1 **Supplementary information**

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3 **A Biomimetic Dual-Targeting Nanomedicine for Pancreatic Cancer**
4 **Therapy**
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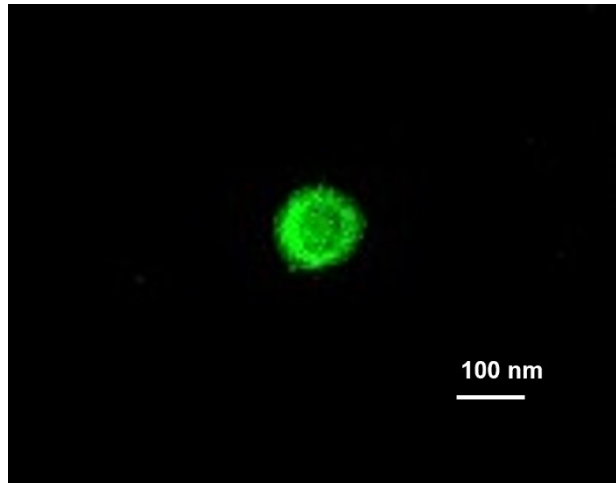18 [e]*Department of General Surgery, Shanghai Ren-ai Hospital, Shanghai 200235, China*

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21 Chongyi Jiang, Email: jiangzhongyi9@126.com
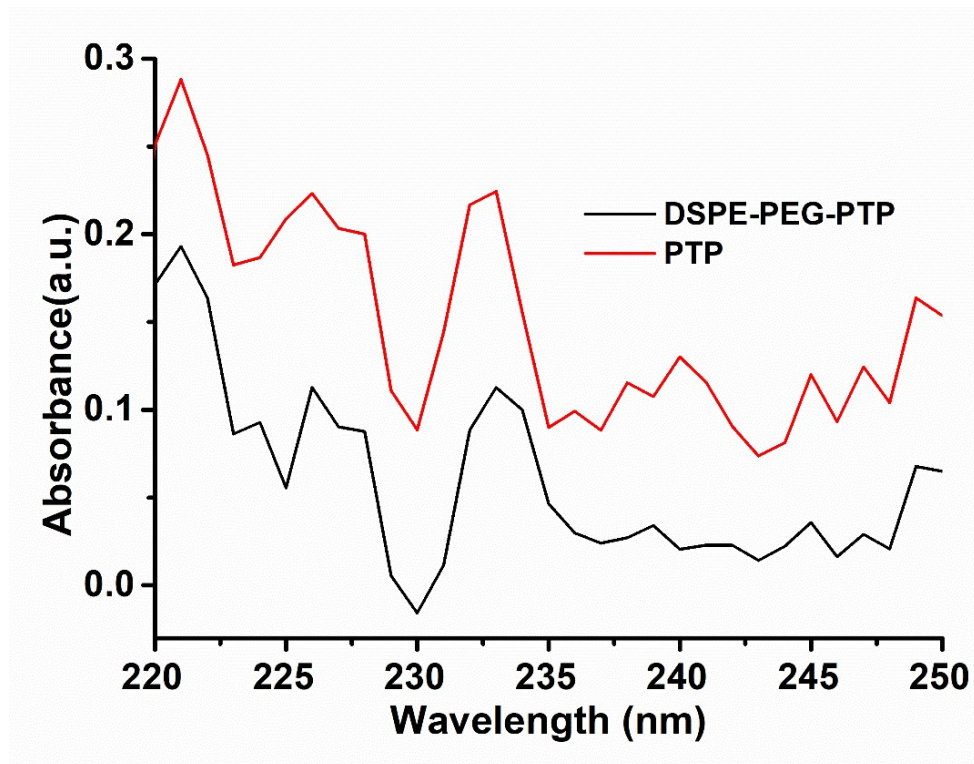
22 Zhen Cheng, Email: zcheng@simm.ac.cn

