

Supporting Information

Manifestation of the difference in reactivity of silver clusters in contrast to its ions and nanoparticles: The growth of metal tipped Te nanowires

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S1. Supporting information 1

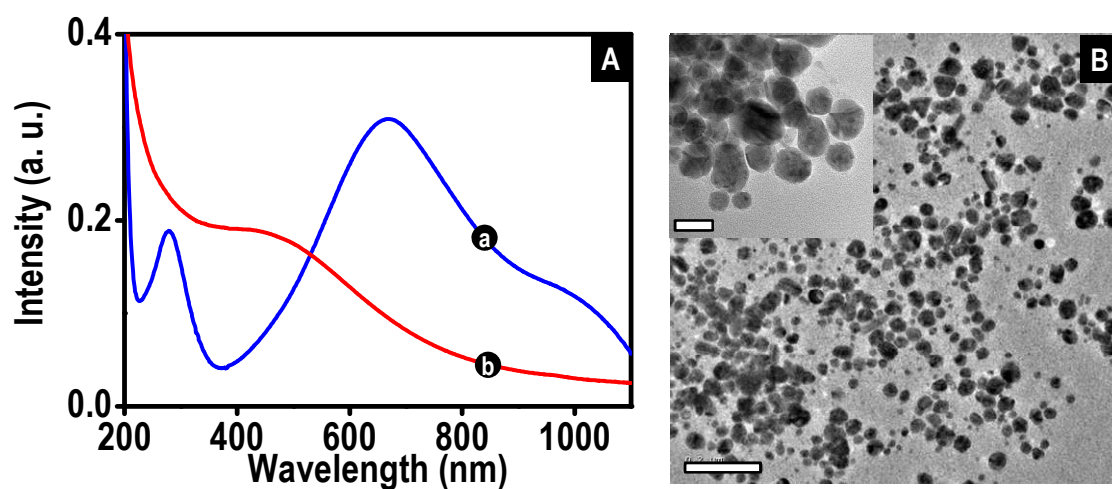


Figure S1(A) UV-visible extinction spectra of Te (trace a) and Ag₂Te (trace b) NWs. Ag₂Te NWs were prepared by reacting Te NWs with aqueous solution of AgNO₃. (B) Large area TEM image of citrate capped Ag NPs showing the presence of a few anisotropic particles. Most of the NPs were spherical as seen in the inset image. Scale bar is 200 nm for the large area image and 20 nm for the inset image.

