

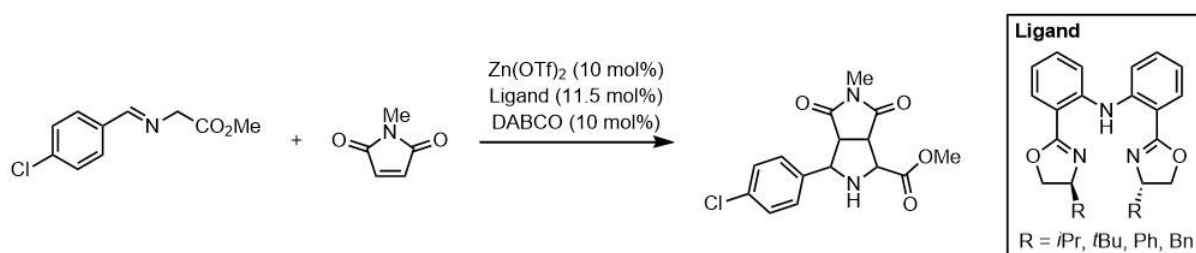
Synthesis and application of chiral oxazoline ligands in asymmetric catalysis

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Oxazoline-containing ligands are an important ligand class in asymmetric catalysis. Our group has previously reported a convergent synthesis allowing access to ten diphenylamine linked bis(oxazoline) type ligands through a Pd-catalysed aryl amination step.¹ The primary goal of this research project is to synthesise these ligands again and to apply them in various asymmetric metal-catalysed reactions. All four of the 2-(o-aminophenyl)oxazoline coupling partners were synthesised in high yields of up to 69%, with similarly high yields of up to 79% seen for the 2-(2-bromophenyl)oxazoline coupling partners. After optimisation, all ten variants (C₂- and non-C₂-symmetric) of the ligands were successfully synthesised. Recent work in our group has focused on the asymmetric metal-catalysed (3+2) cycloaddition of azomethine ylides with maleimides.² Metal complexes of diphenylamine linked bis(oxazoline) ligands have not previously been applied to this reaction and so, the potential of these ligands in this reaction was investigated. All ten ligands were applied to this (3+2) cycloaddition reaction and the results of this investigation, as well as other metal-catalysed processes will be described.



References

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- ² S. Kumar, P. Guiry, *Angew. Chem. Int. Ed.* **2022**, 61, e202205516.