Electronic Supplementary Material (ESI) for Biomaterials Science.

Biphasic Drug Release from Electrospun Polyblend Nanofibers for Optimized Local Cancer Treatment

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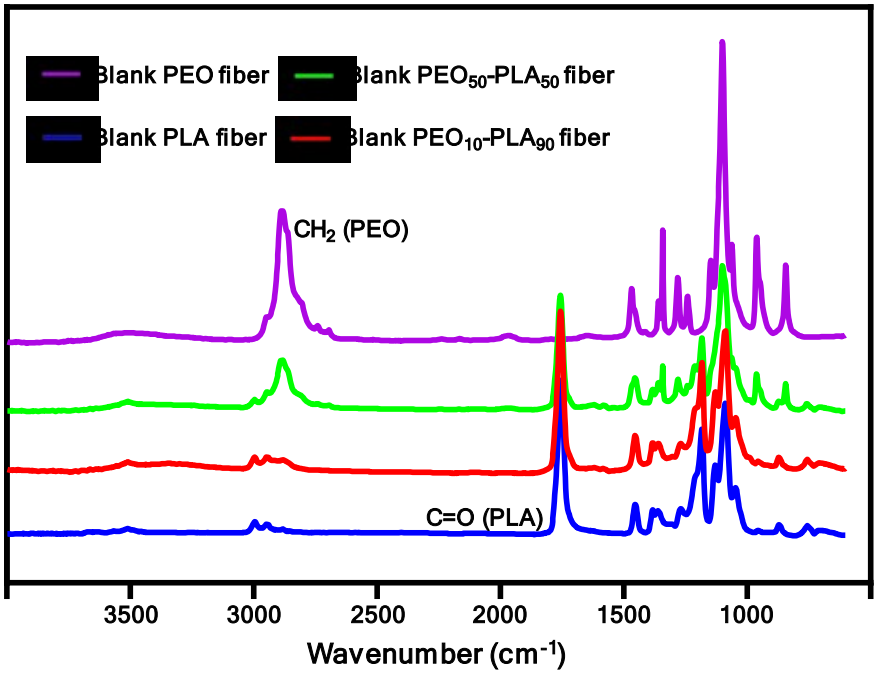

Fig. S1 FT-IR spectra of blank PEO fiber, blank PEO_{50}-PLA_{50} fiber, blank PEO_{10}-PLA_{90} fiber and blank PLA fiber.

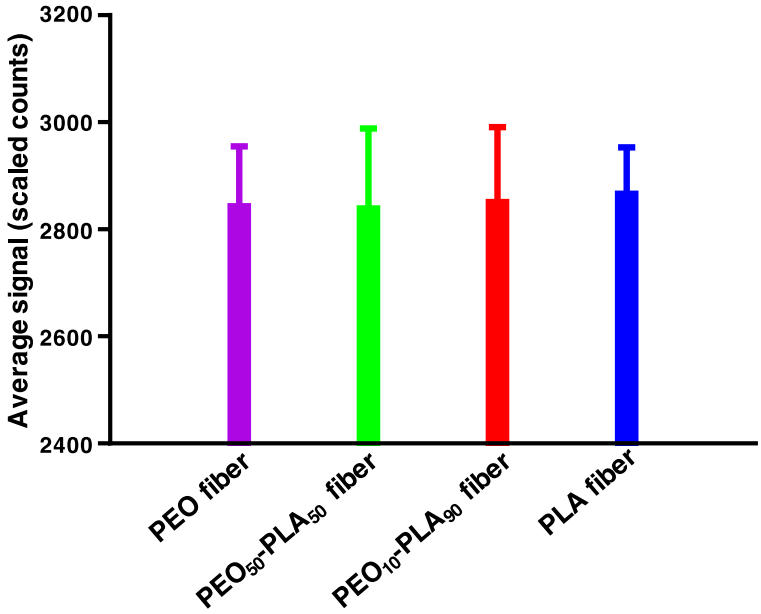

Fig. S2 Semi-quantitative fluorescence intensity of DOX-loaded fibers.

