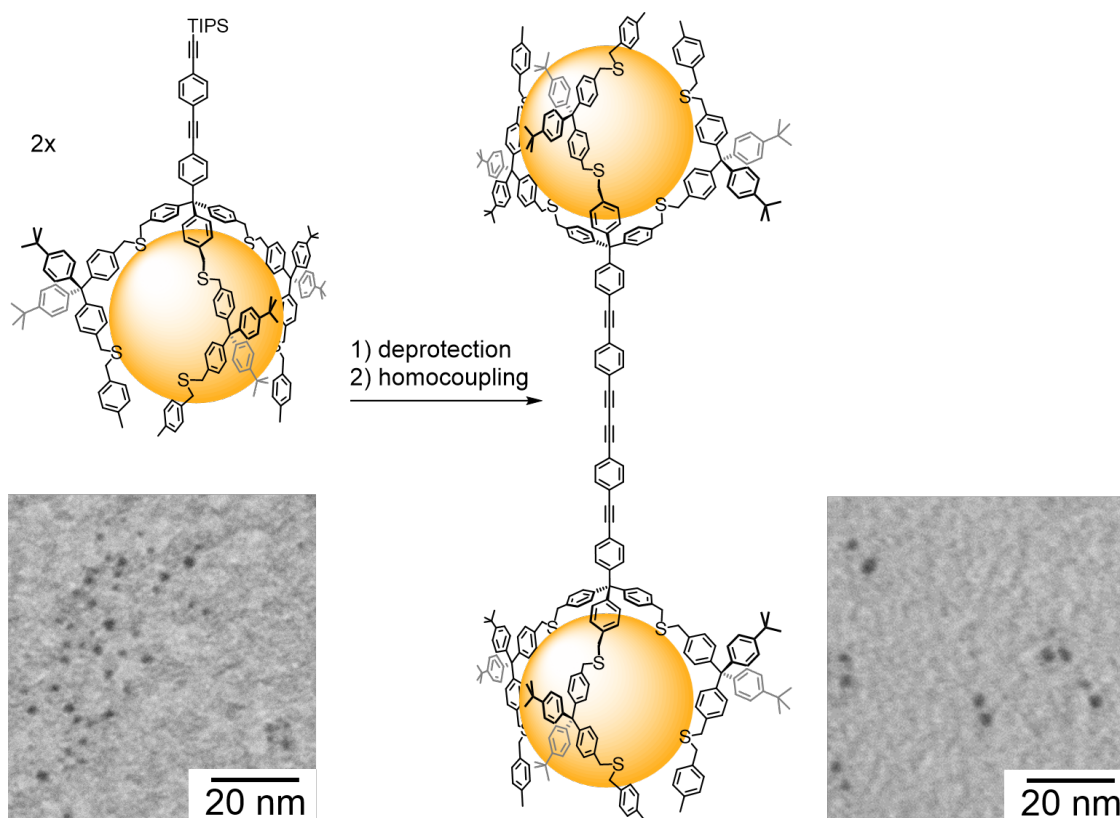


## Gold Nanoparticle Dimers via Acetylene Homocoupling

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Due to their unique properties, functional gold nanoparticles (Au NPs) are of major interest for molecular electronics. [1-3] Au NPs have successfully been stabilized by a single tripodal thioether-based ligand which offers further chemical functionality by exposing a protected acetylene. The Au NPs are of narrow size distribution ( $1.20 \pm 0.26$  nm) and withstand thermal stress up to 105 °C. The Au NPs were used to synthesize dimers via standard acetylene deprotection-homocoupling protocol. The dimer-dimer distance is in agreement with molecular modeling. Furthermore, the dimers can be isolated by size-exclusion chromatography and are stable for an extended period.



**Scheme 1:** Au NP monomers, dimers and corresponding TEM micrographs. Au NPs stabilized by ligand with TIPS-protected acetylene are deprotected and undergo homocoupling to give Au NP dimers.

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