

Supporting Information

[Au₅MeS₅]: Improved gram-scale synthesis and its use as a convenient precursor for halide-free supported gold nanoparticles

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Determination of residual halide in $[\text{Au}_5\text{Mes}_5]$ precursor was conducted using AgNO_3 : $[\text{Au}_5\text{Mes}_5]$ was dissolved in toluene, and an aqueous solution of AgNO_3 was added to it. Due to immiscibility, mixture was rigorously shaken for 2 minutes. After 2 minutes, aqueous phase separated, and was perfectly transparent, indicating no chlorine content.

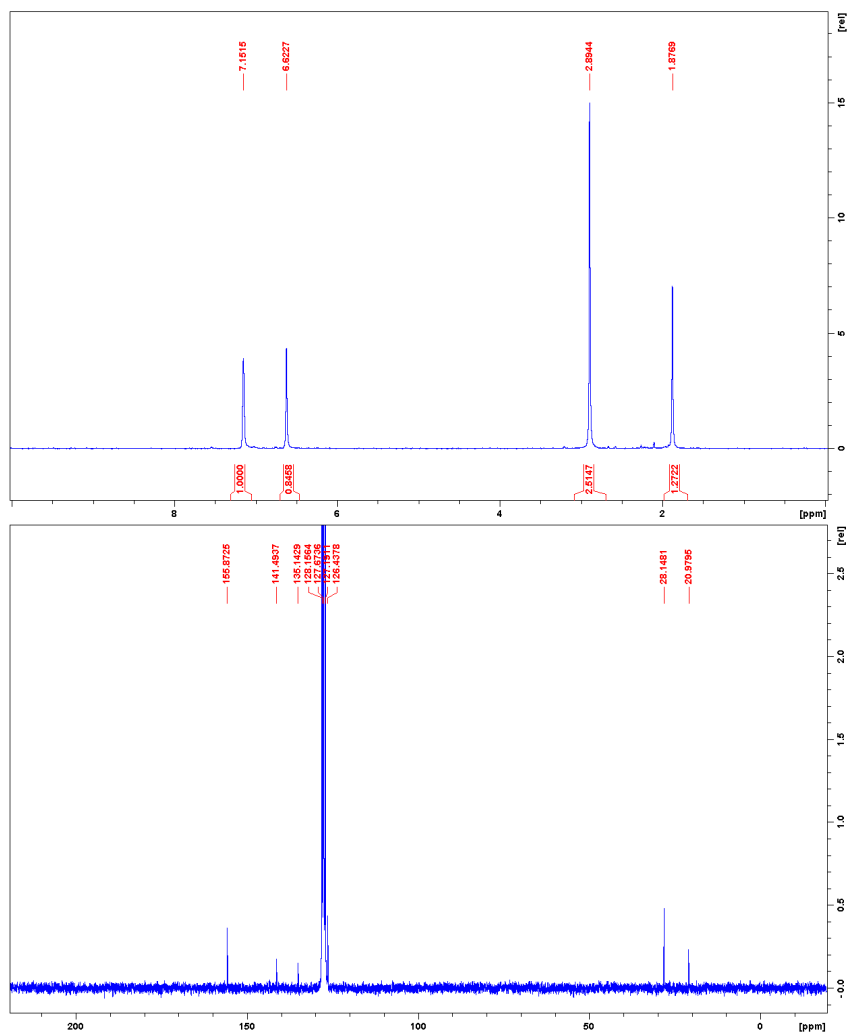


Figure S.1. NMR spectra of $[\text{Au}_5\text{Mes}_5]$ in C_6D_6 . Left ^1H NMR, right ^{13}C NMR

