Supplementary Information

Increased cytotoxicity of bimetallic ultrasmall silver-platinum nanoparticles (2 nm) on cells and bacteria in comparison to silver nanoparticles of the same size

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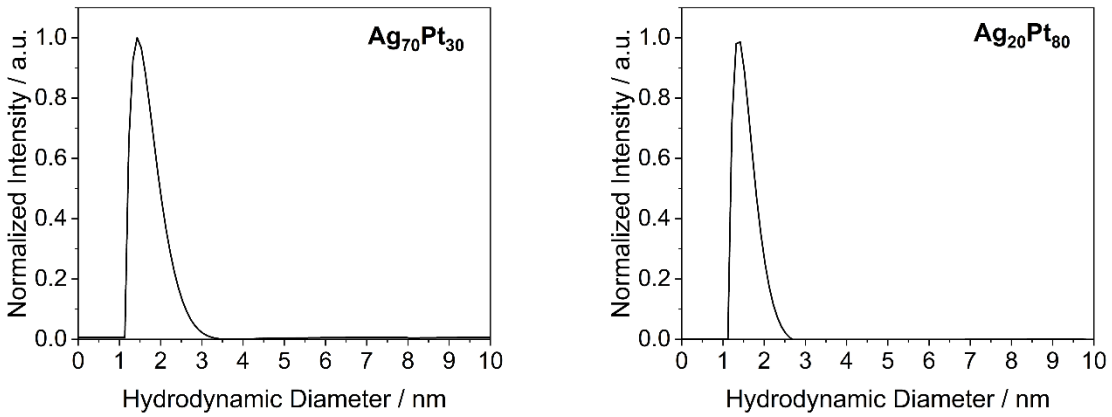


Figure S1: Differential centrifugal sedimentation (DCS) of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles.

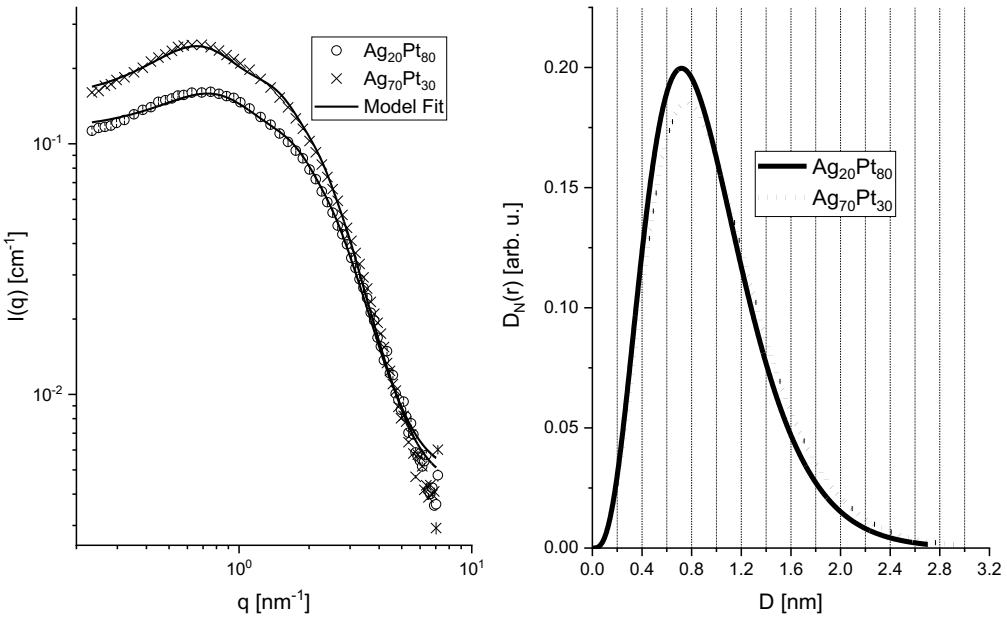


Figure S2: Small-angle X-ray scattering (SAXS) on bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles.

