

Supporting Information:

In situ biosynthesized gold nanoclusters inhibiting cancer development via PI3K-AKT signaling pathway

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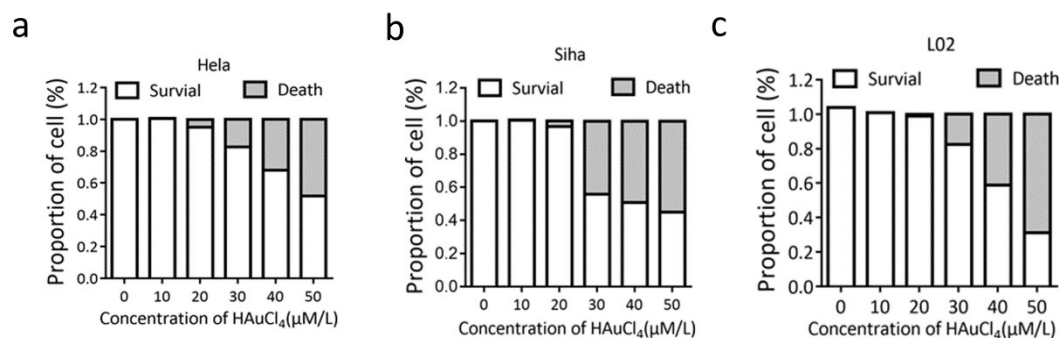


Figure 1. *In situ* biosynthesized Au NCs have no cytotoxicity. MTT toxicity assay was carried out with tumor cells (HeLa, A549) and normal cell (L02). 20 μM/L of HAuCl₄ is the maximum lethal concentration in both tumor and normal cells.



Figure 2. Ex vivo images of all orthotopic tumors in livers on day 38 after relevant injections. Representative images of liver are on the right, and tumors were pointed out by red arrow.

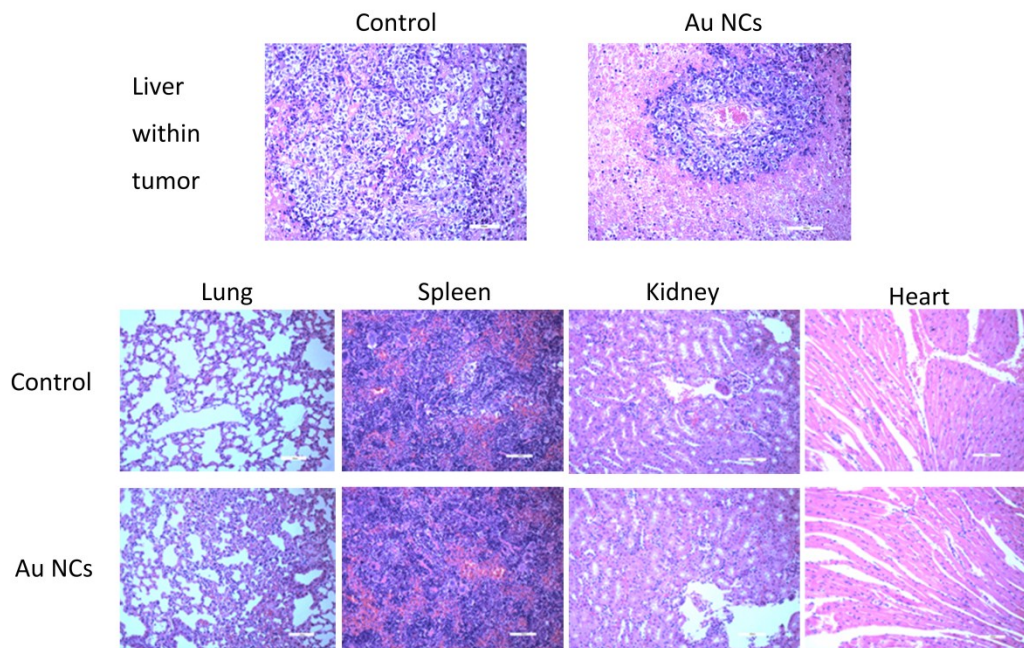


Figure 3. Hematoxylin-eosin staining of main organs in mice. a) The area of tumor cells in the liver of the *in situ* biosynthesized Au NCs was smaller than that of the control group. b) There was no difference in the other main organs (lung, spleen, kidney, heart) between the two groups of mice.

Supplementary table 1. The weight and atomic proportion of the elements corresponding to the EDS.

Element	Weight percentage	Atomic percentage
C K	65.01	73.85
N K	5.49	5.34
O K	17.96	15.32
Mg K	0.08	0.04
Si K	9.80	4.76
P K	1.11	0.49
S K	0.44	0.19
Au M	0.10	0.01
total	100.00	

Supplementary table 2. Routine blood examination from the mice at 6h after mice sacrificed.

Groups	WBC($10^9/L$)	RBC($10^{12}/L$)	PLT($10^9/L$)
Control	13.77+0.35	8.97+1.97	1017+353
Au NCs	13.92+0.15	8.70+1.47	913+221

Supplementary table 3. Biochemical parameters of blood from the mice at 6h after mice sacrificed.

Groups	BUN(mM)	UA(μ M)	ALT(U/L)	AST(U/L)
Control	4.6 \pm 0.5	166 \pm 12	99 \pm 15	172 \pm 10
Au NCs	4.1 \pm 0.5	187 \pm 18	97 \pm 10	170 \pm 15