Total Synthesis of Methylhomosecodaphnyphillate



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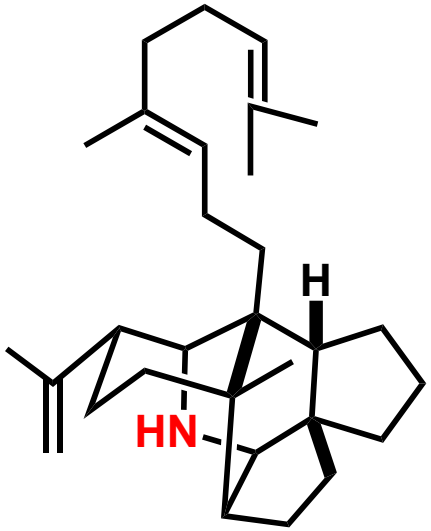
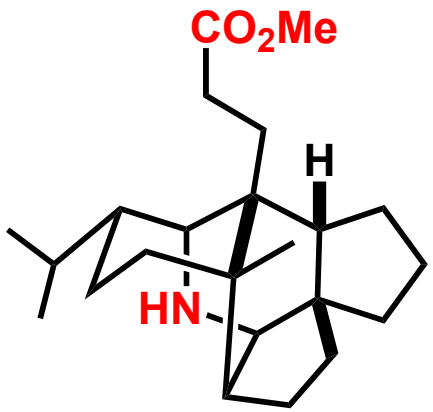
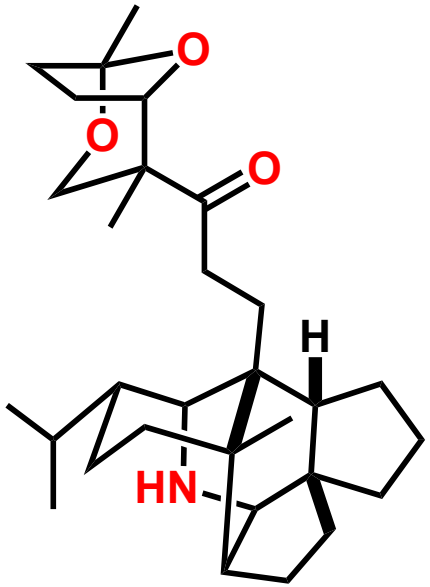
Daphnyphillanes



Proto daphnyphillane



Methyl Homosecodaphnyphillate

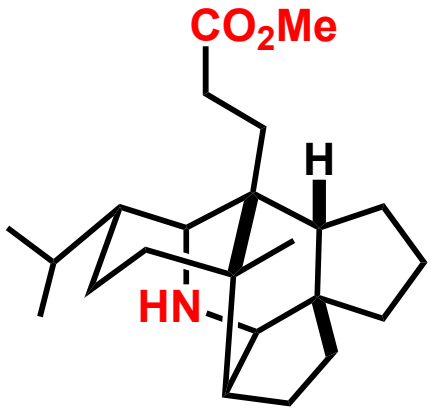


Secondaphnyphillane

These alkaloids are squalene derived natural products

Tetrahedron **1972**, 28, 1477, *Chem. Lett.* **1976**, 1381.

Isolation of Methylhomosecodaphnyphillate



Methyl Homosecodaphnyphillate

- This molecule was isolated from the bark & leaves of Yuzuriha
- It was used for the treatment of asthma
- In 1971, Sasaki and Hirata disclosed the correct structure of this compound by X-ray

Isolation: *Tetrahedron* **1972**, 28, 1477.

Structural Challenges

- Highly congested pentacyclic skeleton
- There are 8 stereogenic centers
- Two contiguous quaternary centers

