Homologous polydopamine ameliorates haemolysis of melittin for enhancing its anticancer efficacy

Yuhan Zheng, ‡ª Qingyun Wei, ‡^b Xuan Han, ª Xiangmin Tao, ª Tao Cao, ª Tianbao

Chen, $^{\rm c}$ Peng Cao $^{*{\rm a},{\rm b},{\rm d},{\rm e}}$ and Qichen Zhan $^{*{\rm a}}$

^a Animal-Derived Chinese Medicine and Functional Peptides International

Collaboration Joint Laboratory, School of Pharmacy, Nanjing University of Chinese

Medicine, Nanjing, Jiangsu 210023, China.

^b Jiangsu Provincial Medicinal Innovation Center, Affiliated Hospital of Integrated

Traditional Chinese and Western Medicine, Nanjing University of Chinese Medicine,

Nanjing, Jiangsu 210028, China.

^c Natural Drug Discovery Group, School of Pharmacy, Queen's University Belfast,

Belfast, UK.

^d Shandong Academy of Chinese Medicine, Jinan 250014, China.

^e The Quzhou Affiliated Hospital of Wenzhou Medical University, Quzhou Peoples Hospital, Quzhou 324000, China.

Email: cao-peng@njucm.edu.cn (P. Cao) and zhanqichen@njucm.edu.cn (Q. Zhan)

‡ These authors contributed equally to this work.



Fig. S1 UV-vis absorbance of MPF NPs solution at different reaction time points.



Fig. S2 The standard curve for MEL using BCA quantitative analysis method.



Fig. S3 (A) UV-vis absorbance of FA at different concentrations, and (B) the corresponding concentration standard curve. (C) UV-vis absorbance changes of FA in the reaction supernatant before and after the formation of MPF NPs.



Fig. S4 Haemolysis analysis of different drugs, positive control (Triton-100), and



Fig. S5 Cell uptake rate detection of MP NPs and MPF NPs in 4T1, CT26 and HepG2 cells respectively.



Fig. S6 Cell viability analysis of (A) CT26 and (B) HepG2 cells after treated with MEL and MPF NPs.



Fig. S7 The UV-vis absorbance changes of hydrogen peroxide probe at 415 nm after treated with (A) distilled water and (B) MPF NPs.



Fig. S8 Fluorescent distribution imaging of blood obtained from 4T1-bearing mice after different drugs treatment.





Fig. S9 (A) Photothermal imaging of MP NPs and MPF NPs in tumour-bearing mice under laser irradiation (808 nm, 0.5 W cm⁻²) and (B) corresponding temperature changes comparison.



Fig. S10 Body weight changes of (A) CT26-bearing mice and (B) HepG2-bearing mice during 14 days' treatment.