Table S1 Drug loading content and loading efficiency of the fibers

	Drug loading content	Drug loading efficiency
PEO fiber	4.65±0.19%	97.58±4.01%
PEO_{50}-PLA_{50} fiber	4.61±0.07%	96.85±1.49%
PEO_{10}-PLA_{90} fiber	4.74±0.08%	99.58±1.78%
PLA fiber	4.86±0.05%	102.1±1.19%

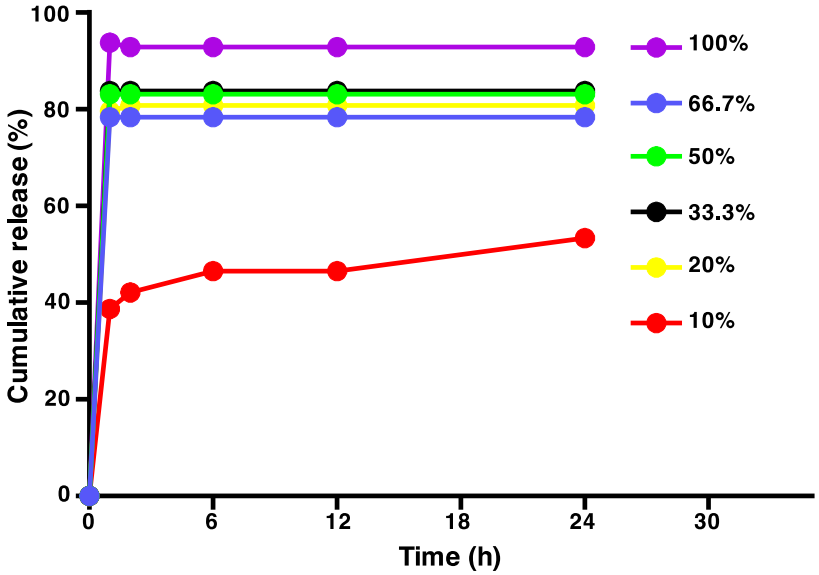

Fig. S3 Drug release profiles from DOX-loaded fibers of different content of PEO with respect to total polymer at PBS buffer (pH = 7.4). The fiber with 10% PEO content showed typical biphasic release profile, which accorded with our requirement. Meanwhile, when the content of PEO exceeded 20% of total polymers, more than 78% of the drug was released initially (in the first hour) and slight differences were observed among these fibers with different PEO content. So we chose one of these fibers, namely the fiber with 50% PEO content, as a control.Thus, the PEO and PLA ratios (100: 0, 50: 50, 10: 90, 0: 100) were chosen to prepare DOX-loaded fibers for our study.

