

Supplementary Information

Facile synthesis of aquo-cisplatin arsenite multidrug nanocomposites for overcoming drug resistance and efficient combination therapy

Jingyu Xin,^{a,‡} Ke Zhang,^{b,‡} Jiaqi Huang,^a Xiangjie Luo,^a Xuanqing Gong,^a Zhaoxuan Yang,^a Hongyu Lin,^a Hong Shan,^b and Jinhao Gao^{a,*}

^a State Key Laboratory of Physical Chemistry of Solid Surfaces, The Key Laboratory for Chemical Biology of Fujian Province, and Department of Chemical Biology, College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, China

*E-mail: jhgao@xmu.edu.cn

^b Department of Interventional Medicine, Guangdong Provincial Engineering Research Center of Molecular Imaging, The Fifth Affiliated Hospital, Sun Yat-sen University, Zhuhai, 519000, China

‡These authors contributed equally to this work.

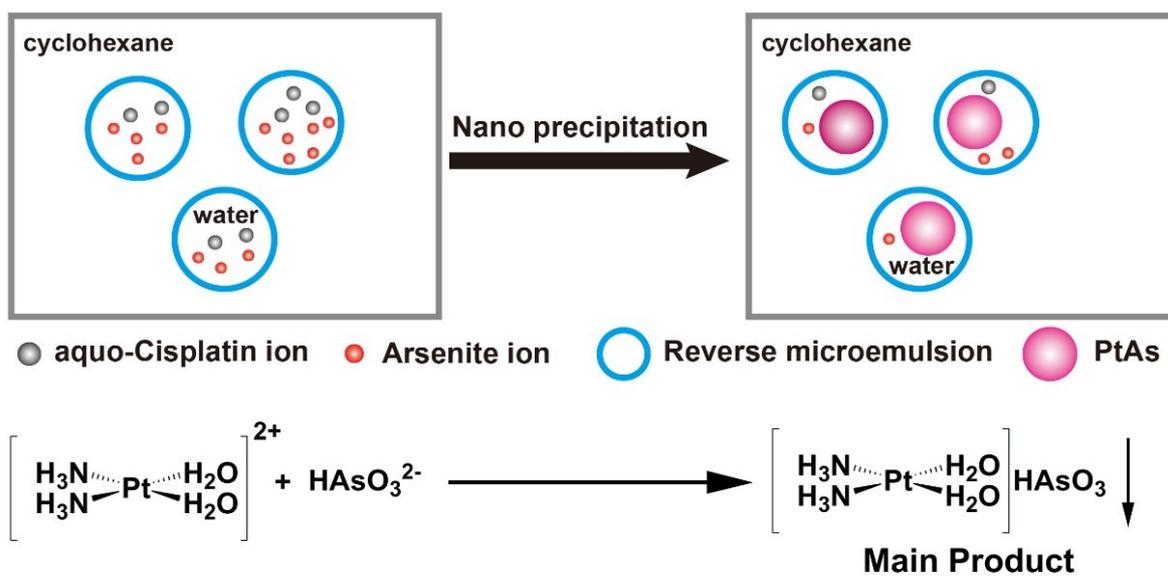


Figure S1. Possible chemical equation of the formation of PtAs product.

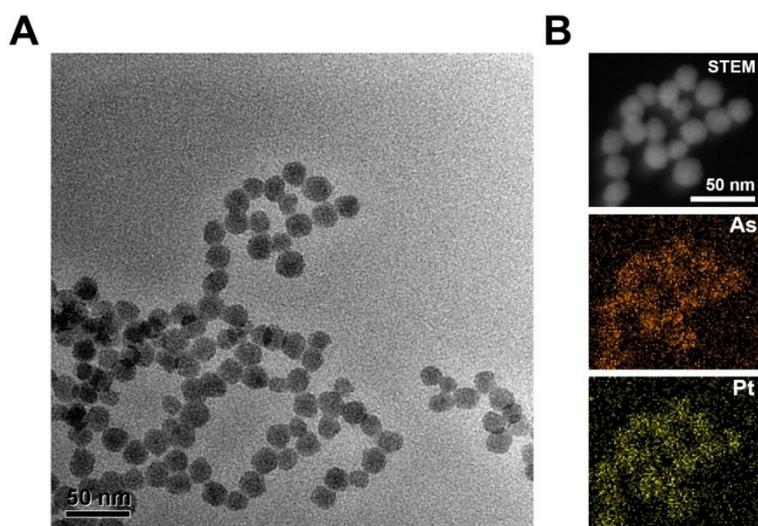


Figure S2. (A) A typical TEM image of carrier-free PtAs nanoparticles. (B) STEM and EDS mapping images of PtAs nanocomposites.