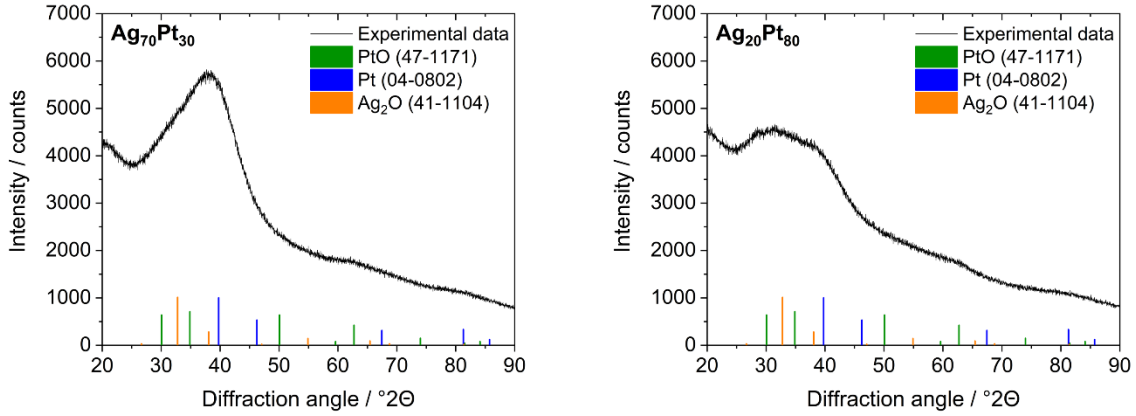


Figure S3: X-ray powder diffraction on bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles.