S2. Supporting information 2

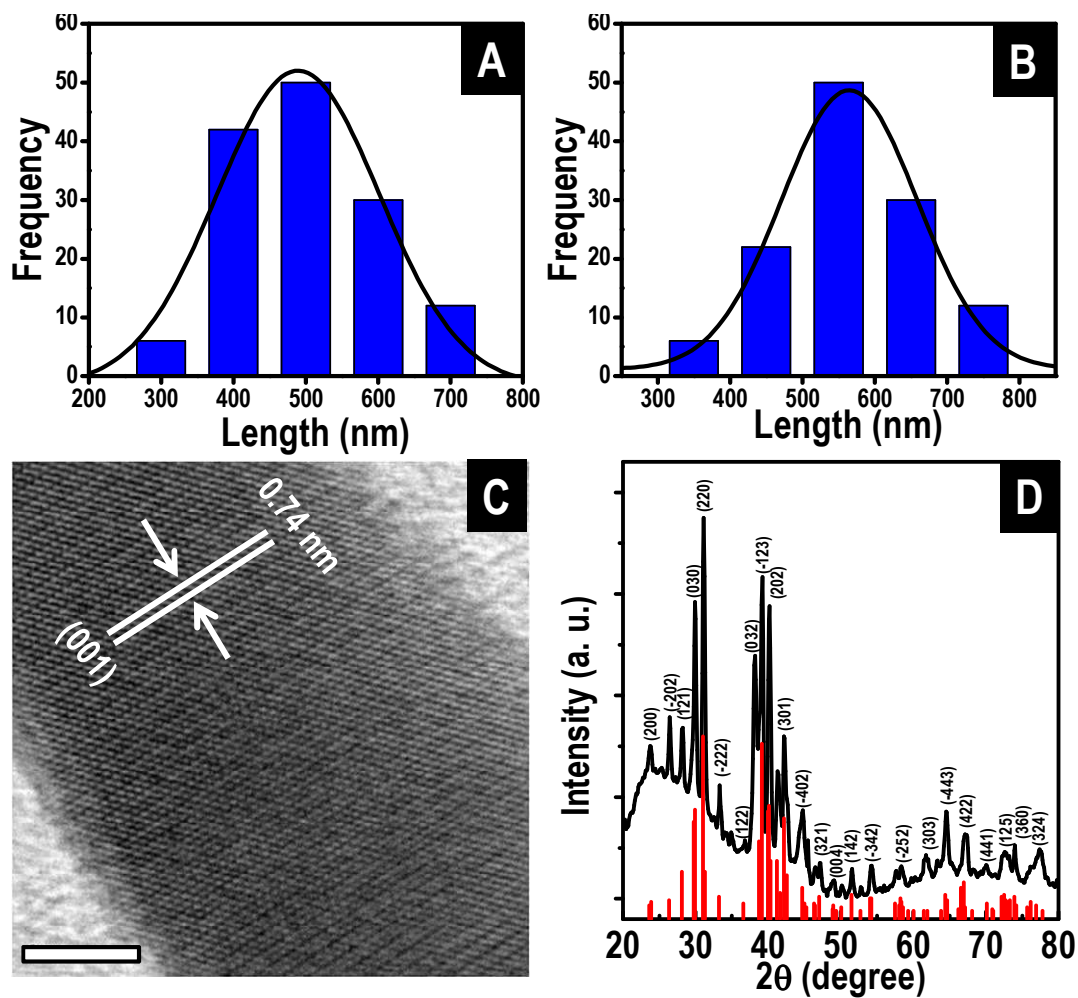


Figure S2 (A) Length distribution of Te NWs. (B) Length distribution of Ag₂Te NWs. (C) HRTEM image of Ag₂Te NWs formed by the reaction of Ag NPs with Te NWs. Scale bar is 5 nm. (D) XRD pattern of the Ag₂Te NWs. Standard pattern of monoclinic Ag₂Te (JCPDS: 34-0142) is given as sticks which matches with the measured pattern.

S3. Supporting information 3

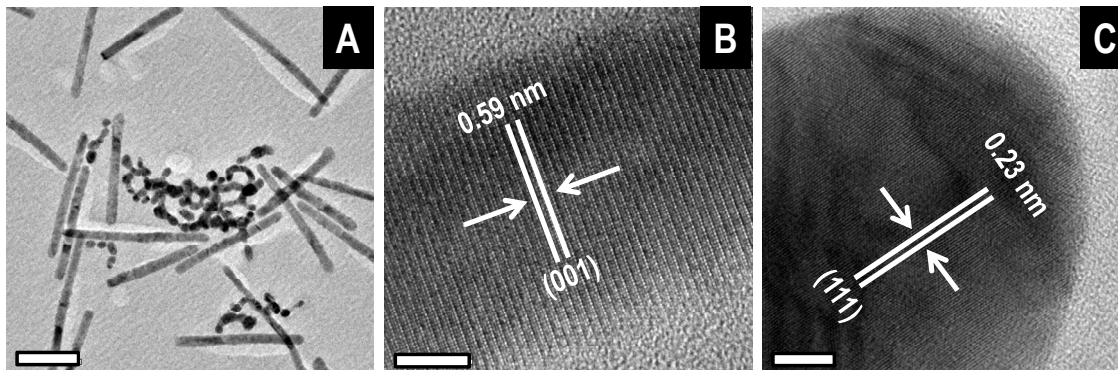


Figure S3. (A) TEM image of the mixture of Te NW and GSH capped Ag NP after 24 h of reaction. Presence of both NPs and NWs are seen. Scale bar is 200 nm. (B) HRTEM image from one of NWs after 24 h of reaction. Te lattice can be observed showing no silver incorporation from GSH capped Ag NPs. (C) HRTEM image of one of the NPs showing Ag lattice. Scale bar is 5 nm for both (B) and (C).

