

Supplementary Materials

Article

Electrospun Chitosan Functionalized with C12, C14 or C16 Tails for Blood-Contacting Medical Devices

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Table S1. Mean diameter of fibers and mean mesh dimension \pm SD.

Electrospun scaffold	Mean diameter (nm)	Mean mesh dimension (nm)
ChitPEO (90:10)	130.5 \pm 33.3	808.7 \pm 311.2
ChitC12PEO (90:10)	127.9 \pm 27.8	768.7 \pm 380.9
ChitC14PEO (70:30)	172.5 \pm 65.2	643.5 \pm 226.5
ChitC16PEO (70:30)	331.8 \pm 71.5	1156.0 \pm 820.4

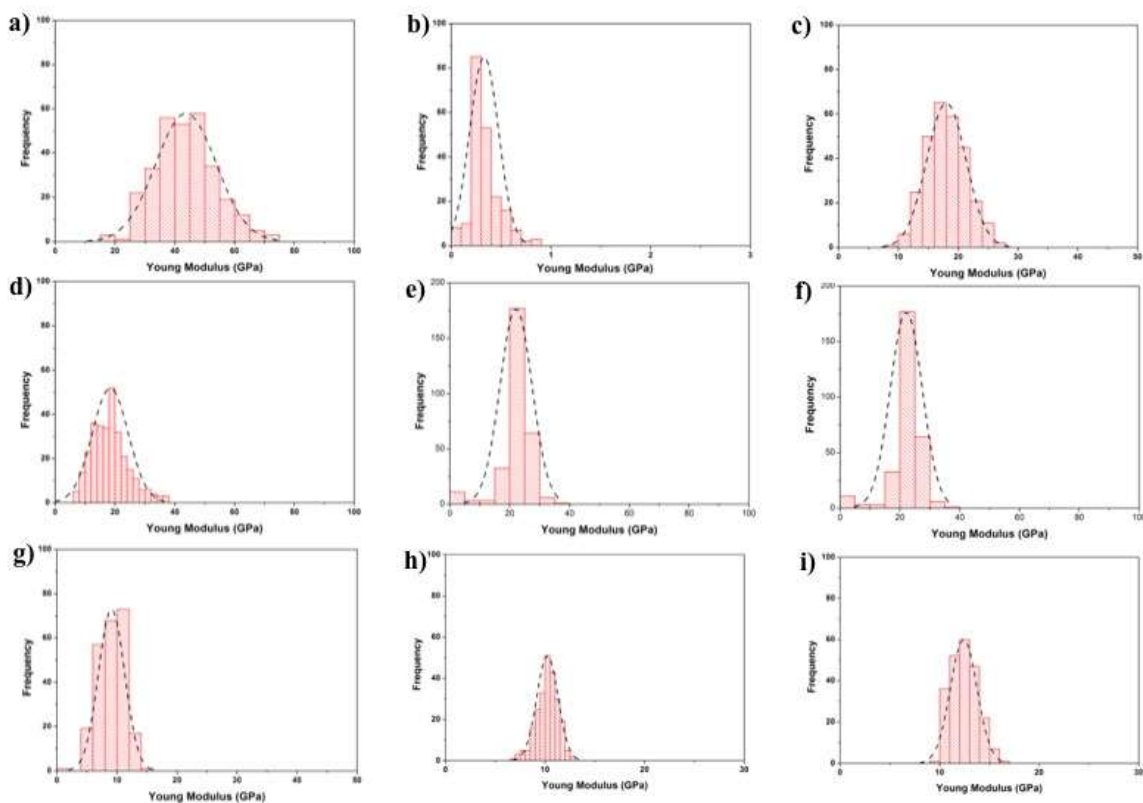


Figure S1. Frequency distribution of Young's modulus of a) Chitosan, b) PEO, c) ChitPEO, d) ChitC12, e) ChitC14, f) ChitC16, g) ChitC12PEO, h) ChitC14PEO and i) ChitC16PEO.

Table S2. Measured BEs and assignment of the XPS component peaks.

