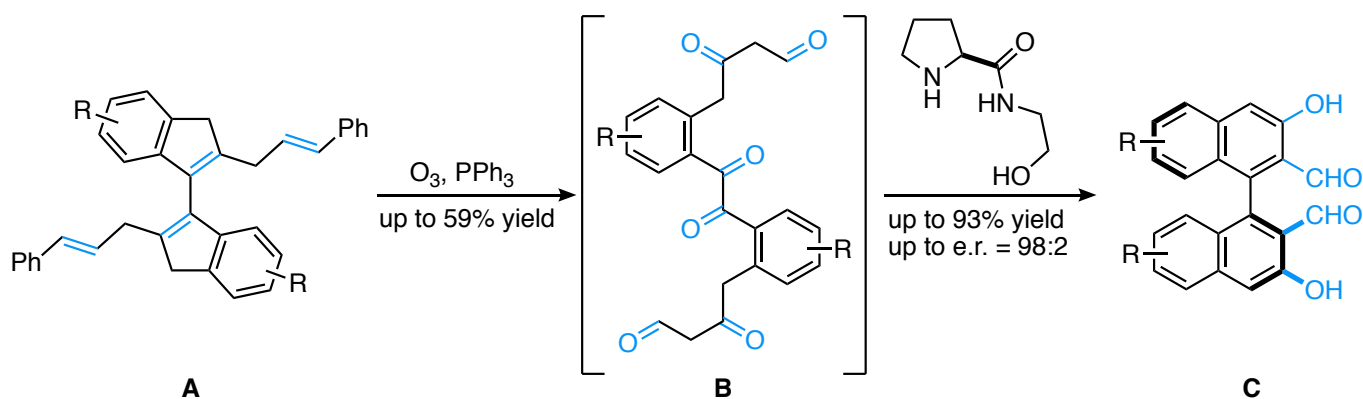


Atroposelective Double Arene-forming Aldol Condensation: Synthesis of Tetra-*ortho*-substituted Binaphthalenes

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Due to their excellent suitability as ligands or organocatalysts for stereoselective catalysis, axially chiral molecules, such as biaryls, have received a great level of interest. However, despite their importance, the stereoselective synthesis of biaryl atropisomers remains challenging and resolution of racemic mixtures is still a frequently applied strategy for the preparation of enantiopure biaryls. Novel stereoselective methods to prepare axially chiral biaryls are therefore highly desirable.^[1] Of particular interest are strategies to make enantioenriched 2,2',3,3'-substituted binaphthalenes, privileged scaffolds in ligand design, as they would allow to replace cumbersome multi-step procedures which typically involve protecting group manipulations.



The poster outlines our approach to stereoselectively prepare 2,2',3,3'-substituted binaphthalenes by a four-fold ozonolysis of cinnamyl indene dimers (A) to hexa-carbonyl substrates (B), followed by a secondary amine catalyzed double arene-forming aldol condensation.^[2] The reaction cascade proceeds with good overall yields and high enantioselectivities giving access to tetra-*ortho*-substituted binaphthalenes (C) which can be readily converted into established scaffolds for catalysis.

[1] R. M. Witzig, D. Lotter, V. C. Fäseke, C. Sparr, *Chem. Eur. J.* **2017**, *23*, 12960–12966.

[2] R. M. Witzig, V. C. Fäseke, D. Häussinger, C. Sparr, *unpublished results*.