Supporting Information

Precision Mitochondrial Reprogramming via a ROS-Amplifying Pt(IV) Nanoplatform Potentiates Tri-Modal Therapy to Overcome Pt Resistance in HCC

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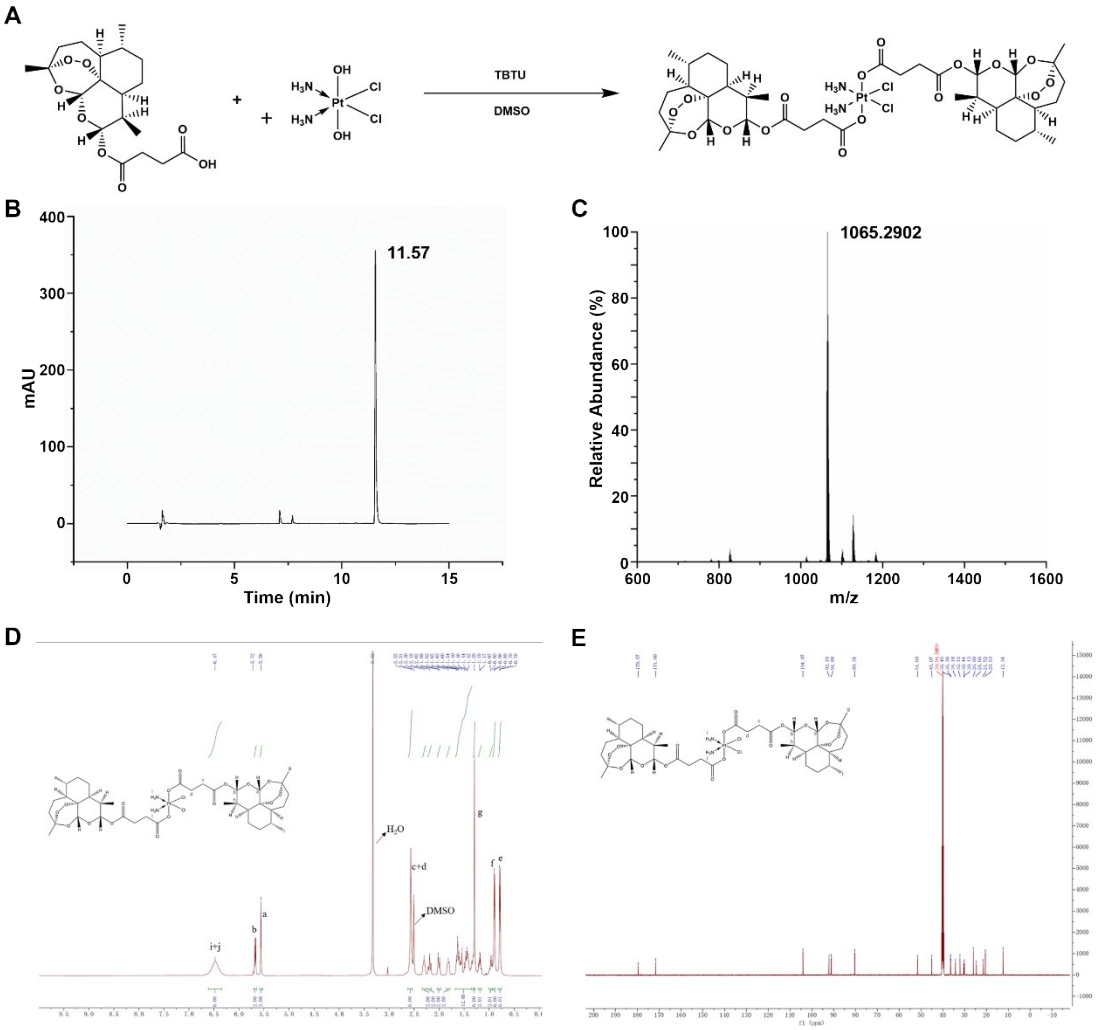

Figure S1. Synthesis and characterization of Pt-ART. (A) The synthetic route for Pt-ART preparation. Analytical characterization by (B) HPLC, (C) LC-MS, (D) ^{1}H-NMR spectrum and (E) ^{13}C-NMR spectrum.

