A Heterogeneous Bifunctional Au/Pd Nanoparticle Organocatalyst

**Significance:** The preparation of a polymer-incarcerated Au/Pd-coated organocatalyst \([\text{PI(Au/Pd)-CO]}\) for the sequential aerobic oxidation–Michael reaction between \(\gamma\)-substituted allylic alcohols and dibenzylmalonate was described. The reaction of 3-phenyl-2-propen-1-ol (1) and dibenzylmalonate (2) proceeded in the presence of \([\text{PI(Au/Pd)-CO}]{\text{(2 mol\% Au/Pd)}}\) \(\text{AcOH (20 mol\%)}\) to give dibenzyl 2-(3-oxo-1-phenylpropyl)propane-dioate (3) in 75% yield with 90% ee (other 9 examples: 34–83% yield, 74–91% ee).

**Comment:** The Au/Pd organocatalyst was prepared by the copolymerization of monomers 5, 6 and 7 in the presence of V-601 \([\text{dimethyl 2,2'-azo-\(\text{bis(2-methylpropionate)}\]}\) as a radical initiator followed by the formation of the cross-linked shell layer of a polymer 9 in which bimetallic Au/Pd nanoparticles were incorporated. Thus, \([\text{PI(Au/Pd)-CO}]{\text{2 mol\% Au/Pd)}}\) \(\text{AcOH (20 mol\%)}\) was composed of an organocatalytic resin core and a polymeric Au/Pd nanoparticle shell.