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25 **Fig. S1** Immunofluorescence staining of fibroblast activation protein-α (FAP-α) on the CAFM of
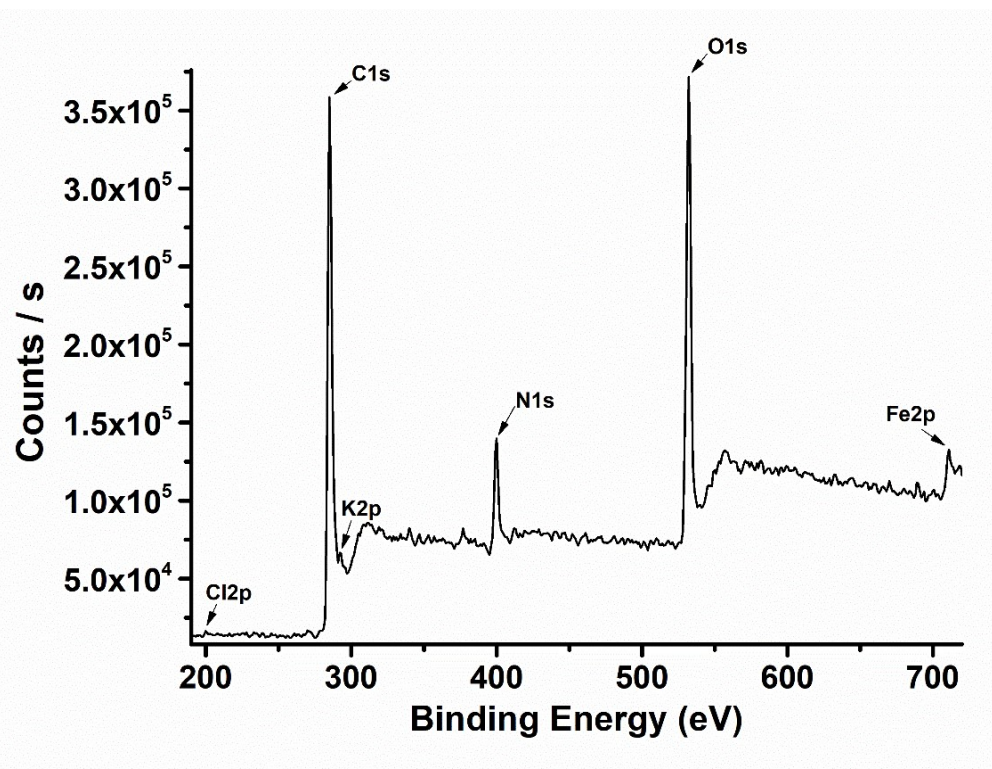26 (Lo+FeCO)@MPDA@CAFM nanoparticles.
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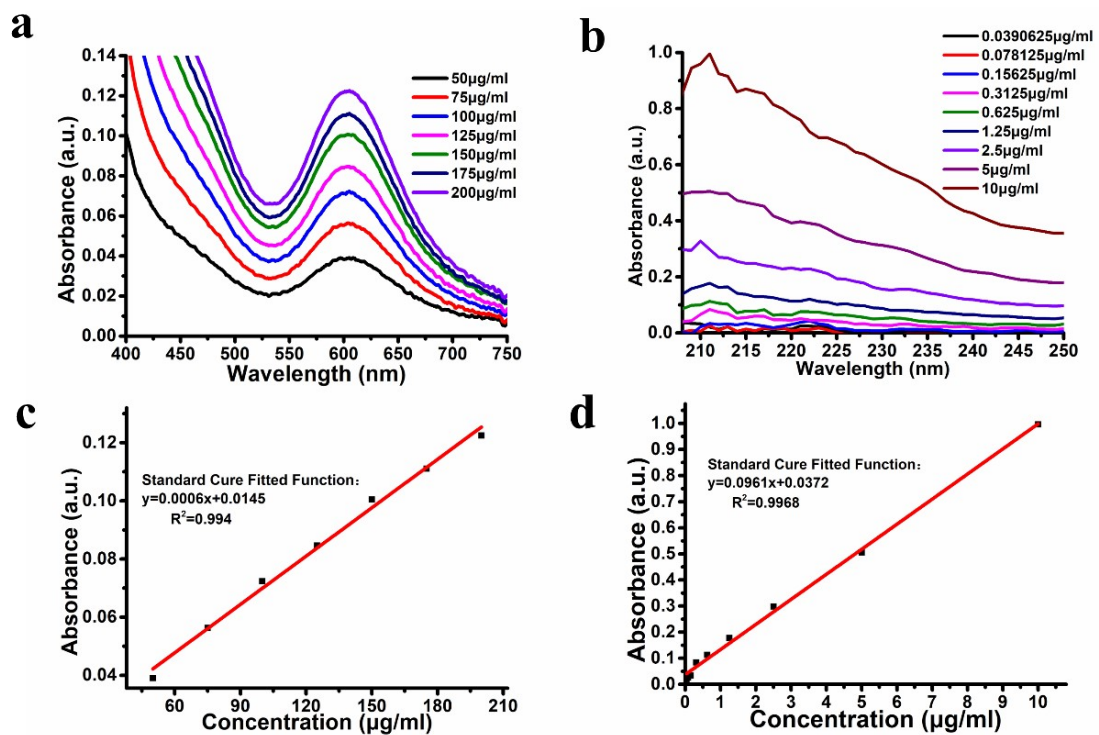30 **Fig. S2** UV-Vis absorption spectra of PTP and DSPE-PEG-PTP.