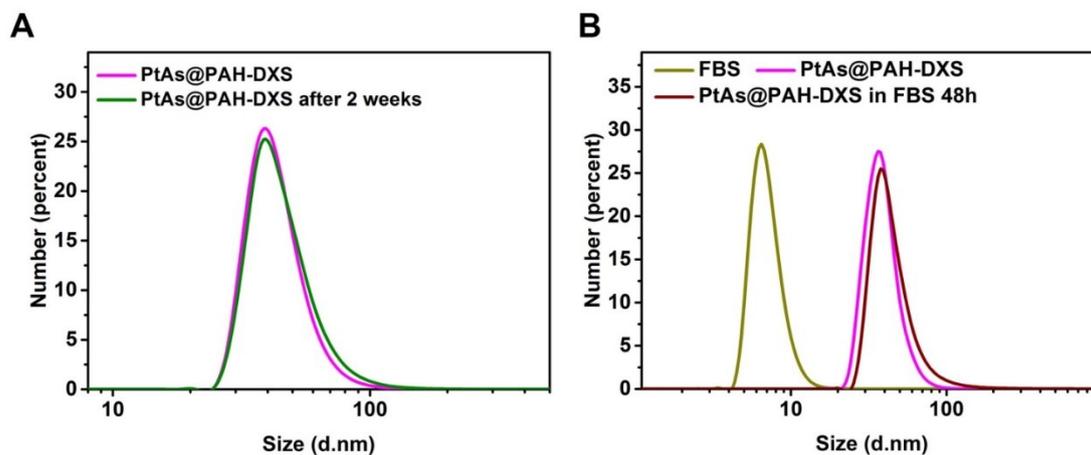


Figure S3. Particle size distributions of PtAs@PAH-DXS nanodrugs (A) after stored in DI water at 4 °C for 2 weeks and (B) incubated with 20% (v/v) fetal bovine serum (FBS) in PBS for 48 h.

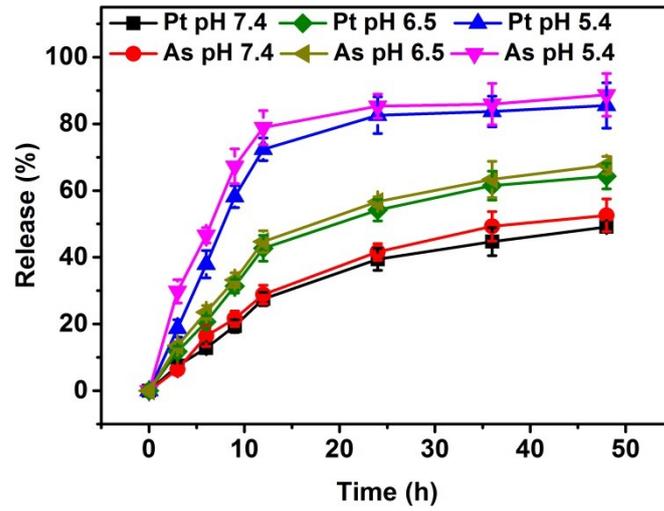


Figure S4. Releasing profiles of PtAs nanocomposites at pH 5.4, 6.5 and 7.4 at 37 °C ($n = 3$ per group).