Spectrum	Components	BE (eV)	Assignment
C1s	C ₁	285.0±0.1	C-C
	C ₂	286.7±0.1	C-O, C-N
	C ₃	288.5±0.1	O-C-O, N-C=O
N1s	N ₁	399.8±0.1	unprotonated
O1s		532.8±0.1	O-C

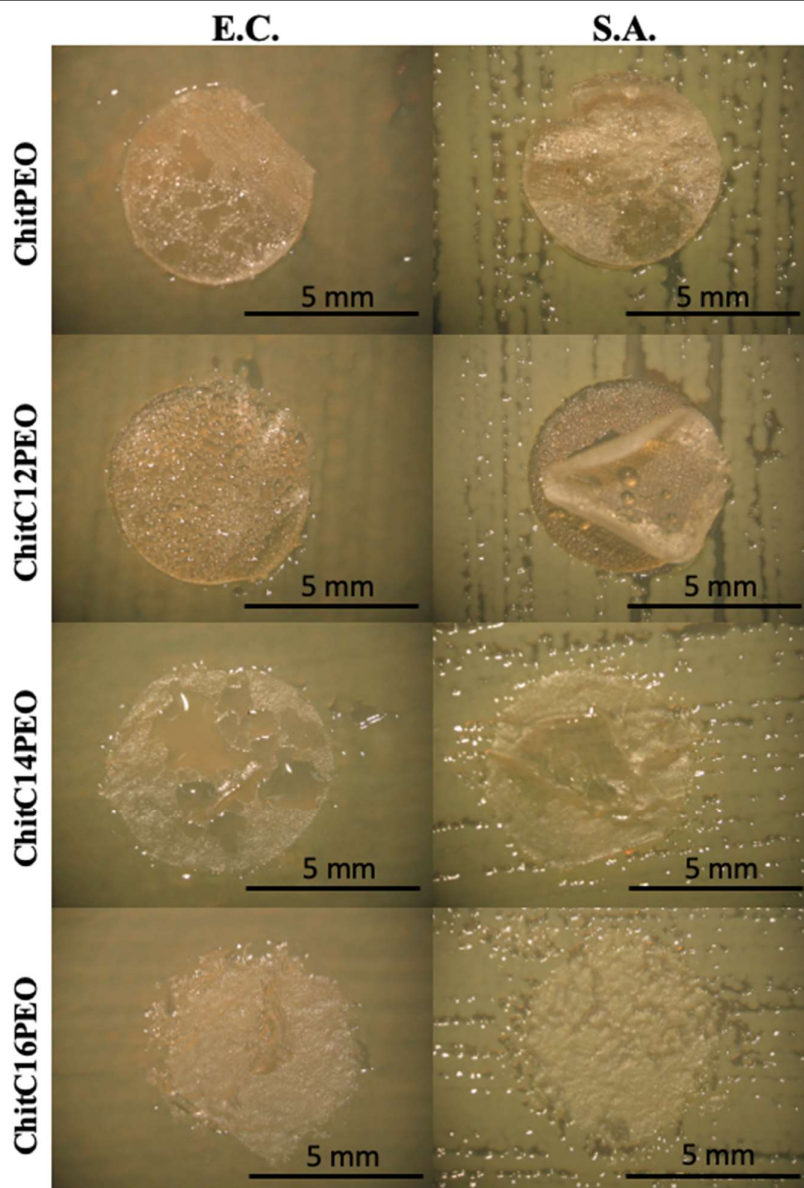


Figure S2. Bacteriostatic/bactericidal properties of the scaffolds. After removal of a circular portion of the every four different electrospun scaffolds (ChitPEO, ChitC12PEO, ChitC14PEO and ChitC16PEO), *E.coli* and *S. aureus* were plated in Mueller-Hinton agar and incubated with the four electrospun patches for 24 h at 37°. No growth in contact with all the electrospun scaffolds.