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32 **Fig. S3** X-ray Photoelectron Spectroscopy (XPS) analysis of (Lo+FeCO)@MPDA@CAFM-PTP
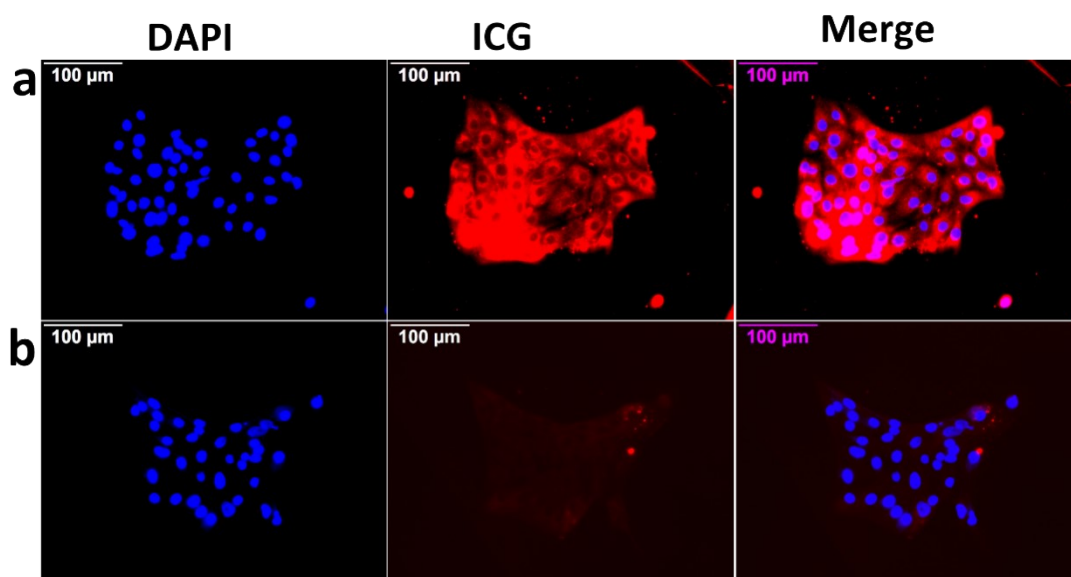
33 nanomedicine.

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36 **Fig. S4** UV-vis absorption spectra of different concentrations of FeCO **(a)** and Lo **(b)**. Linear

37 correlation equation and standard curve between UV-vis absorption intensities and the
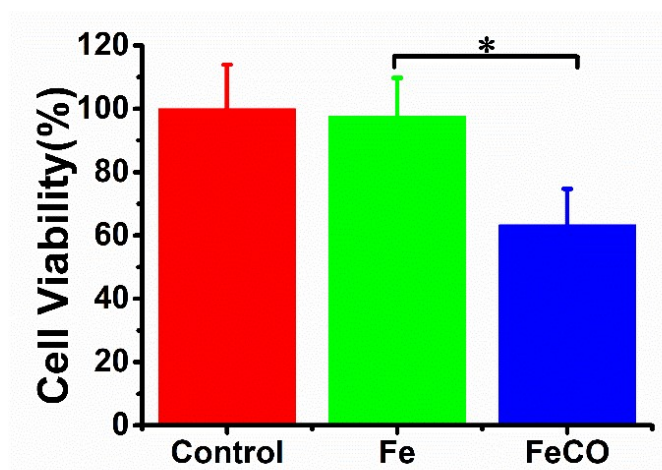
38 concentration of FeCO **(c)** and Lo **(d)**.

