Journal Name

RSCPublishing

ARTICLE

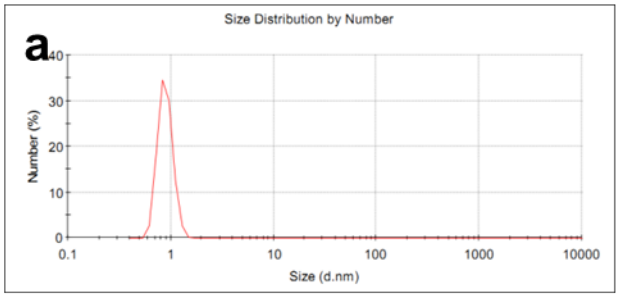
Supporting Information

One Step Synthesis of High Aspect Ratio Gold Nanorods with High Yield

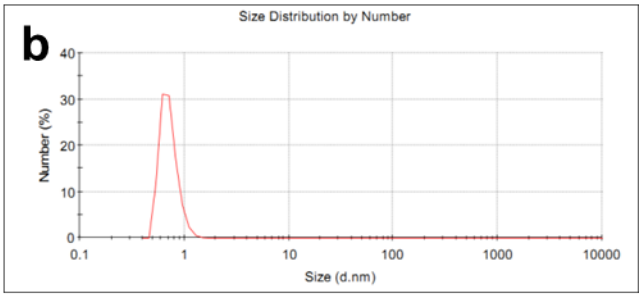
Xiaolong Xu,[a,b] Yuanyuan Zhao,[a] Xiangdong Xue,[a] Shuaidong Huo,[a] Fei Chen,[a] Guozhang Zou*[a] and Xing-Jie Liang*[a]

[a] CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety, National Center for Nanoscience and Technology, Beijing, 100190, China.

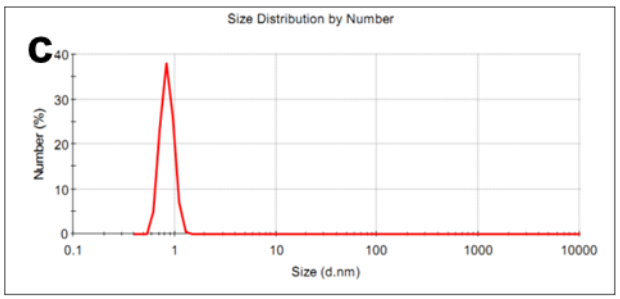
[b] Department of Nanoengineering, University of California, San Diego, La Jolla, California 92093, United States.



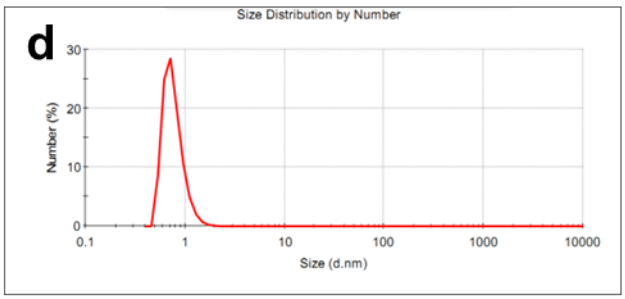
Size:0.90±0.073 nm



Size:0.72±0.069 nm



Size:0.85±0.063 nm



Size:0.77±0.095 nm

Fig. S1 Size distribution of different batches of seeds synthesized by the same protocol measured by DLS. (a)-(d) correspond to batches of seed solution a-d.

