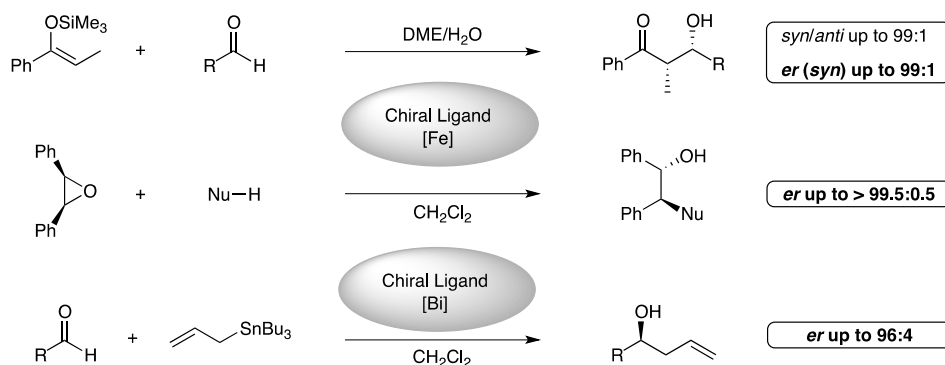


# Catalytic Asymmetric Synthesis Using Bismuth and Iron Complexes

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Various Lewis acids have been developed as green catalysts for asymmetric synthesis. Chiral metal complexes derived from bismuth, iron, and copper salts have been employed in selected asymmetric C–C, C–Si, C–N, and C–S bond-forming reactions, such as the Mukaiyama aldol, epoxide opening, thia-Michael and Diels-Alder reactions.<sup>1</sup> Enantioselective oxidation catalysts will also be presented.<sup>2</sup> As part of our ongoing interest in the development of greener reaction conditions, we report alternate reaction solvent systems. These results will contribute to the development of green acid catalysis for asymmetric synthesis.



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