Supplementary information for

Controlling the degradation of cellulose scaffolds with Malaprade oxidation for tissue engineering

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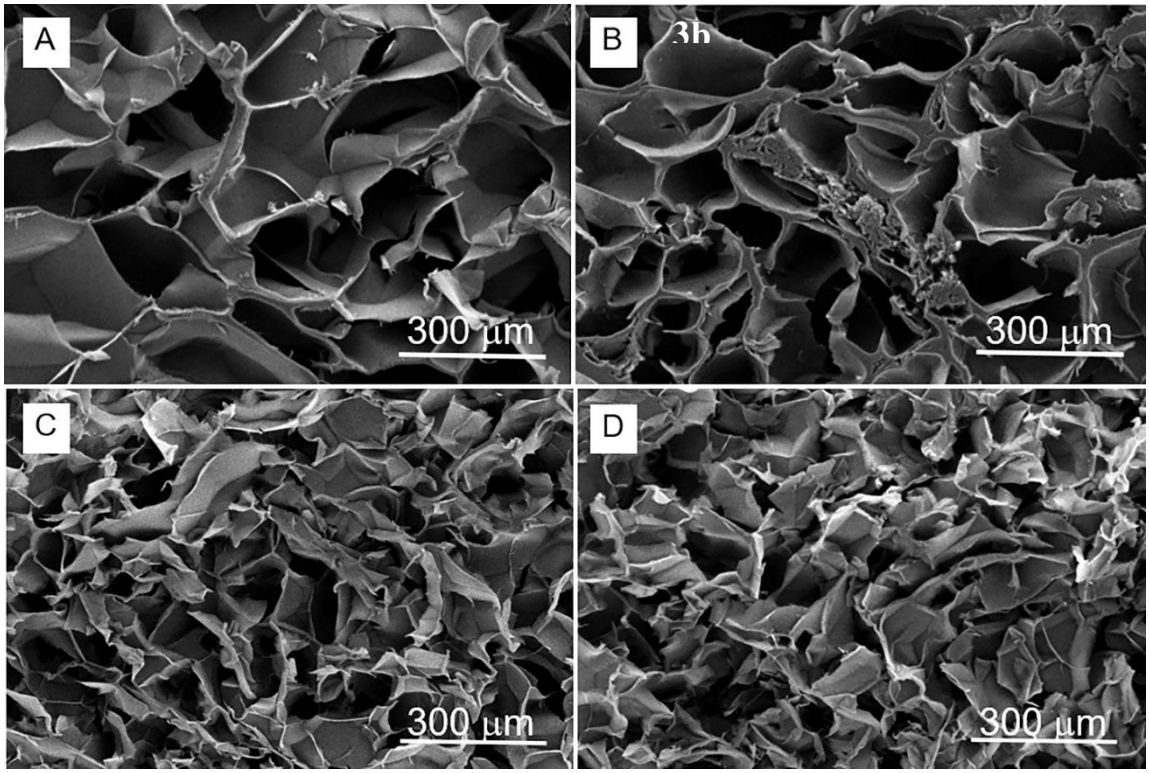

Figure S1. SEM photographs of the cellulose scaffold structure after leaching. The scaffolds contained different percentages of NaCl particles with a size of 250 μm: (A) 60%, (B) 50%, (C) 40%, and (D) 30%.

Table S1 Pore size of cellulose scaffolds prepared using 50 wt% of NaCl crystals as porogens.

NaCl particle size/μm	Pore size before oxidation / μm	Pore size after oxidation by $NaIO_4$ (1.0%)/μm
52	54±4.8	58±9.9
75	84±5.5	79±10.6
100	124±11.3	131±20.8
150	210±23.5	199±12.6
250	248±21.0	266±31.5

Table S2 Pore size of cellulose scaffolds prepared using 30, 40, 50, 60 wt% of NaCl crystals with a size of 250 μm as porogens.

NaCl particle (250 μm size) concentration/wt%	Pore size before oxidation / μm
30	122±25.6
40	188±17.3
50	248±21.0
60	283±32.6

Table S3 Porosity of cellulose scaffolds

		NaCl particle (250 μm size) concentration / wt%			
		30	40	50	60
Porosity / %	Before oxidation	54.2±3.3	59.2±1.6	68.4±2.3	70.2±1.9
	After oxidation by $NaIO_4$ (1.0%)	55.4±4.5	60.2±2.9	69.9±3.7	73.5±6.3

Table S4. Aldehyde introduction to cellulose scaffolds.