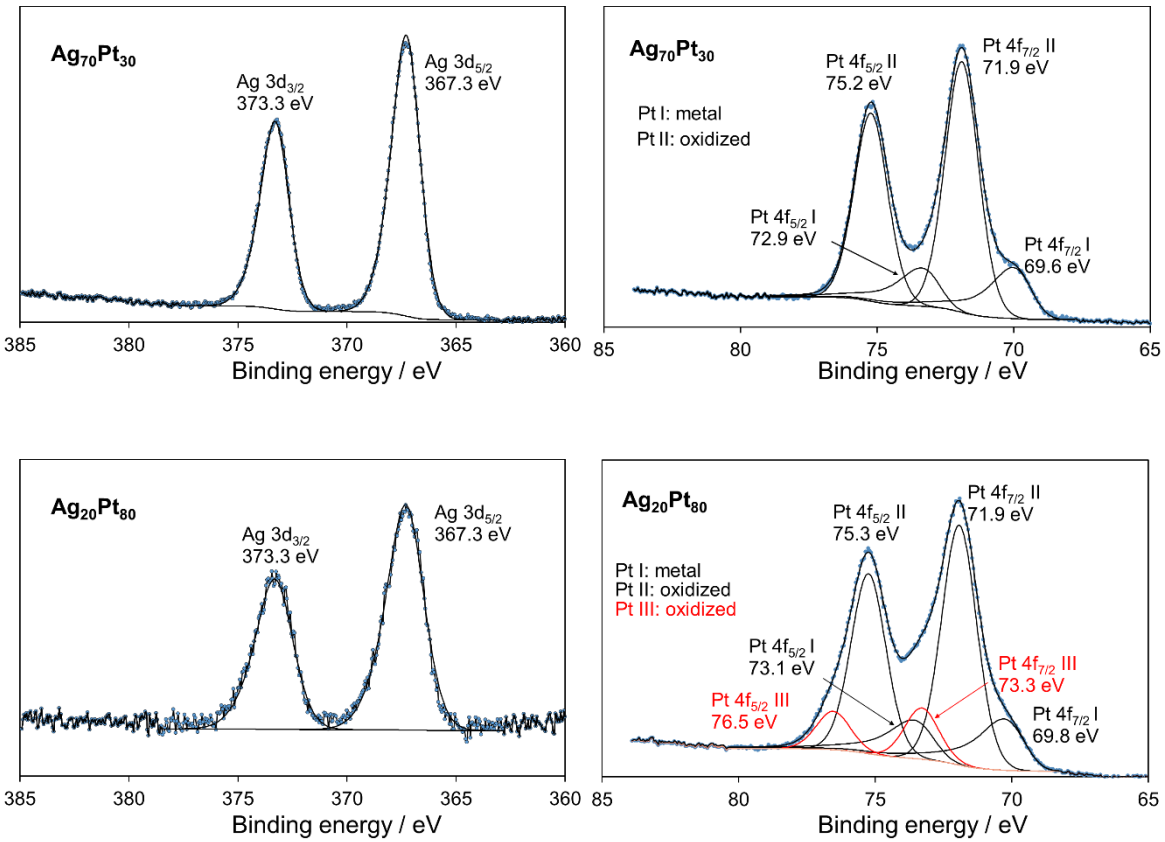


Figure S4: XPS core level spectra of Ag 3d and Pt 4f obtained for GSH-coated $Ag_{20}Pt_{80}$ and $Ag_{70}Pt_{30}$ nanoparticles. Silver is present as Ag^{+}, and platinum is present as Pt^{0} and Pt^{2+}.

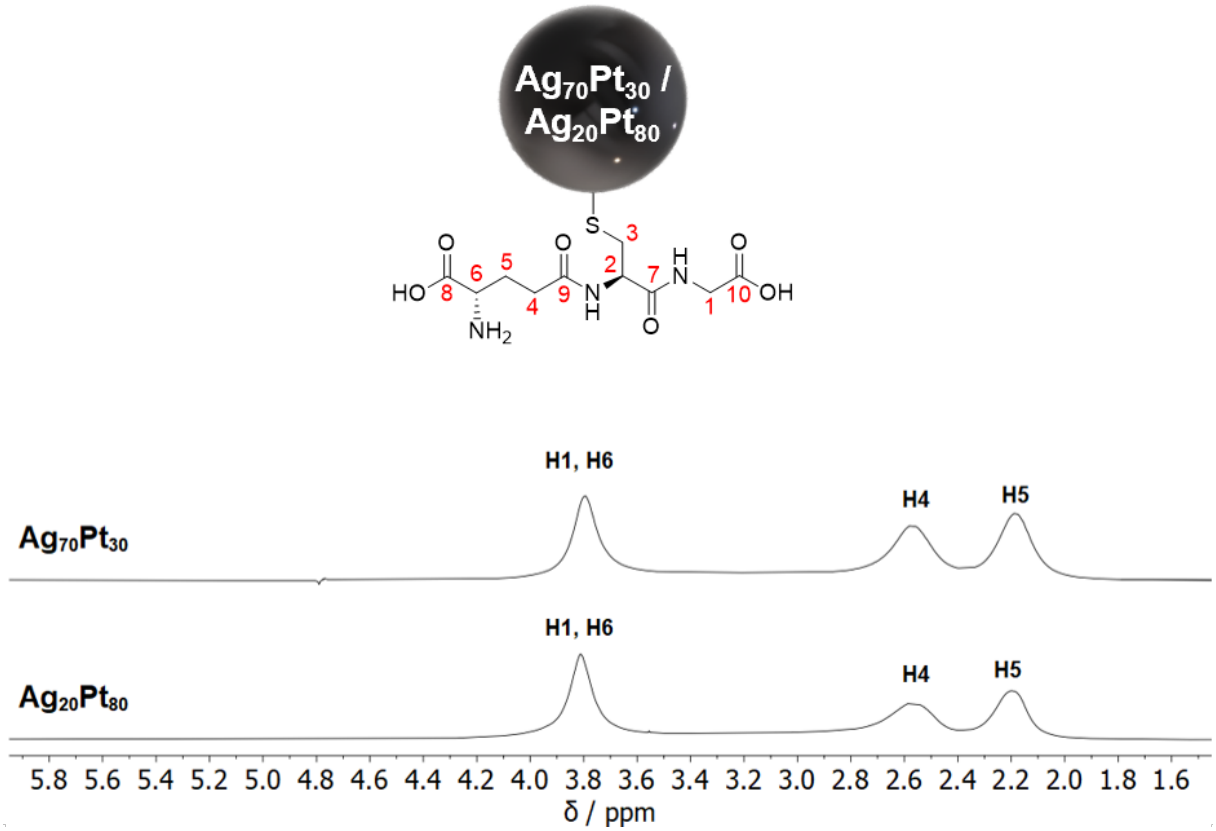


Figure S5: ^{1}H NMR spectra of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles (100% D_2O; pH 8.5). The strongly broadened NMR signals are due to the platinum-containing core of the nanoparticles.