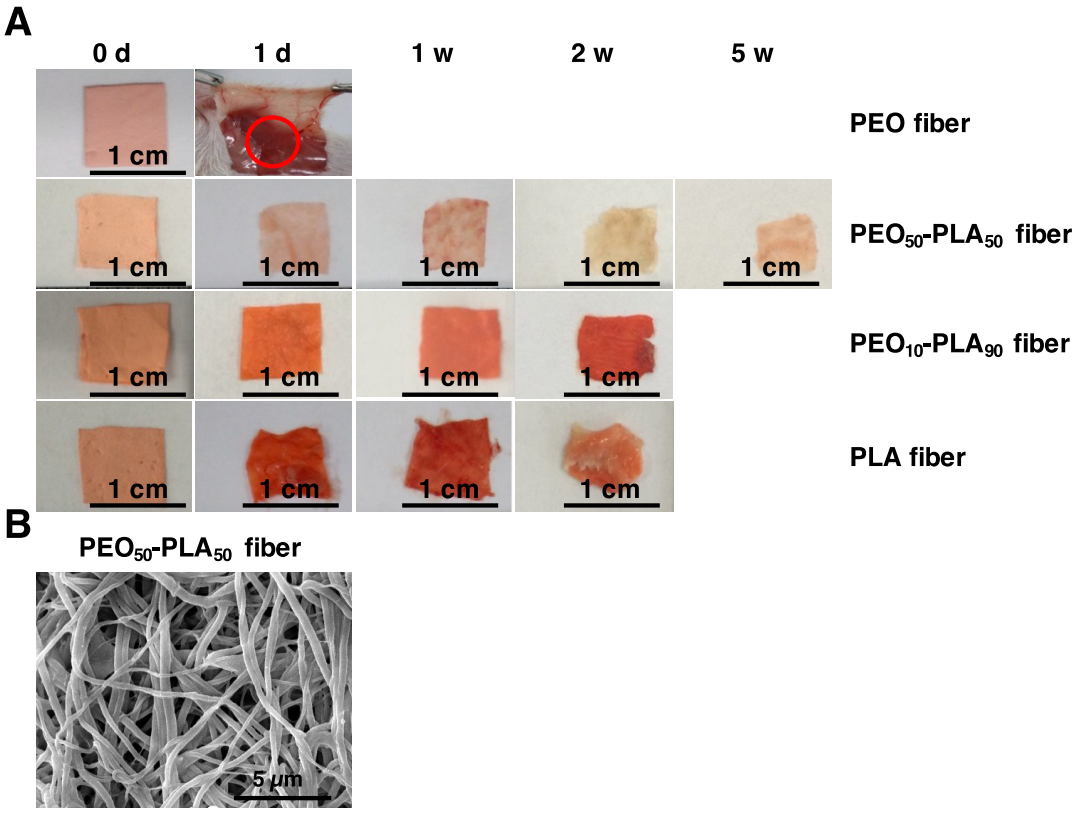

Fig. S4 Bio-degradation of DOX-loaded fibers. (A) Photographs of DOX-loaded fibers before implantation and after implantation of 1 day, 1 week, 2 weeks and 5 weeks (bar = 1 cm); (B) SEM images of PEO_{50}-PLA_{50} fiber after implantation of 5 weeks (bar = 5 μm).

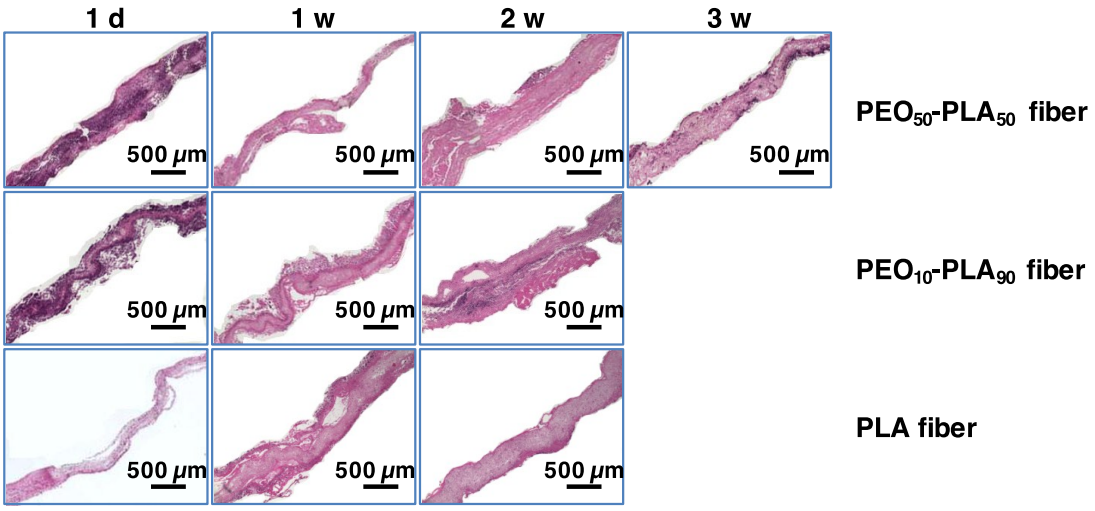

Fig. S5 Foreign body response of DOX-loaded fibers after implantation of 1 day, 1 week, 2 weeks and 3 weeks (bar = 500 μm).

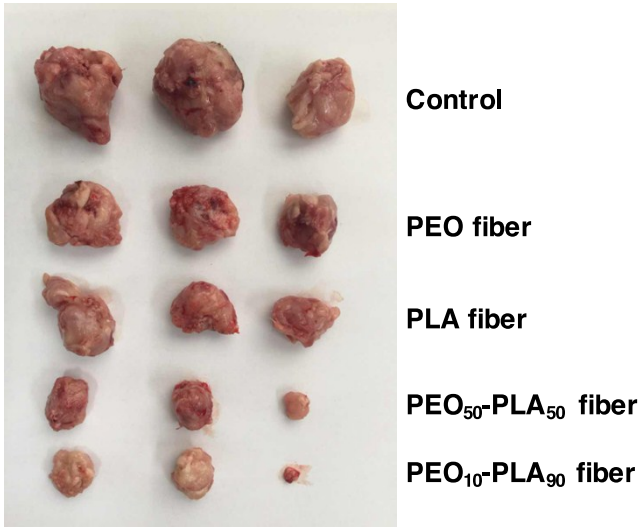

Fig. S6 Photographs of part of tumors separated from the mice after fiber implantation of 21 days.

