

Introduction to the Invited Academic Review

It is our pleasure to introduce an invited contribution from Professor Barry Trost at Stanford University, featuring work from his laboratories on palladium- and molybdenum-catalyzed asymmetric allylic alkylation.

This account highlights the Pd and Mo asymmetric allylic alkylation (AAA) reactions that constitute a powerful tool for enantioselective synthesis of many architecturally complex molecules using several types of bonds including, but not limited to, C–C, C–N, C–O, C–S, C–P, and C–H. The reactions achieve excellent selectivities under practical conditions. The ligands are typically commercially available and inexpensive. The processes are also scalable, and some reactions are demonstrated on multikilogram scale. These reactions also show excellent chemoselectivities. This review highlights a broad range of structures of particular relevance with respect to biological properties and that are readily accessed with strategic AAA reactions.

It is our hope that this account will not only serve as an overview of the fast-growing field of transition-metal catalysis but also provide impetus and inspiration for the development of more efficient and practical catalysts to help us tackle the economical and environmental challenges in process chemistry.

We thank Professor Barry Trost for his contribution to *Organic Process Research & Development*.

Chris Senanayake

Stephane Caron, Members of the Editorial Advisory Board, *Organic Process Research & Development*