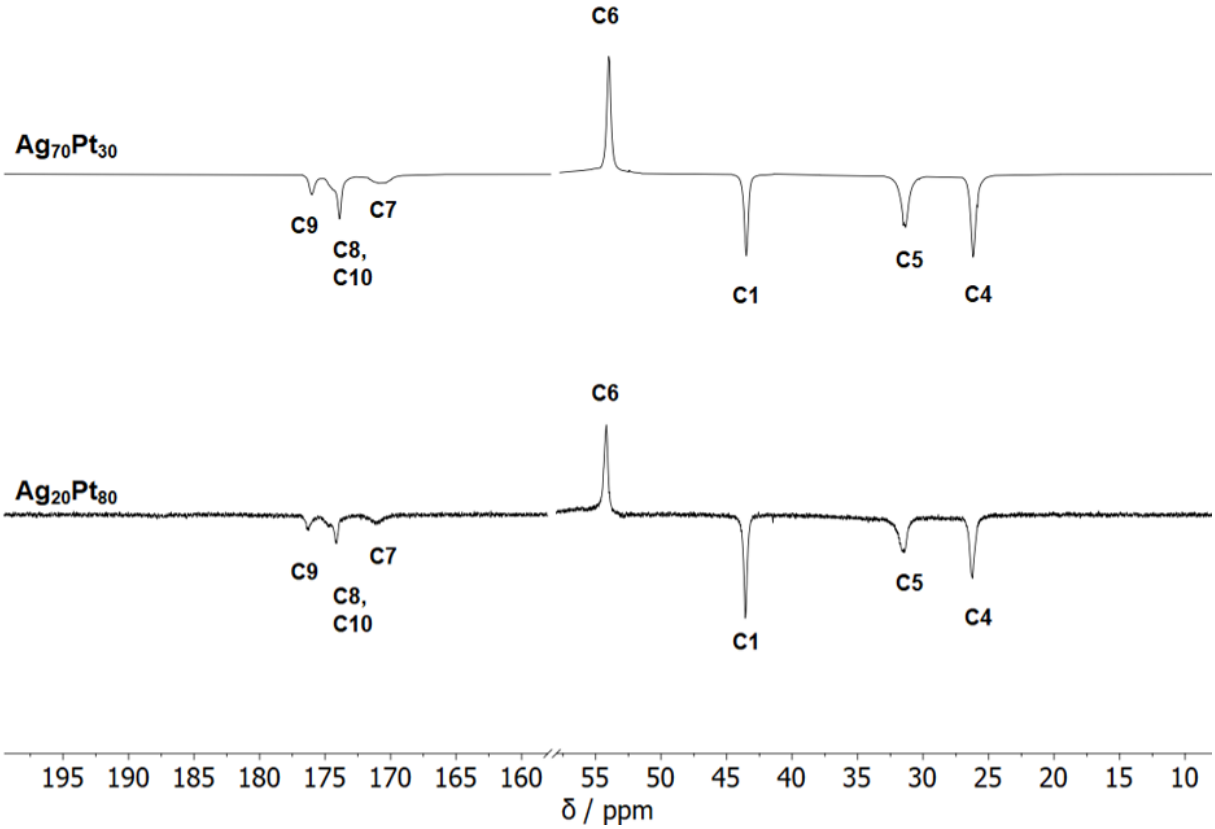


Figure S6: ^{13}C-DEPTQ NMR spectra of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles (100% D_2O; pH 8.5). The strongly broadened NMR signals are due to the platinum-containing core of the nanoparticles.

