Palladium-Catalyzed Enantioselective Cross-Coupling Reactions of Aryldimethylsilanolates

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The configurationally defined biaryl structural motif is found in numerous natural products, ligands and catalysts. The palladium-catalyzed cross-coupling reaction is an efficient and commonly employed method for the construction of C_{aryl}-C_{aryl} bonds. Intriguingly, the corresponding asymmetric reaction is considerably underdeveloped. Reports in this research area using organomagnesium, -zinc and -boron have emerged over the last few decades, but only few of these methods have demonstrated broad substrate scopes with high enantioselectivity. Towards this goal, various chiral ligands are evaluated for the asymmetric cross-coupling reaction of aryldimethylsilanolates. The discovery and synthesis of chiral bis-hydrazone ligands and preliminary results focused on probing the stereodetermining step of the cross-coupling reaction will be presented.