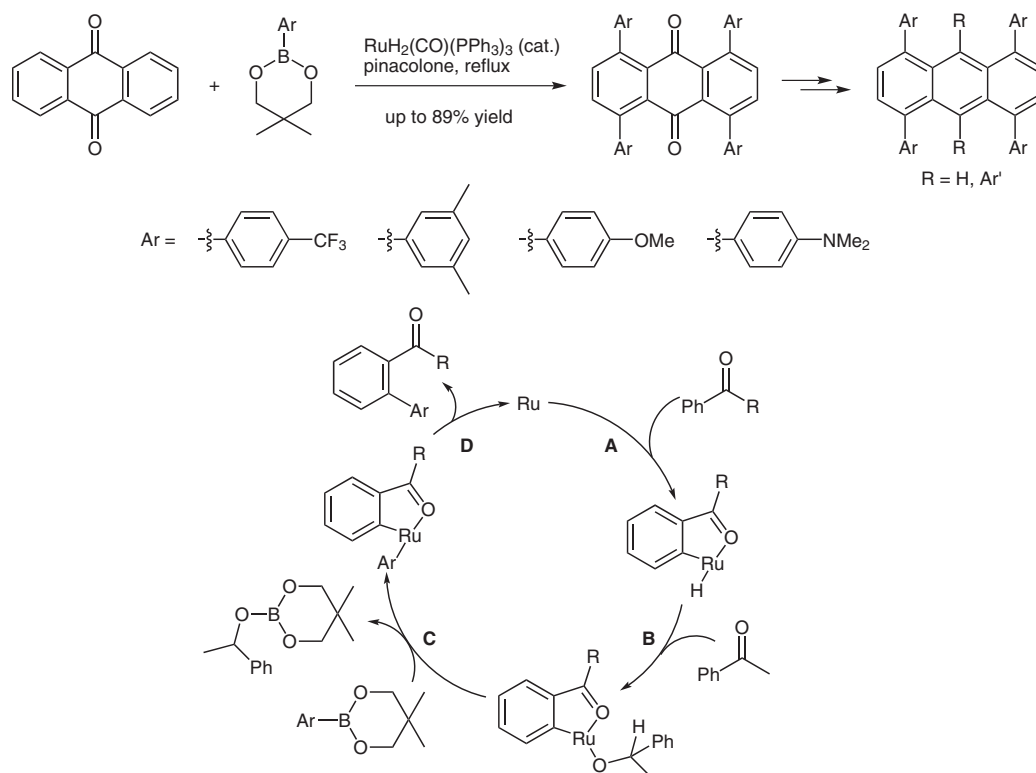


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Convenient Synthesis of Tetra- and Hexaarylanthracenes by Means of $\text{RuH}_2(\text{CO})(\text{PPh}_3)_3$ -Catalyzed C–H Arylation of Anthraquinone with Arylboronates

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C–H Activation to Make Highly Functionalized Anthracenes



Significance: The authors present the tetraarylation of anthraquinone using ruthenium-catalyzed C–H bond activation. The products of the arylation can then be converted into acenes using known methods, arriving at the tetra- or even hexa-substituted anthracene derivatives. The scope of the arylation is remarkable, with electron-poor and electron-rich aryl rings being viable substrates. The proposed mechanism of the arylation is shown above and consists of oxidative cleavage of the aryl C–H bond by ruthenium(0) (**A**), followed by hydrometalation of pinacolone (**B**). Transmetalation (**C**) with the arylboronic ester followed by reductive elimination (**D**) provides the arylation product and regenerates the active ruthenium catalyst.

Comment: This work represents a remarkable extension of the methodology communicated earlier by the same authors (*J. Am. Chem. Soc.* **2003**, *125*, 1698). Although the conditions are similar to the earlier work, the importance and potential utility of these products and the ease with which they are accessed makes this work very significant. Acenes are extremely important materials in organic material research and there exist a huge number of derivatives that have been studied for use in devices. New means to rapidly assemble new or even known derivatives from commercially available starting materials can have a significant impact on the field of material study.

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