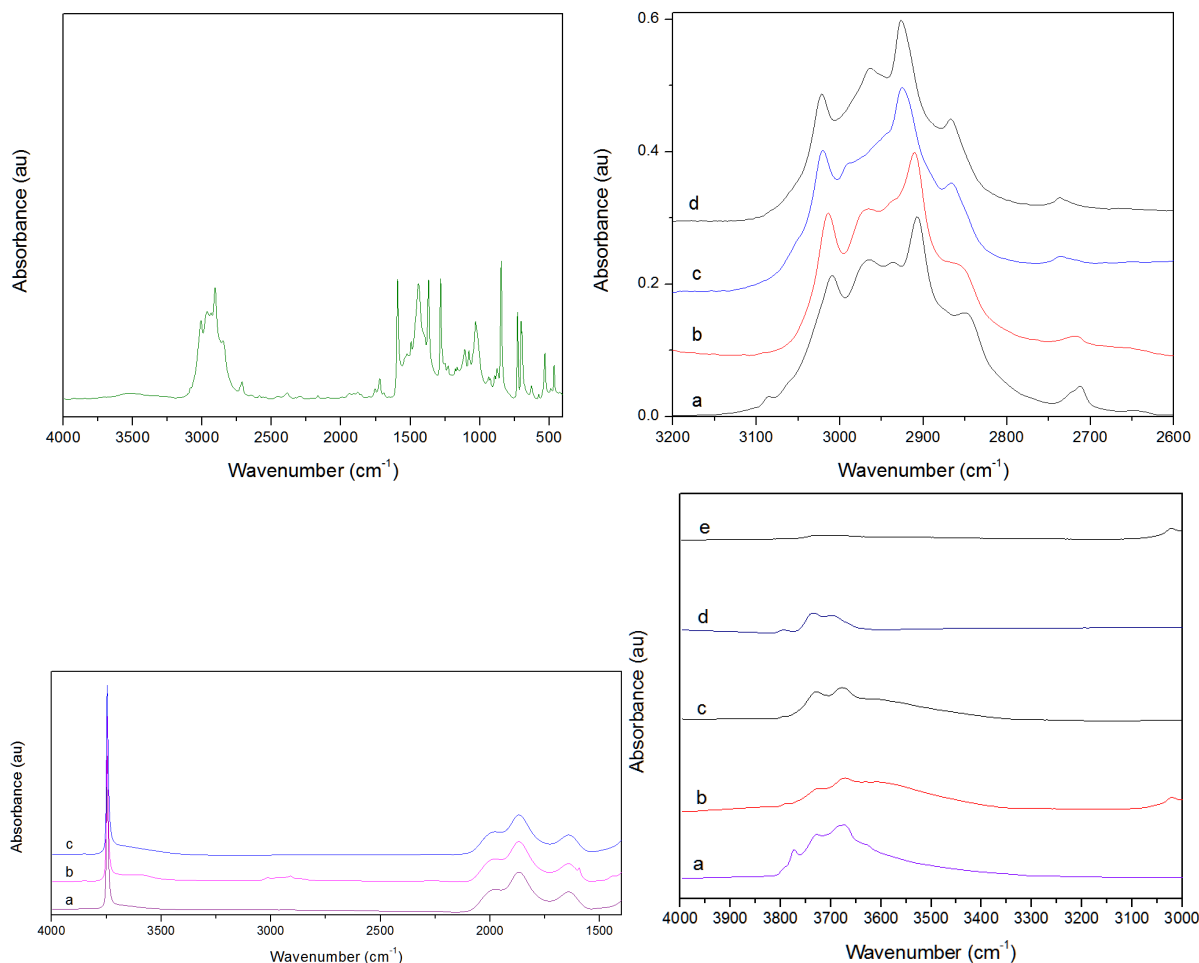


Figure S.2. IR spectra of $[\text{Au}_5\text{Mes}_5]$ (top left) and IR spectra comparison focused on C-H stretching region (top right) for a) $[\text{Au}_5\text{Mes}_5]$, b) $[\text{Au}_5\text{Mes}_5]@\text{SiO}_{2-700}$, c) $\text{Au}-\text{Al}_2\text{O}_{3-500}$, d) $\text{Au}-\text{Al}_2\text{O}_{3-700}$, IR spectra for the whole range of the Au-SiO₂ samples (bottom left), a) SiO_{2-700} , b) $[\text{Au}_5\text{Mes}_5]@\text{SiO}_{2-700}$, c) $\text{Au}-\text{SiO}_2$ IR spectra focusing on the -OH region of the Au- Al_2O_3 samples (bottom right) for a) $\text{Al}_2\text{O}_{3-500}$, b) $\text{Au}-\text{Al}_2\text{O}_{3-500}$, c) $\text{Au}-\text{Al}_2\text{O}_{3-500-\text{H}_2}$, d) $\text{Al}_2\text{O}_{3-700}$, e) $\text{Au}-\text{Al}_2\text{O}_{3-700}$