of various cellodextrins by Gluc1C

Substrates Used	% Substrate Utilized	Product Formed
Cellobiose (C2)	95	Glucose (C1)
Cellotriose (C3)	91	Glucose (C1)
Cellotetrose (C4)	12.3	Glucose (C1)
Cellopentose (C5)	19.6	Glucose (C1)
Cellohexose (C6)	1.52	Glucose (C1)

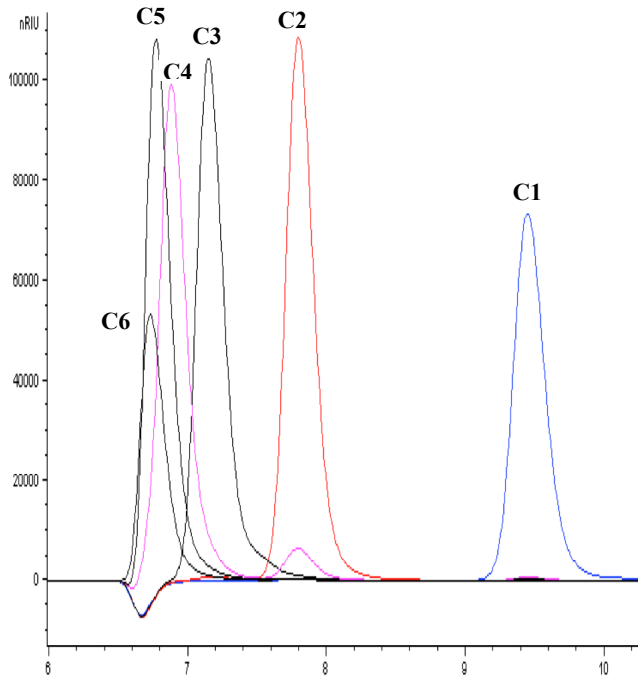
Supplementary Table 2. Purification table for Endo5A, Gluc1C and EG5

Proteins	**Purification step**	**Volume (ml)[a]**	**Protein concentration (mg ml^{-1})**	**Total protein (mg)**	**Total activity (U)**	**Fold purification**	**Specific activity (U mg^{-1})**
Endo5A	Cell Lysate	45	6.8	306	2131	1.00	6.96
	Metal Affinity	30	1.16	34.8	929.5	8.79	26.71
Gluc1C	Cell Lysate	45	5.5	247.5	945	1.00	3.82
	Metal Affinity	32	0.74	23.68	139.4	10.45	5.89
EG5 endoglucanase activity	Cell Lysate	45	7.57	340.65	2947	1.00	8.65
	Metal Affinity	28	1.47	41.16	988.4	8.28	24.01
EG5 β-glucosidase activity	Cell Lysate	45	7.57	340.65	2395	1.00	7.03
	Metal Affinity	28	1.47	41.16	480.2	8.28	11.67

[a] Volume of cell lysate was prepared from 800 ml of culture

Supplementary Figure 1

(A)



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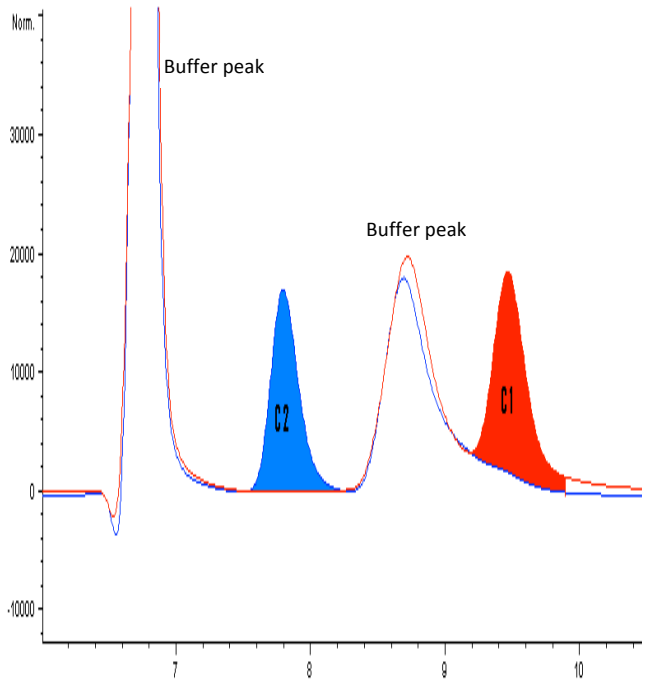