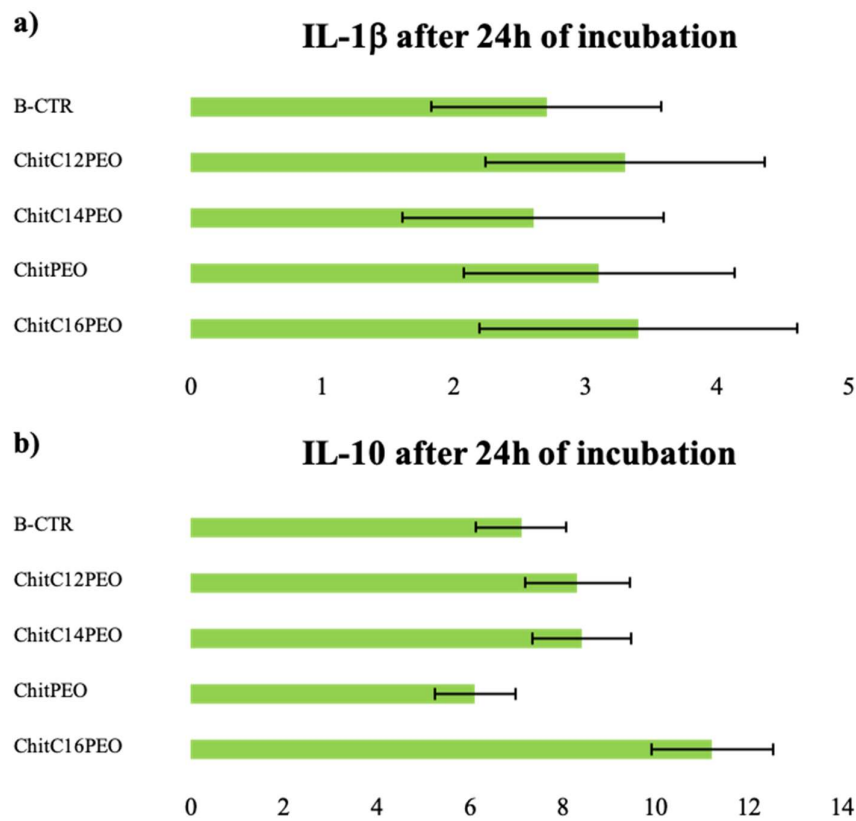


Figure S3. IL-1b levels (a) and IL-10 levels (b) after 24h of healthy volunteer blood incubation with 4 test devices and without (B-CTR). Results are expressed in pg/mL.

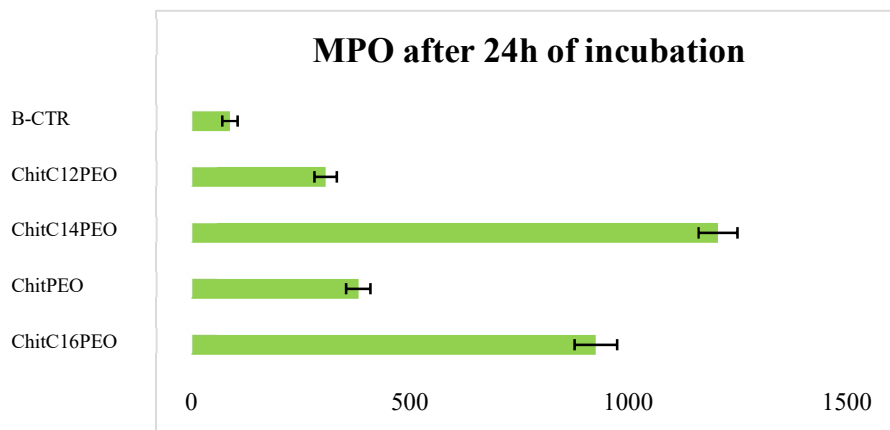


Figure S4. MPO levels after 24h of healthy volunteer blood incubation with 4 test devices and without (B-CTR). Results are expressed in pg/mL.

Table S3. Electrospinning conditions used to obtain scaffolds of nanofibers.

	Needle (G)	Total volume (ml)	Flow rate (ml/h)	Voltage (kV)	Tip to collector distance (cm)	Temperature (°C)	Relative Humidity (%)
ChitPEO	22	10	0.8	12	10	18.5	8-10
ChitC12PEO	22	10	0.8	23	10	18	8-12
ChitC14PEO	22	3 PEO + 6 ChitC14PEO	0.2	22	30	17-18	4-10
ChitC16PEO	22	3 PEO + 6 ChitC16PEO	0.9	23	10	18-19	4-8