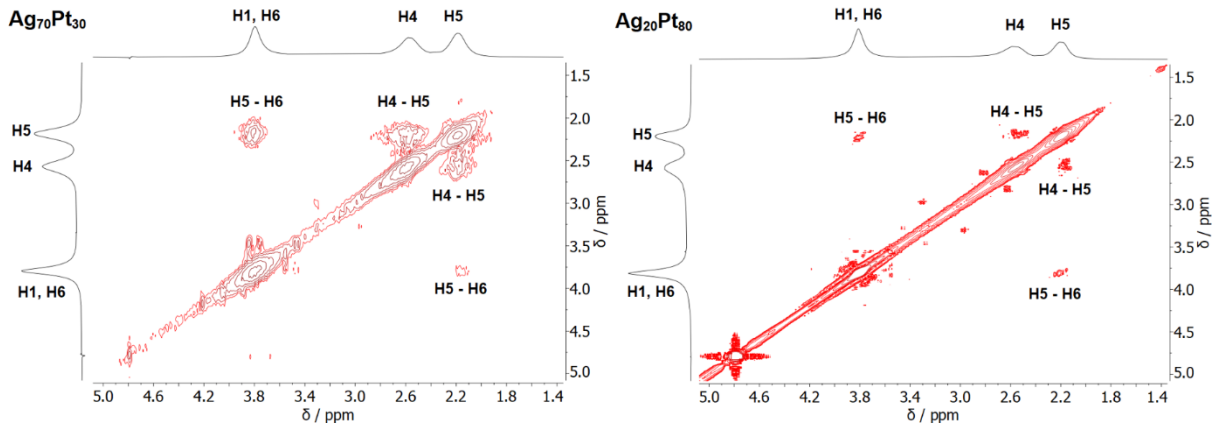


Figure S7: ^{1}H-^{1}H COSY NMR spectra of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles (100% D_2O; pH 8.5).

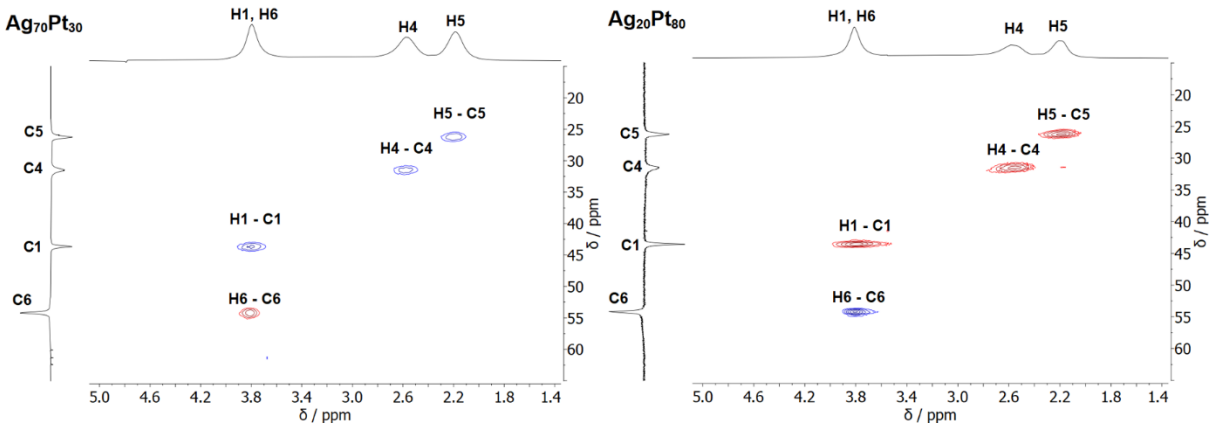


Figure S8: ^{1}H-^{13}C HSQC NMR spectra of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles (100% D_2O; pH 8.5). CH_2 and CH/CH_3 carbon atoms can be distinguished by this method (labelled in different colors).

