Supporting Information for

ORIGINAL ARTICLE

Localized light-triggered release macrophage cytopharmaceuticals containing *O*-nitrobenzyl group for enhanced solid tumor cell-chemotherapy

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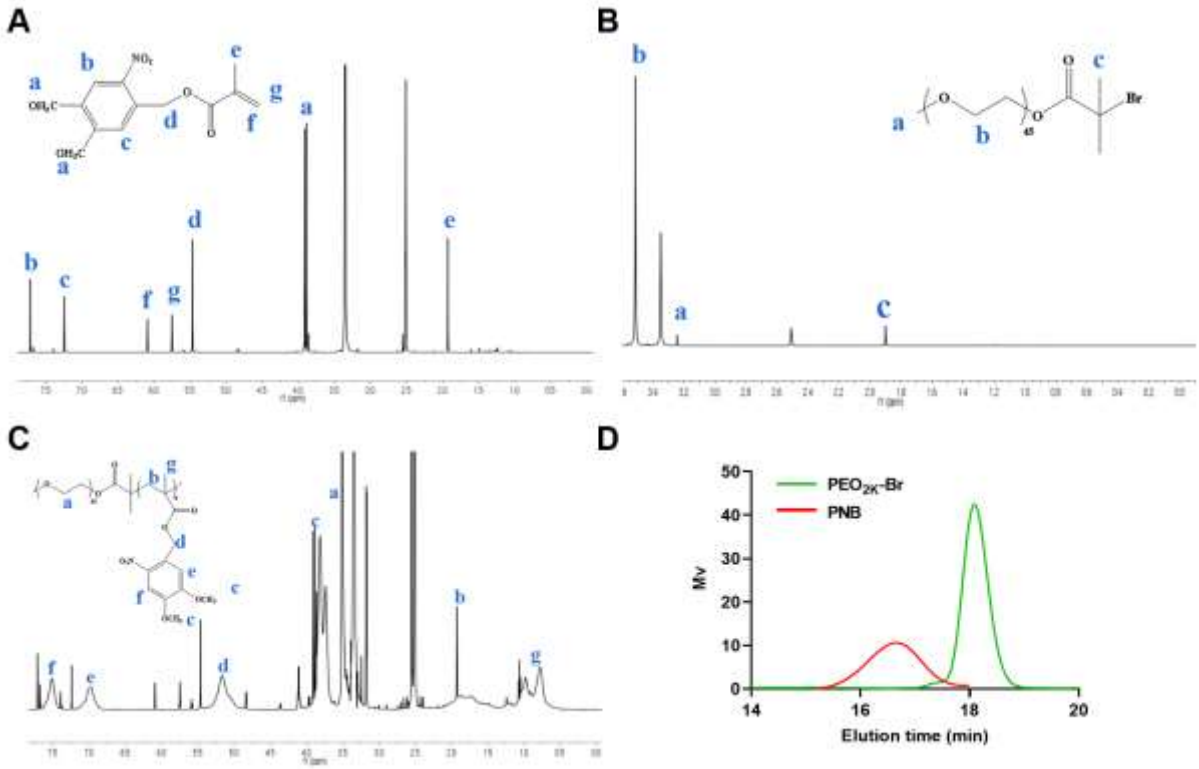

Figure S1 (A-C) The [1]H-NMR spectrum of (A) the monomer NBMA, (B) PEO_{2K}-Br and (C) PNB. (D) Gel permeation chromatography spectrums of PEO_{2K}-Br and PNB.

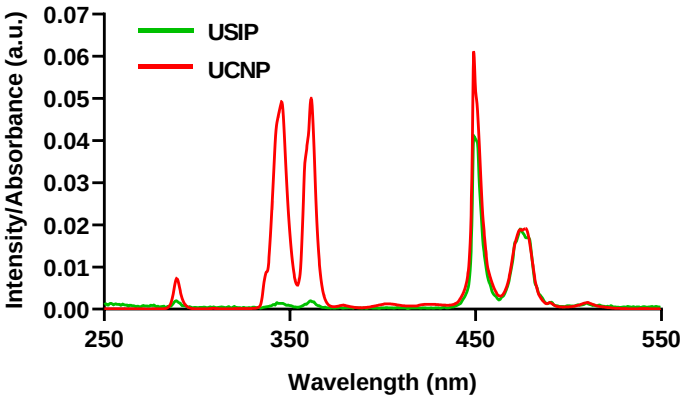

Figure S2 The emission spectra of the USIPs (green line) and the UCNPs (red line).