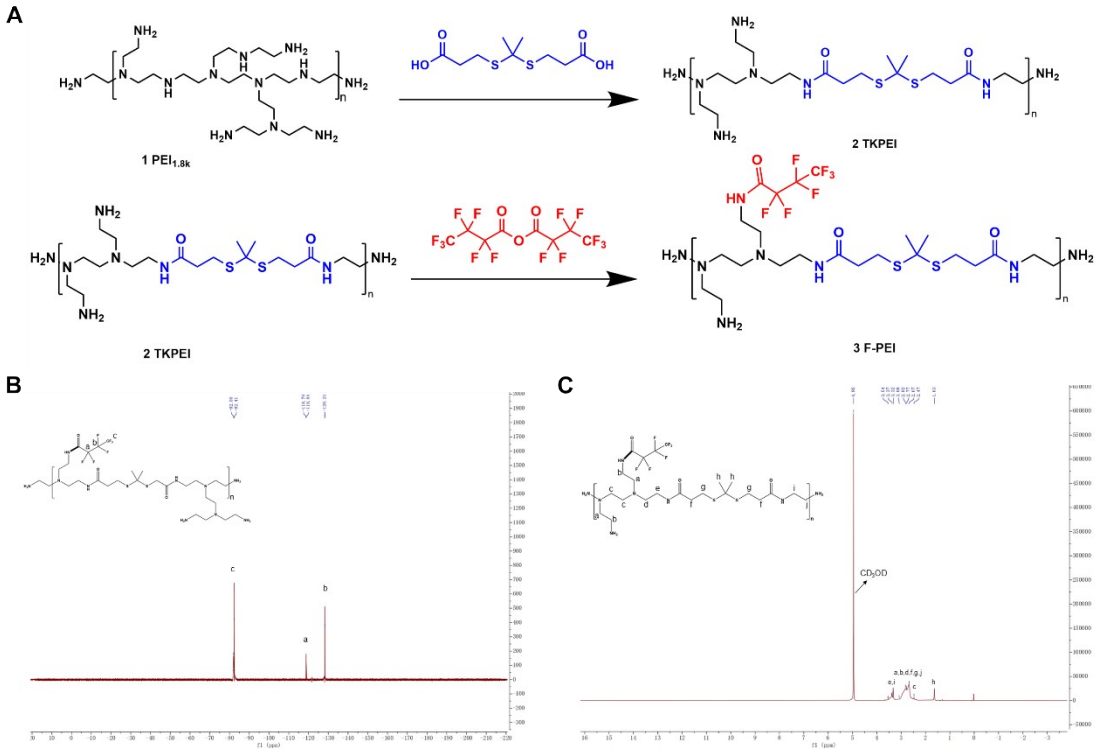

Figure S2. Synthesis and structural characterization of F-PEI. (A) Schematic illustration of the synthetic pathway for F-PEI preparation. (B) ^{19}F-NMR spectrum and (C) ^{1}H-NMR spectrum of F-PEI.

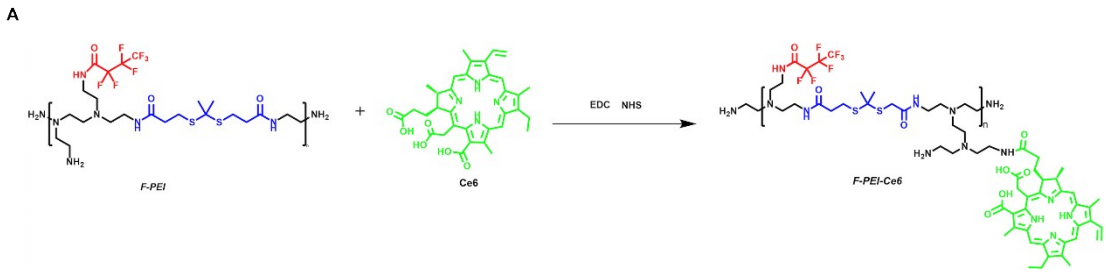

Figure S3. Schematic illustration of the synthetic pathway for F-PEI preparation.

