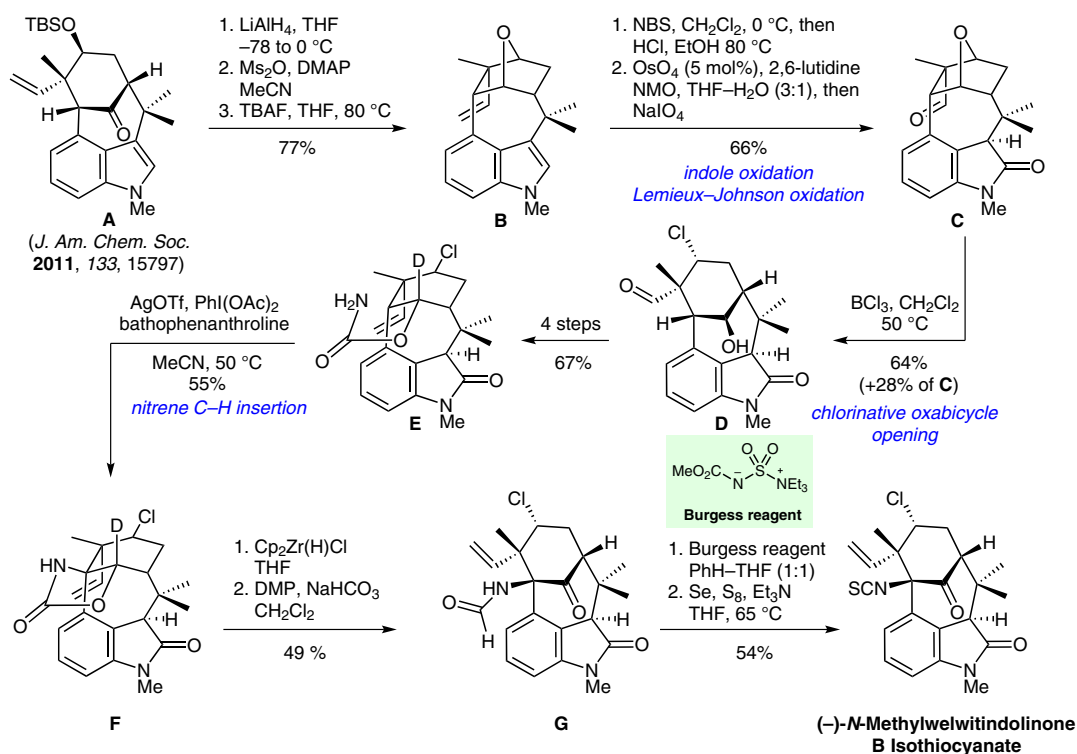


Synthesis of (–)-*N*-Methylwelwitindolinone B Isothiocyanate



Significance: The family of the welwitindolinone natural products represents a formidable challenge for synthetic chemists. Structurally, the majority of these molecules consist of an indolinone imbedded into a [4.3.1]bicycle. While several efforts towards the synthesis of congeners have been reported to date, the challenge of (–)-*N*-methylwelwitindolinone B isothiocyanate has not been met. This compound is unique due to the alkyl chloride, which has been found to undergo various side reactions. The approach presented by Garg and co-workers relies on a chlorinative oxabicyclic ring opening culminating in the first total synthesis of the target molecule.

Comment: The synthesis commenced with ketone **A**, which was generated using an elegant indoline cyclization (*J. Am. Chem. Soc.* **2011**, *133*, 15797; *Synfacts* **2011**, *7*, 1281). Diastereoselective reduction, followed by ring closure, generated oxabicycle **B**. The subsequent BCl_3 -mediated chlorinative ring opening proved to be efficient only when the vinyl group was first converted into an aldehyde. Carbamate **E**, obtained in a few steps, underwent nitrene C–H insertion under conditions previously reported. Finally, carbamate cleavage, oxidation, dehydration, and sulfurization delivered (–)-*N*-methylwelwitindolinone B isothiocyanate.