S4. Supporting information 4

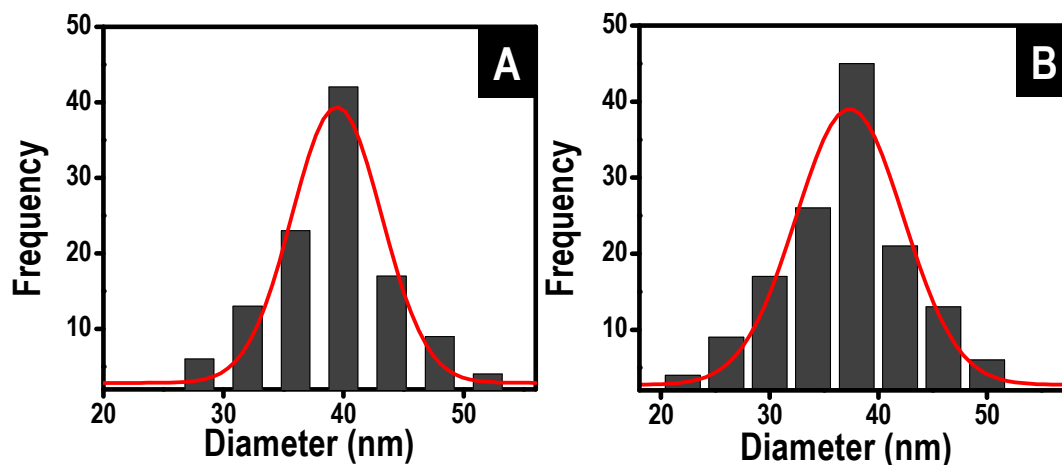


Figure S3. (A) Diameter distribution of Ag nodules formed with 1 mL of the cluster. (B) Diameter distribution of the nodules formed with 2 mL of the cluster.

S5. Supporting information 5

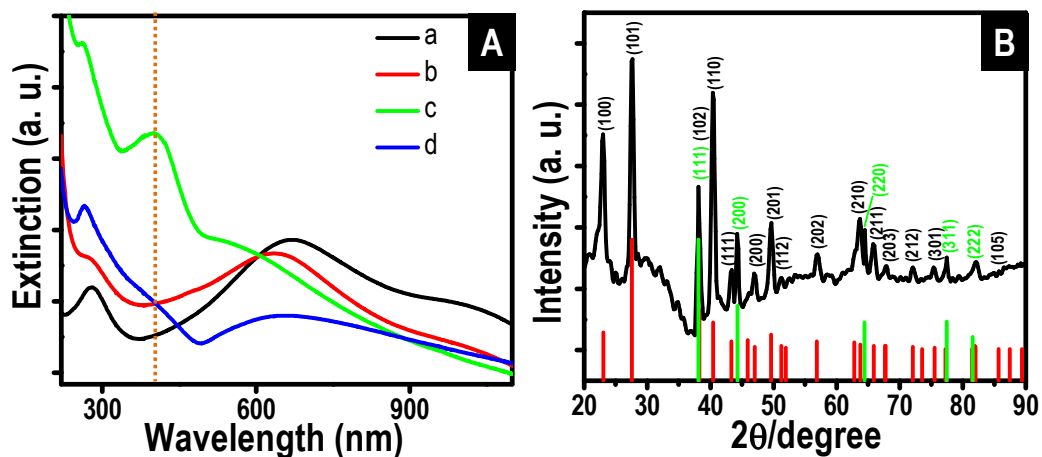


Figure S5. (A) UV-visible extinction spectra of decorated NWs plotted along with Te NWs. a. Parent Te NWs and the samples with b. 100 μ L, c. 1 mL and d. 2 mL of cluster addition after 24 h. (B) XRD pattern of Ag-Te-Ag dumbbell shaped NWs. Peaks corresponding to Te and Ag are marked in black and green, respectively.