% $NaIO_4$ introduced to cellulose scaffold	mmol aldehyde/weight (mmol/g)	% aldehyde introduction /glucose unit
0.1	0.056	0.91±0.04
0.2	0.080	1.30±0.02
0.3	0.117	1.90±0.28
0.5	0.346	5.61±0.48
1.0	0.640	10.4±1.75
2.5	0.913	14.8±2.98
5.0	1.34	21.7±1.02
10.0	2.06	33.4±3.88
15.0	2.33	37.7±3.56
20.0	2.67	43.3±5.32

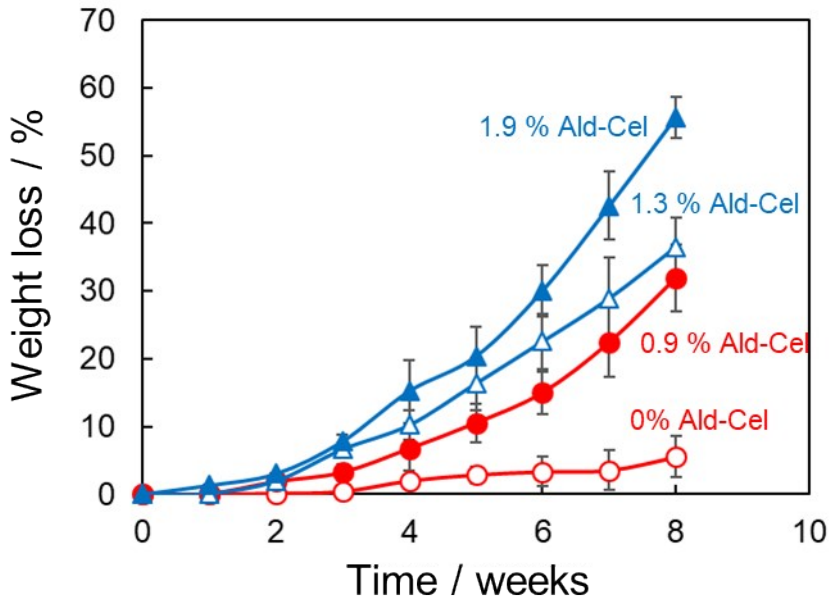

Figure S2. Ald-Cel scaffold degradation in 5% glycine solution over a period of 8 weeks.

Data represent mean ± standard deviation (N = 3).

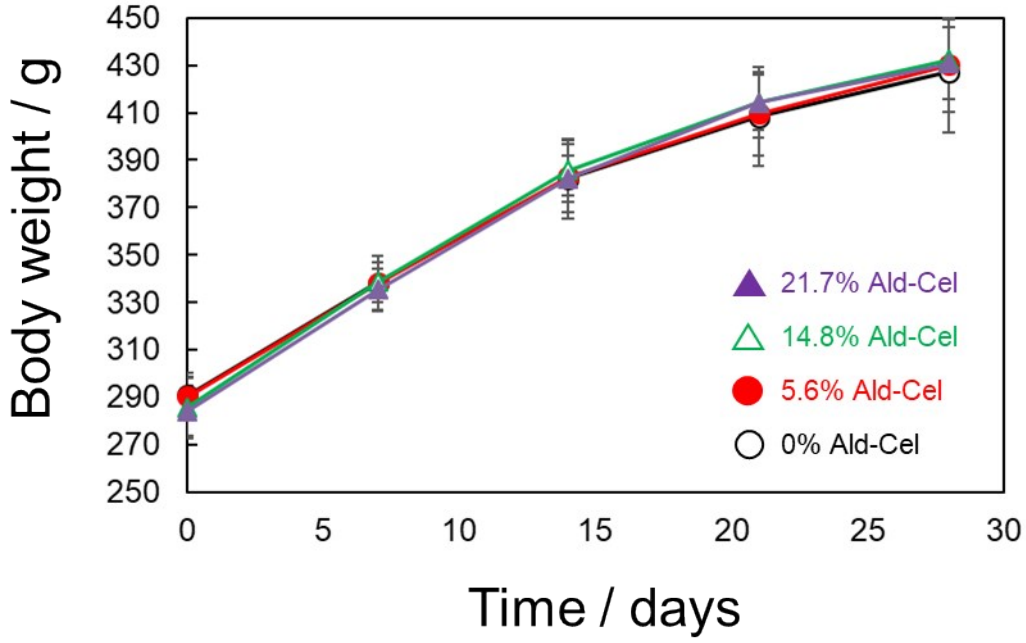

Figure S3. Changes in body weight of rats after implantation. The error bars indicate SD (N = 6).