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Multifunctional dual-mesoporous silica nanoparticle loading protein and dual antitumor drugs as a targeted delivery system

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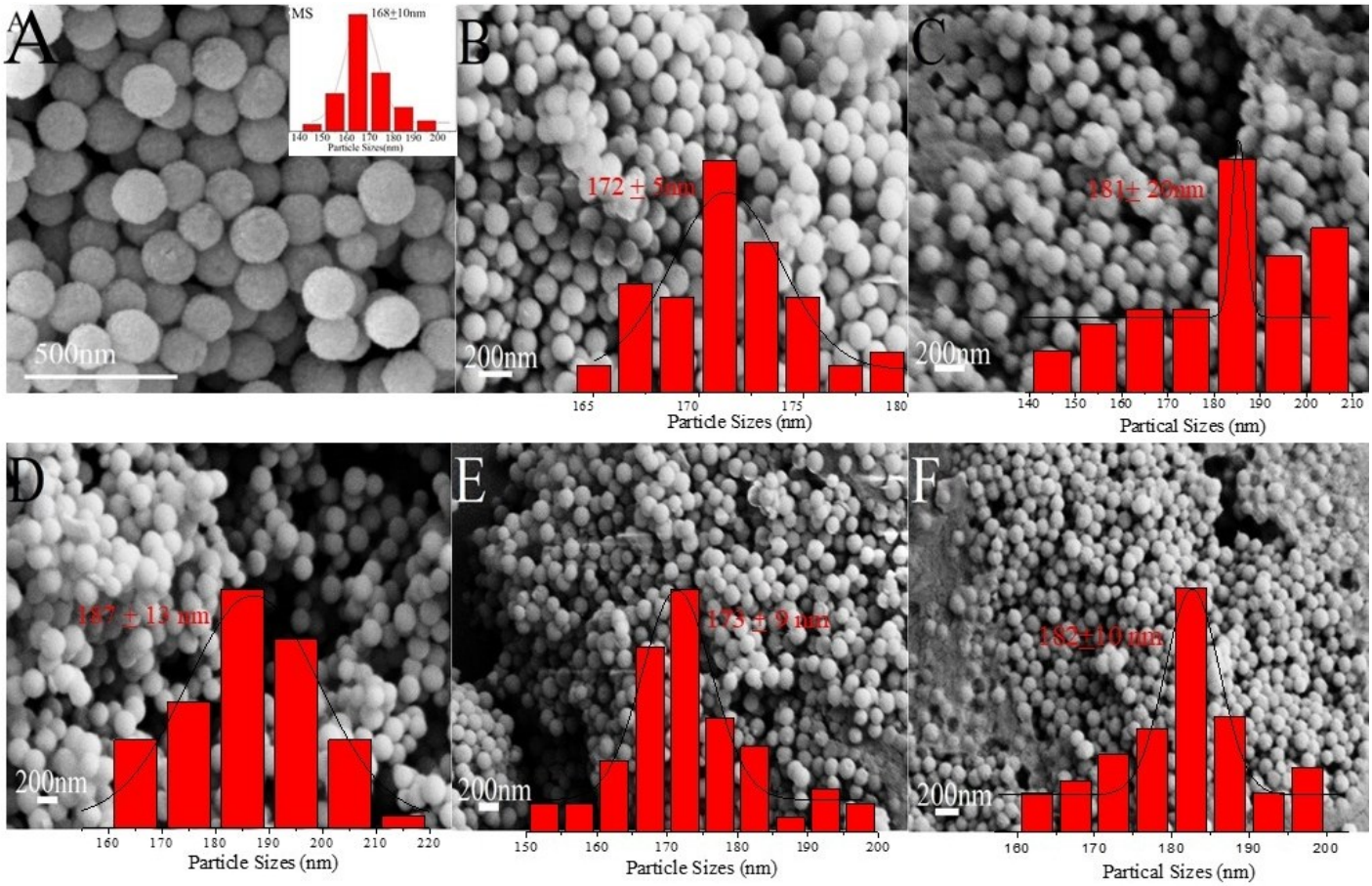

Fig.S1 SEM and EDS analysis of MS (A)， MS@DF(B), MS@DF@DOX@BSA@FA(C), MS@DF@Pt@BSA @FA(D)， MS@DF@Pt@DOX@BSA(E) , MS@DF@Pt@DOX@BSA@FA (F)