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Fig. S5 Fluorescence images of Panc-1 cells treated with ICG-labeled (Lo+FeCO)@MPDA@CAFM-PTP nanomedicine, in the absence (a) or presence (b) of plectin-1 antibody.

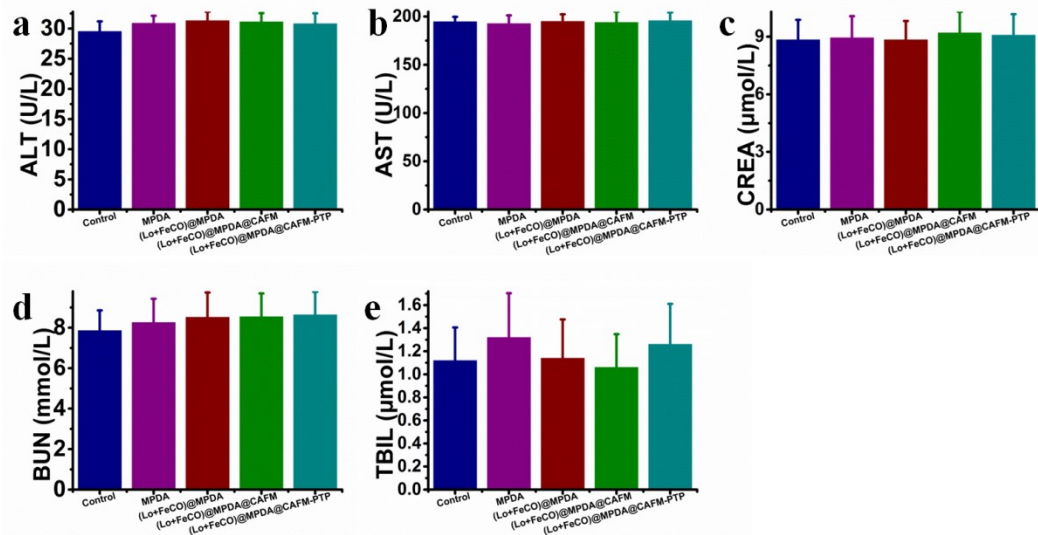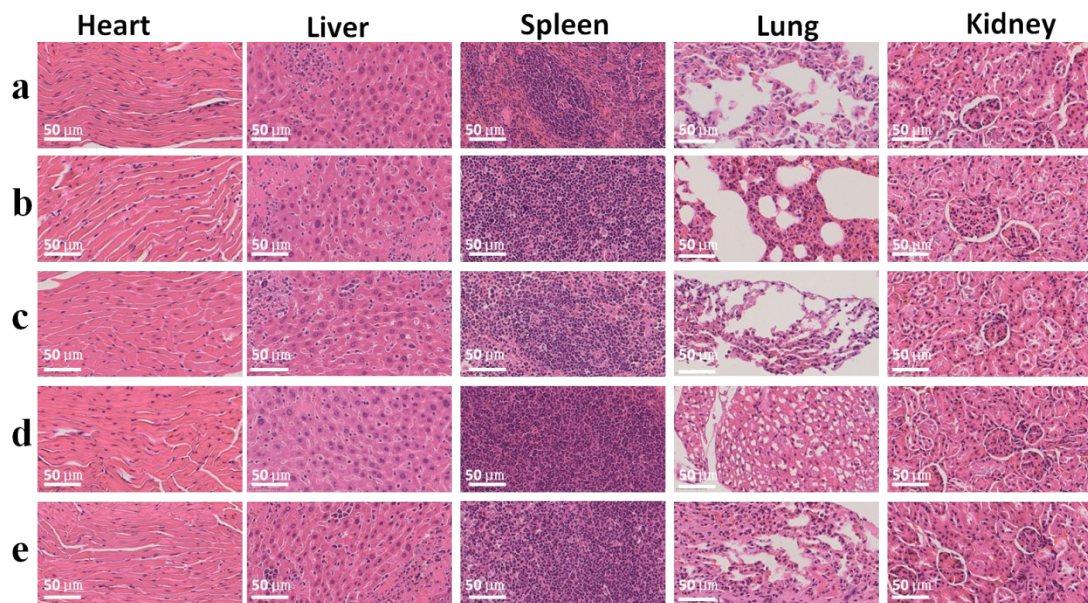**Fig. S6** Viability of Panc-1 cells co-cultured with FeCO or iron ions (Fe).

