Supporting Information for

Study chemical processes involved in silver staining of gold nanostructures by Raman scattering

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Fig. S1. TEM images of the gold dimers after the deposition of silver at the Ag⁺/Au molar ratios (R₉Ag⁺/Au) of 0.3 (left) and 0.6 (right).

Fig. S2. (a) Raman spectra of p-MBA recorded with the silver-coated gold dimers prepared in the range of Ag⁺ concentrations of 0–100 µM. (b) Variations in intensity of the peak at 1075 cm⁻¹ with the Ag⁺ concentration. The concentration of gold atoms in the dimer solutions was 127.0 mg/L as measured by ICP-AES. The R[AA]/[Ag⁺] ratio was kept in stoichiometry (1:1) in all the reactions. The decrease in intensity of the peak at 1075 cm⁻¹ at the Ag⁺ concentration of 20 µM, corresponding to a silver shell thinner than one monolayer (equivalent to ~0.7 monolayer (ML) by assuming the lattice parameter for both bulk Au and Ag as 4.18 Å (see Ref. 48 in the text).
**Fig. S3.** TEM images of the bimetallic nanostructure with p-MBA sandwiched between the two metals with Ag⁺/Au molar ratios (R_{Ag⁺/Au}) of 0.3 (left) and 0.6 (right) related to Figure 6 in the text.