Electronic Supplementary Information (ESI)

In situ Growth of Au Nanocrystals on Graphene Oxide Sheet

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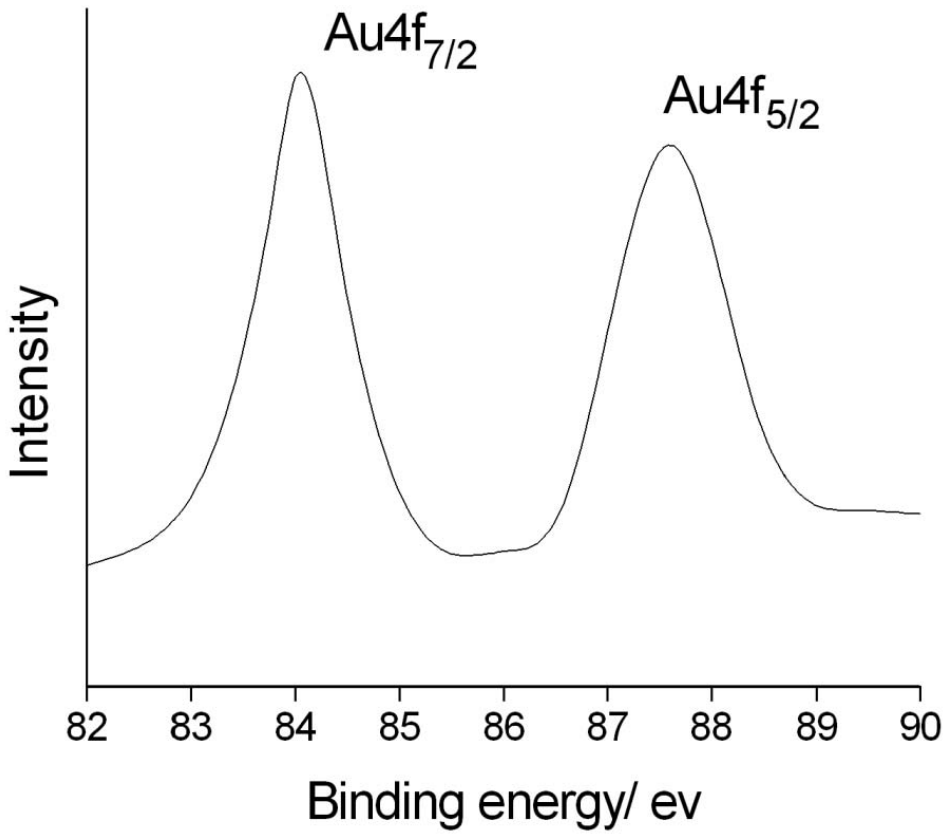

Fig.S1XPS spectrum of Au_{4f} on AuNCs-GO with 20% oxygen. The $Au4f_{7/2}$ and $Au4f_{5/2}$ peaks at ca. 83.8 and 87.6 eV are consistent with the Au^0 state.

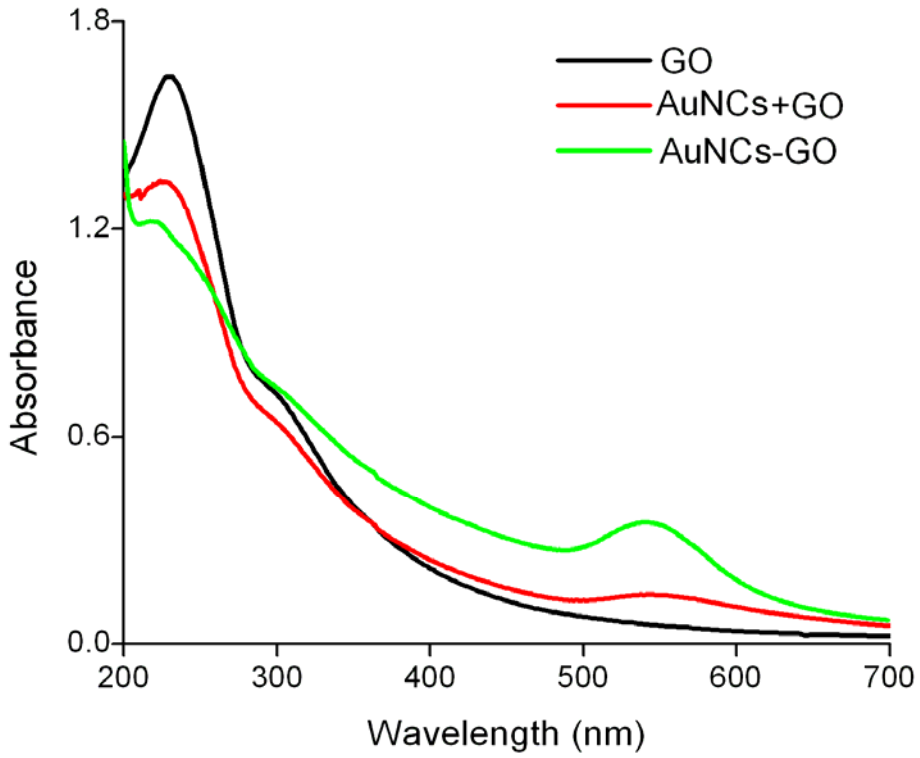

Fig.S2 UV-vis spectra of GO, AuNCs decoreted on GO (AuNCs-GO), and mixture of GO and Au nanoparticles (AuNCs+GO). The GO used here contains about 20% oxygen. AuNCs-GO had no obvious absorption peak but a platform at visible light region, however, mechanical mixing of GO and AuNCs had a significant absorption peak.

