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Stereoselective Total Synthesis of (–)-Flueggine A and (+)-Virosaine B
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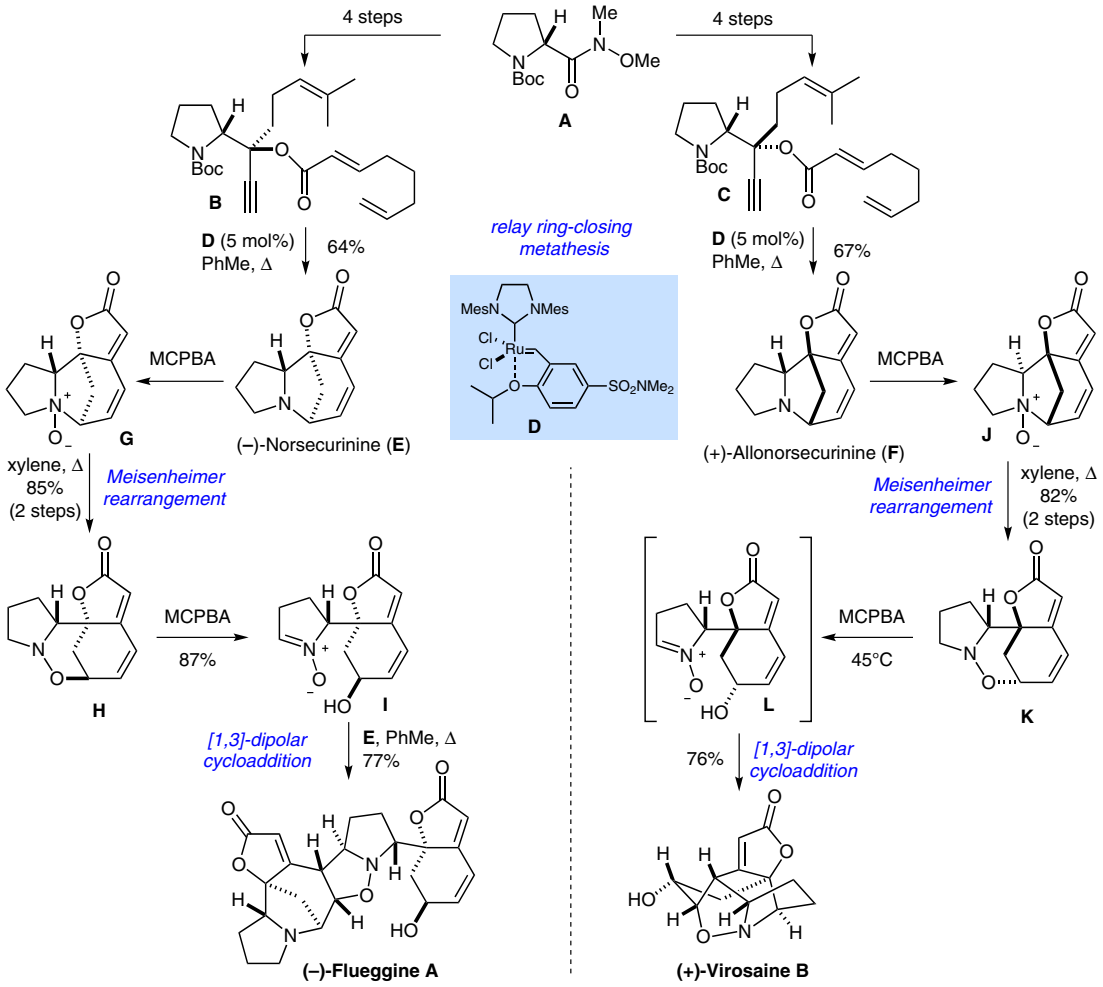
Total Synthesis of (–)-Flueggine A and (+)-Virosaine B



Significance: *Securinega* alkaloids have been used for a long time in traditional Chinese medicine. Two recently isolated members of this family, (–)-flueggine A and (+)-virosaine B, have now been synthesized for the first time. The concise route to access the two natural products involves a [1,3]-dipolar cycloaddition. The precursors for this key step are synthesized by a sequence including a relay ring-closing metathesis followed by a Meisenheimer rearrangement.

Comment: The route starts with the synthesis of the two natural products (–)-norsecurinine (**E**) and (+)-allonorsecurinine (**F**) by a relay ring-closing metathesis, whereby the order of ring-closing events can be carefully controlled. The route then follows a previously described strategy (*Tetrahedron* **1993**, *49*, 8059) to access the two *O*-alkylhydroxylamines **H** and **K**. Finally, heterodimeric (–)-flueggine A is accessed by allowing nitrone **I** to react with **E**, whereas (+)-virosaine B results from an intramolecular cycloadditon of nitrone **L**.

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Synthesis of Natural Products and Potential Drugs

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dipolar cycloaddition
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[1,3]-sigmatropic rearrangement
Meisenheimer rearrangement