Fig. S7 Analysis of hepatic and renal function in mice following treatment with different drug formulations, based on blood biochemical assays. (a) ALT, (b) AST, (c) CREA, (d) BUN, (e) TBIL.


Fig. S8 H&E staining of major organs from PC tumor-bearing mice treated with PBS as the control (a), MPDA (b), (Lo+FeCO)@MPDA (c), (Lo+FeCO)@MPDA@CAFM (d), and (Lo+FeCO)@MPDA@CAFM-PTP (e) nanoparticles.
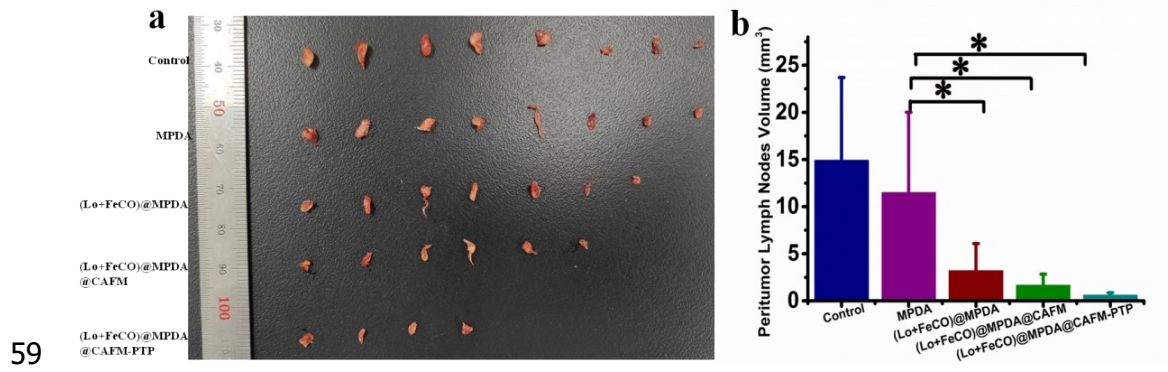
Fig. S9 (a) Images of excised peritumoral lymph nodes following treatment with different drug formulations. (b) Mean volume of peritumoral lymph nodes across different treatment groups. Data are presented as mean ± standard deviation (SD) (n = 5). Statistical significance is indicated by an asterisk (*p < 0.05).
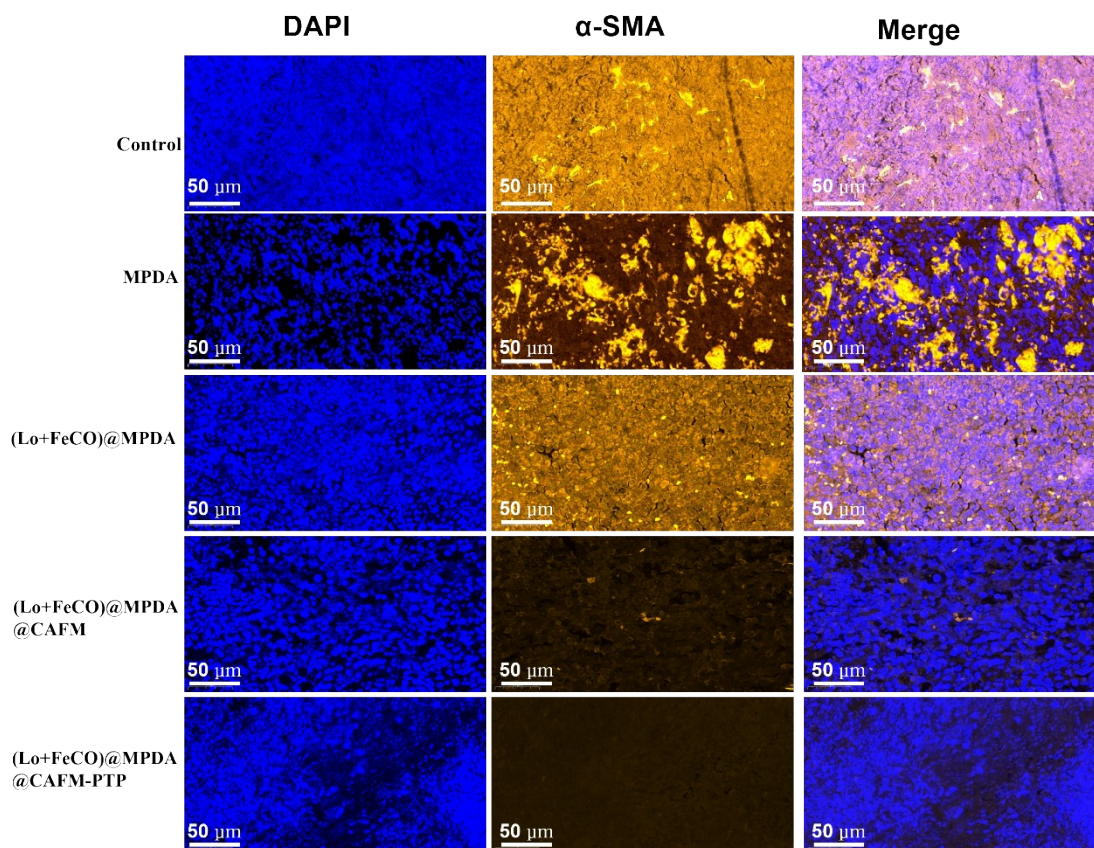
Fig. S10 Immunohistofluorescence staining of α-SMA of tumor slices after treatment with PBS as a control, MPDA, (Lo+FeCO)@MPDA, (Lo+FeCO)@MPDA@CAFM, and (Lo+FeCO)@MPDA@CAFM-PTP nanoparticles.
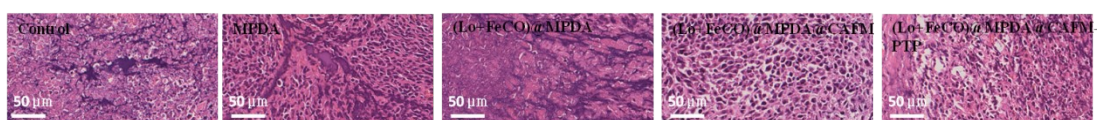