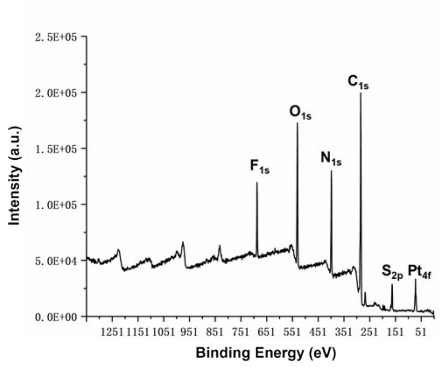

Figure S4. XPS Pt spectrum of PAFPS nanoparticle.

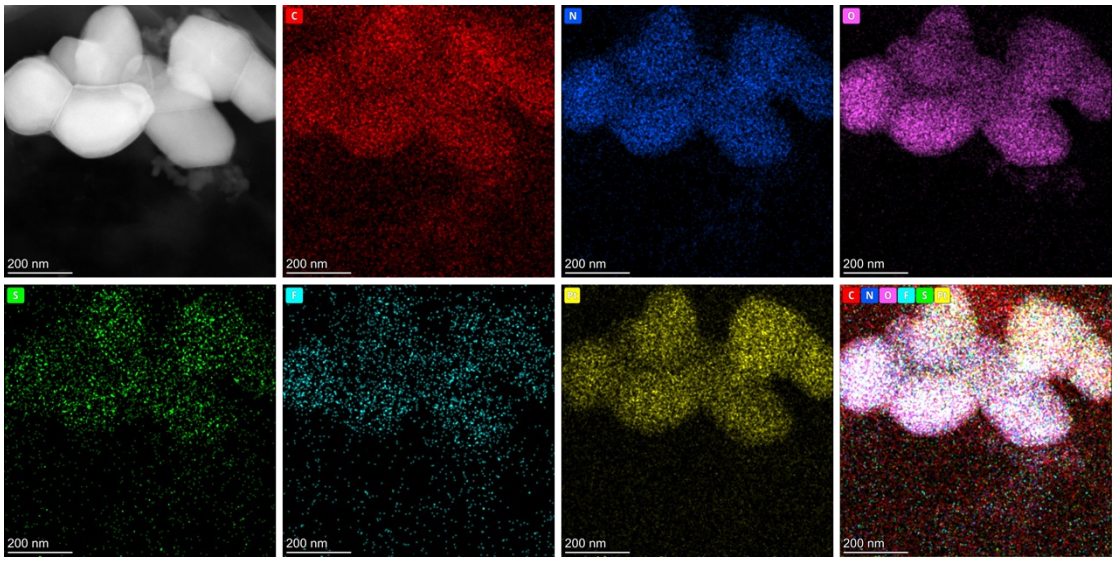

Figure S5. Elemental mapping of transmission electron microscopy image using coupling to energy-dispersive X-ray spectroscopy (scale bar = 200 nm).

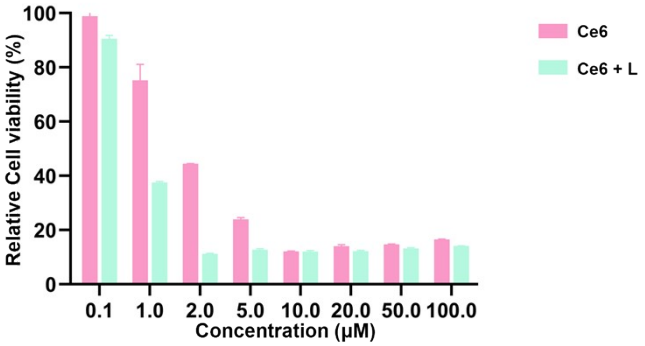

Figure S6. Evaluation of the Cytotoxicity of Ce6-Mediated Photodynamic Therapy in Hepa1-6 Cells.

