Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Electronic supporting info

Safety of nanoparticles based on albumin-polymer conjugates as a carrier of nucleotides for pancreatic cancer therapy

Kazuaki Taguchi, Hongxu Lu, Yanyan Jiang, Tzong Tyng Hung, Martina H. Stenzel

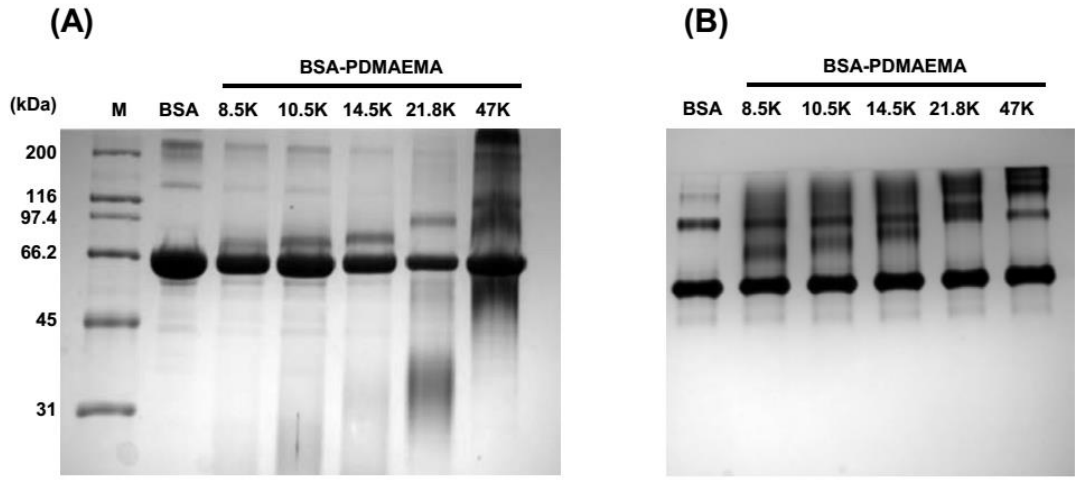

Figure S1. (A) SDS-PAGE and (B) Native-PAGE of the BSA and BSA-PDMAEMA conjugations. The conjugation between BSA and PDMAEMA was analyzed via SDS-PAGE and NativePAGE using 10% polyacrylamide gel and detected by staining with Coomassie Blue R-250. Molecular masses were indicated for the following: Carbonic anhydrase (31 kDa), Ovalbumin (45 kDa), Serum albumin (66.2 kDa), Phosphorylase (97.4 kDa), β-galactosidase (116 kDa), and Myosin (200 kDa). Gel images were recorded using a Bio-Rad GS-800 calibrated densitometer. Native BSA was used as a control. M, Molecular weight

