

Supporting Information for “3D printing of implantable elastic PLCL copolymer scaffolds”

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Characterization of PLLA and PLCL polymers

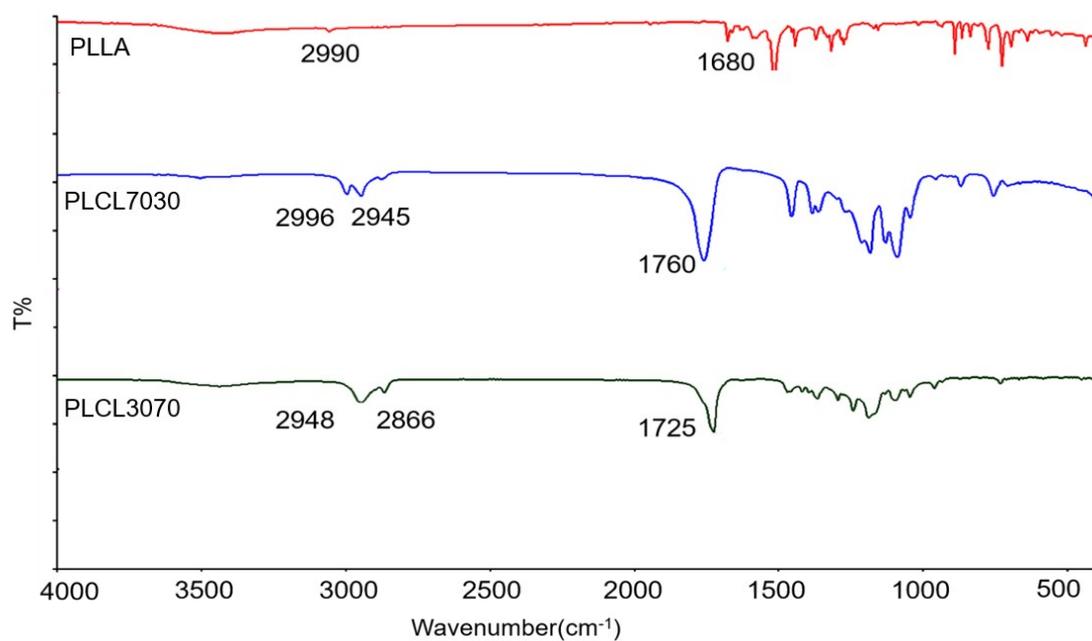


Figure S1 FTIR spectra of PLLA, PLCL7030, and PLCL3070 scaffolds.

FTIR spectroscopy (Figure S1) showed clear characteristic absorption peaks attributed to ester bands of PLLA, and PLCL at 1680, 1760, 1725 cm⁻¹. In addition, -CH- bonds of PLLA at 2990 cm⁻¹, and absorption bands of -CH₃-, -CH₂-, -CH- in PLCL copolymer at about 2995 cm⁻¹, 2945 cm⁻¹ were also observed.