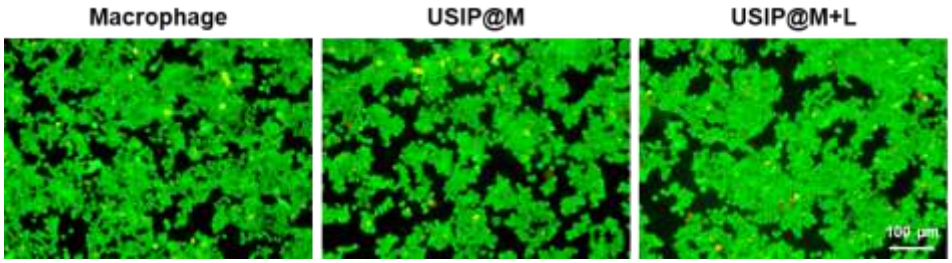

Figure S3 Phototoxicity investigation of USIP@M after NIR irradiation. USIP@M was irradiated with NIR light (980 nm, 1 W, 10 min), and then detected by Calcein-AM/PI live cell/dead cell double staining kit, scale bar = 100 μm.

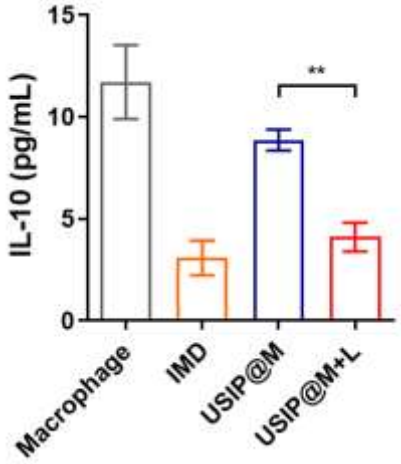

Figure S4 Cytokine IL-10 analysis of USIP@M 24 h after irradiation with or without NIR light. The IMD group (RAW264.7 cells incubated with IMD) contained the same concentration of IMD as USIP@M and USIP@M+L group. Data are presented as mean±SD (n=3). **P < 0.01.

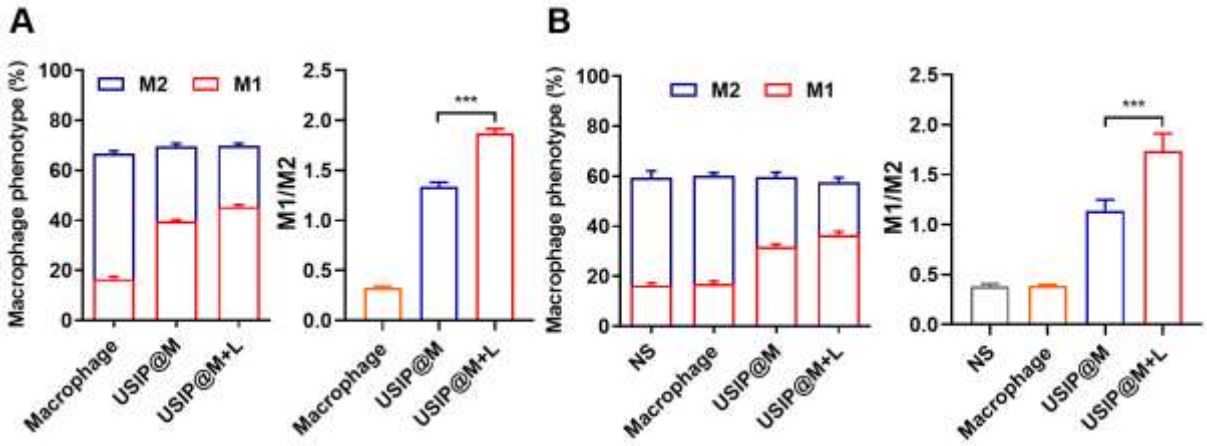

Figure S5 (A) Phenotype analysis of adoptively transferred macrophage after injection with macrophage, USIP@M and USIP@M+L groups. (B) Phenotype analysis of endogenous TAM related to A. Data are presented as mean±SD (n=3). ***P < 0.001.

