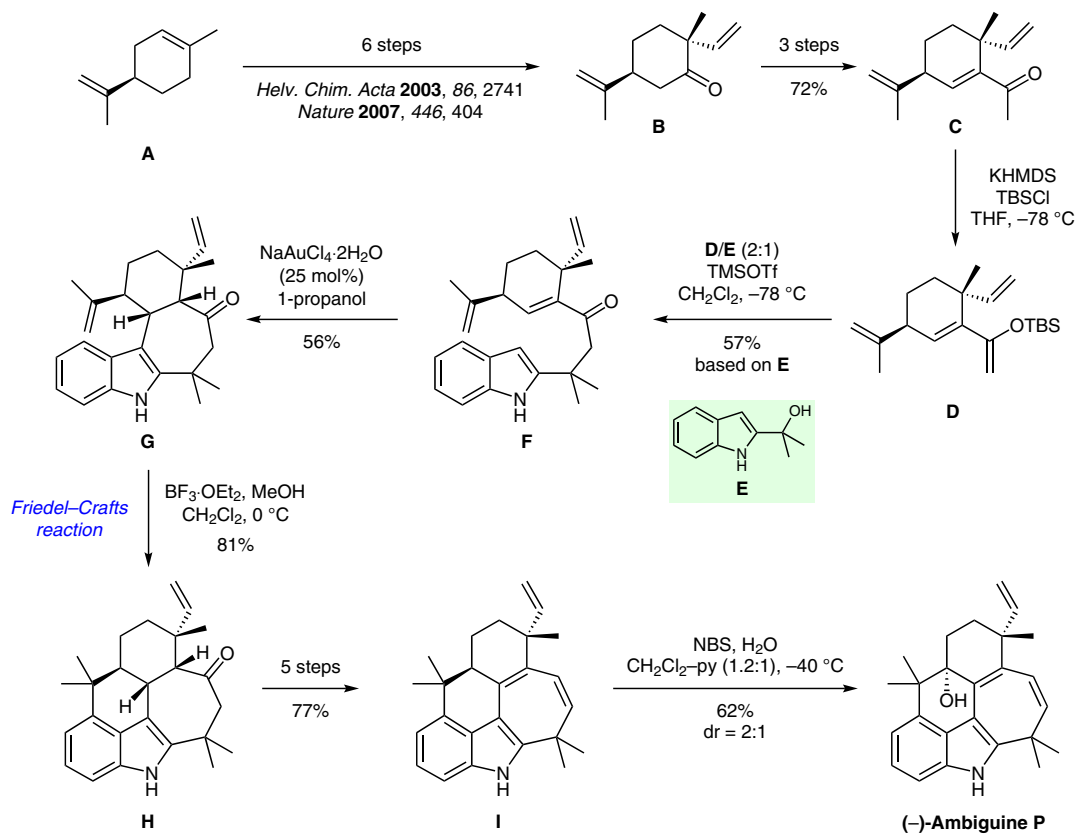


Enantioselective Total Synthesis of (-)-Ambiguine P



Significance: Isolated from the cultured cyanobacterium *Fischerella ambigua* in 2010, ambiguine P belongs to the hapalindole alkaloid family. The pentacyclic natural product contains a seven-membered ring and an embedded indole, which pose significant synthetic challenges. The authors report an enantioselective total synthesis of the target employing a stepwise [4+3]-cycloaddition strategy.

Comment: Ketone **B**, accessible from limonene (**A**), was transformed into enol ether **D** in four steps. A net [4+3] cycloaddition of this diene with indole **E** and subsequent intramolecular Friedel-Crafts reaction installed the target's pentacyclic core. Functional group manipulations furnished diene **I**, which was transformed into the natural product by NBS-mediated regioselective oxidation.