

Electronic Supplementary Information (ESI)
for
Simple electrochemical synthesis of
an Au-Ag-Cu trimetallic nanodendrite and its use as a SERS substrate

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1. A schematic showing experimental setup and nanodendrite formation

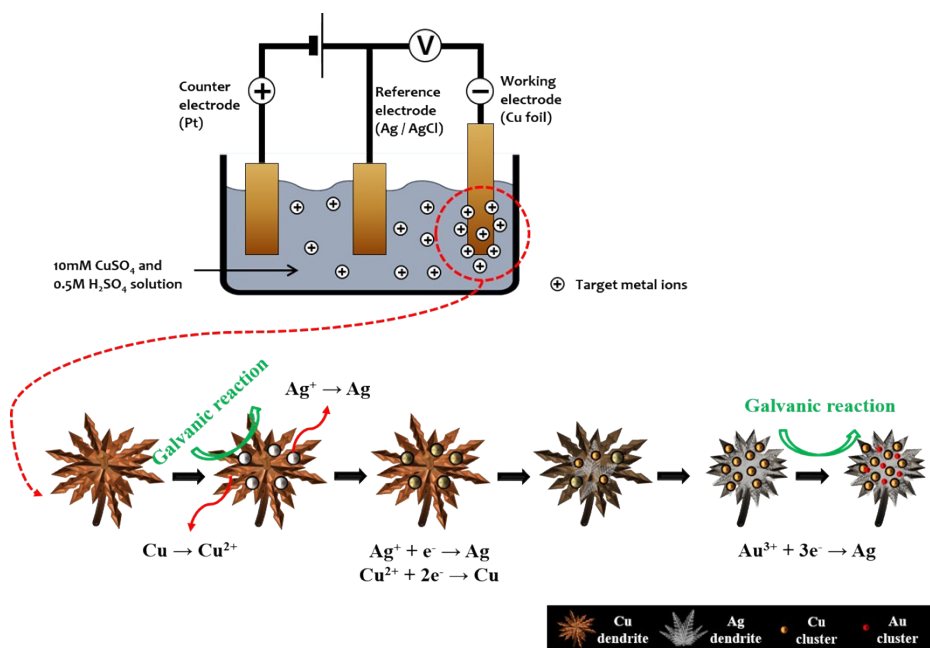


Figure S1. A schematic showing experimental setup and nanodendrite formation.

2. Visible extinction spectra of Cu flower-like structure, Ag-Cu nanodendrite and Au-Ag-Cu nanodendrite

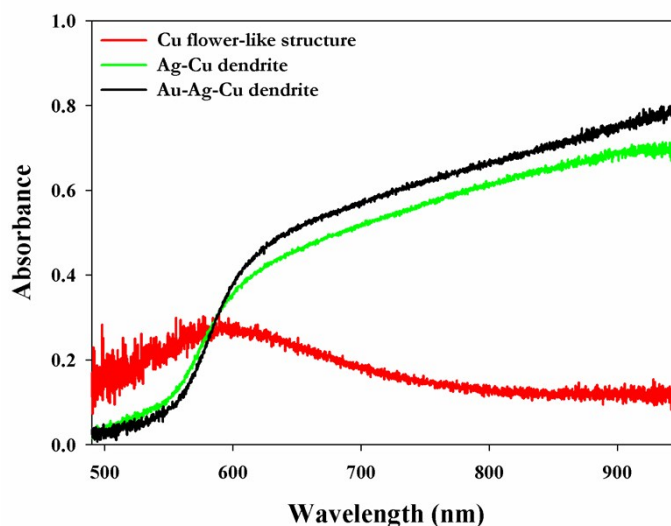


Figure S2. Visible extinction spectra of Cu flower-like structure, Ag-Cu nanodendrite and Au-Ag-Cu nanodendrite prepared at each optimal reaction condition.

The Cu flower-like structure has the broad plasmonic band centered at 590 nm; while, the spectral features of Ag-Cu and Au-Ag-Cu nanodendrites are extensively broad over the 620-900 nm range without appearance of distinct peaks. The large variation in the sizes of nanodendrites is responsible for the broad extinction band.

3. Normal Raman spectrum acquired from a 50 mM R6G

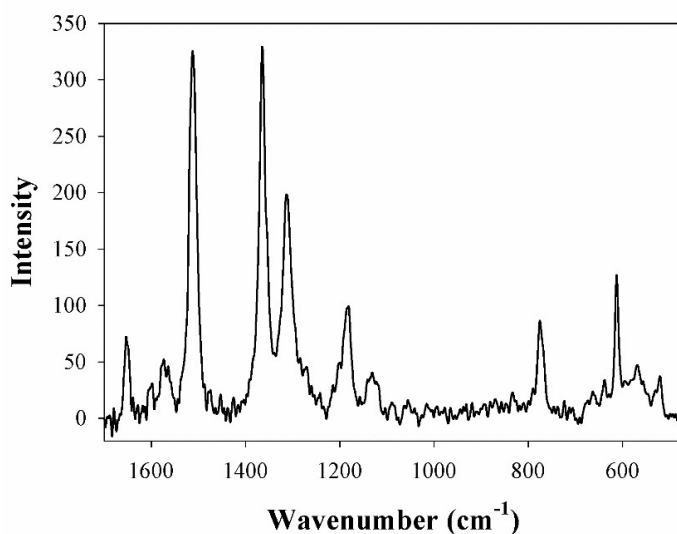


Figure S3. Normal Raman spectrum acquired from a 50 mM R6G.