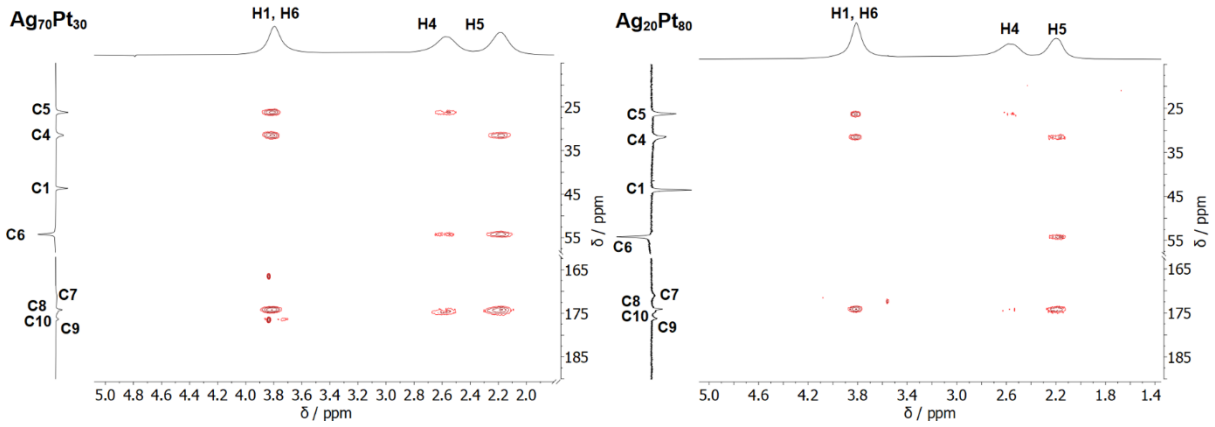


Figure S9: ^{1}H-^{13}C-HMBC NMR spectra of bimetallic GSH-coated $Ag_{70}Pt_{30}$ and $Ag_{20}Pt_{80}$ nanoparticles (100% D_2O; pH 8.5).

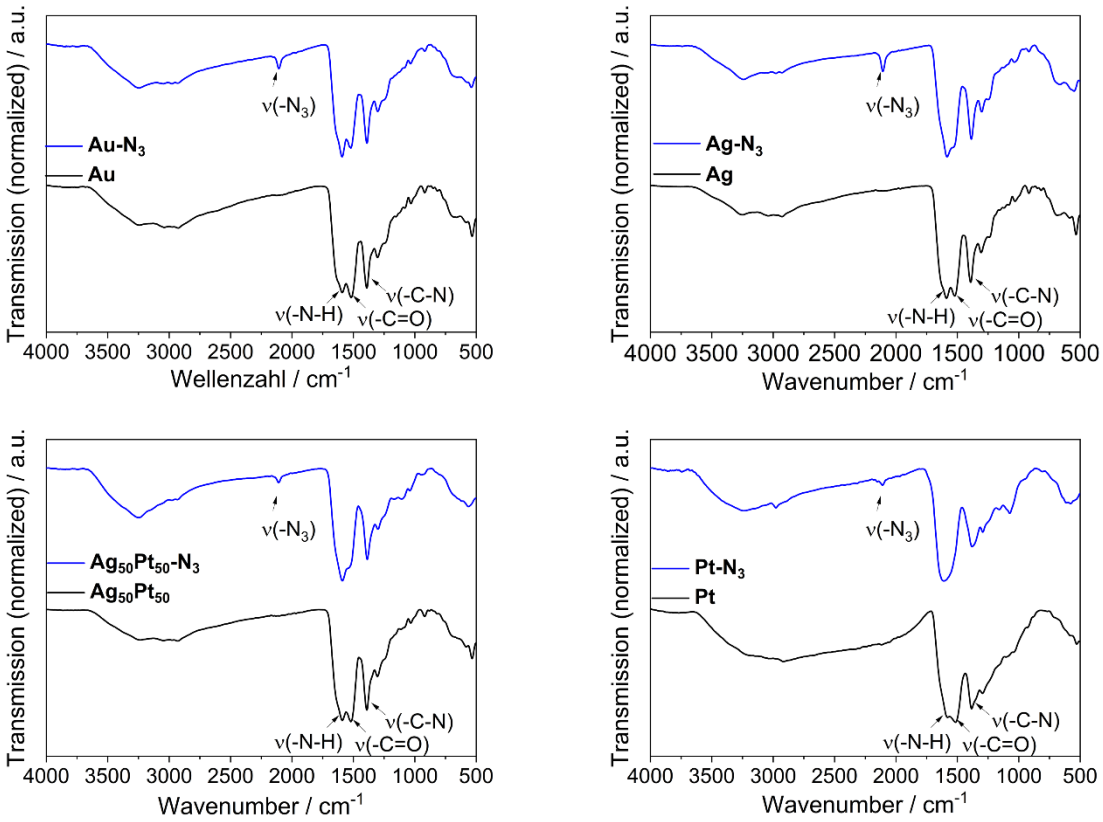


Figure S10: IR spectra of GSH- und N_3-terminated gold, silver, platinum and bimetallic silver-platinum nanoparticles. The azide band at 2106 cm^{-1} indicates the successful surface modification of all nanoparticles.