Electronic Supplementary Material (ESI) for Biomaterials Science.

Electronic Supplimentary Information

PA/US dual-modality imaging to guide VEGFR-2 targeted photothermal therapy using ZnPc-/PFH-loaded polymeric nanoparticles

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Experimental

Process yield (%) of NPs.

In order to calculate the concentration of ZnPc, 40 mg ZnPc was dissolved in 4 mL DCM. Then the solution was centrifuged(11000 rpm, 5 min). 1 mL of supernatant was added into each EP tube which had been weighed firstly(n=3). The EP tubes were weighed again after DMC was evaporated. The difference of two weighing results is the quality of ZnPc in 1 ml solution, which is the concentration of ZnPc. Next, MT was calculated. Powdered nanoparticles were obtained after solvent and PFH evaporation. MNP was calculated by the same method. The process yield was calculated by Eq. (1):

$$Y(\%) = \frac{MNP}{MT} \times 100\% \quad (1$$

where Y(%) is the process yield, MNP is the mass of nanoparticles recovered after solvent and PFH evaporation and MT is the mass of PLGA plus mass of ZnPc in formulation. The encapsulation method was accomplished in triplicate (n=3).

Encapsulation rate of ZnPc.

Firstly, the absorbance of ZnPc solution at various concentrations was detected by a UV-VIS Spectrophotometer (UV2550, Shimadzu, Japan) and the standard curve was prepared. PPZ-NPs was dissolved in the mixture solution of DCM and DMSO (volume ratio=1:1). A certain amount of solution was diluted and the absorbance was detected. The ZnPc concentration was determined by comparison to the standard curve. Encapsulation efficiency was calculated from Eq. (2):

$$EE(\%) = \frac{ME}{MT} \times 100\% \quad (2$$

where EE is the ZnPc encapsulation efficiency, ME the mass of ZnPc in nanoparticles and MT is the mass of ZnPc used in formulation. The experiments were accomplished in triplicate (n=3).

Results

The process yields of PPZ-NPs and the encapsulation efficiency (E.E.) of ZnPc were 88.9±3.0% and 83.5±3.7%,respectively.

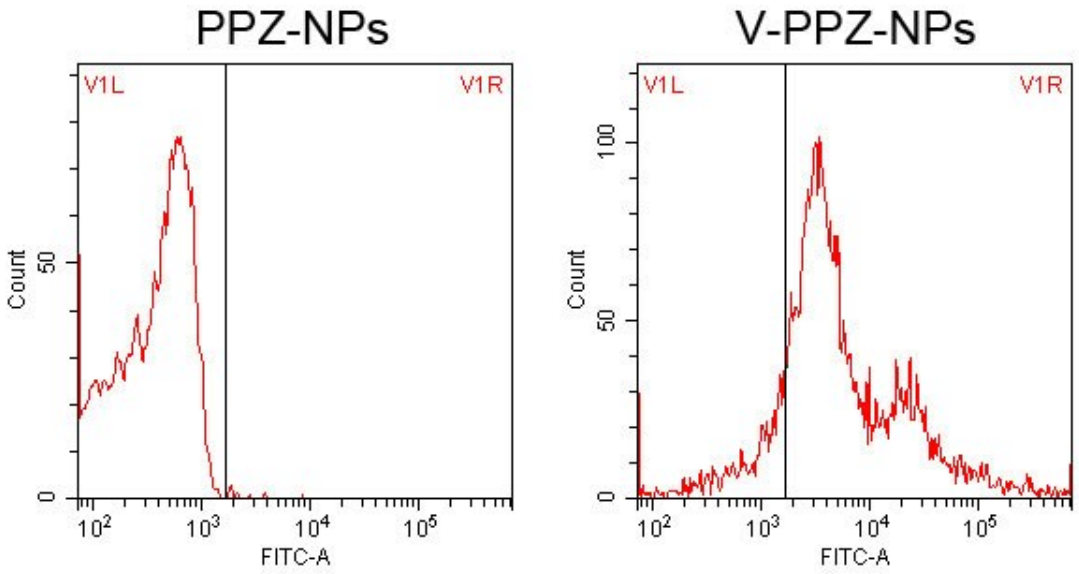

Fig. S1. The connection between anti-VEGFR-2 antibodies and PPZ-NPs detected by FCM.

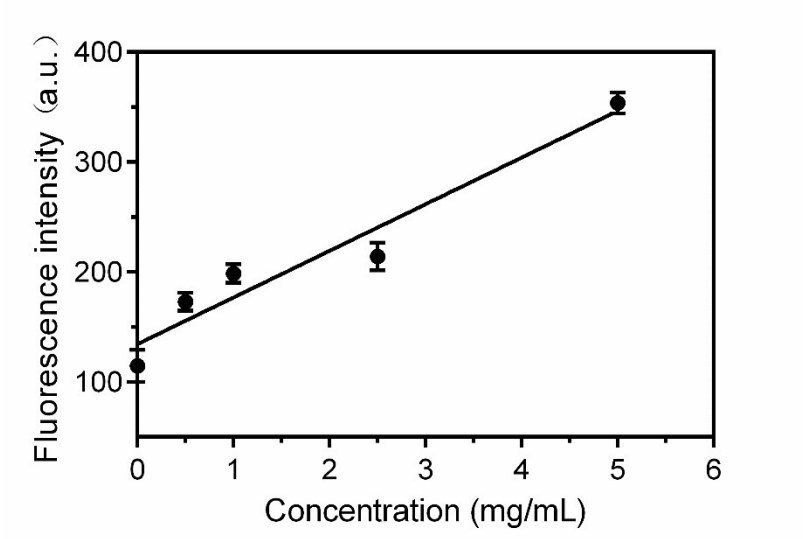

Fig. S2. The fluorescence intensity of PPZ-NPs with various concentrations after irradiation (r = 0.9688, P = 0.0066).