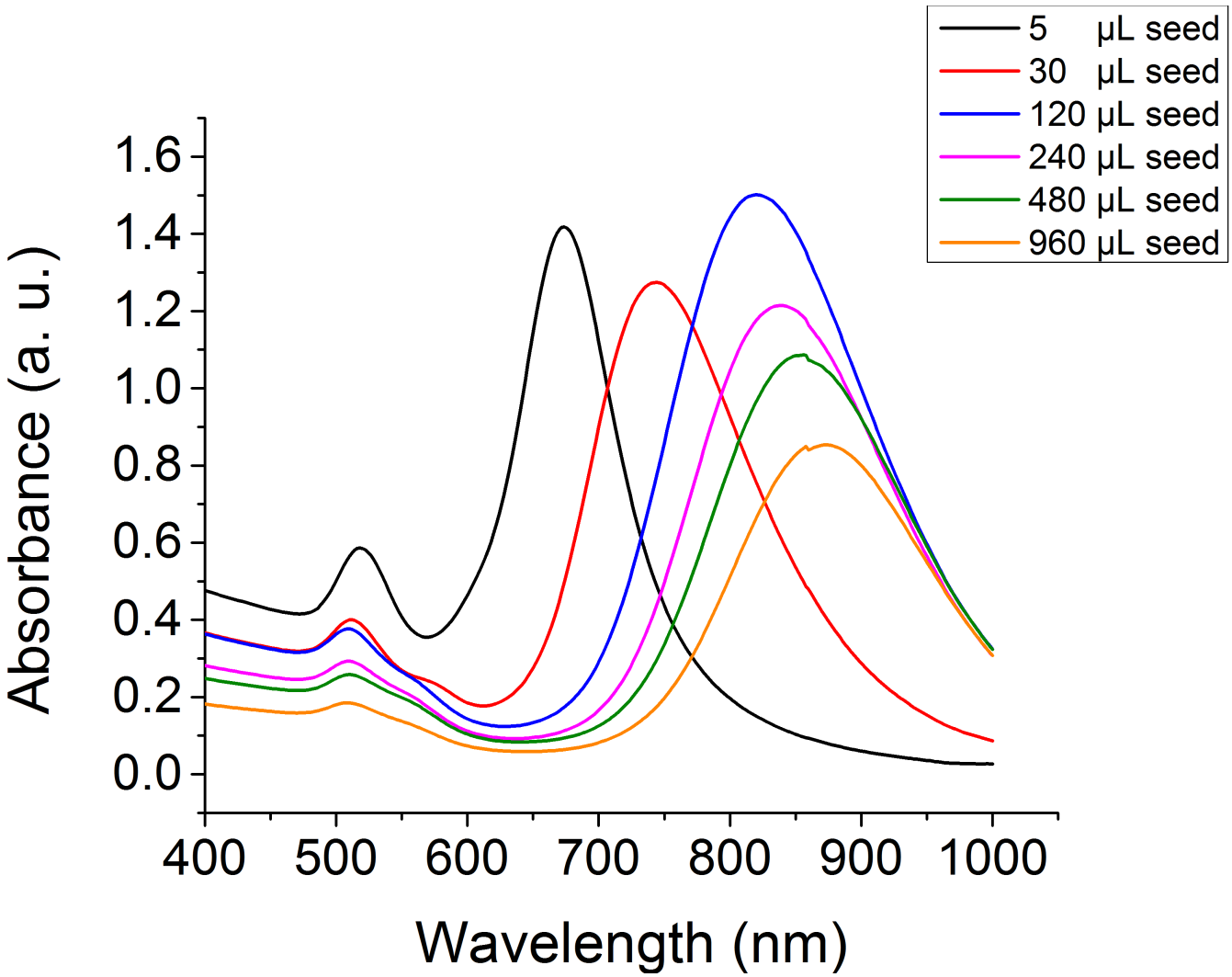


Fig. S2 Corresponding UV-vis-NIR spectra of gold nanorods showed in Fig. 1.

