

Supporting Information

Mussel-inspired copolymer coated polypropylene mesh with anti-adhesion efficiency for abdominal wall defect repair

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Note

Wanjun Hu and Shenglin Lu contributed to this work equally.

Conflicts of interest

All authors declare no conflicts of interest.

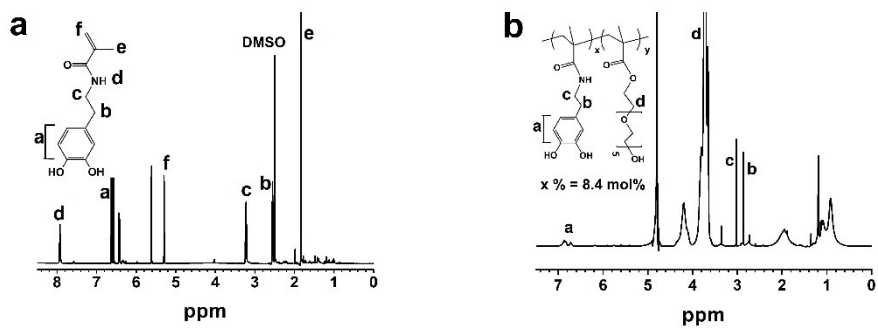


Fig. S1. $^1\text{H-NMR}$ spectrum of (a) DMA and (b) PEDMA1.

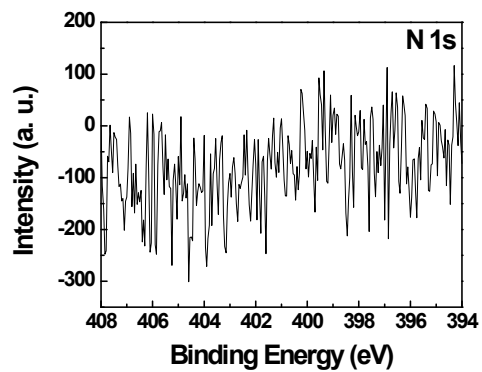


Fig. S2. N 1s core-level high resolution spectra of the XPS spectrum of OPP-g-PEDMA0.

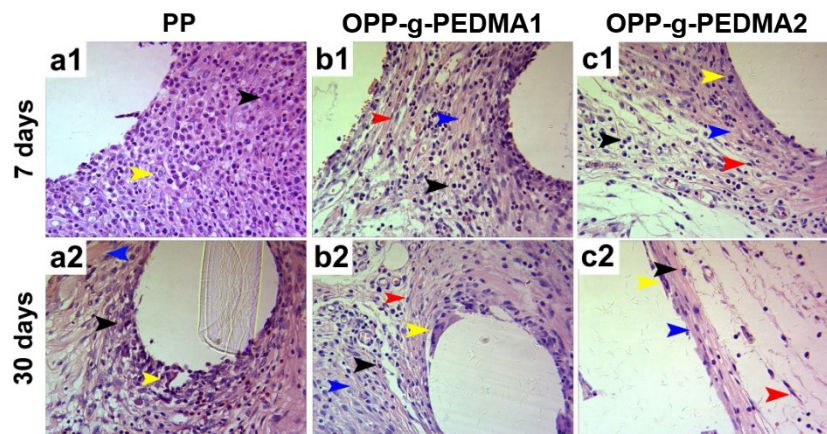
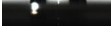
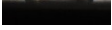




Fig. S3. Histopathological changes after implanted with PP (a), OPP-g-PEDMA1 (b), and OPP-g-PEDMA2 (c) meshes after 7 days (the upper panel) and 30 days (the the bottom panel) ($\times 200$). a1 and a2 for PP mesh groups; b1 and b2 for OPP-g-PEDMA1 mesh groups; c1 and c2 for OPP-g-PEDMA2 mesh groups. The black arrow: Neutrophils; yellow arrow: Macrophages; blue arrow: collagen fibers; Red arrow: fibroblasts “*” represents monofilament of polypropylene mesh.

Table S1. The water contact angle of native PP as well as modified PP mesh and its change.

entry	Content PEGMA:DMA	WCA (°)	
PP	--	98.4 ± 1.1	
OPP-g-PEDMA0	10:0	76.2 ± 3.7*	
OPP-g-PEDMA1	10:1	62.6 ± 1.8*	
OPP-g-PEDMA2	10:2	44.8 ± 2.9*	

“*” represent $P < 0.05$

Table S2. Animal numbers and groups.

groups	7 days	14 days	30 days
PP	5	5	5
OPP-g-PEDMA1	5	5	5
OPP-g-PEDMA2	5	5	5

Table S3. Adhesion score system

score	Area	Adhesion grading by resistance to lysis
0	None	No significant adhesions
1	≤ 25%	Thin, narrow, and easily detachable adhesions
2	≥ 25%, and ≤ 50%	Thick adhesions limited to one area
3	≥ 50%	Thick and broad adhesions
4	--	Thick and broad adhesions, involving the anterior or posterior abdominal wall, and the viscera

Table S4. The adhesion area of each group.

	PP		OPP-g-PEDMA1		OPP-g-PEDAMA2	
	Area (cm ²)	Area %	Area (cm ²)	Area %	Area (cm ²)	Area %
7 day	3.37±0.84	≥50%	1.34±0.72	≥25%, and ≤50%	0.25±0.34	≤ 25%
14 day	2.94±1.00	≥50%	1.95±0.85	≥25%, and ≤50%	0.26±0.25	≤ 25%
30 day	3.49±0.95	≥50%	1.70±0.71	≥25%, and ≤50%	0.23±0.30	≤ 25%

Note: the total area is 4 cm².