# Supplements Information

## Folic Acid-Targeted PLGA Nanoparticles Co-delivering Doxorubicin and MnTPP Enable Ultrasound-Triggered Synergy and Apoptosis in Nasopharyngeal Carcinoma

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**Figure S1.** Photograph of prepared folic acid-modified PLGA nanoparticles co-loaded with MnTPP and doxorubicin (FPMD NPs), showing a uniform brownish dispersion without visible precipitation, indicating good dispersibility and stability.

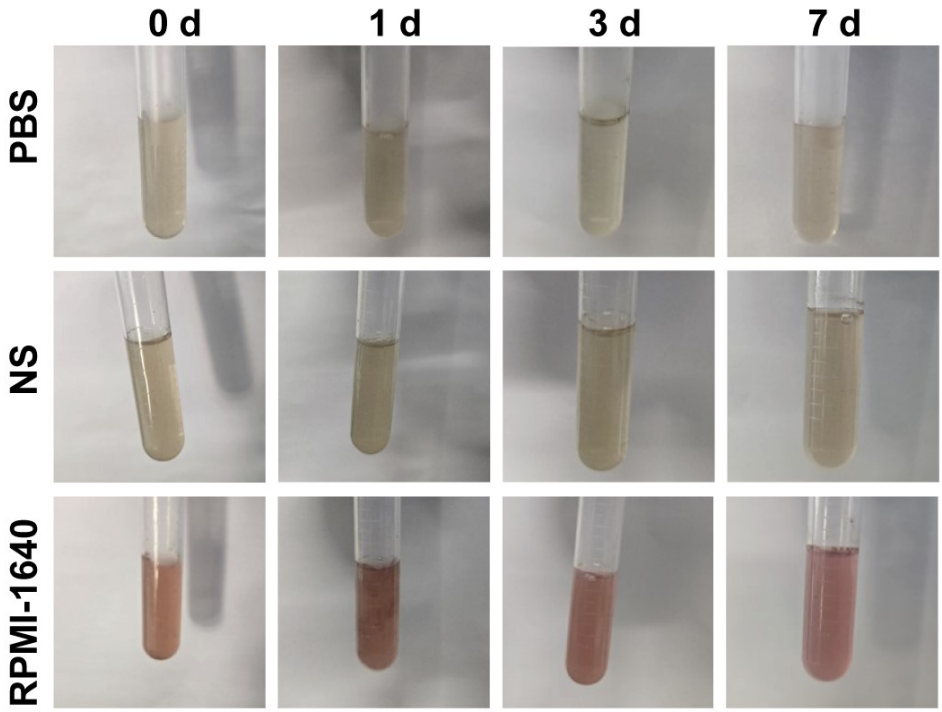


**Figure S2.** Photograph of FPMD nanoparticles dispersed in PBS, normal saline, and RPMI-1640 over a 7-day period, showing a uniform brownish dispersion without visible precipitation.

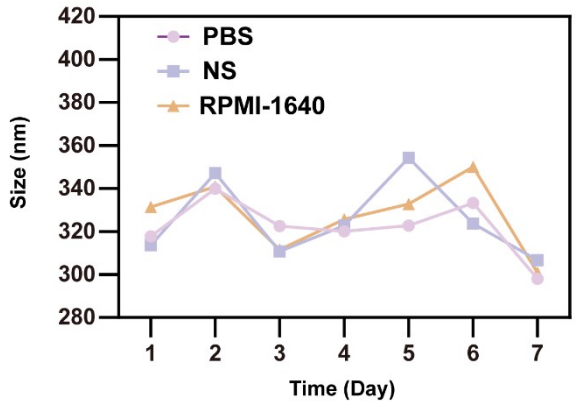


**Figure S3.** Hydrodynamic size stability of FPMD nanoparticles dispersed in different incubation media (PBS, normal saline, and RPMI-1640) over a 7-day period, showing minimal variation in particle size, indicating good colloidal stability.

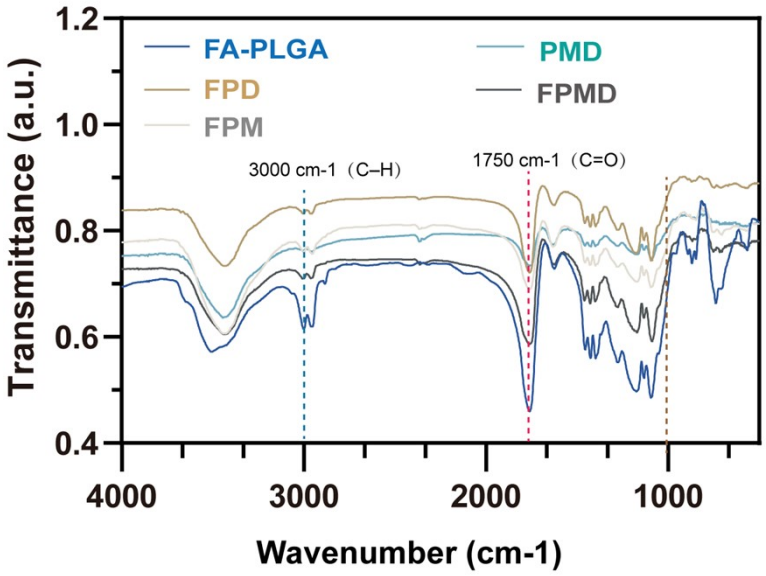


**Figure S4.** Fourier-transform infrared (FT-IR) spectra of FA-PLGA, FA-PLGA-Dox (FPD), FA-PLGA-MnTPP (FPM), PLGA-MnTPP-Dox (PMD), and FA-PLGA-MnTPP-Dox (FPMD) .All formulations exhibited the characteristic absorption bands of the PLGA-based carrier, including the C-H stretching vibration around 3000 $cm^{-1}$ and the ester carbonyl (C=O) stretching band at approximately 1750 $cm^{-1}$.