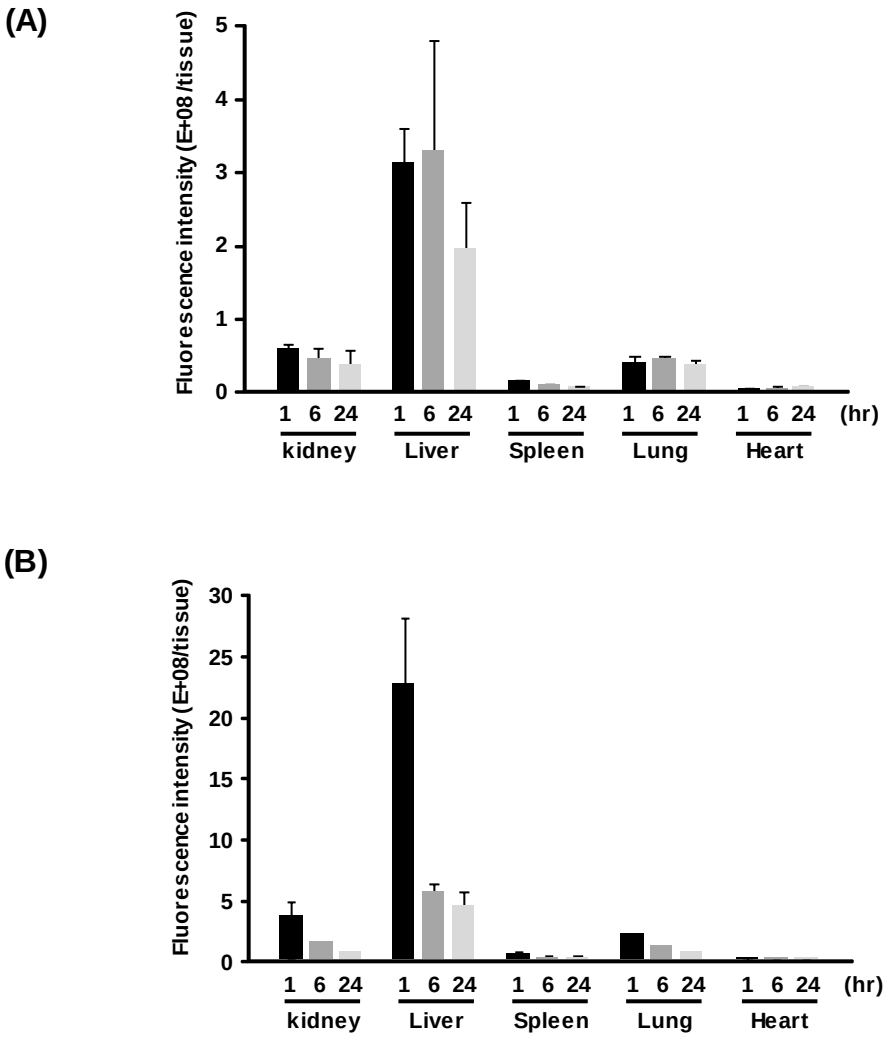

Figure S2. Biodistribution of BSA-PDMAEMA nanoparticles in healthy mice. C57BL6/J mice were intravenously injected with BSA-PDMAEMA nanoparticles labeled with FITC at a dose of (A) 1 mg BSA/kg and (B) 10 mg BSA/kg. At 1, 6 and 24 hr after administration, organ samples (liver, kidneys, spleen, lungs and heart) collected. Changes in fluorescence intensity in samples were detected by IVIS.

Data represent the mean ± SD. (n=3)

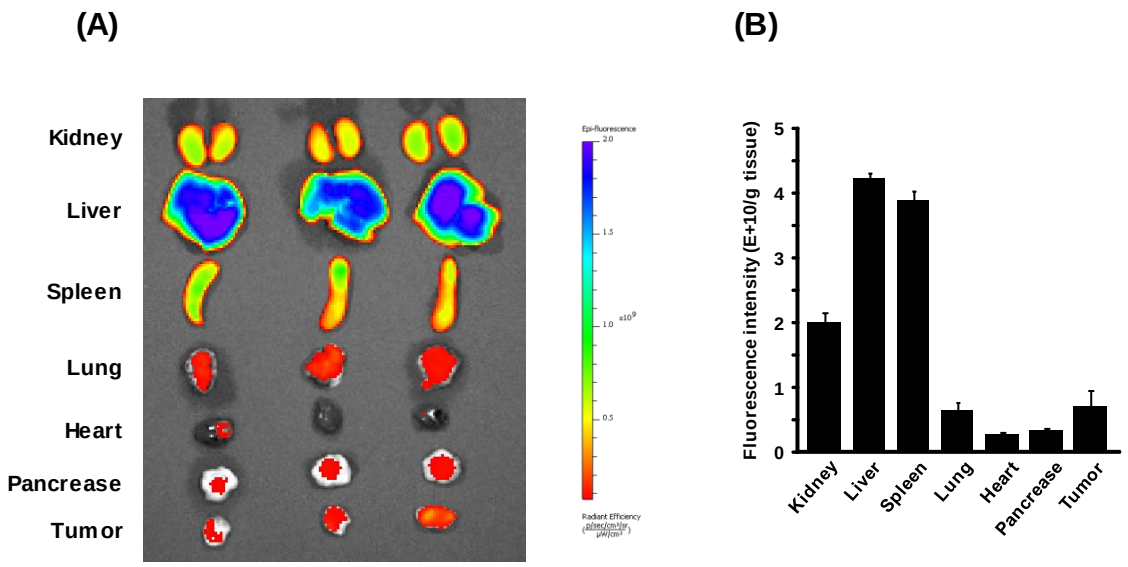

Figure S3. Representative fluorescence images of Cy5-labeled BSA-PDMAEMA nanoparticles accumulation in organs (ex vivo). (B) The fluorescence intensity of isolated organs from AsPC-1 bearing mice. AsPC-1 bearing mice were intravenously injected with BSA-PDMAEMA nanoparticles. At 24 hr after the administration, organs were harvested. The images were acquired using IVIS Lumina SpectrumCT.

Data represent the mean ± SD. (n=3)