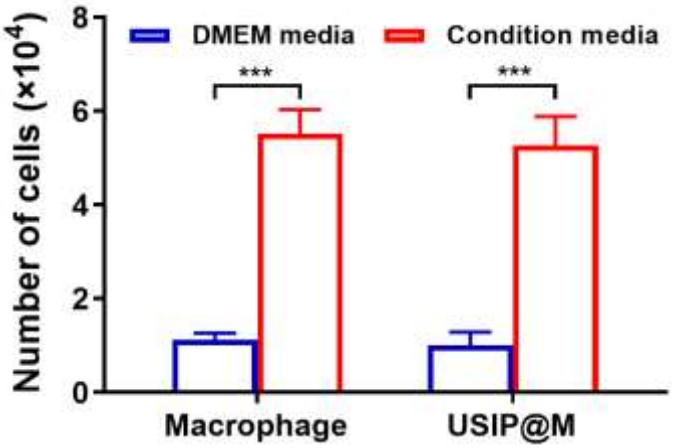

Figure S6 Quantitative results for evaluating migration capacity of macrophage and USIP@M *in vitro*. Data are presented as mean±SD (n=3). ***P < 0.001.

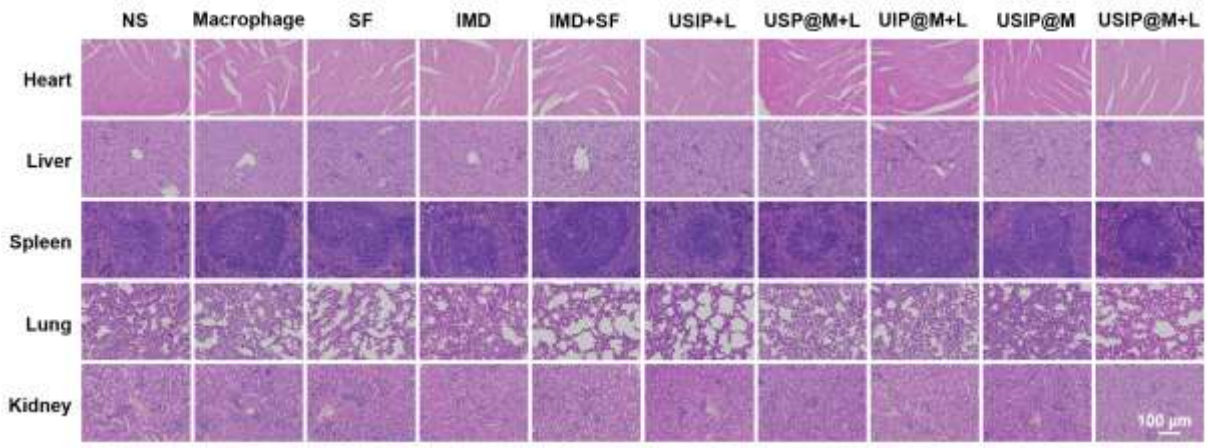

Figure S7 H&E stained images of main organs (heart, liver, spleen, lung and kidney) after *i.v.* administration with different formulations, scale bar = 100 μm.

