Design and Synthesis of Novel Chiral Clefts and Helical Structures

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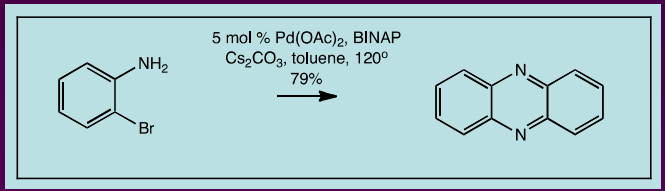
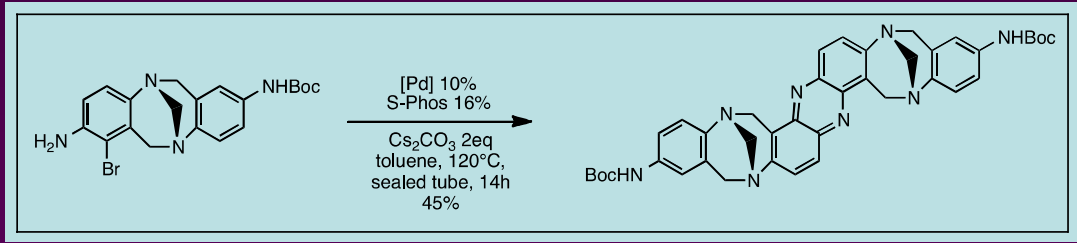
A New Aryl Ligation Reaction: We have developed a method for the "connection" of two aromatic rings to generate a phenazine ring system, as illustrated below (Preliminary Communication: J. Winkler, B. Twenter, T. Gendrineau, Heterocycles 2012, 84, 1345-1353) :





Chiral Clefts via Connection of Monomer Units of Trogers Base: **The application of this method to a functionalized Trogers base monomer yields the "dimeric" phenazine shown, which adopts the indicated orientation in three-dimensional space. We are currently applying this method to the synthesis of the octameric form shown below, which assumes a "box"-like structural helical orientation, in which the distance across the box is ca. 10 Å**