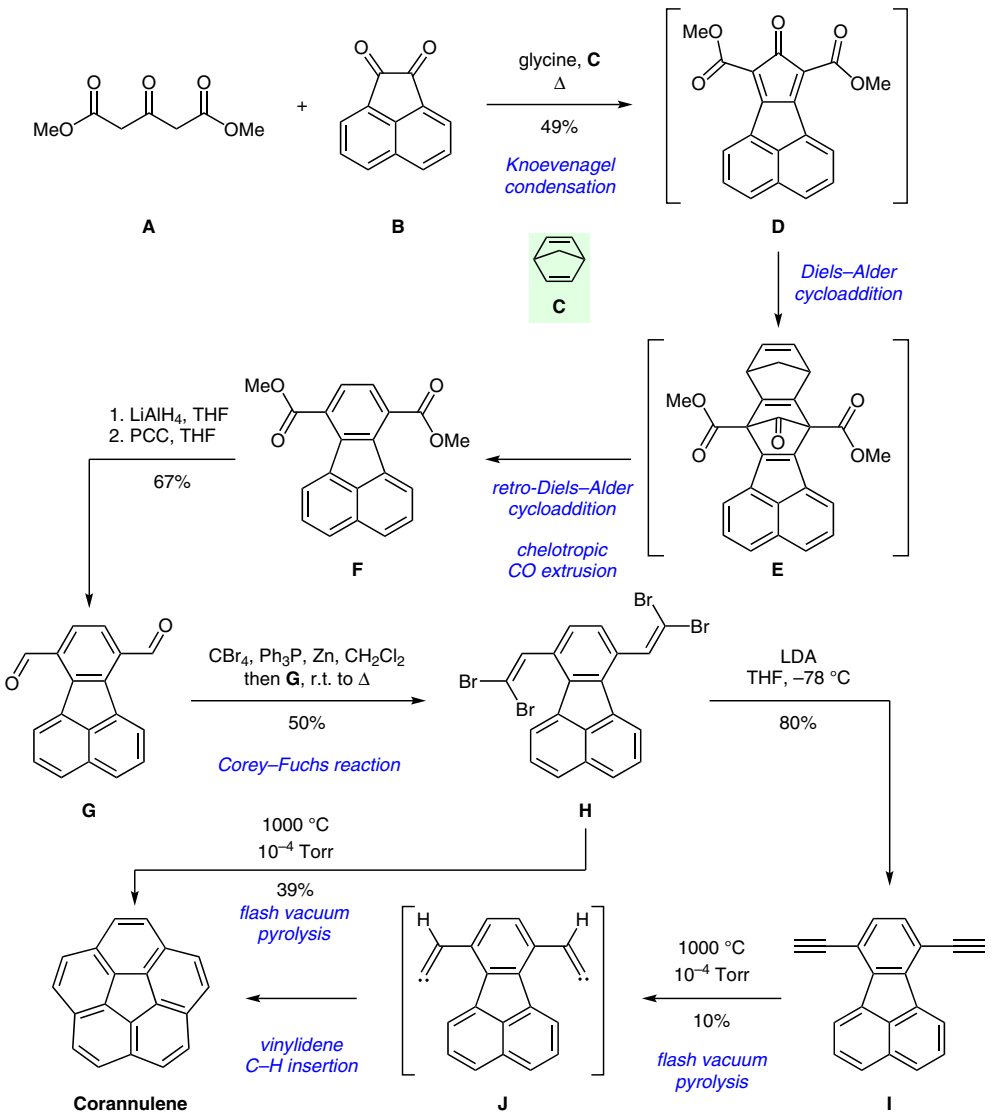
L. T. SCOTT, M. M. HASHEMI, D. T. MEYER, H. B. WARREN (UNIVERSITY OF NEVADA, RENO, USA)

Corannulene. A Convenient New Synthesis
J. Am. Chem. Soc. **1991**, *113*, 7082–7084, DOI: 10.1021/ja00018a082.

Synthesis of Corannulene



Significance: Corannulene is a polycyclic aromatic hydrocarbon consisting of a cyclopentane ring that is fused with five benzene rings. The bowl-shaped molecule was first synthesized by Bath and Lawton in 1966 (*J. Am. Chem. Soc.* **1966**, *88*, 380). In 1991, Scott and co-workers presented a simplified synthesis featuring flash vacuum pyrolysis to access the product.

Comment: Knoevenagel condensation and Diels–Alder cycloaddition give access to tetracyclic diester **F**. The corresponding aldehyde **G** is then converted in a Corey–Fuchs reaction to dialkyne **I**. Flash vacuum pyrolysis putatively furnishes vinylidene **J** which is trapped to yield corannulene. Interestingly, *gem*-dibromoalkene **H** also yields corannulene under flash vacuum pyrolysis conditions by loss of bromine atoms.

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Category

Synthesis of Natural Products and Potential Drugs

Key words

corannulene

hydrocarbon synthesis

Corey–Fuchs reaction

flash vacuum pyrolysis

vinylidene C–H insertion