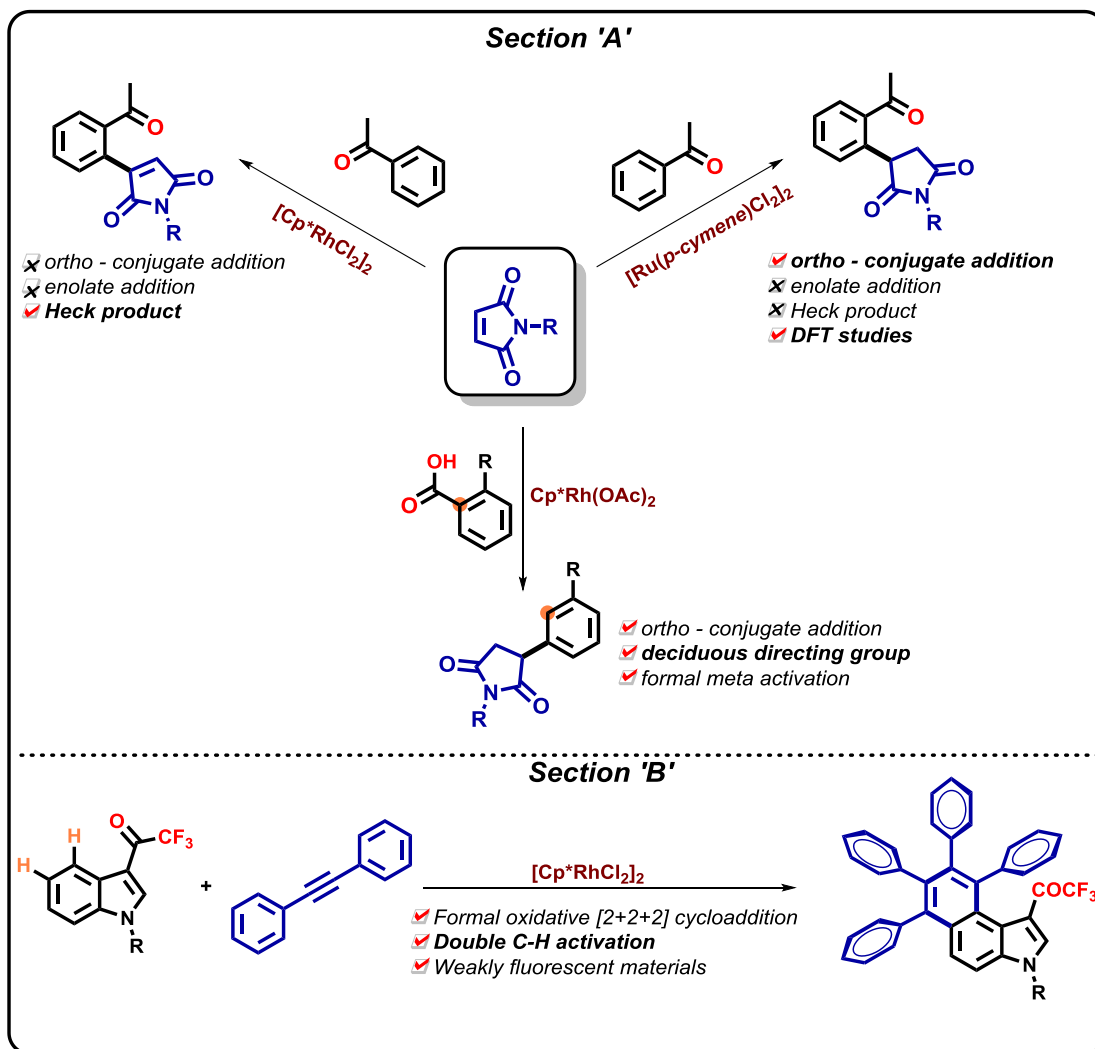


ABSTRACT

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The thesis entitled “**Site-selective C-H Functionalization using Directing Group Strategy via C-H Bond Activation**” is divided into two sections. Section A, is presented in four chapters, comprising the work on the aromatic *ortho*-C-H addition to maleimide, mechanistic studies with DFT, *ortho*-C-H oxidative Heck reaction with maleimides, and *ortho*-C-H addition to maleimide with a deciduous/traceless directing group. Section B describes a formal oxidative [2+2+2] benzannulation of indoles with alkynes *via* a directing group strategy.



Publications:

1. Ru (II)-Catalyzed C–H Activation: Ketone-Directed Novel 1, 4-Addition of Ortho C–H Bond to Maleimides
KR Bettadapur, V Lanke, KR Prabhu; Org. Lett., 2015, 17, 4658-4661
2. A Deciduous Directing Group Approach for the Addition of Aryl and Vinyl nucleophiles to Maleimides
KR Bettadapur, V Lanke, KR Prabhu; Chem. Comm., 2017, 53, 6251-6254
3. Weak Directing Group Steered Formal [2+2+2]- Oxidative Cycloaddition for Selective Benzannulation of Indoles
KR Bettadapur, R Kapanaiah, V Lanke and KR Prabhu; J. Org. Chem., DOI: 10.1021/acs.joc.7b02719