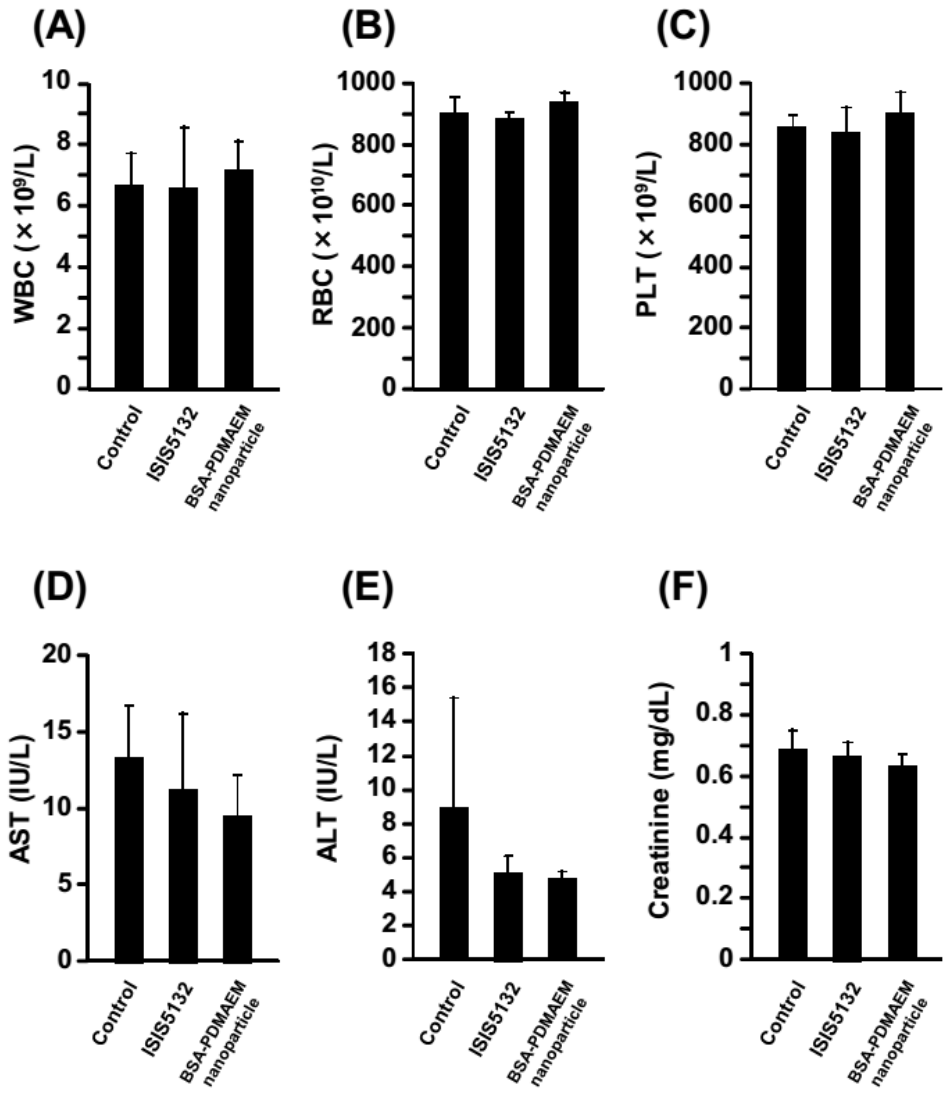

Figure S4. Effect of BSA-PDMAEMA nanoparticles on hematology and serum parameters representing liver hepatic and renal functions in AsPC-1 bearing mice. AsPC-1 bearing mice were intravenously injected with BSAPDMAEMA nanoparticles twice a week. At day 21 after the first treatment, changes in (A) white blood cells (WBC), (B) red blood cells (RBC), (C) platelets (PLT), (D) aspartate aminotransferase (AST), (E) alanine aminotransferase (ALT) and (F) creatinine were observed.

Data represent the mean ± SD. (n=5)

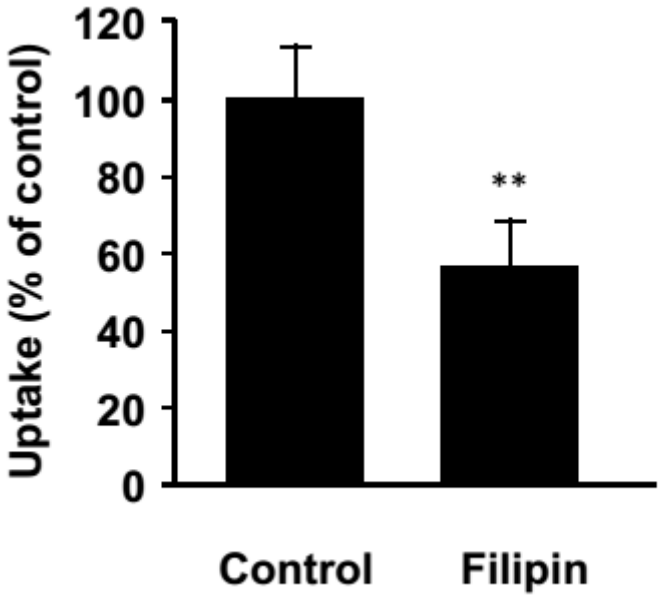

Figure S5. Inhibition assays of AsPC-1 cells against Filipin. AsPC-1 cells were seeded in 96-well cell culture plates at a density of 5,000 cells/well. 24 hr after AsPC-1 plateing, the culture medium was changed with fresh RPMI-1640 without FBS and incubated for 90 min. The 96-well plate was, then, pre-incubated for 30 min with filipin (10 μg/mL). Cy5-labeled BSA-PDMAEMA nanoparticle solutions (N/P ratio=1, PDMAEMA; 14.5K) were added to each well (1.25 μg DNA/well), followed by incubating for 2. After washing each well with PBS, the amount of the internalized nanoparticles was quantified by measuring the fluorescence intensity with an Infinite 200 PRO microplate reader (Tecan, Germany) at excitation and emission wavelengths of 635 and 670 nm, respectively. The values were then compared to the fluorescence intensity of the solution without inhibitor.

Data represent the mean ± SD. (n=5) ** $p<0.01$ vs. control