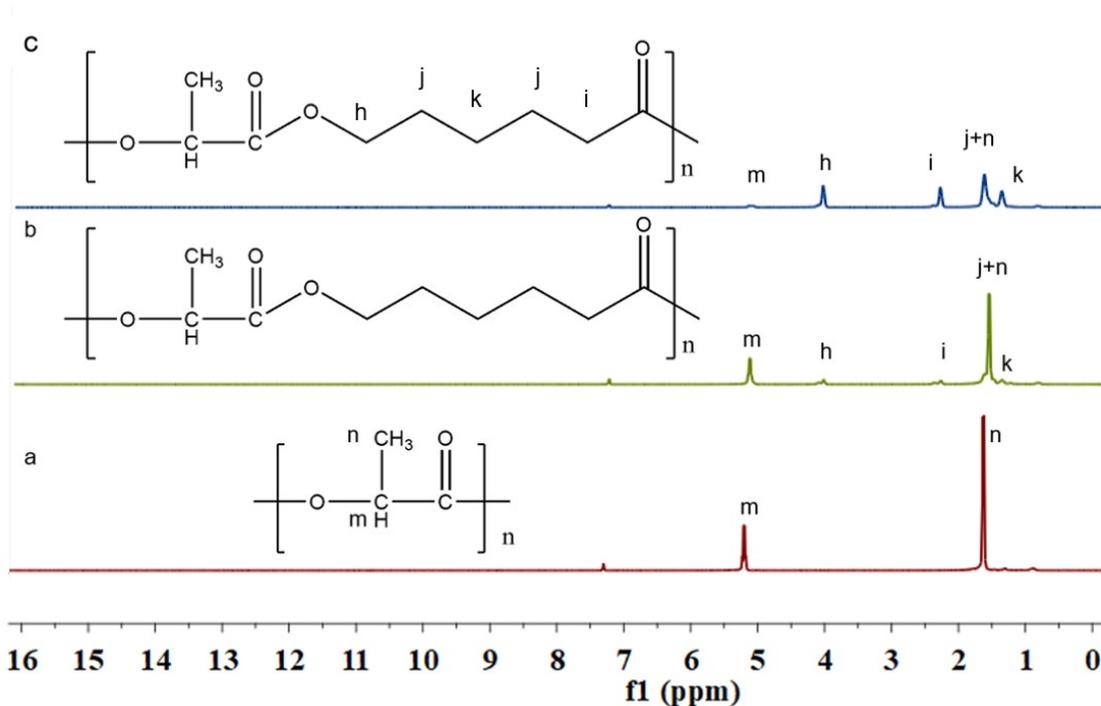


Figure S2 ^1H NMR spectra of PLLA (a), PLCL7030 (b), and PLCL3070 (c) polymers.

CDCl_3 was used as the solvent.

Characteristic chemical shifts (δ) at 5.17 ppm ($-\text{CH}-$) and 1.60 ppm ($-\text{CH}_3-$) for PLLA were clearly shown in ^1H NMR spectrum. And featured peaks for PCL segments at 4.01 ppm ($-\text{O}-\text{CH}_2-$), 2.25 ppm ($-\text{CH}_2-\text{CO}-$), 1.55 ppm ($-\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CO}-$), and 1.30 ppm ($-\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CO}-$) were also found.

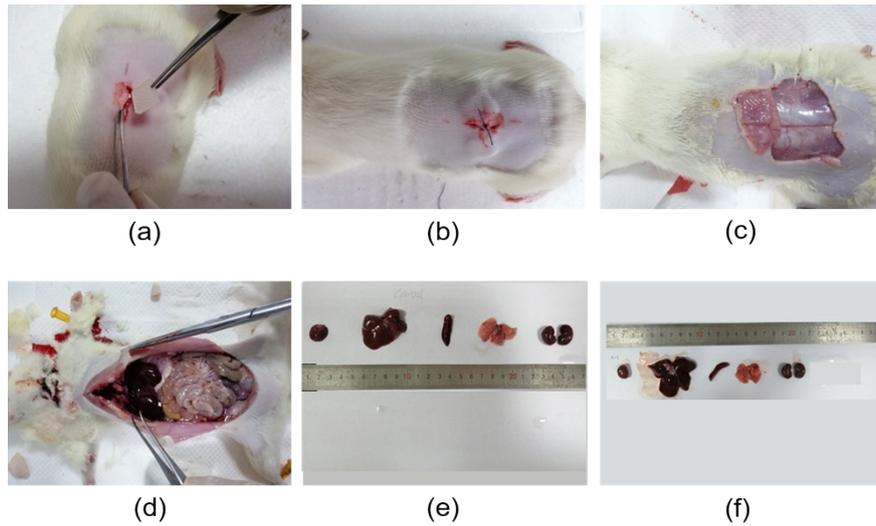


Figure S3 The implantation (a, b) of scaffolds and after 7 days, the scaffold was surrounded by cells (c). (d) The morphology of viscera after scaffold implantation. The morphology of heart, liver, spleen, lung and kidney from the control (e) and experiment group (f), respectively.

