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A Short-Step Entry to (±)-Quadrone

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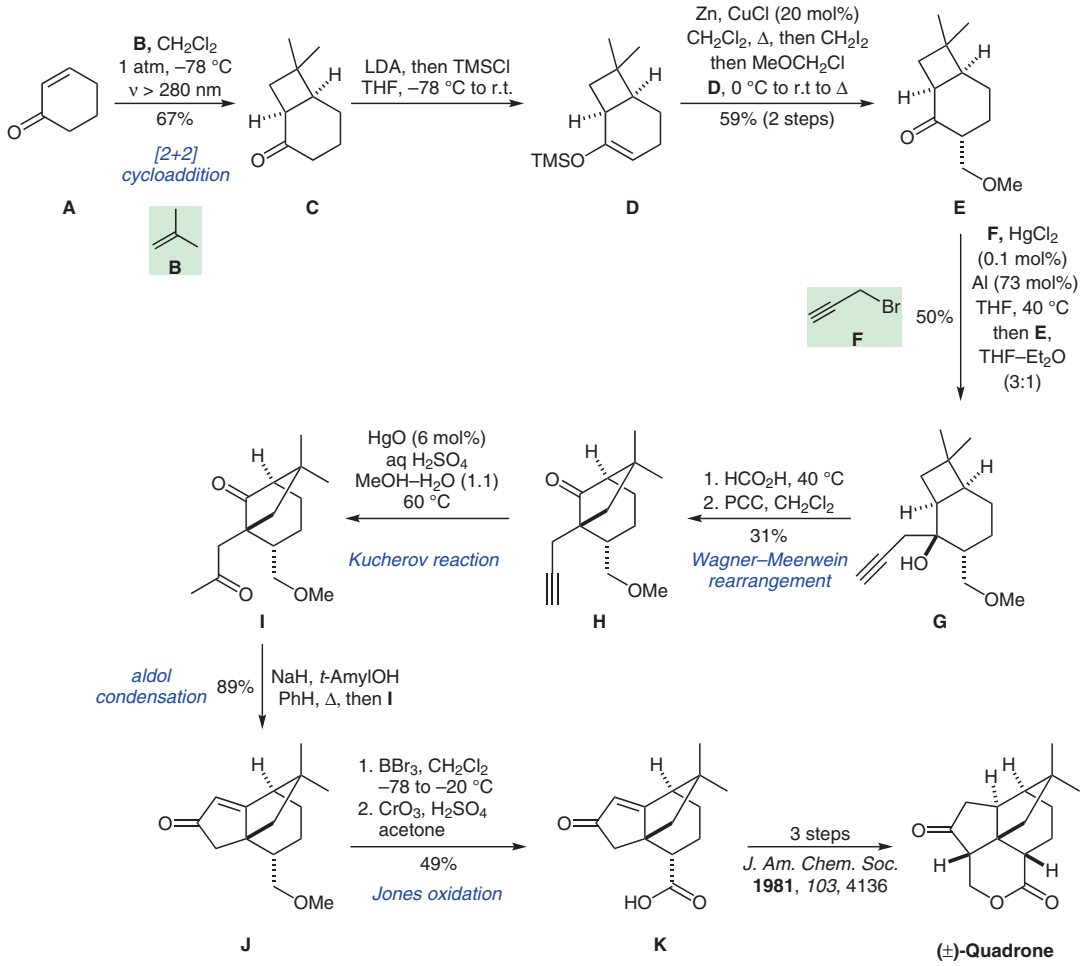
Synthesis of (±)-Quadrone



Significance: The sesquiterpene (±)-quadrone was isolated from *Aspergillus terreus* in 1978 and exhibits antitumor properties. Structurally, the natural product contains a quadracyclic fused ring system around a central quarternary carbon atom. In 1983, Yoshii and co-workers presented a formal synthesis, featuring a Wagner–Meerwein rearrangement.

Comment: Cyclobutane **C** was accessed through photochemical [2+2] cycloaddition and transformed into alcohol **G** in three steps. Wagner–Meerwein rearrangement and subsequent oxidation yielded alkyne **H**. Kucherov reaction to diketone **I** enabled aldol condensation to enone **J**. Deprotection followed by Jones oxidation gave access to carboxylic acid **K**, which was previously transformed to the natural product by Danishefsky and co-workers in three steps.

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