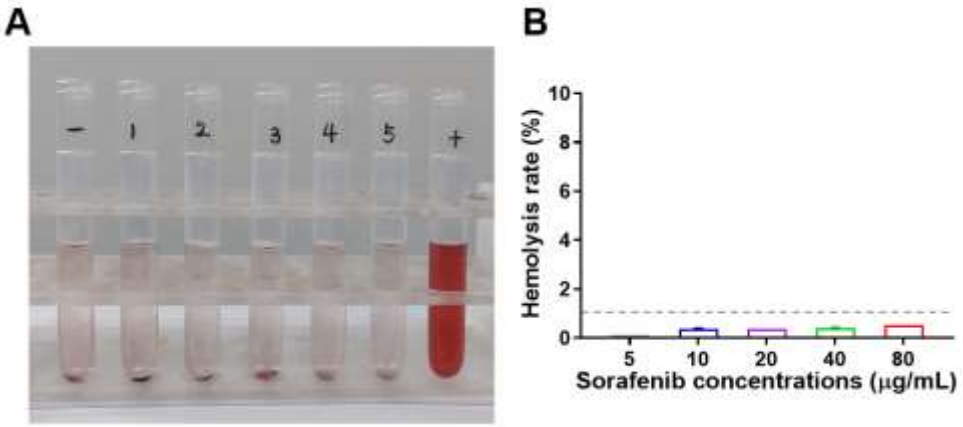

Figure S8 (A) The hemolysis image of USIP@M. (B) The hemolysis rate with a series of doses of USIP@M at the concentration of SF in 5, 10, 20, 40 and 80 μg/mL. Data are presented as mean±SD (*n*=3).

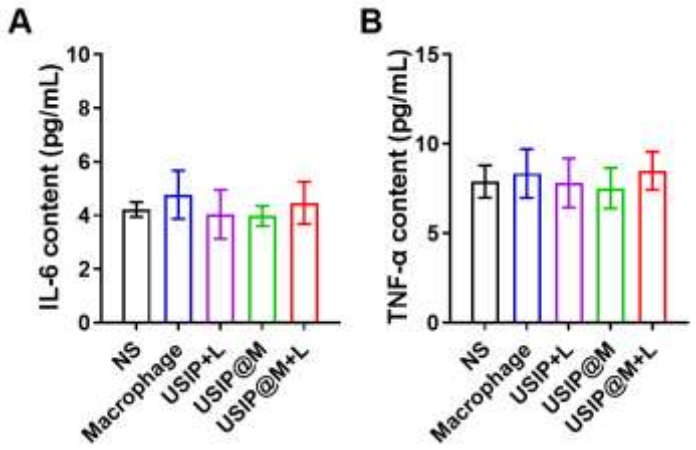

Figure S9 (A) Serum cytokine concentrations of IL-6 assessed at 48 h after the first injection. (B) Serum cytokine concentrations of TNF-*α* assessed at 48 h after the first injection. Data are presented as mean±SD (*n*=3).

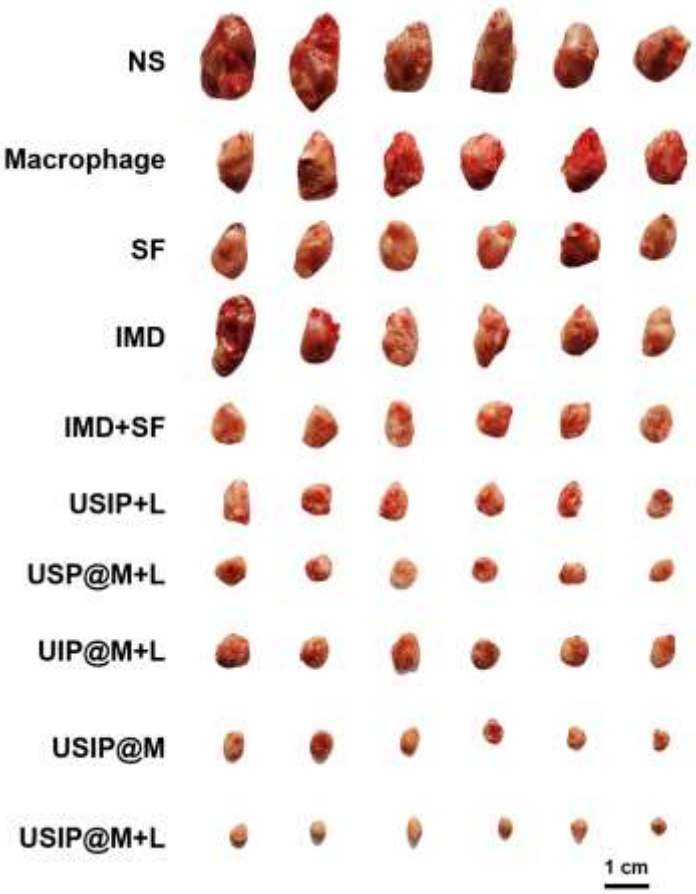

Figure S10 Tumor photographs of H22 tumor-bearing mice receiving the indicated treatments related to Fig. 4 (*n* = 6), scale bar = 1 cm.

