Organocatalytic Asymmetric Biomimetic Transamination: From \( \alpha \)-Keto Esters to Optically Active \( \alpha \)-Amino Acid Derivatives

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**Synthesis of \( \alpha \)-Amino Acid Derivatives by Biomimetic Transamination**

**Significance:** Shi and co-workers have developed a methodology to synthesize \( \alpha \)-amino acid derivatives 3 from \( \alpha \)-keto esters 2, catalyzed by cinchona alkaloid derivative 1. This is the first catalytic highly enantioselective synthesis of \( \alpha \)-amino acid derivatives 3 via biomimetic transamination. The proton of the ammonium ion in the transition state is delivered to the \( si \)-face of the substrate, affording the \((R)\)-\( \alpha \)-amino ester as the major enantiomer.

**Comment:** Optically active \( \alpha \)-amino acids and their derivatives are an important class of molecules in biology and in organic synthesis. However, it remains a challenge to develop highly enantioselective syntheses of them to date. Here, a very efficient method for the synthesis of \( \alpha \)-amino acid derivatives via biomimetic transamination has been reported, which also illustrates the synthetic potential of organocatalytic biomimetic transamination.