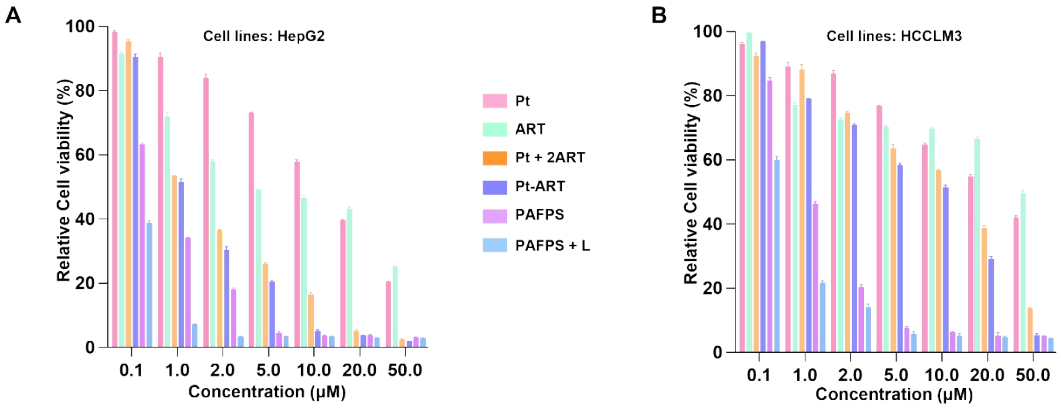

Figure S7. Cytotoxicity evaluation of drug groups. Relative cell viability of (A) HepG2 and (B) HCCLM3 cells, measured via MTT assay following treatment with varying drug concentrations. Data are presented as $mean \pm SD$ (n = 3).

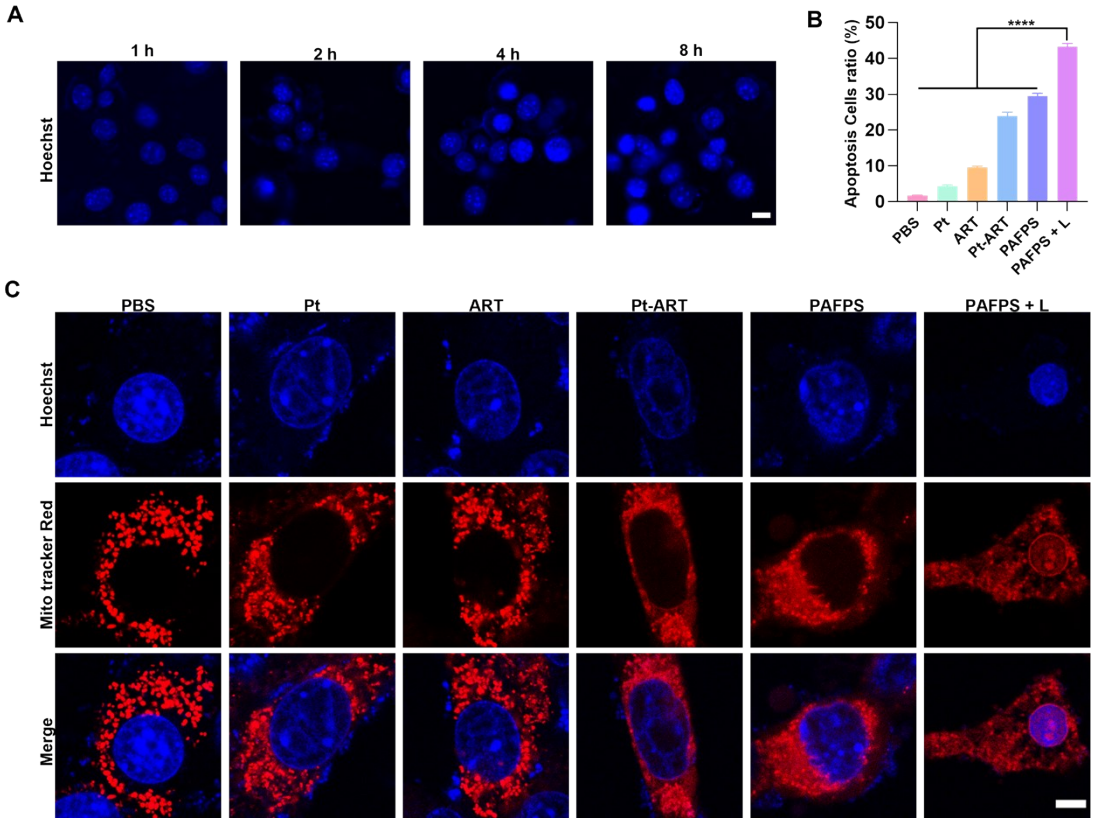

Figure S8. In vitro antitumor efficacy and mechanisms of nanoparticles. (A) Fluorescence images showing Hoechst nuclear staining (blue) in Hepa1-6 cells treated with Ce6-labeled PAFPS (scale bar = 10 μm). (B) Apoptotic cell ratios following various treatments. (C) Mitochondrial morphology visualized by fluorescence microscopy (scale bar = 5 μm). PAFPS + L denotes PAFPS treatment with 660 nm laser irradiation (3 min). Data represent $mean \pm SD$ (n = 3) Statistical significance: ****$P < 0.0001$.