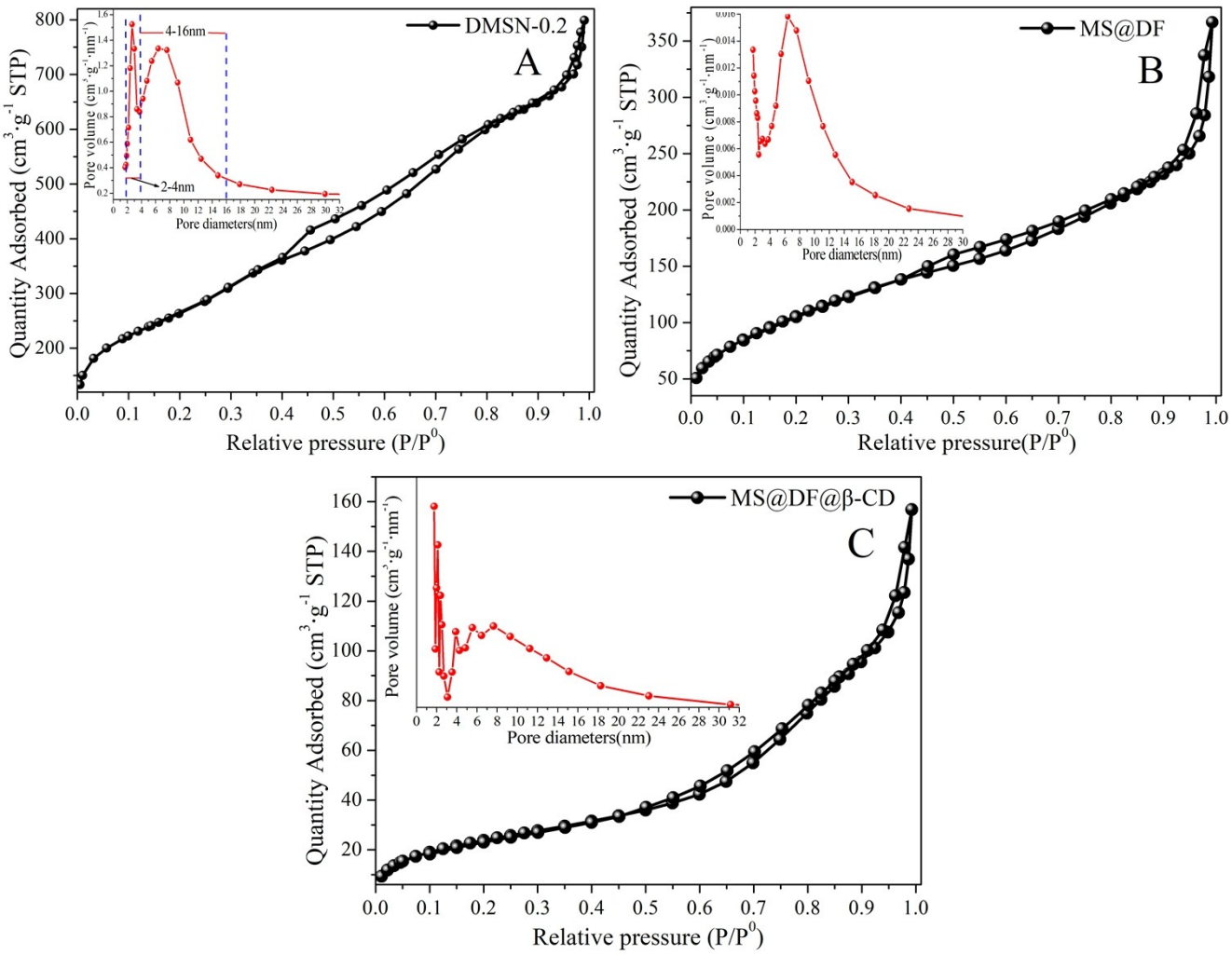

Fig. S2 shows the nitrogen adsorption-desorption isotherms and pore size distributions of samples DMSN-0.2(A),DMSN@NH_2@CN(B), MS@DF(C), and MS@DF@β-CD(D).