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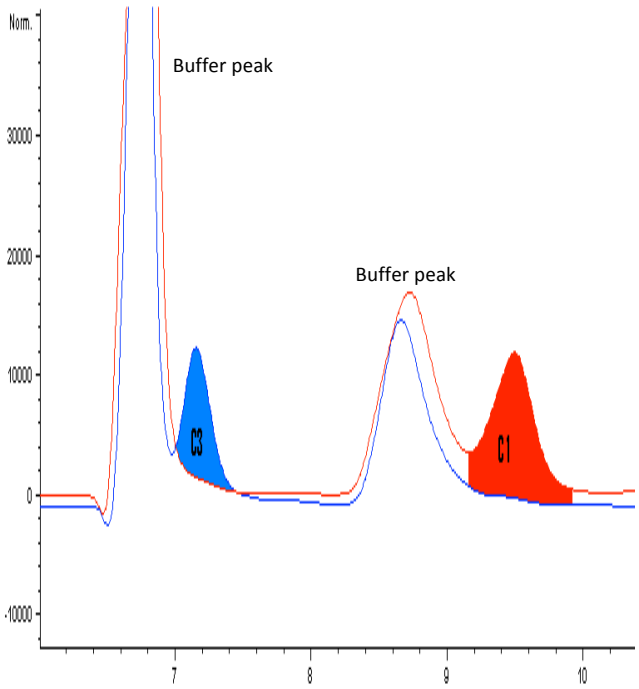

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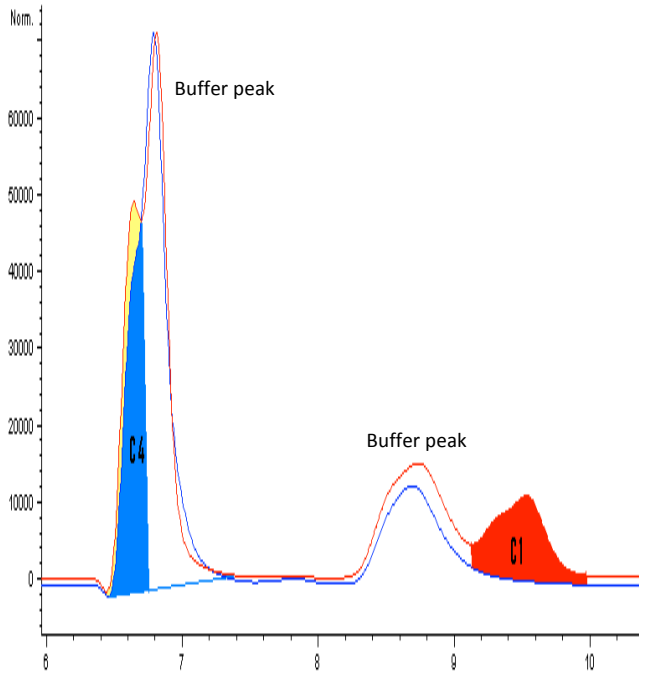
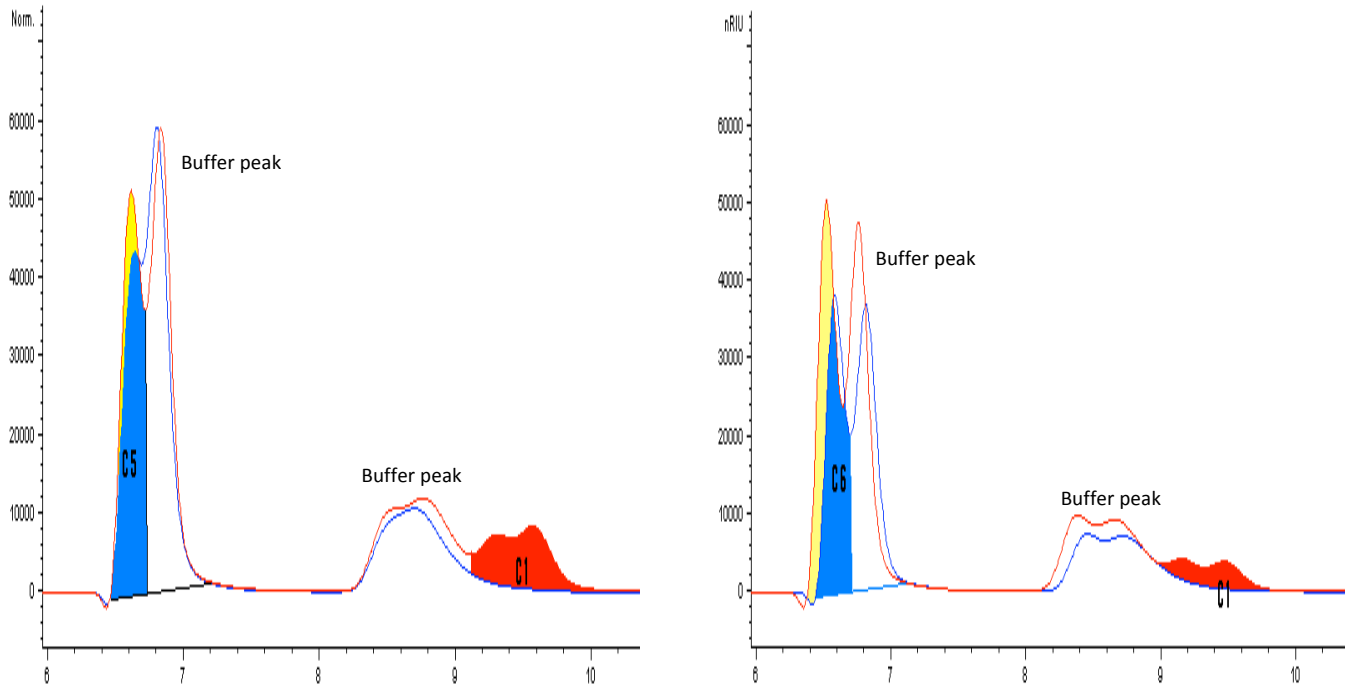


