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Total Synthesis of (±)-Alopecuridine and Its Biomimetic Transformation into (±)-Sieboldine A

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Synthesis of (±)-Alopecuridine

Significance: (±)-Alopecuridine A is a Lycopodium alkaloid that is a biological precursor for the significantly cytotoxic (±)-sieboldine A. The first total synthesis is achieved here in 13 steps, followed by the conversion into (±)-sieboldine A that validates the biogenetic pathway.

Comment: Compounds **E** and **F** were obtained as an inseparable mixture of diastereoisomers that were subjected to semipinacol rearrangement conditions. This generated a mixture of diastereoisomers that could then be separated by chromatography to give the desired intermediate **G** in 45% yield. The tricyclic core **J** was synthesized with a samarium iodide mediated coupling.

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