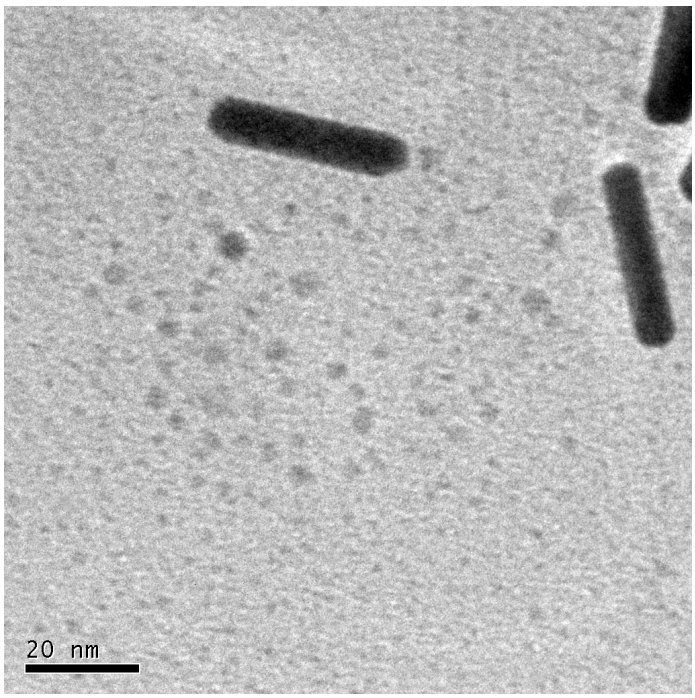


Fig. S3 TEM image of gold nanorods and seeds synthesized by adding 960 μL seed solution.

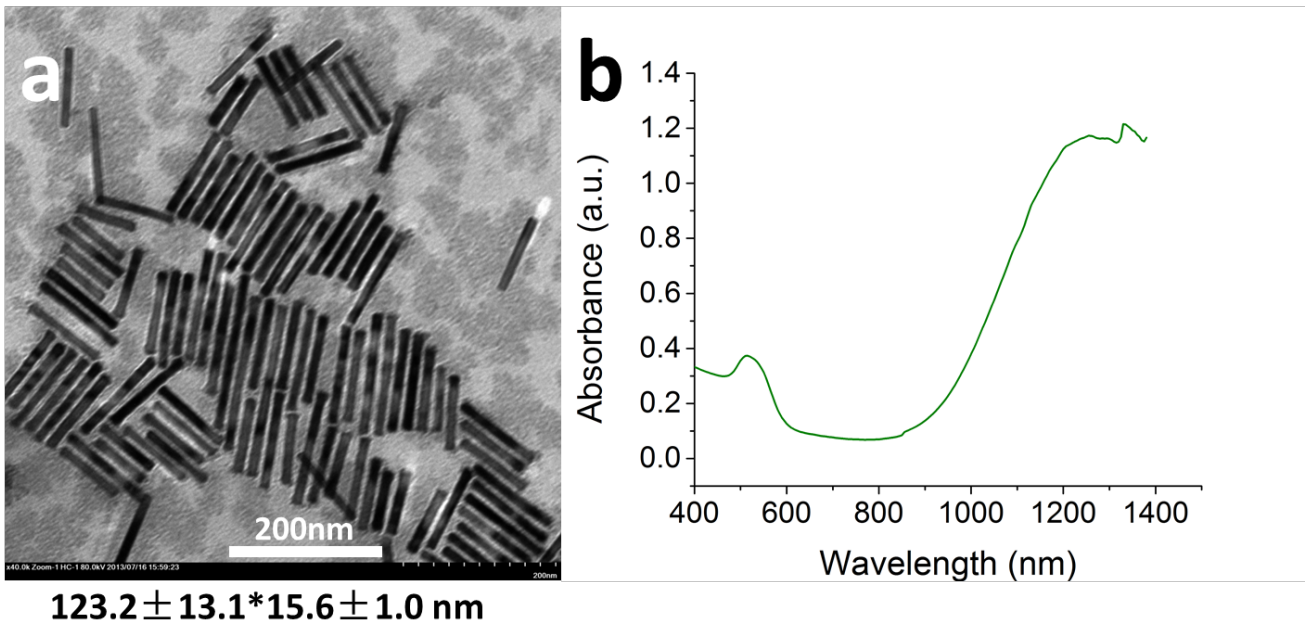


Fig. S4 TEM images of gold nanorods synthesized by seedless method. [$AgNO_3$]=0.5 mM, [$HAuCl_4$]=0.5 mM, [CTAB]=0.15 M, [Paradioxybenzene]=2.5 mM, 5 μL $NaBH_4$ (10 mM) was added to initiate reaction. 10 μL HCl solution (1.19 M) was added.