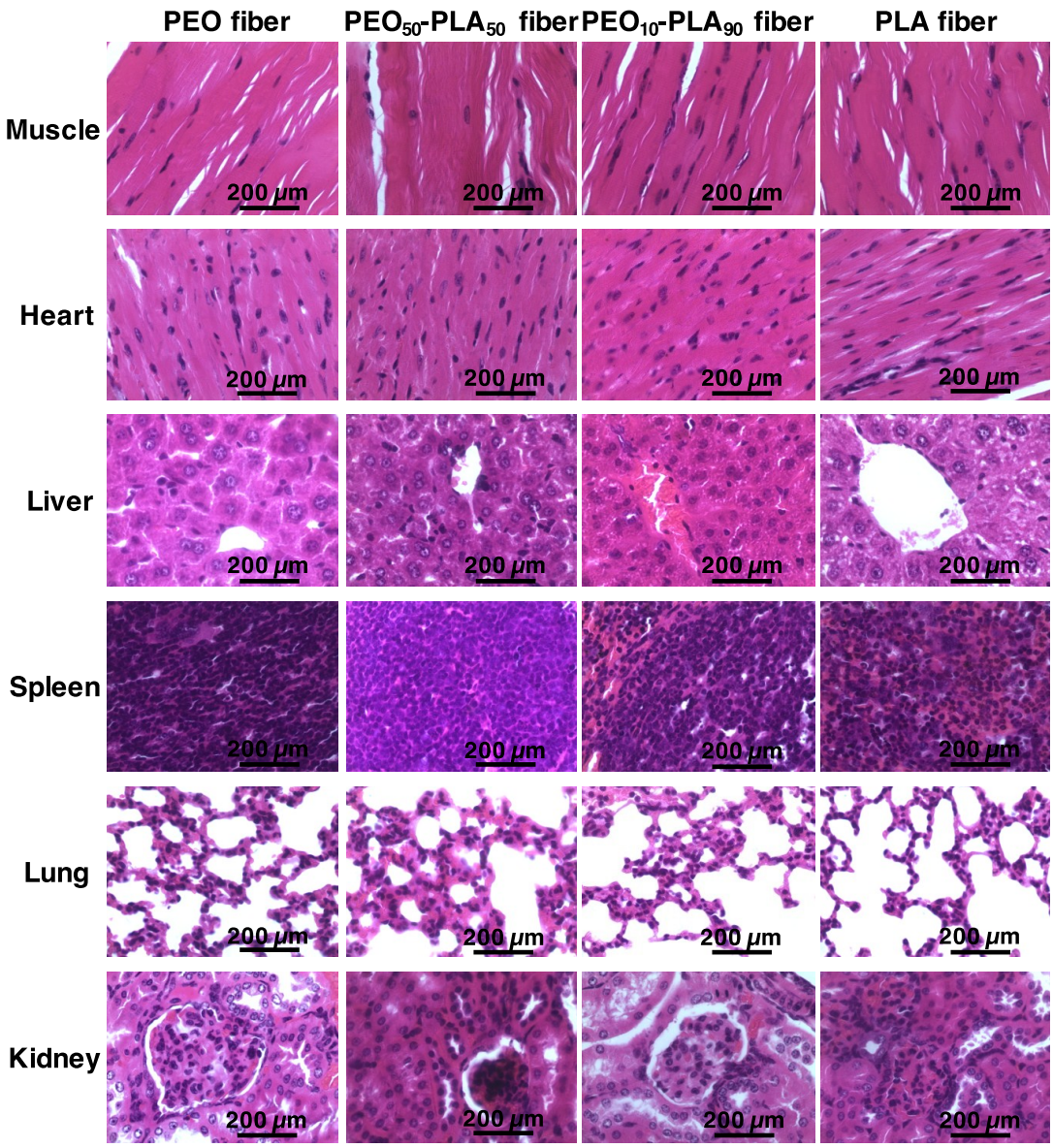

Fig. S7 Histologic assessment of muscles adhering to the blank fibers and main organs after implantation of 21 days with H&E staining (bar = 200 μm).

Table S2 Blood cell counts after fiber implantation of 21 days

	WBC (10^9/L)	RBC (10^12/L)	PLT (10^9/L)	GRA (10^9/L)
Control	87.65±7.00	5.60±3.44	198±96.17	76.55±3.89
PEO fiber	87.5±1.27	5.17±0.06	628.50±10.61	75.50±0.01
PEO_{50}-PLA_{50} fiber	97.00±2.55	2.22±0.81	291.50±184.55	77.90±1.41
PEO_{10}-PLA_{90} fiber	88.45±0.64	5.38±0.02	789.00±346.48	75.30±0.71
PLA fiber	81.95±0.64	7.55±0.97	236.50±3.54	73.05±0.21