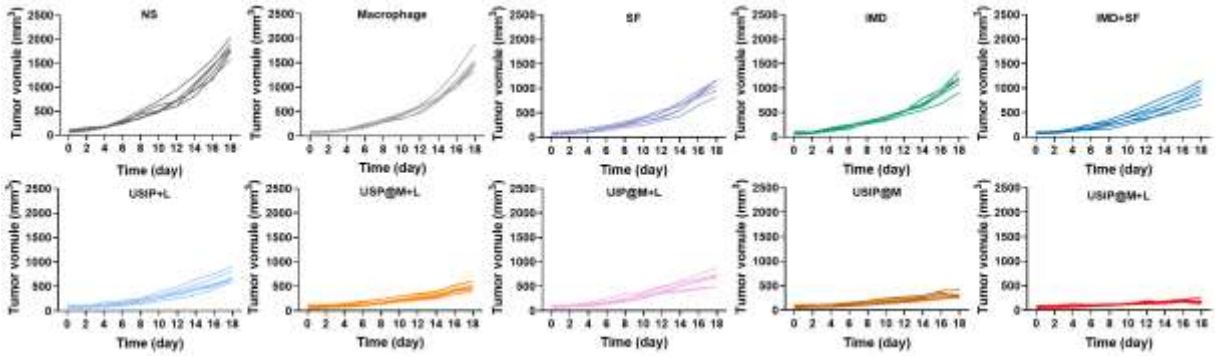

Figure S11 Individual tumor growth curves of mice after *i.v.* administration with different formulations (n = 6).

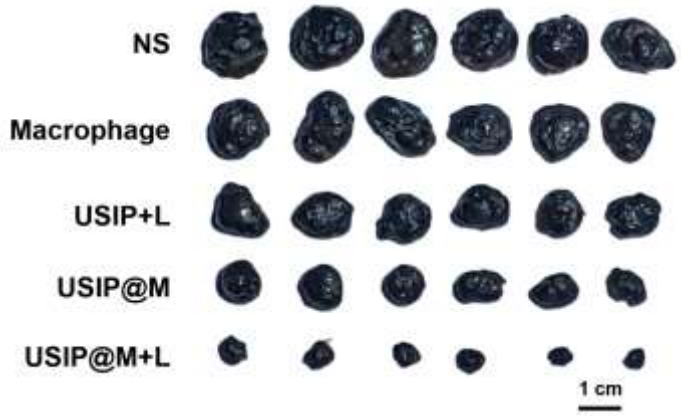

Figure S12 Tumor photographs of B16F10 tumor-bearing mice receiving the indicated treatments related to Fig. 6 (n = 6), scale bar = 1 cm.