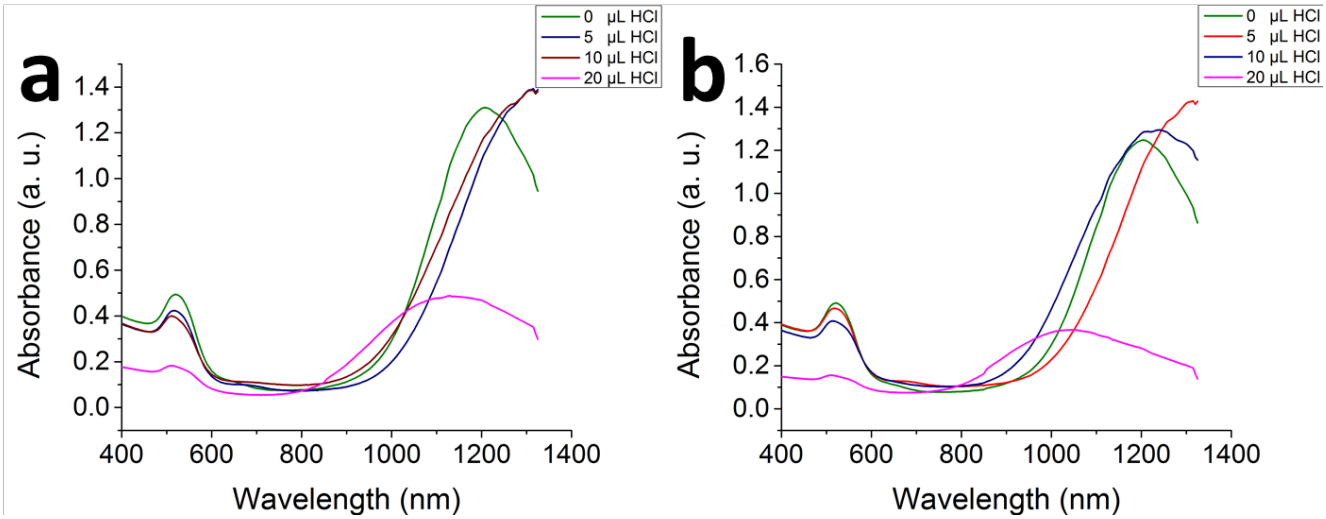


Fig. S5 UV-vis-NIR spectra of gold nanorods synthesized by seedless method with different amount of HCl solution and Ag^{+}. In all cases, [$HAuCl_4$]=0.5 mM, [CTAB]=0.15 M, [Paradioxybenzene]=2.5 mM, 15 μL $NaBH_4$ solution (10 mM) was added to initiate reaction. 0 μL, 5 μL, 10 μL or 20 μL HCl (1.19 M) solution was added respectively. (a) [$AgNO_3$]=1.0 mM, (b) [$AgNO_3$]=2.0 mM.