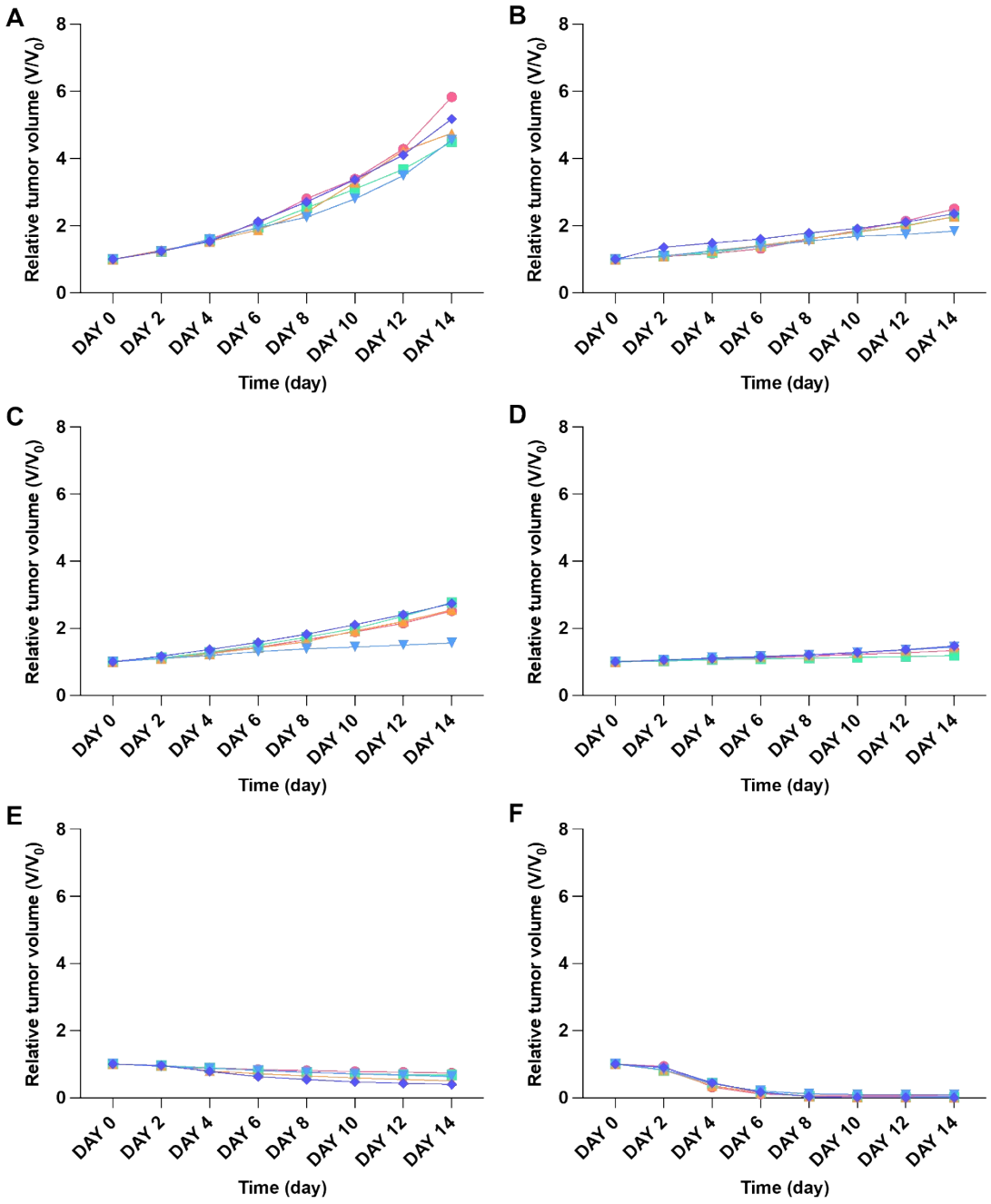

Figure S9. In vivo tumor growth inhibition by nanoparticles in subcutaneous Hepa1-6 xenografts. Individual tumor growth curves following treatment with (A) PBS, (B) free Pt, (C) free ART, (D) free Pt-ART, (E) PAFPS, and (F) PAFPS + L. PAFPS + L represented PAFPS treatment with 660 nm laser irradiation for 3 min.