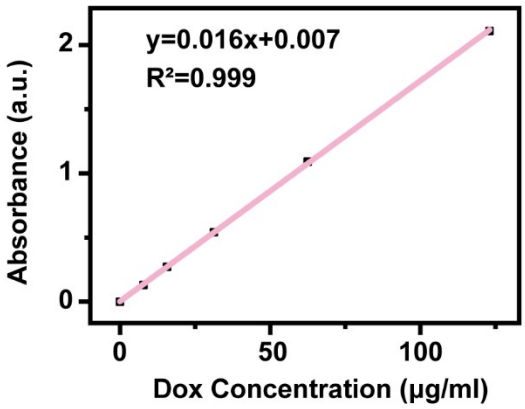


**Figure S5.** Standard calibration curve of doxorubicin (DOX) obtained by plotting absorbance versus concentration. A strong linear correlation was observed ($R^2$ = 0.999), supporting accurate quantification of DOX loading.

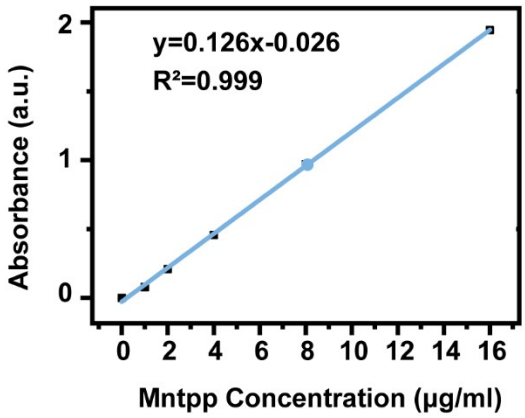


**Figure S6.** Standard calibration curve of MnTPP based on absorbance versus concentration. The linear relationship ($R^2$= 0.999) indicates reliable quantification of MnTPP content in nanoparticles.

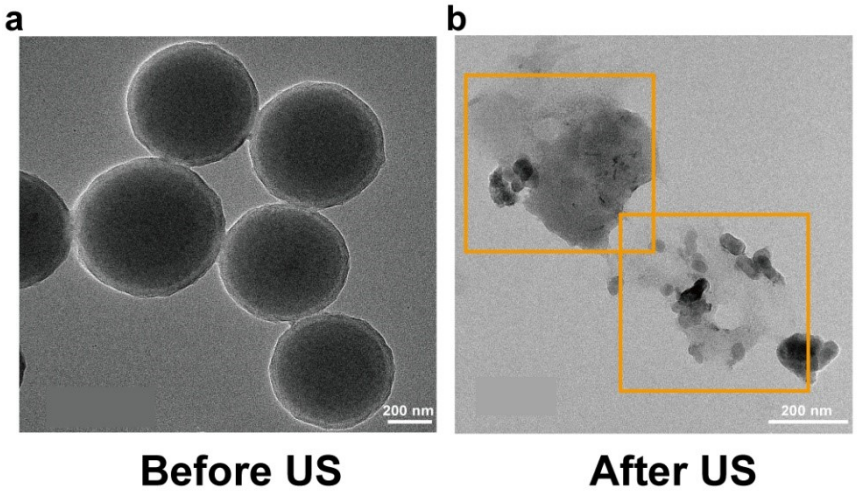

**Figure S7.** TEM images of FPMD NPs before and after ultrasound irradiation. Before ultrasound exposure, the nanoparticles showed intact spherical morphology with compact internal structure. After ultrasound treatment, the particles exhibited obvious structural disruption, collapse, and fragmentation, indicating good ultrasound responsiveness of the FPMD NPs.

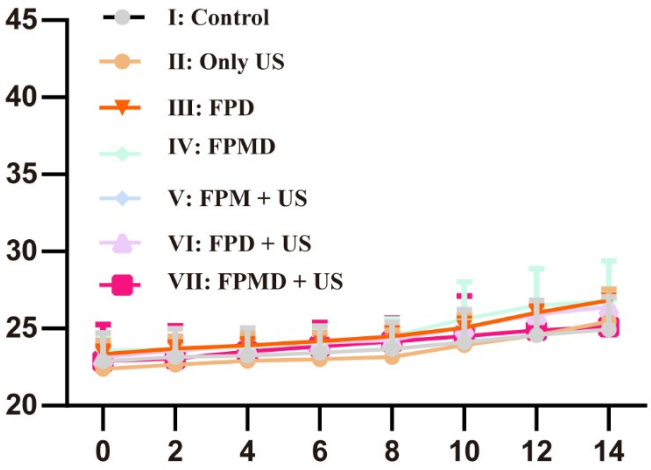


**Figure S8.** Body weight curves of mice in different treatment groups, including (I) Control; (II) US only; (III) FPD; (IV) FPMD; (V) FPM + US; (VI) FPD + US; (VII) FPMD + US, over a 14-day period. Data are presented as mean ± SD (n = 5 per group).