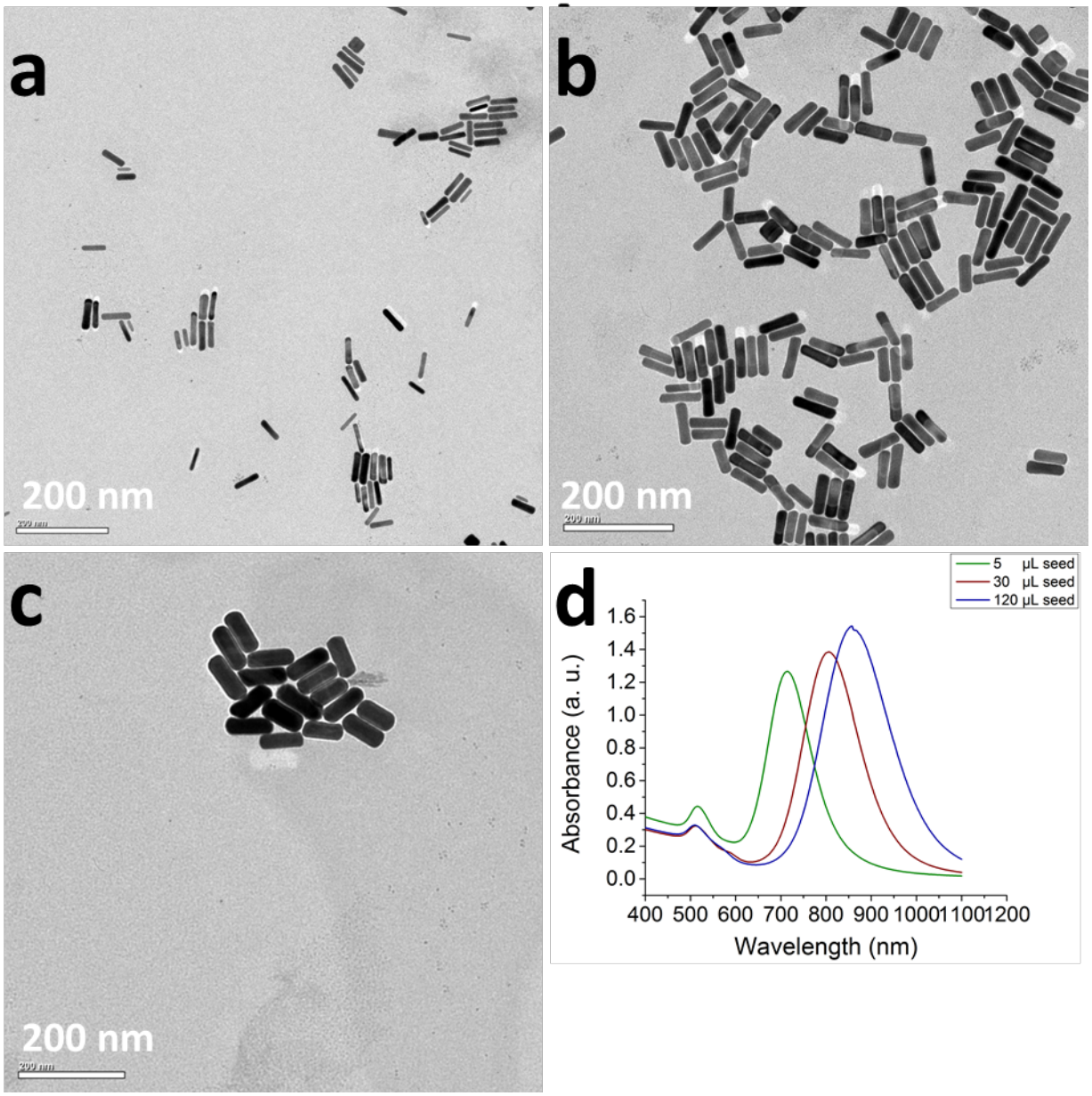


Fig. S6 TEM images of gold nanorods synthesized with different concentration of seed. In all cases, [AA]=1.6 [$HAuCl_4$], volumes of $AgNO_3$ (10 mM), $HAuCl_4$ (25.4 mM), CTAB (0.2 M) and H_2SO_4 (0.5 M) added were 120 µL, 196.8 µL, 9.65 mL and 200 µL respectively. (a) 120 µL of seed solution. (b) 30 µL of seed solution. (c) 5 µL of seed solution were used to initiate the reaction. (d) Corresponding UV-vis-NIR spectra of gold nanorods for a, b and c.