Supporting Information

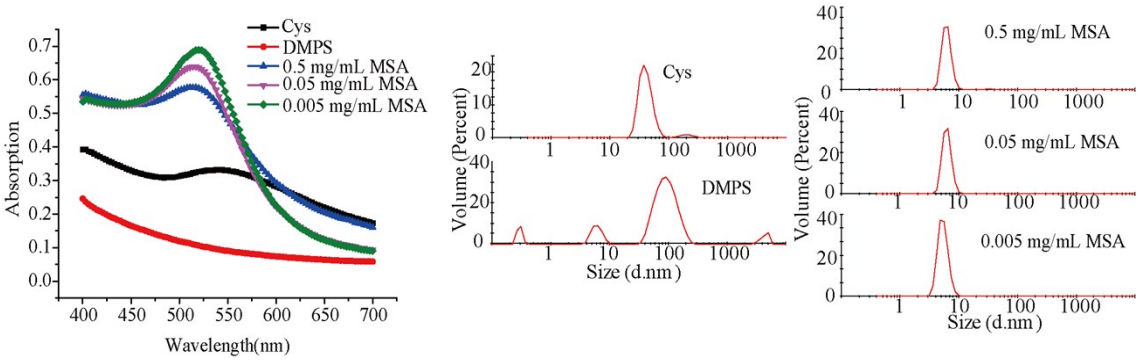

Fig. S1. The UV/Vis spectrum of Cys (cysteine), DMPS (Sodium Dimercaptosulphonate) and MSA of different concentrations stabilized AuNPs (Left) and the size data of those AuNPs.

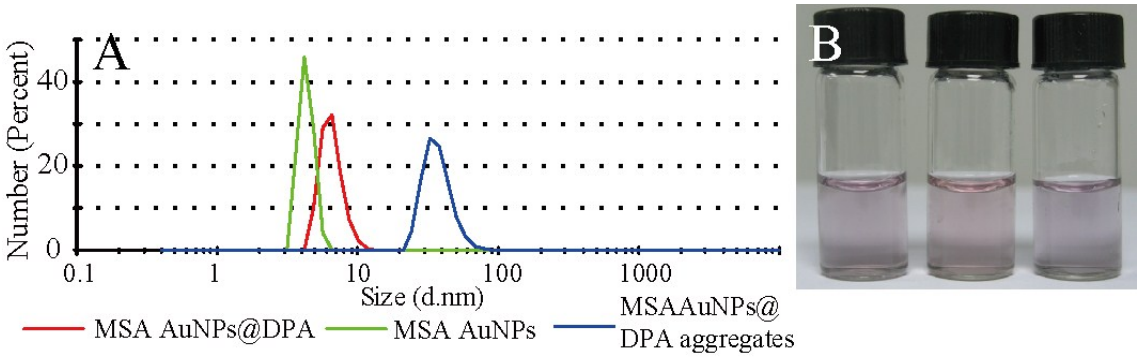

Fig S2. (A) The hydrodynamic radius of MSA AuNPs, MSA AuNPs@DPA and MSA AuNPs@DPA aggregates;(B) the appearance of MSA AuNPs, MSA AuNPs@DPA and MSA AuNPs@DPA aggregates mixed within PBS.

