Diastereo- and Enantioselective Palladium-Catalyzed Cycloadditions of 5-Vinyloxazolidine-2,4-diones with Isatins

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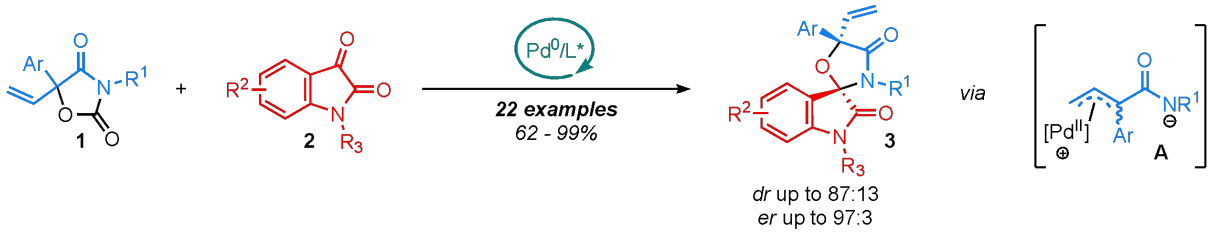
Nitrogen-containing heterocycles are ubiquitous scaffolds in pharmaceutical compounds due to their ability to interact easily with biological targets, making them highly valuable in drug discovery.[1] Among available synthetic strategies, cycloadditions represent a powerful approach to rapidly construct complex heterocyclic frameworks.[2] In particular, dipolar cycloadditions of transient zwitterionic π-allylpalladium(II) complexes have emerged as a reliable strategy for the stereocontrolled formation of carbo- and heterocycles.[3] In this context, our research group and others have recently disclosed 5-vinyloxazolidine-2,4-diones **1** (VOxD) as a promising substrate.[4] Under palladium-catalyzed conditions, VOxD **1** undergo ring-opening by oxidative addition and decarboxylation, leading to key intermediates **A** able to react with an electrophilic cycloaddition partner.

Herein, we describe a diastereo- and enantio-controlled palladium-catalyzed synthesis of various oxazolidinones **3** *via* a (3+2) cycloaddition between VOxD **1** and isatins **2**. After a careful screening of reaction conditions, the spiro-oxindole cycloadducts have been obtained with a high degree of substrate tolerance.



References

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