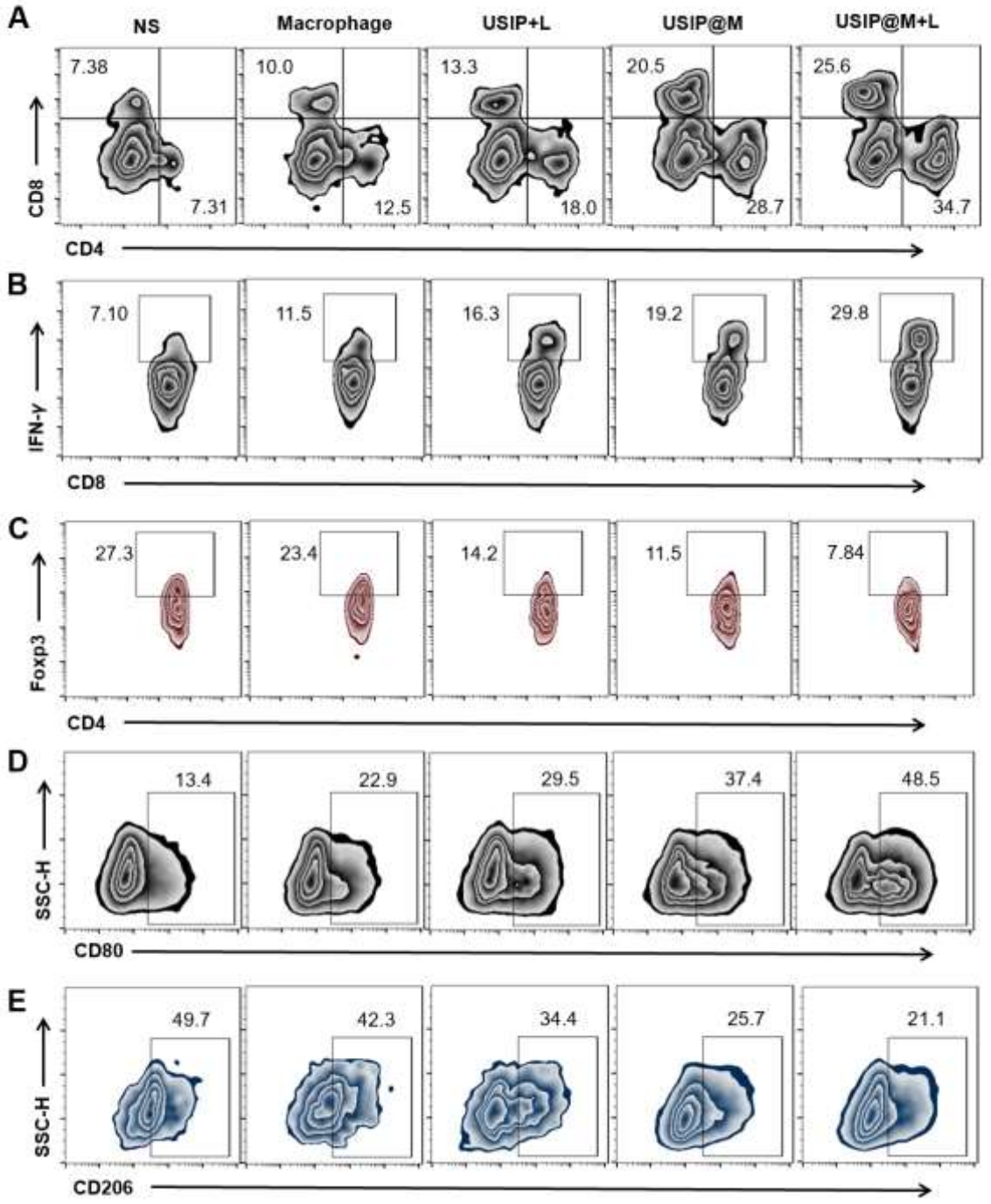

Figure S13 Representative flow cytometry plots of intratumoural (A) $CD4^+$ and $CD8^+$ T cells, (B) $CD8^+$IFN-γ^+ T cells, (C) Treg in $CD4^+$ T cells, (D) M1-type macrophages and (E) M2-type macrophages related to Fig 6F-L.

Table S1. Characterization of exosomes from different treatment groups

Group	Intensity size (nm)	Zeta potential (mV)
Macrophage	106.93 ± 3.39	-13.13 ± 1.07
USIP@M	117.87 ± 6.36	-13.00 ± 1.14
USIP@M+L	112.80 ± 3.35	-13.37 ± 1.42

Table S2. IC_{50} in different treatment groups related to Fig. 2M

Group	Free SF	USIP	USIP+L	Released medium from USIP@M+L
IC_{50} (μg/mL)	5.56 ± 2.22***	20.20 ± 8.01***	3.77 ± 0.47***	0.76 ± 0.34

*P indicate statistical significance compared to the released medium from USIP@M+L group. Data are presented as mean±SD (n = 3).***P < 0.001.