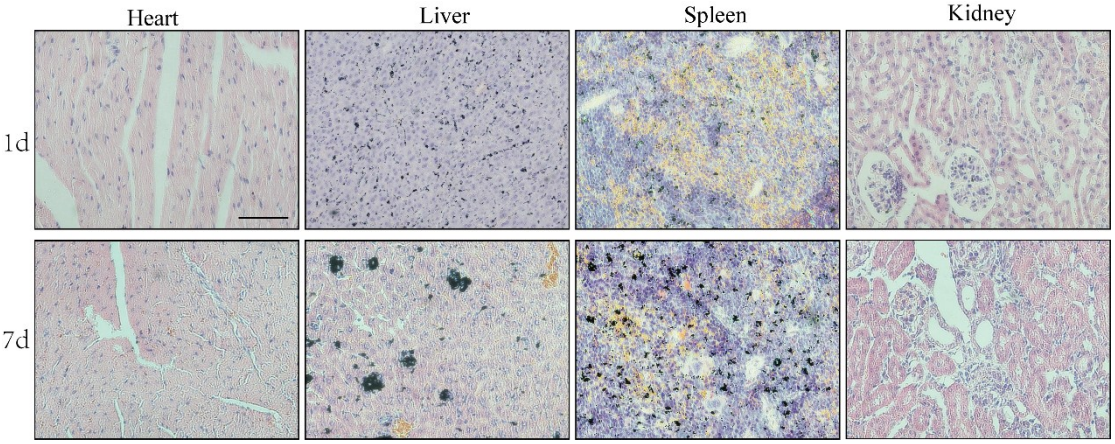

Fig S3. The pathological sections of different organs (heart, liver, spleen, kidney) from the mice injected CA AuNPs in different times (1d, 7d).

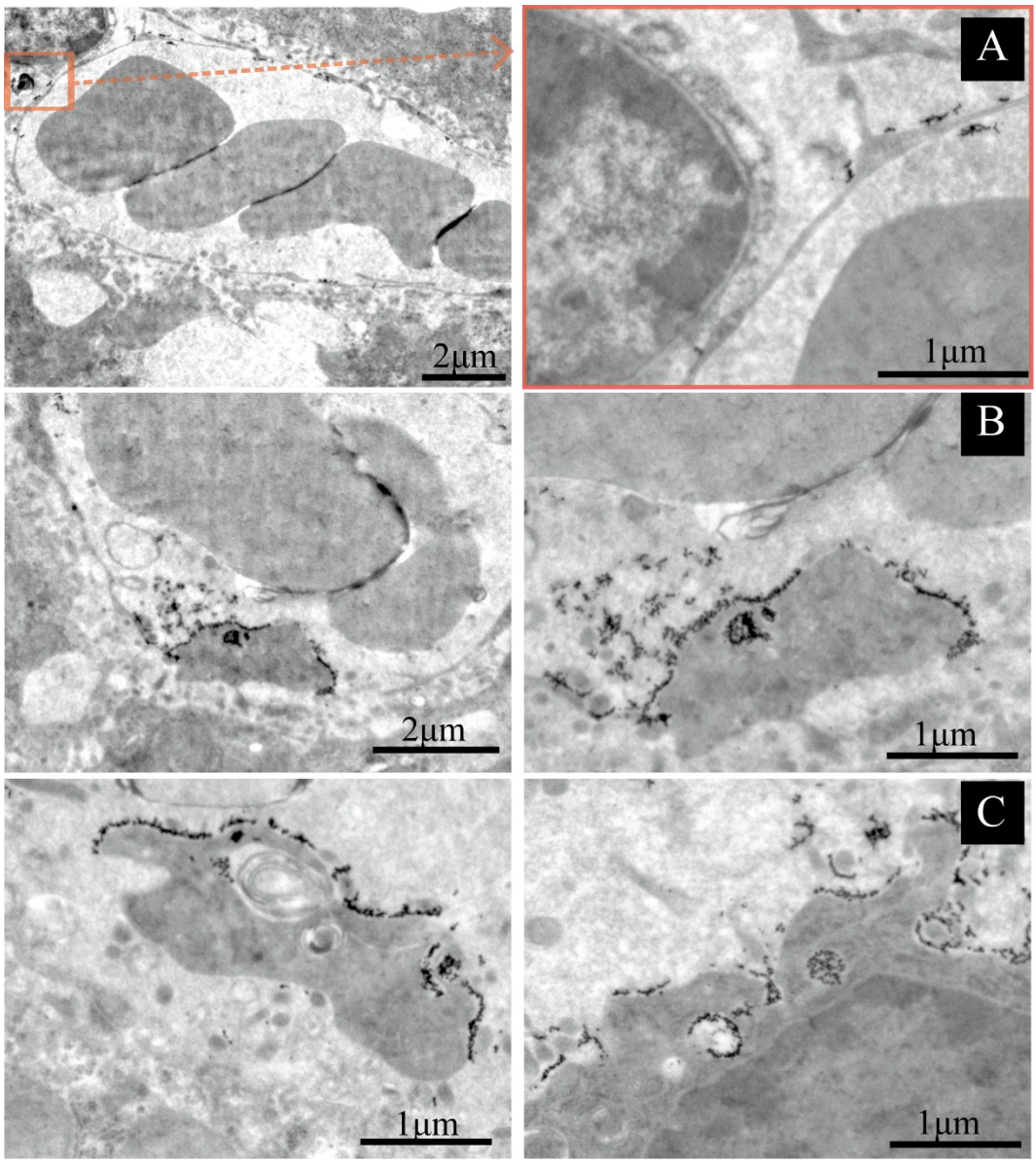

Fig S4. The TEM imaging of the liver from the mice injected with CA AuNPs.