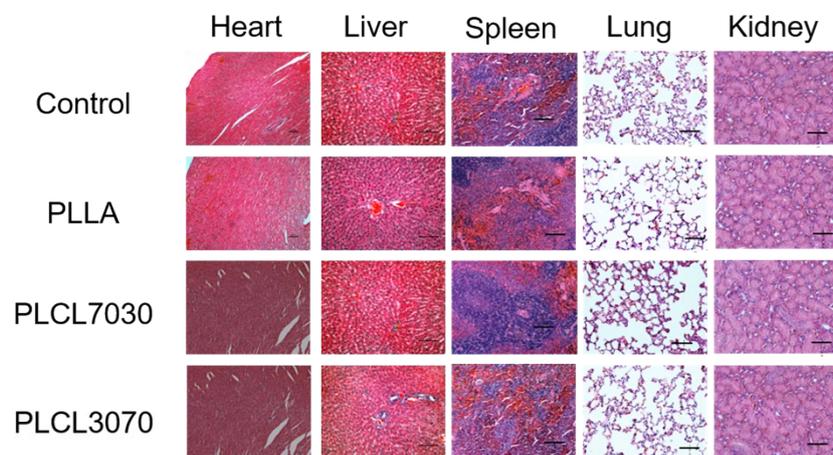


Figure S4 Histological evaluation of heart, liver, spleen, lung, and kidney. Representative images of H&E stained sections of subcutaneously implanted PLLA, PLCL7030, and PLCL3070 scaffolds with surrounding tissues (Scale bar=100 μ m).

Table S1 Organ mass in SD mice with scaffolds after 1 week.

Groups	Organ weight/body weight ratio (g/100g) for		
	Liver	Spleen	Kidney
Control	2.87±0.17	0.17±0.04	0.78±0.04
PLLA	3.14±0.11	0.18±0.04	0.79±0.05
PLCL7030	3.10±0.22	0.20±0.02	0.75±0.05
PLCL3070	3.44±0.18	0.21±0.03	0.75±0.01

Table S2 Organ mass in SD mice with scaffolds after 4 weeks.

Groups	Organ weight/body weight ratio (g/100g) for		
	Liver	Spleen	Kidney
Control	3.39±0.11	0.23±0.05	0.56±0.04
PLLA	3.31±0.14	0.20±0.04	0.72±0.06
PLCL7030	3.45±0.12	0.22±0.03	0.62±0.03
PLCL3070	3.02±0.15	0.19±0.02	0.59±0.01

Table S3 Organ mass in SD mice with scaffolds for different time 8 weeks.

Groups	Organ weight/body weight ratio (g/100g) for		
	Liver	Spleen	Kidney
Control	3.57±0.50	0.21±0.03	0.68±0.07
PLLA	3.32±0.40	0.20±0.02	0.67±0.06
PLCL7030	3.29±0.17	0.22±0.04	0.60±0.01
PLCL3070	3.28±0.13	0.22±0.07	0.62±0.10

Table S4 Organ mass in SD mice with scaffolds after 12 weeks.

Groups	Organ weight/body weight ratio (g/100g) for		
	Liver	Spleen	Kidney
Control	3.05±0.21	0.22±0.01	0.66±0.06
PLLA	3.23±0.25	0.25±0.02	0.64±0.04
PLCL7030	3.21±0.16	0.26±0.04	0.62±0.05
PLCL3070	2.84±0.13	0.23±0.01	0.60±0.05

Table S5 Reference range of blood routine indexes of SD rats.

Program	Reference range
White blood cell	2.28~31.58×10 ⁹ /L
Lymphocyte	1.07~24.15×10 ⁹ /L
Red blood cell	6.46~9.37×10 ¹² /L
Hemoglobin	119.13~173.73 g/L
Mean corpuscular volume	48.56~66.50 FL
Platelets	276.13~1102.73×10 ⁹ /L