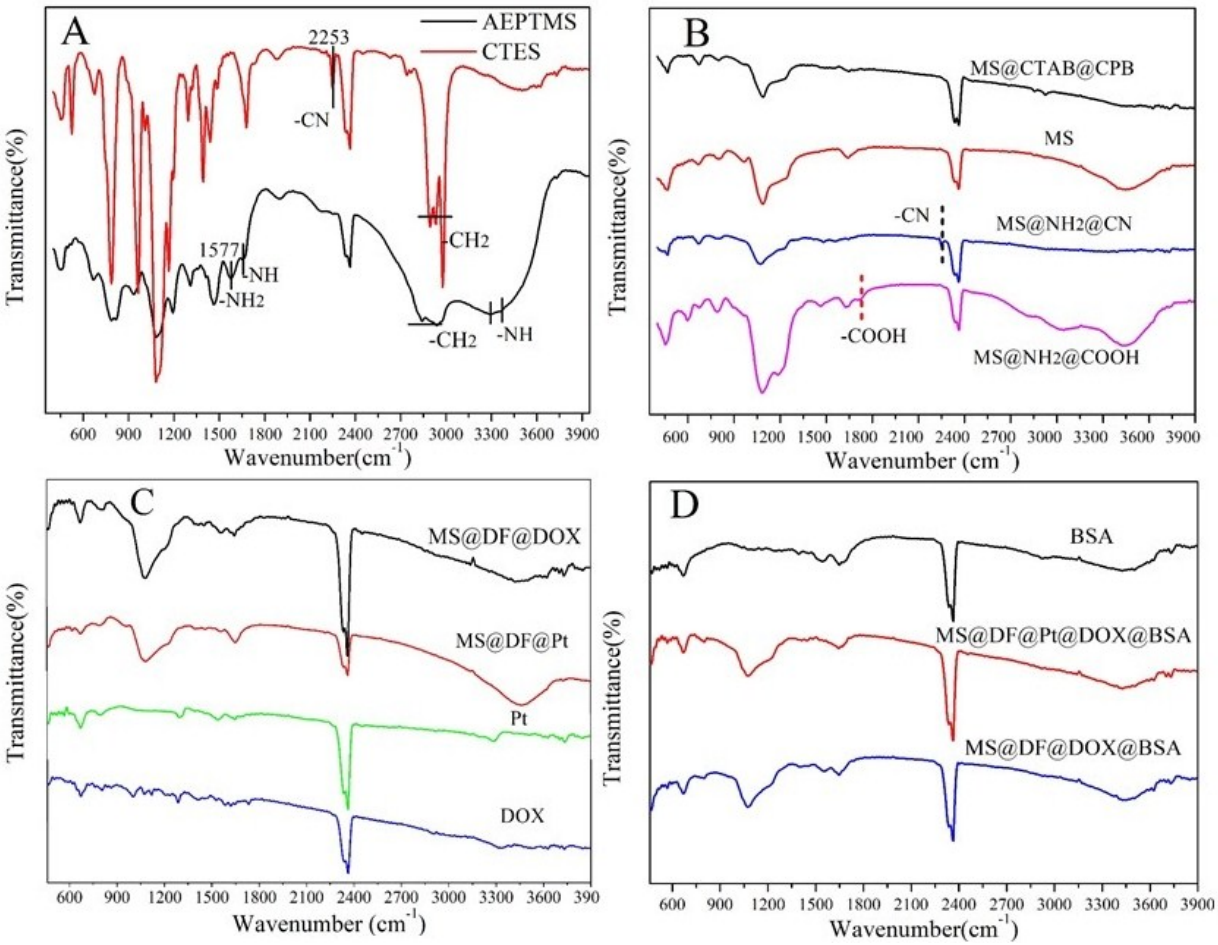

Fig. S3 Infrared characterization of all samples A) AEPTMS and CTES; B)MS@CTAB@CPB, MS, MS@NH_2@CN and MS@NH_2@COOH;DMSN@NH_2@CN; C) MS@DF@DOX, B) MS@DF@Pt, Pt and DOX; D) BSA, MS@DF@Pt@DOX@BSA and MS@DF@DOX@BSA.