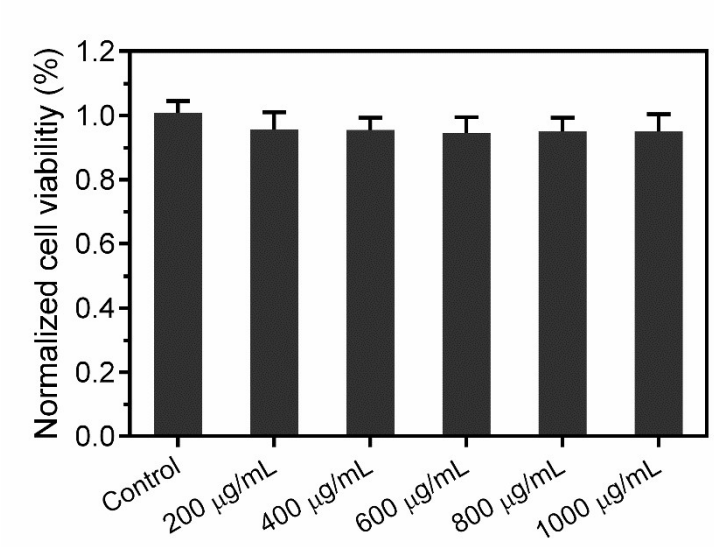

Fig. S3. Cytotoxicity test. The cell viability after incubated with various concentrations PPZ-NPs for 24 h.

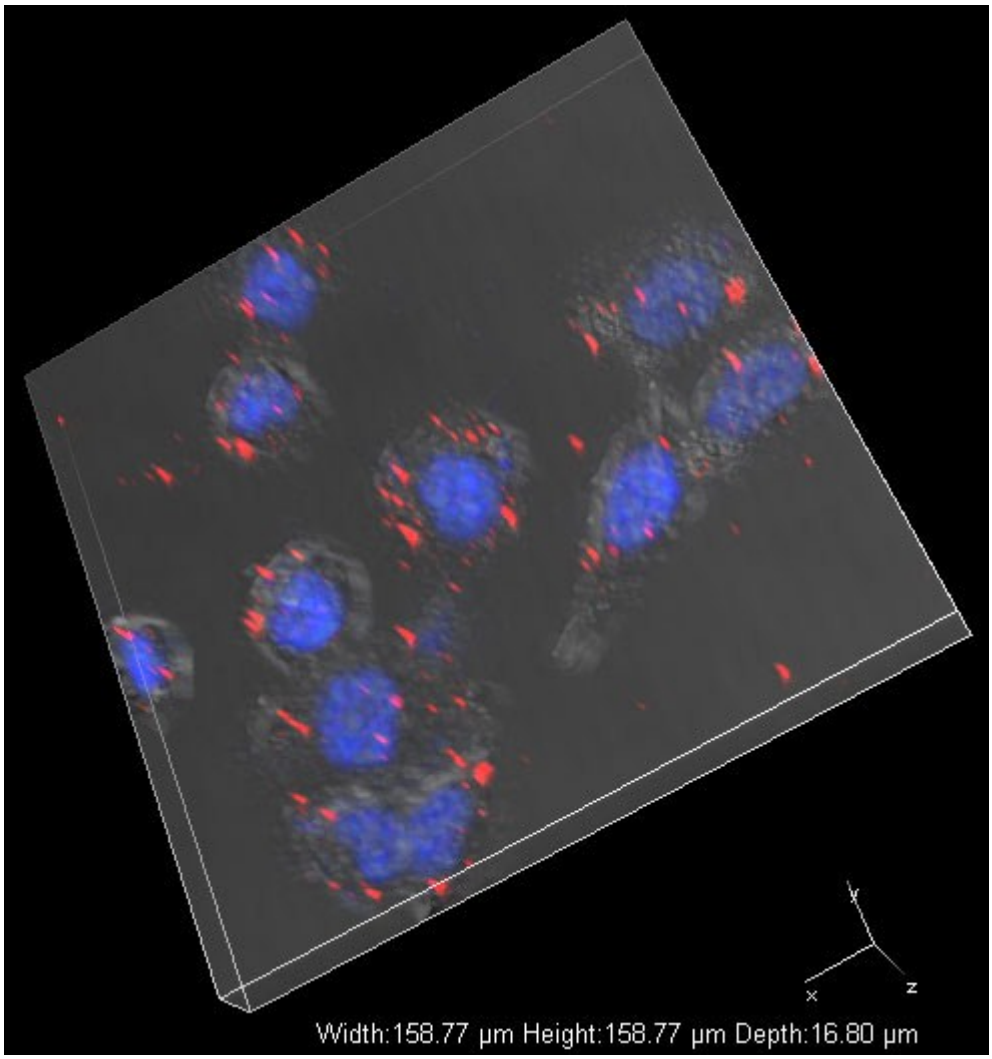

Fig. S4. The 3D image of conection between V-PPZ-NPs and cells observed by LSCM.