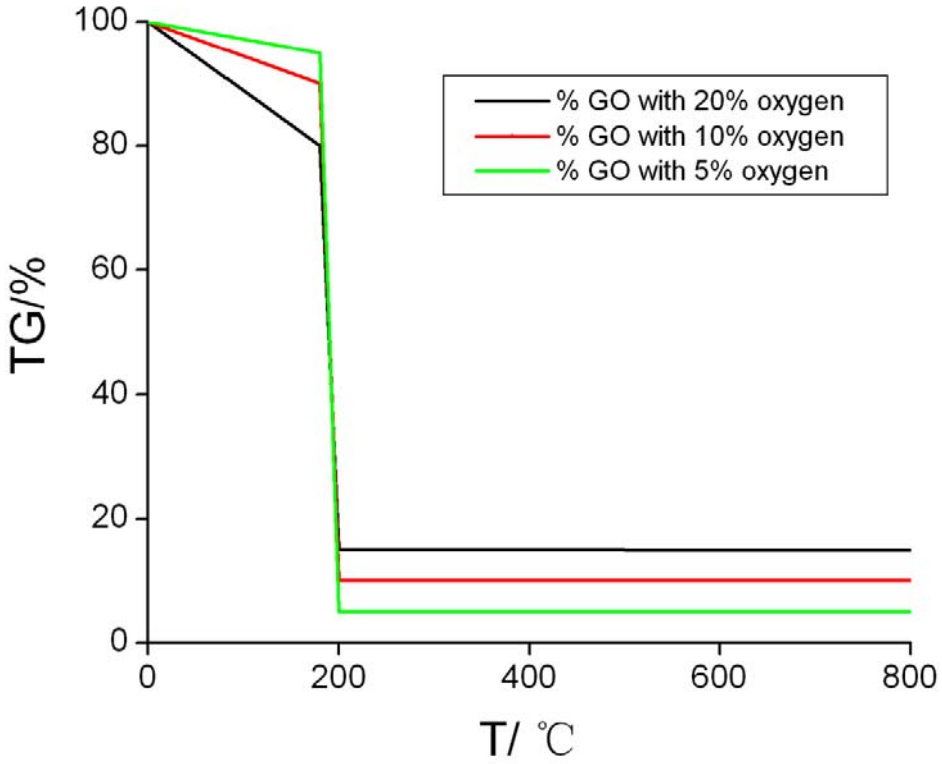

Fig.S3 TGA of AuNCs decorated on GO with different degree of oxidation.

The more the oxygen, the less the AuNCs loaded by GO.

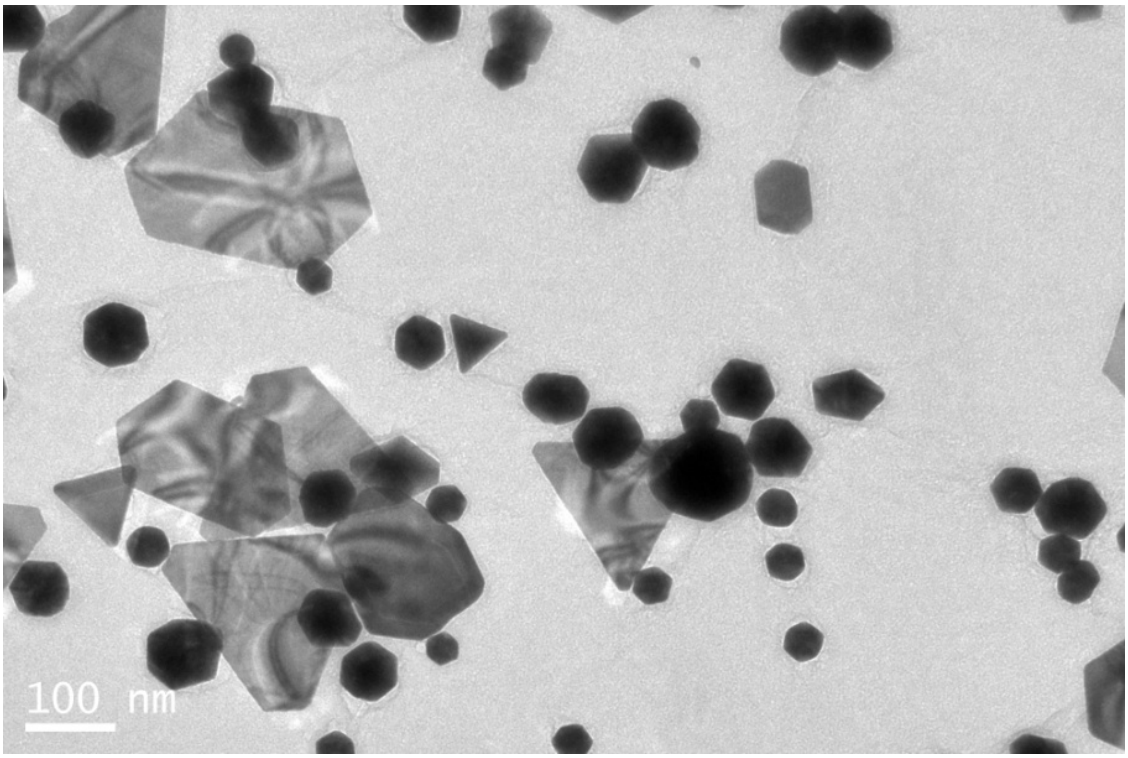

Fig.S4 TEM images of AuNCs growing on GO with 20% oxygen at 90℃. Increase of the hydrothermal crystallization temperature led to aggregation of AuNCs, and formed more complicated structure.