Fig. S11 Extracellular matrix assay by tumor histopathological slices after treatment with different drug formulations.

79 **Table S1.** The Polydispersity Index (PDI) values of MPDA, (Lo+FeCO)@MPDA, and
80 (Lo+FeCO)@MPDA@CAFM-PTP nanoparticles.

Nanoparticles	Polydispersity Index (PDI)
MPDA	0.054±0.004
(Lo+FeCO)@MPDA	0.048±0.004
(Lo+FeCO)@MPDA@CAFM-PTP	0.045±0.006

81 Data are presented as mean $\pm$ standard deviation (SD) (n = 6).
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83 **Table S2** Key hematological indices of mice in the control group and those treated with
84 (Lo+FeCO)@MPDA@CAFM-PTP nanomedicine.

Hematological indexes	Control	(Lo+FeCO)@MPDA@CAFM-PTP
WBC (10^9/L)	5.13±1.67	5.79±1.87
RBC (10^{12}/L)	9.89±1.57	9.57±1.46
HGB (g/L)	141.22±13.74	145.83±15.88
PLT (10^9/L)	989.71±219.66	987.89±214.39

85 **Abbreviations:** white blood cells (WBC), red blood cells (RBC), hemoglobin (HGB), platelet (PLT). Data are
86 presented as mean ± standard deviation (SD) (n = 5).