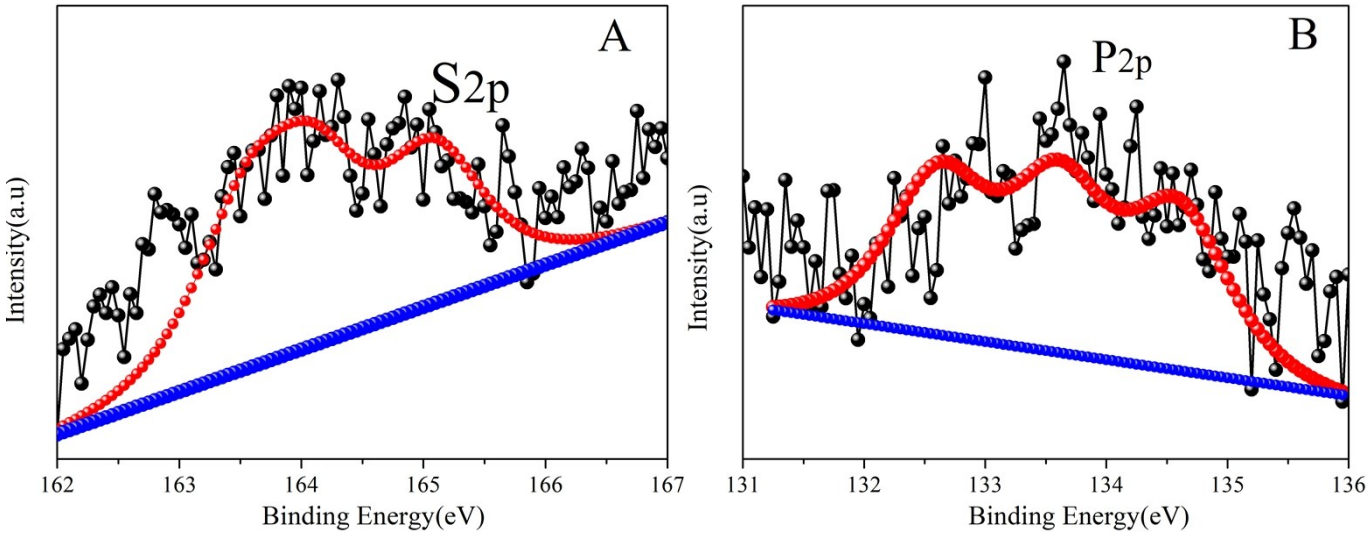

Fig. S4 XPS analysis diagram of MS@DF@Pt@DOX@BSA : A) XPS analysis diagram of S2p. B) XPS analysis diagram of P2p.