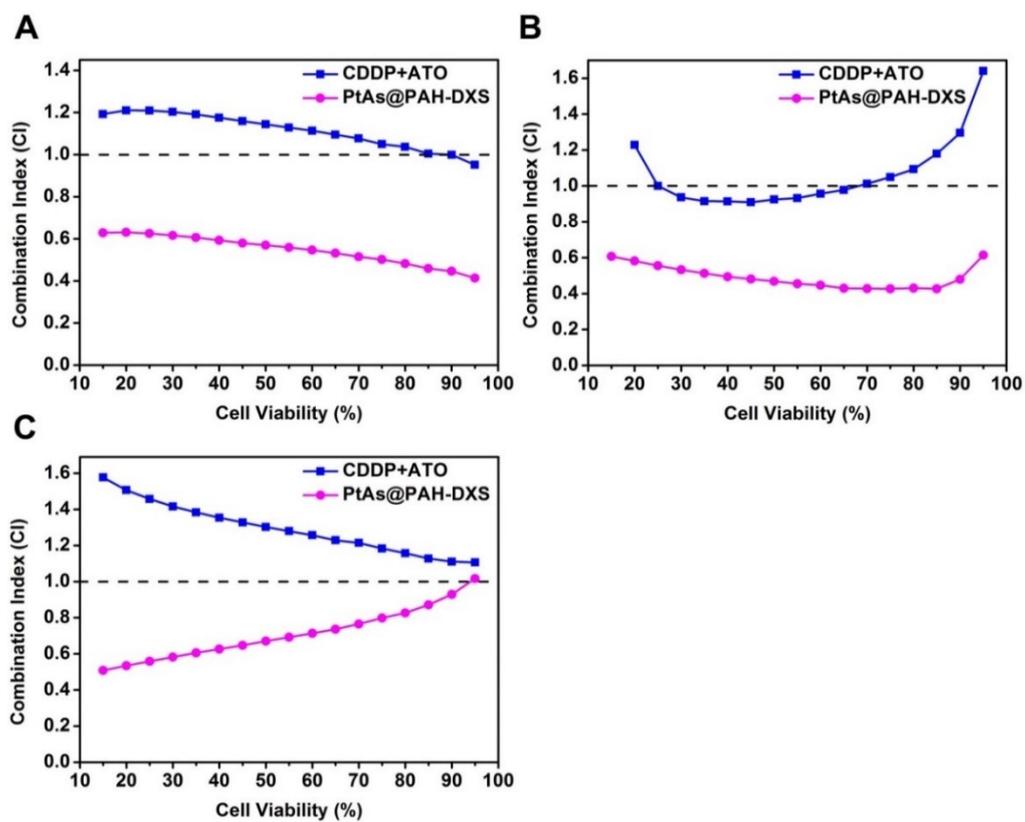


Figure S5. Comparison of combination index of CDDP and ATO for (A) HepG2, (B) H22, and (C) COC-1 WT cells after treatment with combination of free CDDP and ATO or PtAs@PAH-DXS for 48 h.

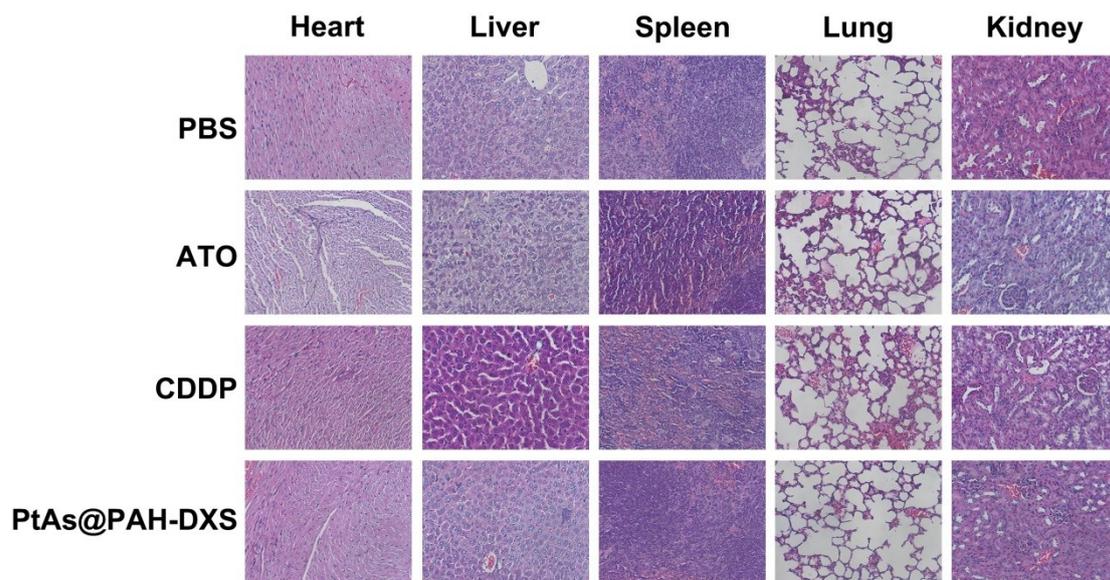


Figure S6. Hematoxylin and eosin (H&E) stained sections of mouse tissues after intravenous injection of PBS, free ATO, free CDDP, or PtAs@PAH-DXS for 24 h.

Table S1. The average diameters and PDIs of PtAs nanocomposites, PtAs@PAH-DXS nanodrugs, PtAs@PAH-DXS stored in DI water for 2 weeks, PtAs@PAH-DXS incubated with 20% FBS for 4 h, and PtAs@PAH-DXS incubated with 20% FBS for 48 h measured by DLS ($n = 3$ per group).

	Average diameter (nm)	PDI
PtAs nanocomposites	22.8 ± 2.1	0.283
PtAs@PAH-DXS nanodrugs	38.8 ± 1.6	0.369
PtAs@PAH-DXS stored in DI water for 2 weeks	38.5 ± 1.7	0.28
PtAs@PAH-DXS incubated with 20% FBS for 4h	44.4 ± 2.5	0.339
PtAs@PAH-DXS incubated with 20% FBS for 48h	46.5 ± 2.1	0.292