S6. Supporting information 6

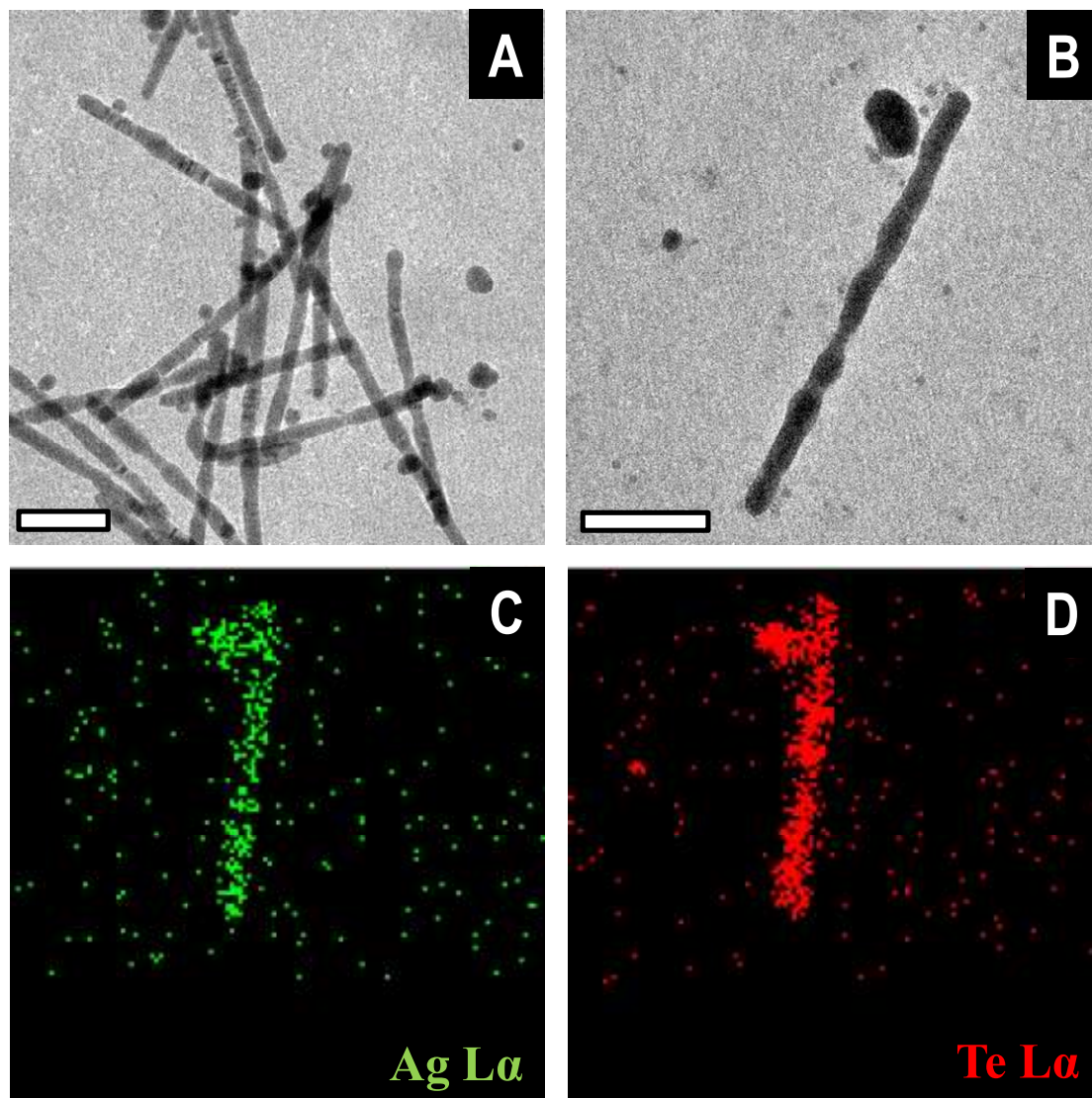


Figure S6. (A) TEM image of the NWs and broken pieces produced after heating the Ag nodule-decorated NWs at 80°C. (B) TEM image of a single such NW along with a broken piece. This area was chosen for EDS mapping. EDS intensity maps for Ag (C) and Te (D). Scale bar in the TEM images is 100 nm.