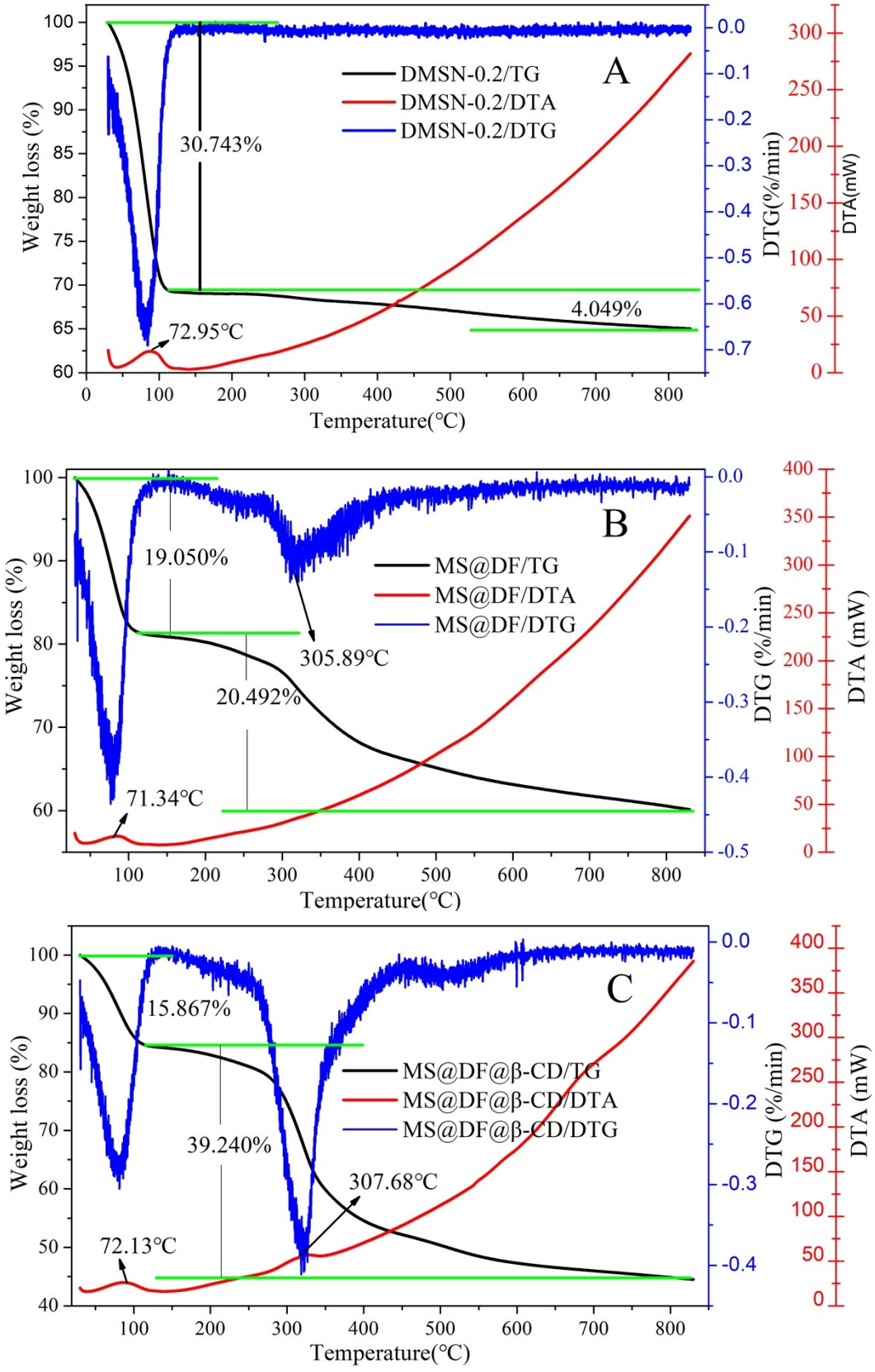

Fig. S5 TG, DTA ,DTA analysis of sample DMSN-0.2(A), MS@DF (B)， MS@DF @β-CD(C).