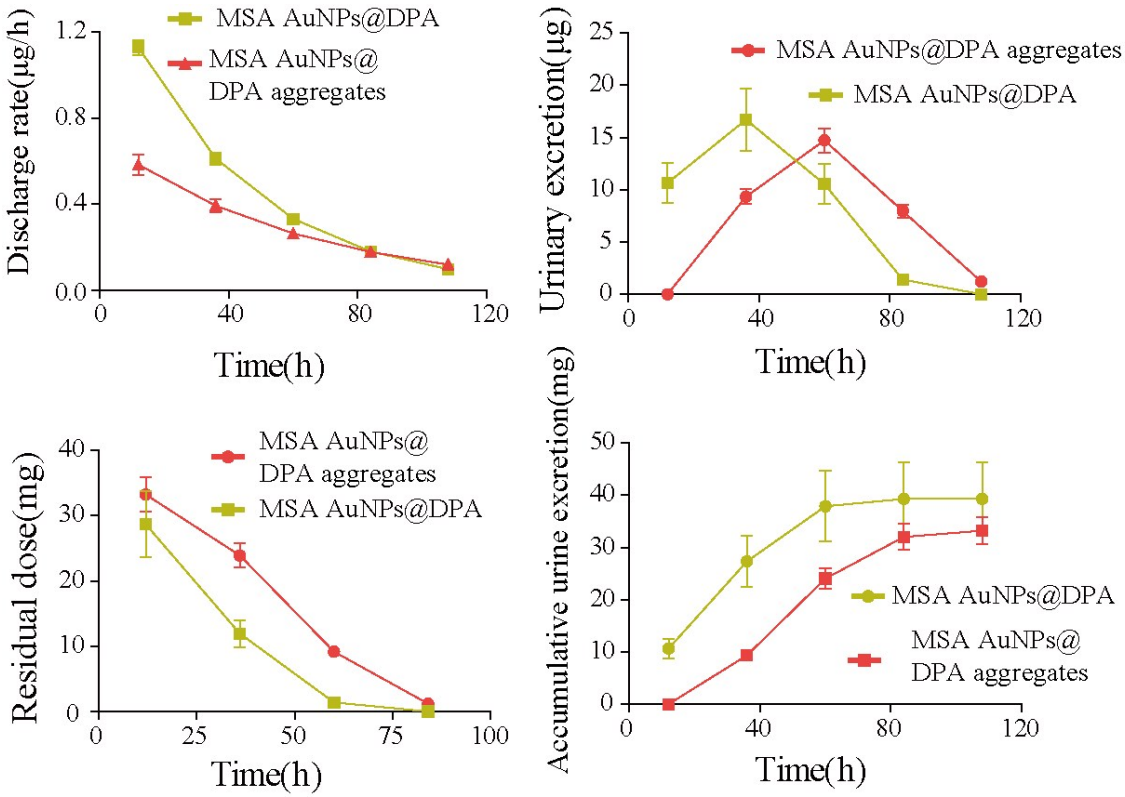

Fig S5. The pharmacokinetics curves of the MSA AuNPs and MSA AuNPs@DPA aggregates.(A) The urinary discharge rate-time curve; (B) Urinary excretion-time curve (C) The residual dose—time curve (D) Accumulative urinary excretion-time curve.

Haemolytic assay

Methods:

1. Preparation of 2% red blood cell suspension: 10-20mL fresh mouse blood, remove the fibrinogen and add 100mL normal saline; mixing the blood uniformly and washing, centrifugation for 3 times at the rpm 1500, 15 min. Finally, use the normal saline to dispersion the red blood cells at the concentration of 2%.
2. Take 7 test tube and number them from 1-7, add solutions following the table S1 above. All the mixed solutions were put in the 37℃ water bath. Observing the solution in 3h and record the hemolysis.

