

## Supporting Information

### Multidentate Zwitterionic Chitosan Oligosaccharide Modified Gold Nanoparticles: Stability, Biocompatibility and Cell Interactions

Xiangsheng Liu, Haoyuan Huang, Gongyan Liu, Wenbo Zhou, Yangjun Chen, Qiao Jin and Jian Ji\*

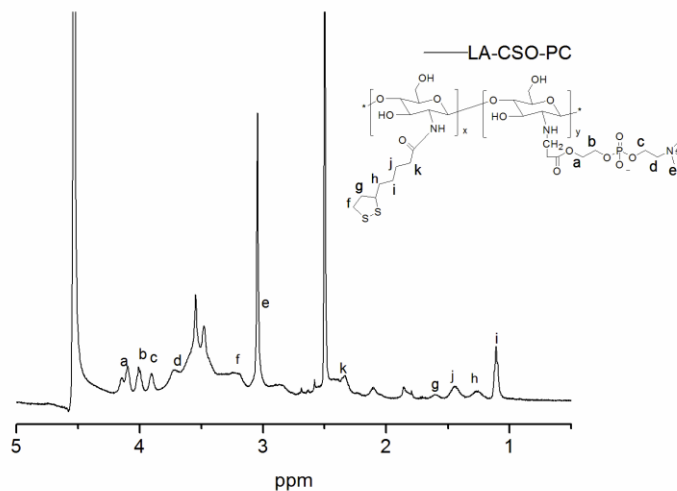


Fig. S1 <sup>1</sup>H-NMR spectrum of LA-CSO-PC.

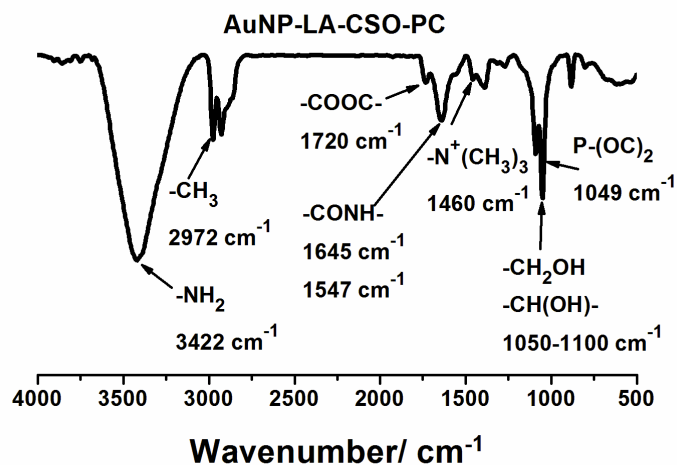


Fig. S2 FT-IR spectrum of AuNP-LA-CSO-PC.

### Synthesis of 16 nm Citrate-capped AuNPs

Citrate-capped AuNPs in diameter of ca. 16 nm was prepared following a standard route.<sup>1</sup> Briefly, In a 100 mL round-bottom flask equipped with a condenser, 45 mL Milli-Q water with HAuCl<sub>4</sub> (1 mM ) was heated to boil under stirring. After boiling, rapid addition of sodium citrate (38.8 mM, 5.8 mL) to the boiling solution with vigorous stirring resulted in a color change from pale yellow to burgundy. Boiling was continued for 10 min; the heating mantle was then removed, and stirring was continued for additional 15 min.

### Synthesis of CTAB-capped AuNRs

The synthesis of AuNRs was referred to the methods by Murphy et al.<sup>2</sup> and El-Sayed<sup>3</sup>. Firstly, the gold seeds were prepared by added 0.6 mL ice solution of 10 mM NaBH<sub>4</sub> into 10 mL solution of 100 mM CTAB and 0.25 mM HAuCl<sub>4</sub>, which resulted in the formation of a brownish yellow solution. Vigorous stirring of the seed solution was continued for 2 min. After the solution was stirred, it was kept at 27 °C for 2-6 h before used for AuNR growth. The growth solution was prepared by added 0.35 mL 78.8 mM Ascorbic acid (AA) to 50 ml solution of 100 mM CTAB, 0.5 mM HAuCl<sub>4</sub> and 0.1 mM AgNO<sub>3</sub>, which resulted in a colorless solution. Then 1.5 ml of the aged seeds solution was added to the growth solution. The mixed solution was shaken for 4-6 min, and then kept still overnight at 27 °C to finally generate CTAB capped AuNRs.

1. K. C. Grabar, R. G. Freeman, M. B. Hommer and M. J. Natan, *Anal. Chem.*, 1995, **67**, 735-743.
2. C. J. Murphy, T. K. Sau, A. M. Gole, C. J. Orendorff, J. Gao, L. Gou, S. E. Hunyadi and T. Li, *J. Phys. Chem. B*, 2005, **109**, 13857-13870.
3. B. Nikoobakht and M. A. El-Sayed, *Chem. Mater.*, 2003, **15**, 1957-1962.