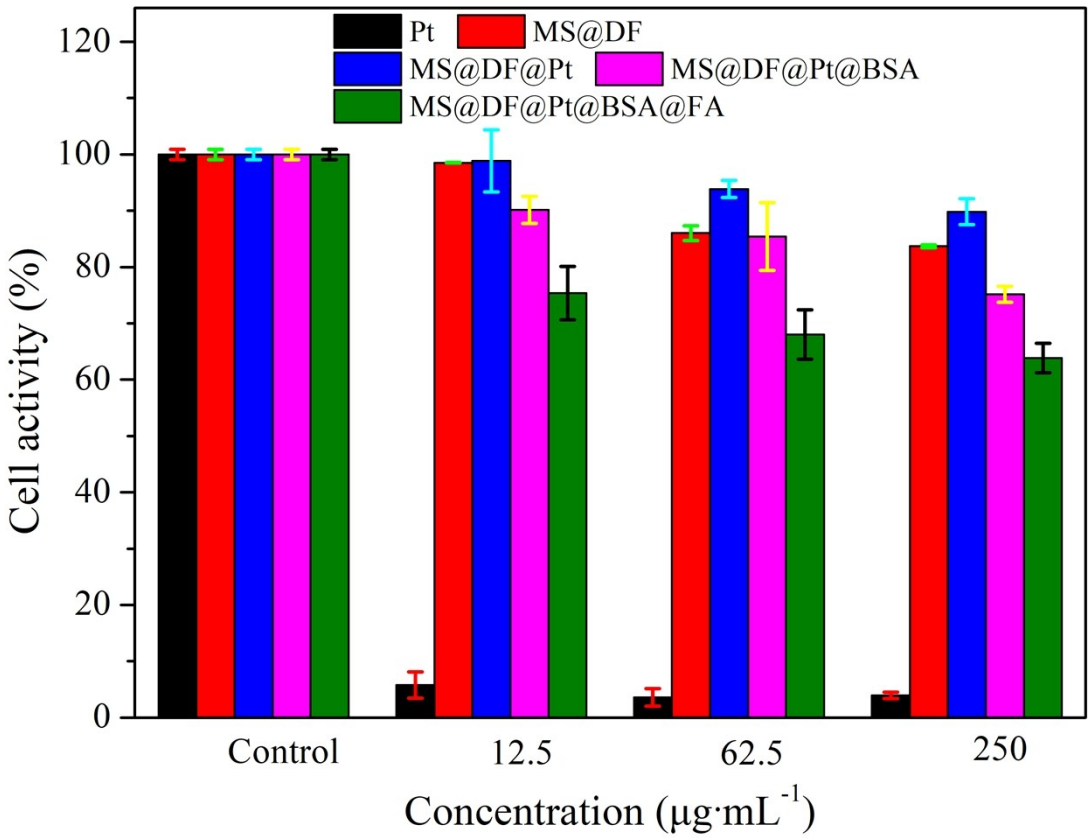

Fig. S6 In vitro cytotoxicity of Pt, MS@DF, MS@DF@Pt, MS@DF@Pt@BSA and MS@DF@Pt@BSA@FA in Hela cells after incubation for 48h.

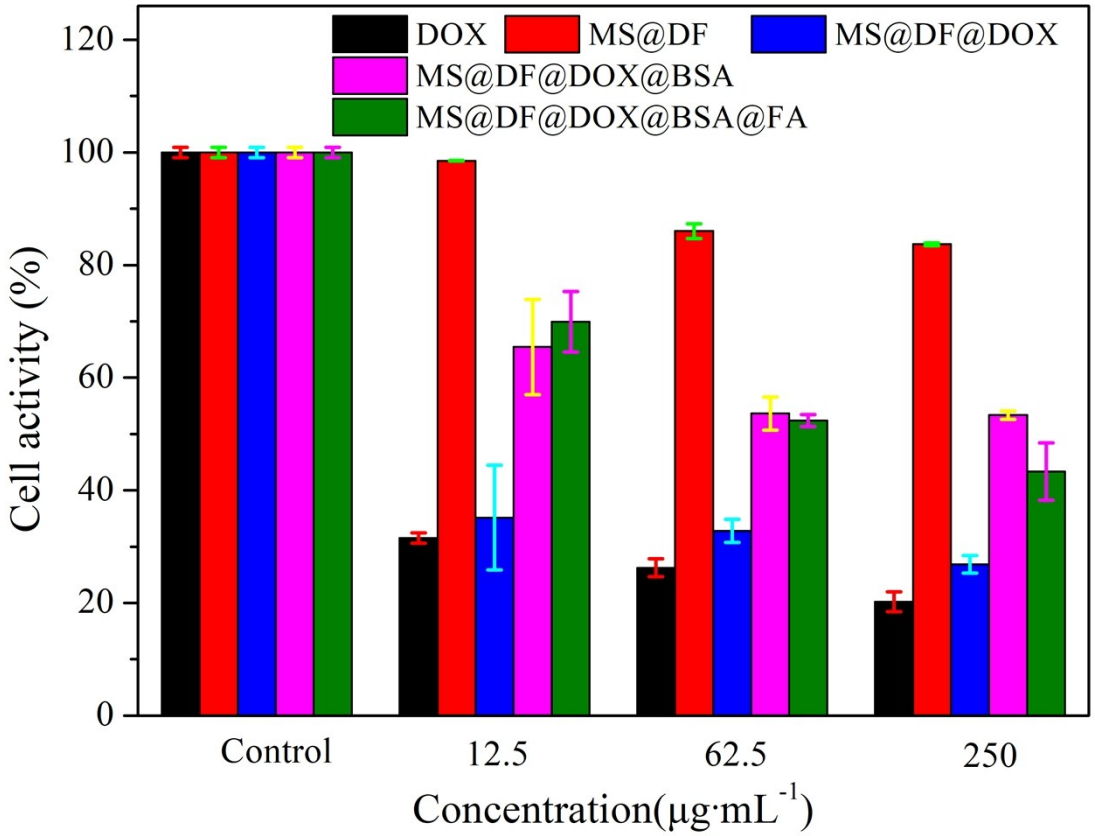

Fig. S7 In vitro cytotoxicity of DOX, MS@DF, MS@DF@DOX, MS@DF@DOX@BSA and MS@DF@DOX@BSA@FA in Hela cells after incubation for 48h.