Table S1. The solutions added into the test tubes for the Haemolytic assay results.

No.	1	2	3	4	5	6	7
2% red blood cell suspension(mL)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Physiological saline(mL)	2.0	2.1	2.2	2.3	2.4	2.5	
Distilled water(mL)							2.5
Aggregates(mL)	0.5	0.4	0.3	0.2	0.1		

Results:

Observing the red blood cells in different text tubes in 3h and recording the hemolytic assay results.

Table S2. The hemolytic assay results in 3 hours.

Time(h)	MA AuNPs@DPA Aggregates					6	7
	1	2	3	4	5		
0.25	-	-	-	-	-	-	+
0.5	-	-	-	-	-	-	++
0.75	-	-	-	-	-	-	++
1	-	-	-	-	-	-	++

2	-	-	-	-	-	-	++
3	-	-	-	-	-	-	++

*** ++ Completely hemolysis; + Partly hemolysis; - Non hemolysis

The red blood cells in the microscope show no hemolysis and haemagglutination in the No.1-6. The following pictures Figure S5 showed the appearance of the No.1-7. There is no any heamagglutination in the NO.1-6 which means that our aggregates were safe for red blood cells.

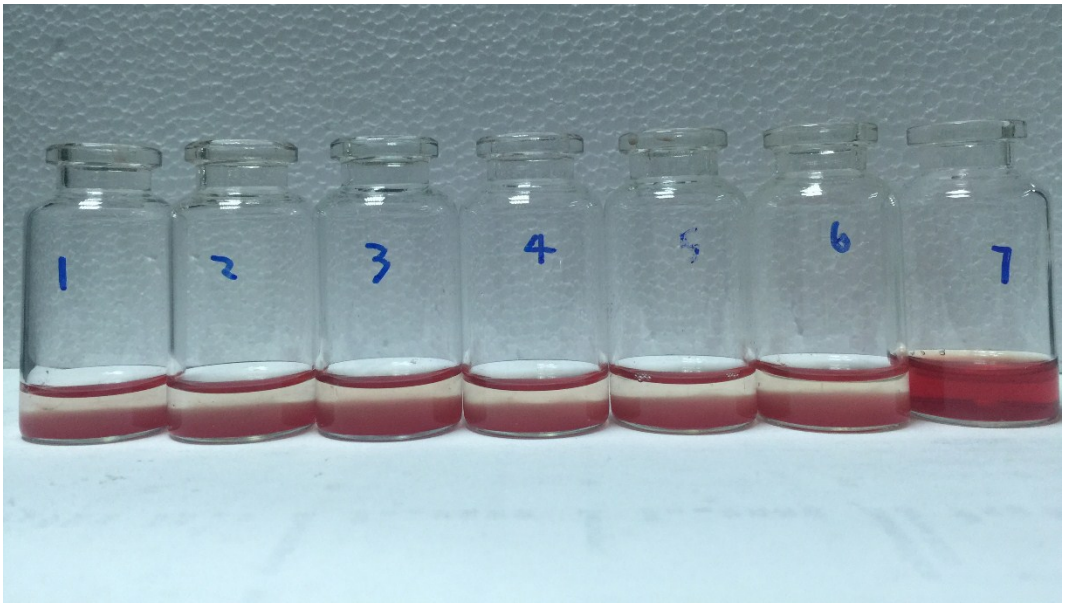

Fig S6. The Haemolytic assay results. No. 1-5 were red blood cells with different concentrations of aggregates, No. 6 was the negative control group and the NO.7 was positive control.

The absorbance of the samples was examined at 545 nm by a spectrophotometer. The hemolytic ratio (HR) of the samples was evaluated from the equation:

$$HR(\%)=[(Dt-Dnc)/(Dpc-Dnc)]*100$$

where Dt is the absorbance obtained from the samples, Dnc and Dpc were the absorbances of negative control and positive control, respectively.

Table S3. Comparisons of Hemolytic Ratio of the Samples

Tested materials	Number of samples	Hemolysis HR/%
MSA AuNPs@DPA aggregates	7	0.8 ± 0.9
Physiological saline	7	0 ± 0.9
Distilled water	7	100 ± 0.6