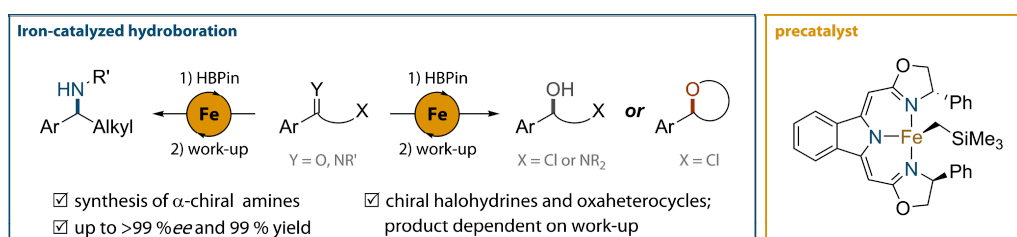


# HIGHLY ENANTIOSELECTIVE IRON-CATALYZED REDUCTION OF FUNCTIONALIZED KETONES AND NON-PRIVILEGED IMINES

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In recent years, many studies disclosed the potential of environmentally benign and earth-abundant 3d metals in enantioselective catalysis for the reduction of carbon-carbon and carbon-heteroatom multiple bonds.[1] Despite the tremendous growth of this field, the majority of the presented catalytic systems is limited to simple diaryl, aryl alkyl and dialkyl ketones as substrates, with more complex structures being explored only in selected cases.[2]



Herein, we present a molecularly defined iron alkyl complex (<sup>Ph</sup>boxmiFeCH<sub>2</sub>SiMe<sub>3</sub>) as a catalyst for the enantioselective hydroboration of various functionalized ketones, providing access to chiral halohydrines, the respective oxaheterocycles and amino alcohols in excellent yields and enantioselectivities.[3] Due to the high activity of the catalytic system, we were able to further extend our methodology to the reduction of non-privileged imines for the direct synthesis of  $\alpha$ -chiral amines. In the framework of this study, the substrate scope for the iron-catalyzed hydroboration of imines was explored and a catalytic cycle was proposed based on kinetic investigations and further mechanistic control experiments.

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[3] C. K. Blasius, V. Vasilenko, L. H. Gade, *Angew. Chem. Int. Ed.* **2018**, 57, 10231–10235.