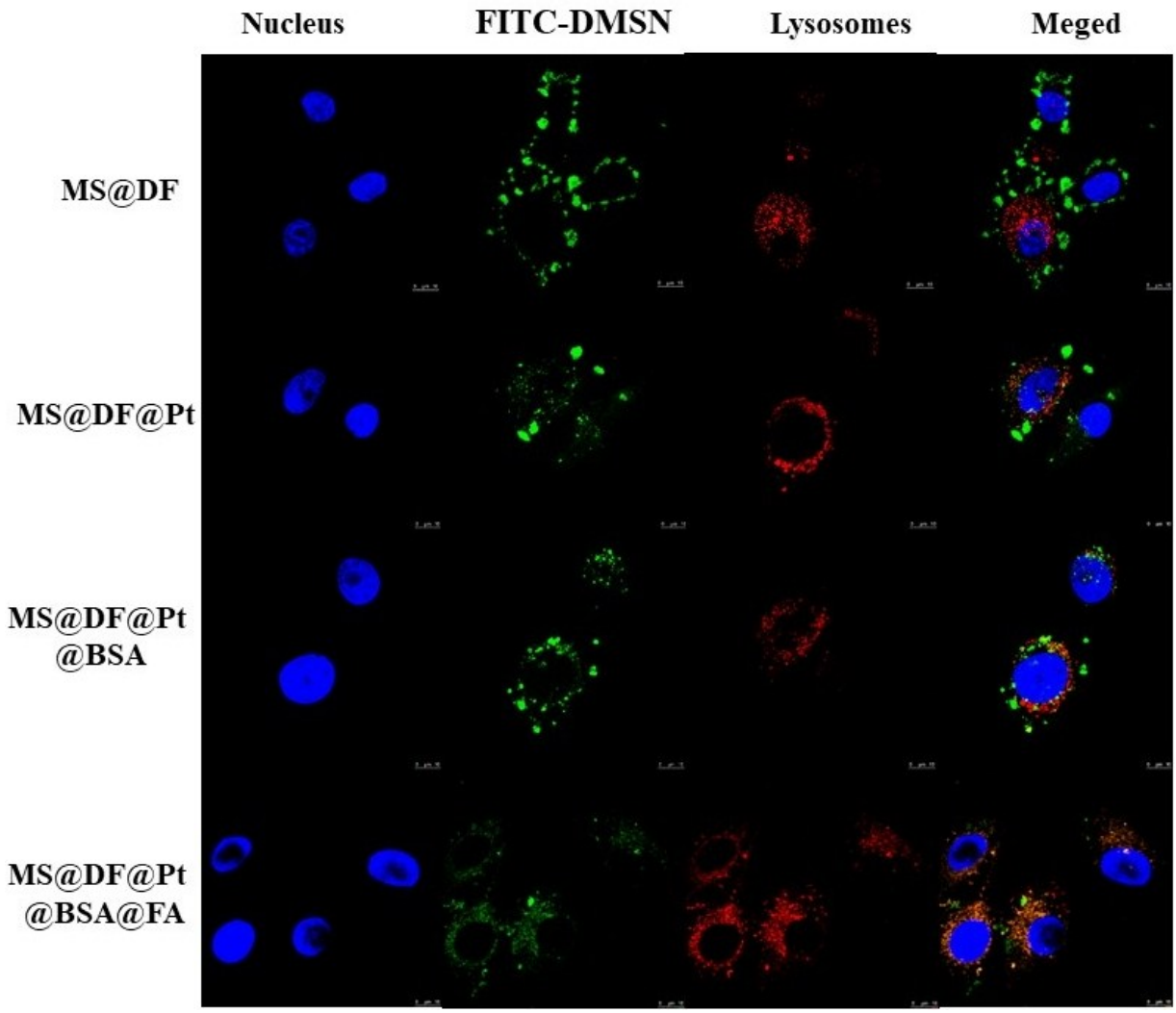

Fig. S8 Fluorescedce microscope images of MS@DF, MS@DF@Pt, MS@DF @Pt@BSA and MS@DF@Pt@BSA@FA incubated with Hela cells for 24h after FITC fluorescent labeled.

