

Preparation of FA-targeted magnetic nanocomposites co-loading TFPI-2 plasmid and cis-platinum and its targeted therapy effects on nasopharyngeal carcinoma

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1. TFPI-2 Plasmid construction

We used pEGFP-C1 plasmid as carrier expressing TFPI-2 constructed by GenePharma Co.,Ltd (Suzhou, China), (Homo sapiens tissue factor pathway inhibitor 2 (TFPI-2), transcript variant 1. NM_006528.3 CDS:314..1021).

2. FTIR analyze MPEG-COOH

Figure 1S gives the FTIR spectra of MPEG-COOH and MPEG. As seen, the spectrum of MPEG-COOH did show the characteristic absorption bands of the carboxyl group at 1700 cm^{-1} , but MPEG did not exhibit the main characteristic bands of carboxyl. This result confirm that the hydroxy of MPEG changed to carboxyl, and MPEG-COOH have successfully synthesized.

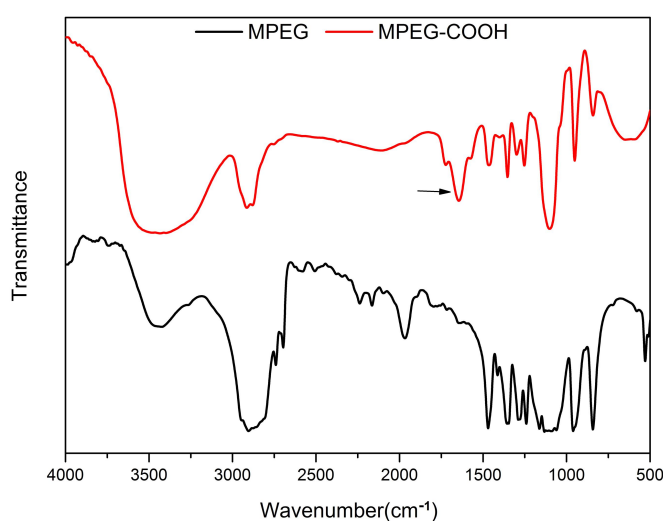


Figure 1S FT-IR of MPEG-COOH

3. Particle sizes and potential Zeta of FA- MPEG-PEI and MNP

Figure 2S shown the particle sizes and potential Zeta of FA- MPEG-PEI and MNP, laser particle detector tested FA- MPEG-PEI particle size was 21.6 nm, Zeta potential was +9.42 mV; MNP particle size was 163.0nm, Zeta potential was -26.2 mV.

FA-MPEG-PEI Zeta potential diagram appears two peaks at +10.4 mV and -7.51 mV respectively, indicating FA located at the surfaces of FA- MPEG-PEI. Therefore we can deduce that FA appears at the microsphere surface of microsphere mixtures, which play a molecule targeting function. After mixed, FA-MNP nanoparticles of diameter were 151 nm and Zeta potential was +15. 4mV, which showed in the text.

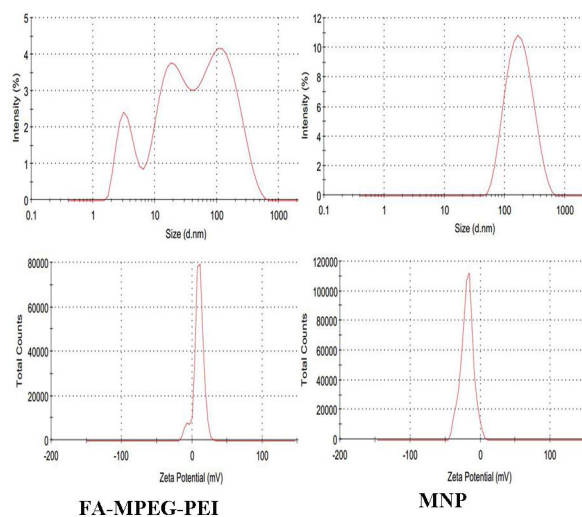


Figure 2S Particle sizes and zeta potentials of FA-MPEG-PEI and MNP

4. Tumor volume of various groups

The vivo tumor growth curve was showed in **Figure 3S(A)** and the tumor volume (experimental endpoint) was showed in **Figure 3S(B)**. In vivo tumor volume monitored weekly after intravenous injection of different group drugs(a,FA-MNP groups;b:FA-TFPI-2 group;c: MNP-CDDP group; d: FA-MNP/CDDP/TFPI-2 group). The treatments with FA-MNP show tumor volume increases slowly.Compared to the treatments with FA-TFPI-2 and MNP-CDDP, FA-MNP/CDDP/TFPI-2 group show considerable effect(**Figure 3S(A)**) and substantially suppressed tumor growth(**Figure 3S(B)**). At the same drug dosage (CDDP 3 mg/kg), the FA-MNP/CDDP/TFPI-2 anti-tumor potency of was higher than MNP-CDDP.

Figure 3S The vivo tumor growth curve and the tumor volume