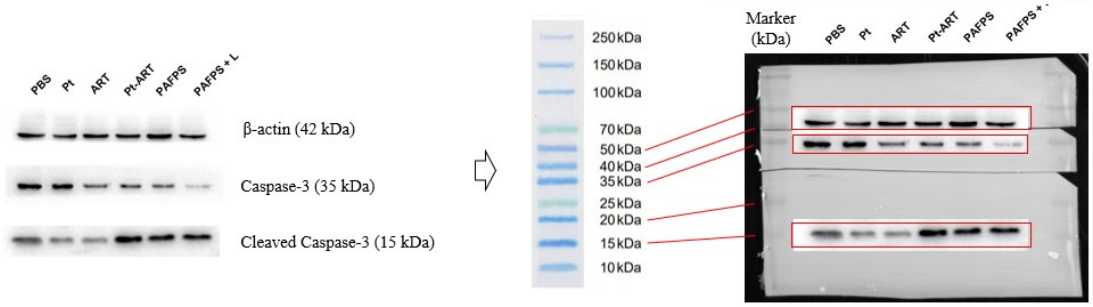

Figure S10. Original data of western blot assay of Figure 2F.

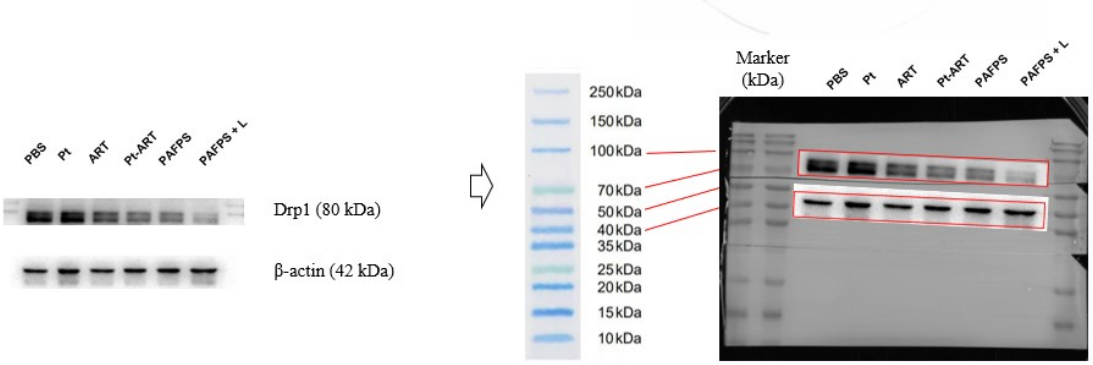

Figure S11. Original data of western blot assay of Figure 4H.

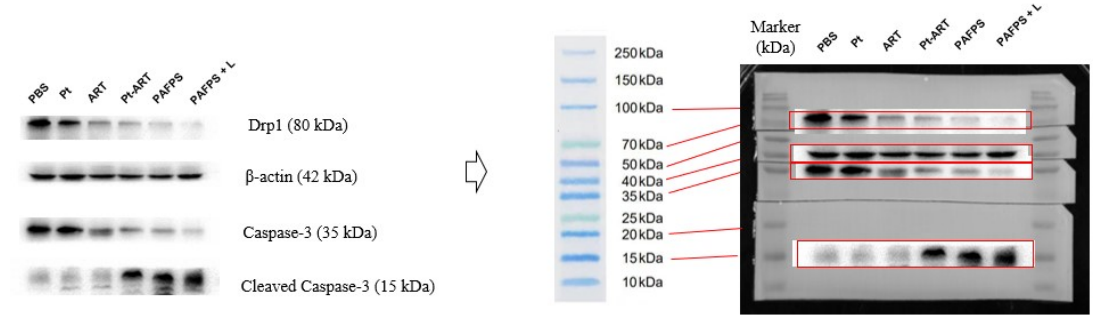

Figure S12. Original data of western blot assay of Figure 7G.