4. Raman spectra of a 100 μ M R6G dispersed on flat Cu, Ag and Au films

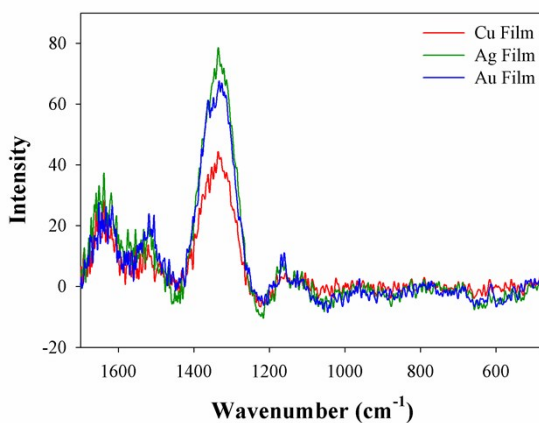


Figure S4. Raman spectra of a 100 μ M R6G dispersed on flat Cu, Ag and Au films.

5. TEM image of an Ag-Cu nanodendrite.

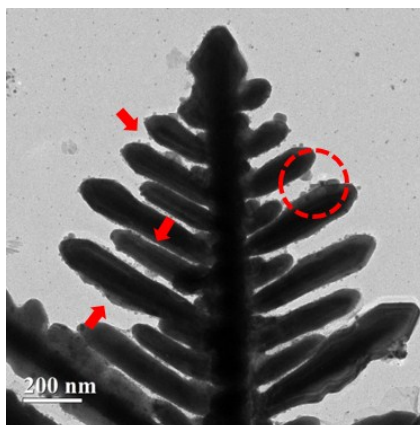


Figure S5. TEM image of another Ag-Cu nanodendrite. The circles and arrows indicate some of roughen surfaces.

6. XPS spectra of Au-Ag-Cu nanodendrite

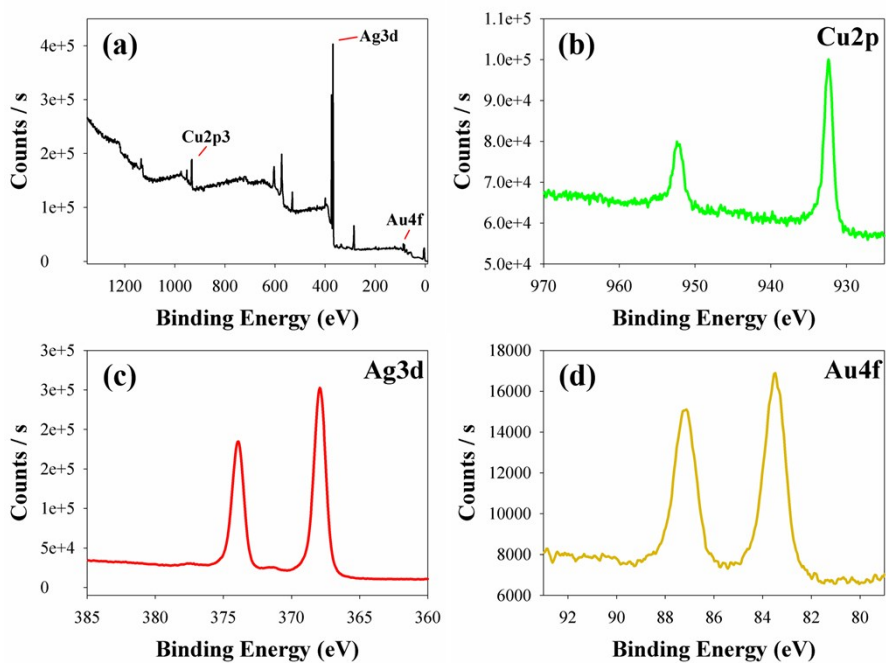


Figure S6. XPS spectrum of the optimal trimetallic nanodendrite (a). High-resolution spectra of Au (b), Ag (c) and Cu (d) are also shown.

The peaks corresponding to Au4f, Ag3d and Cu2p are observed at binding energies of 87, 368 and 932 eV, respectively. The relevant peaks for each metal are clearly observable, thereby alternatively confirming the co-presence of these three metals in the nanodendrite.

7. TEM image of an Au-Ag-Cu nanodendrite

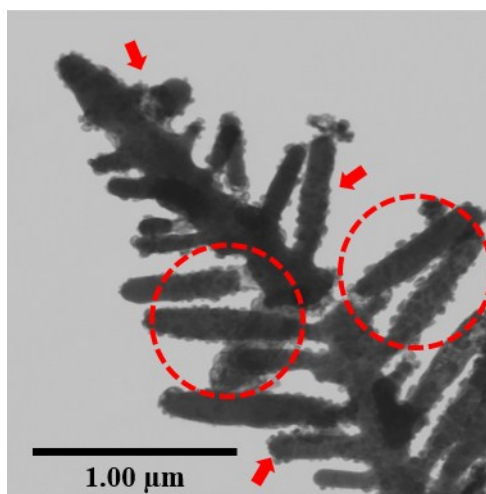


Figure S7. TEM image of another Au-Ag-Cu nanodendrite. The circles and arrows indicate some of roughen surfaces.