



Fig. S1 (A) HPLC analysis showing the chemical stability of MTX-Mn over seven days, with no significant degradation detected. (B) Representative Annexin V-FITC/PI flow cytometry plots of NIH/3T3 fibroblasts treated with MTX-Mn. (C) Quantitative analysis of apoptotic NIH/3T3 cells. MTX-Mn treatment showed a slight increase in apoptosis compared with the control group; however, no statistically significant difference was observed. (D) Representative fluorescence images of TUNEL staining in B16F10 melanoma cells. (E) Quantitative analysis of apoptotic B16F10 cells based on TUNEL staining. Data are presented as mean \pm SD ($n = 3$). Statistical significance is indicated as ** $P < 0.01$, *** $P < 0.001$, and **** $P < 0.0001$; ns, not significant.