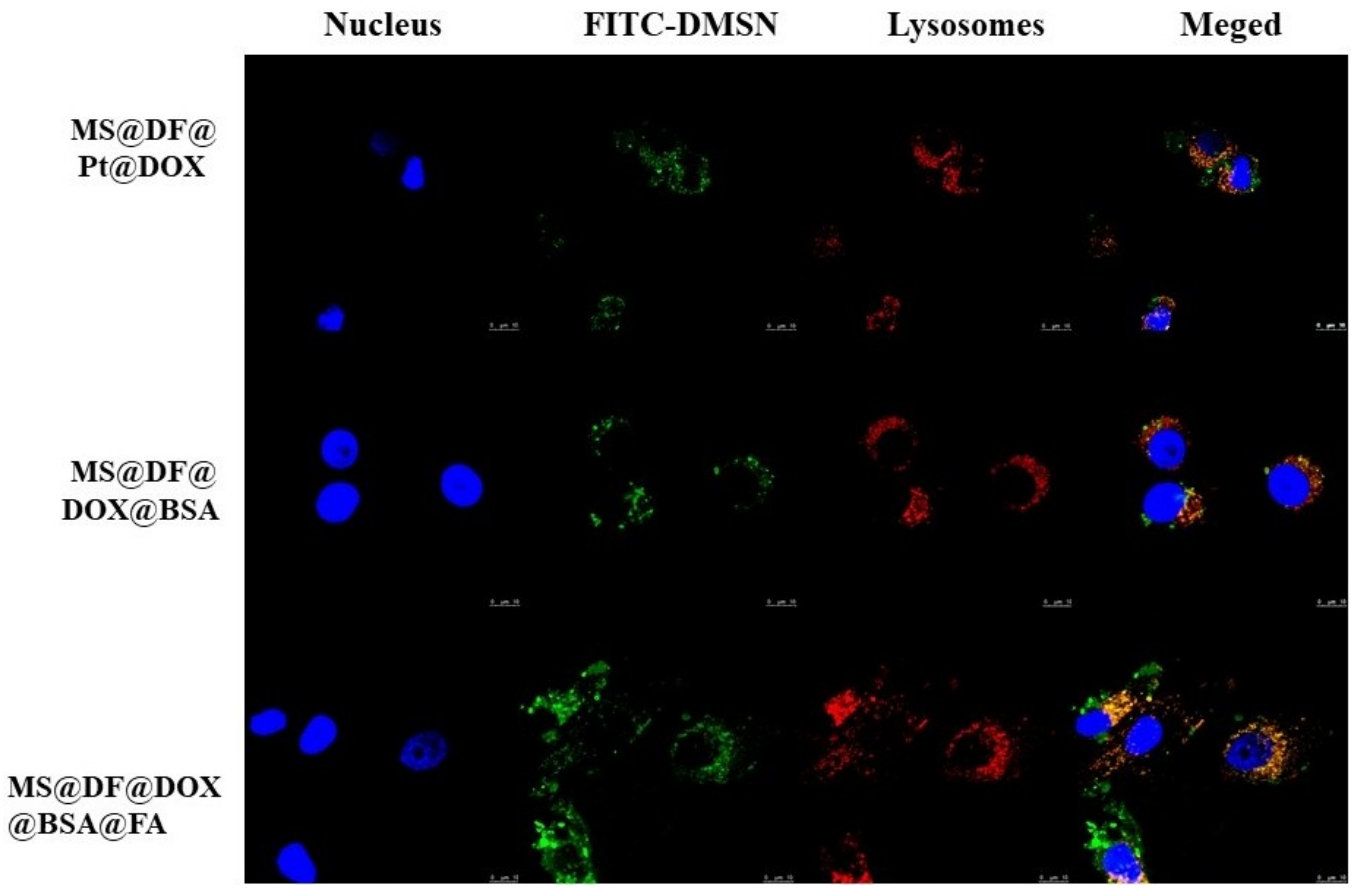

Fig. S9 Fluorescedce microscope images of MS@DF@DOX, MS@DF @DOX@BSA and MS@DF@DOX@BSA@FA incubated with Hela cells for 24h after FITC fluorescent labeled.