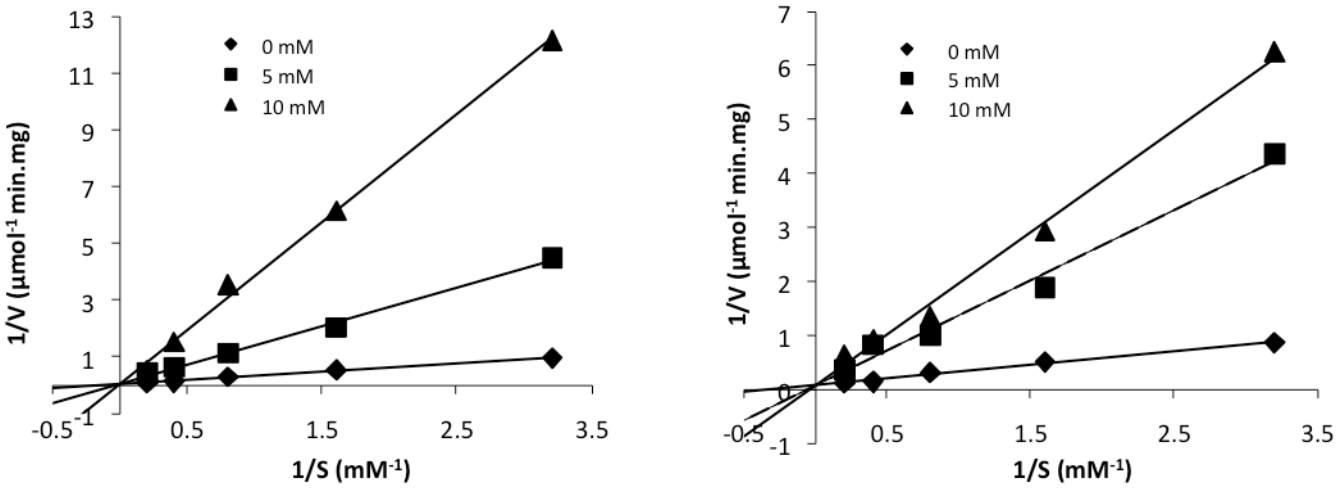
(E) (F)



Supplementary Figure 1. Substrate specificity of Gluc1C towards different cello-oligosaccharides. (A) Standards of cello-oligosaccharides separated on HPLC. Cello-oligosaccharides of chain length C2 or cellobiose (B), C3 or cellotraose (C), C4 or cellotetraose (D), C5 or cellopentaose (E), and C6 or cellohexaose (F) were incubated with Gluc1C and their corresponding products were monitored through HPLC. The profiles at 0 hr (blue line) and 3 hr (red line) have been overlayed and presented in the figure.

Supplementary Figure 2

(A) (B)



Supplementary Figure 2. Inhibition kinetics for β-glucosidase activity of (A) Gluc1C and (B) EG5. Three concentrations of glucono-δ-lactone (0, 5, 10 mM) were used to determine K_i of the two recombinant proteins. K_i of Gluc1C and EG5 were 1.1±0.37 mM and 1.2±0.22, respectively.