S7. Supporting information 7

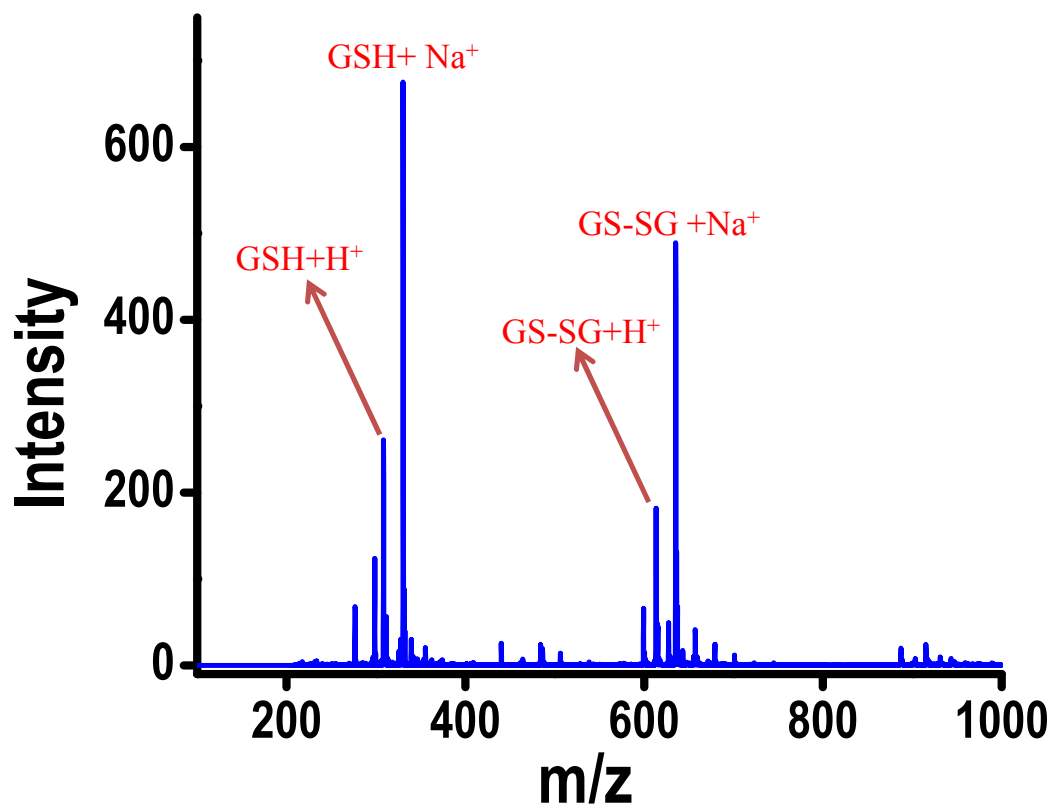


Figure S7. ESI mass spectral analysis of the mother liquor after Ag₃₂ QC reaction with Te NWs. Glutathione and glutathione dimer were observed in this solution.

S8. Supporting information 8

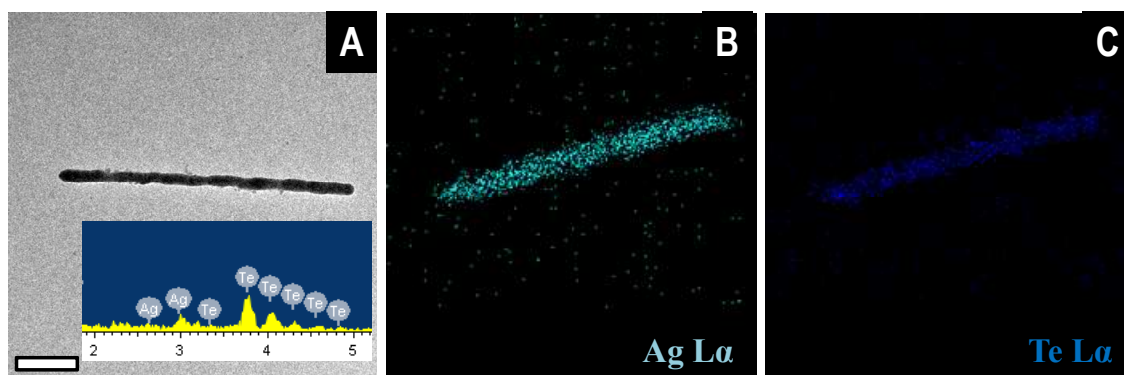


Figure S8. (A) TEM image of a NW produced when the Ag nodule-decorated NWs were subjected to heat treatment at 60 °C after the removal of the mother liquor and redispersal of the material in distilled water. EDS spectrum is given in the inset. (B) EDS intensity map for Ag in the NW. (C) EDS intensity map for Te along the NW.