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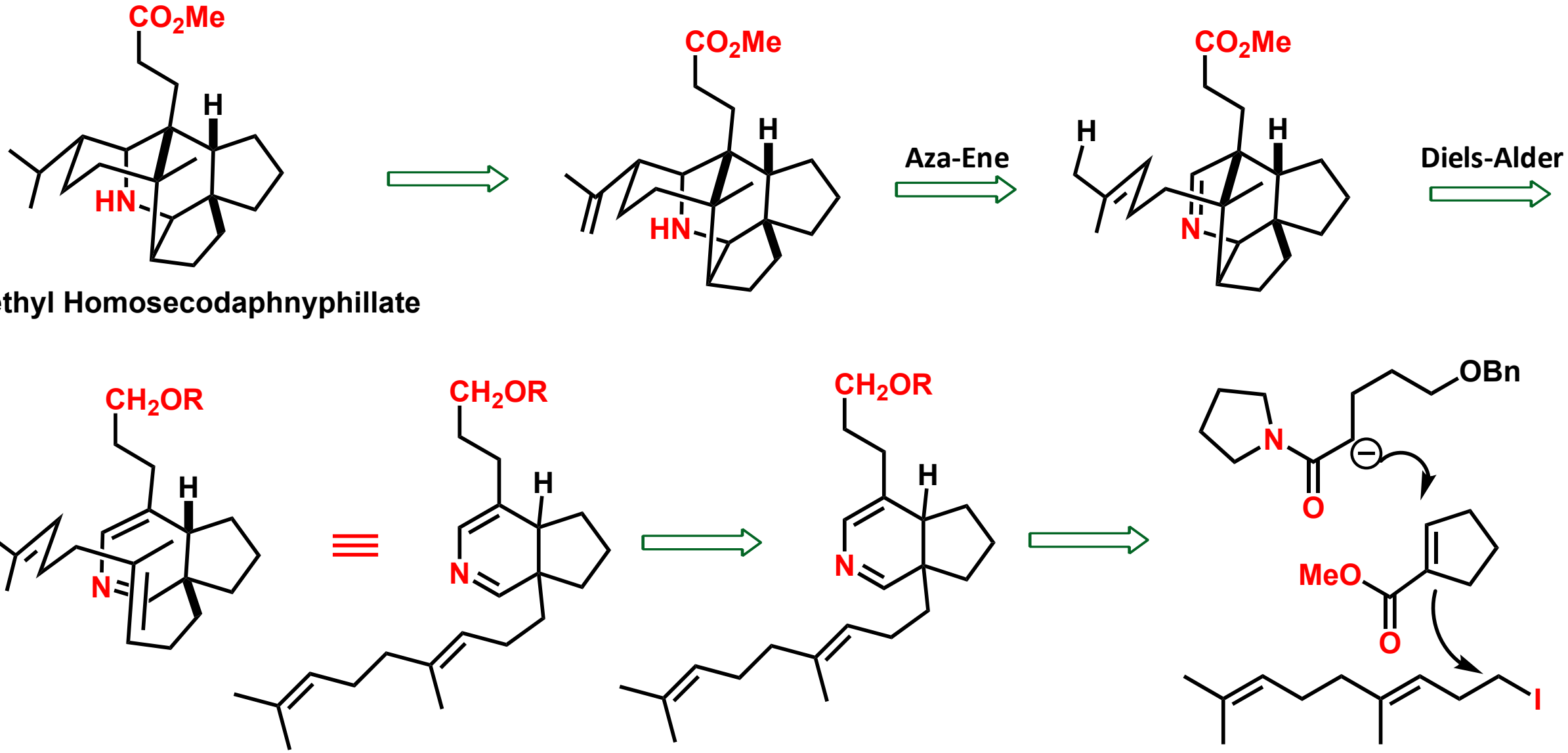
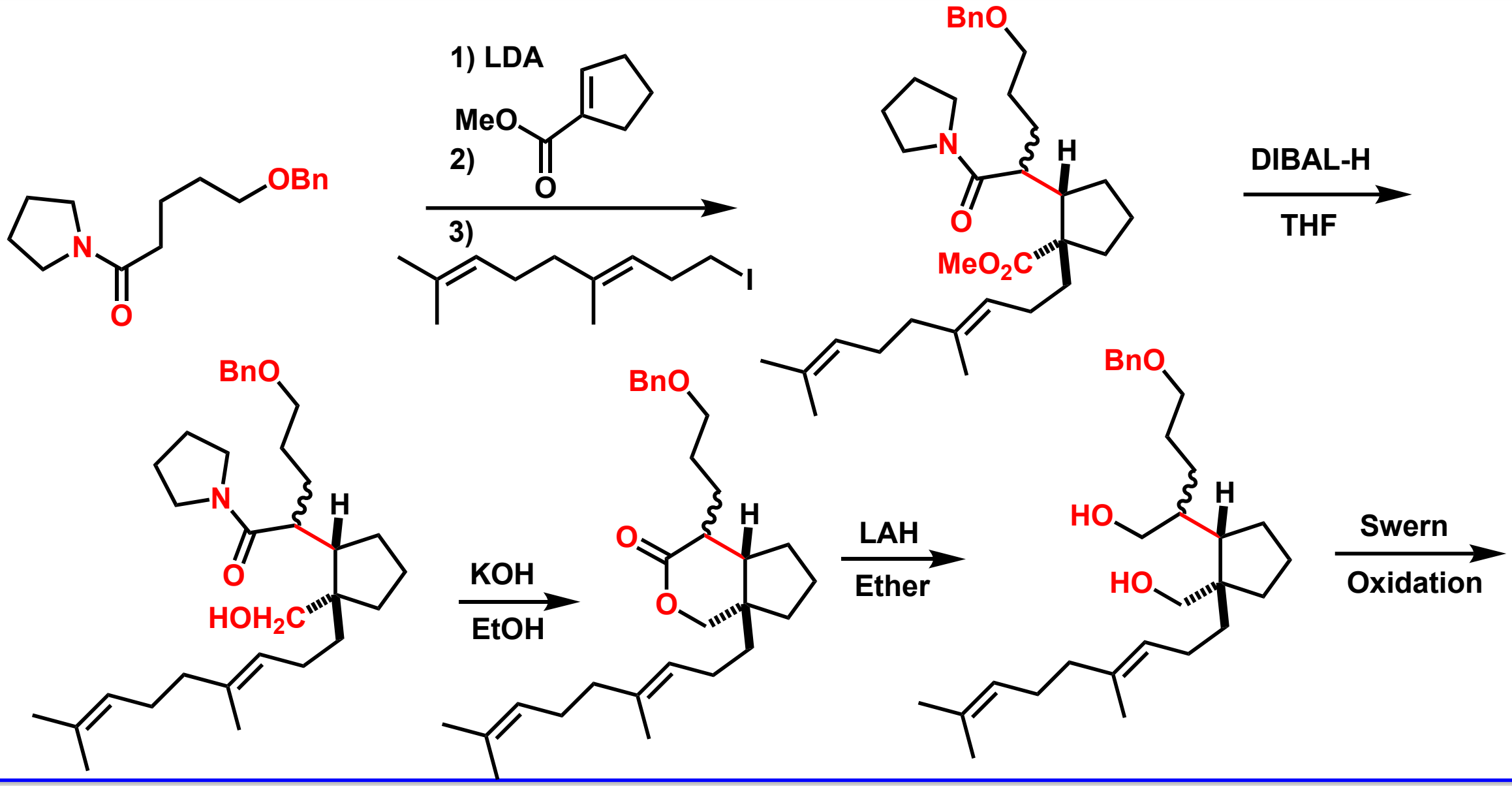


Total Synthesis of Methylhomosecodaphnyphillate



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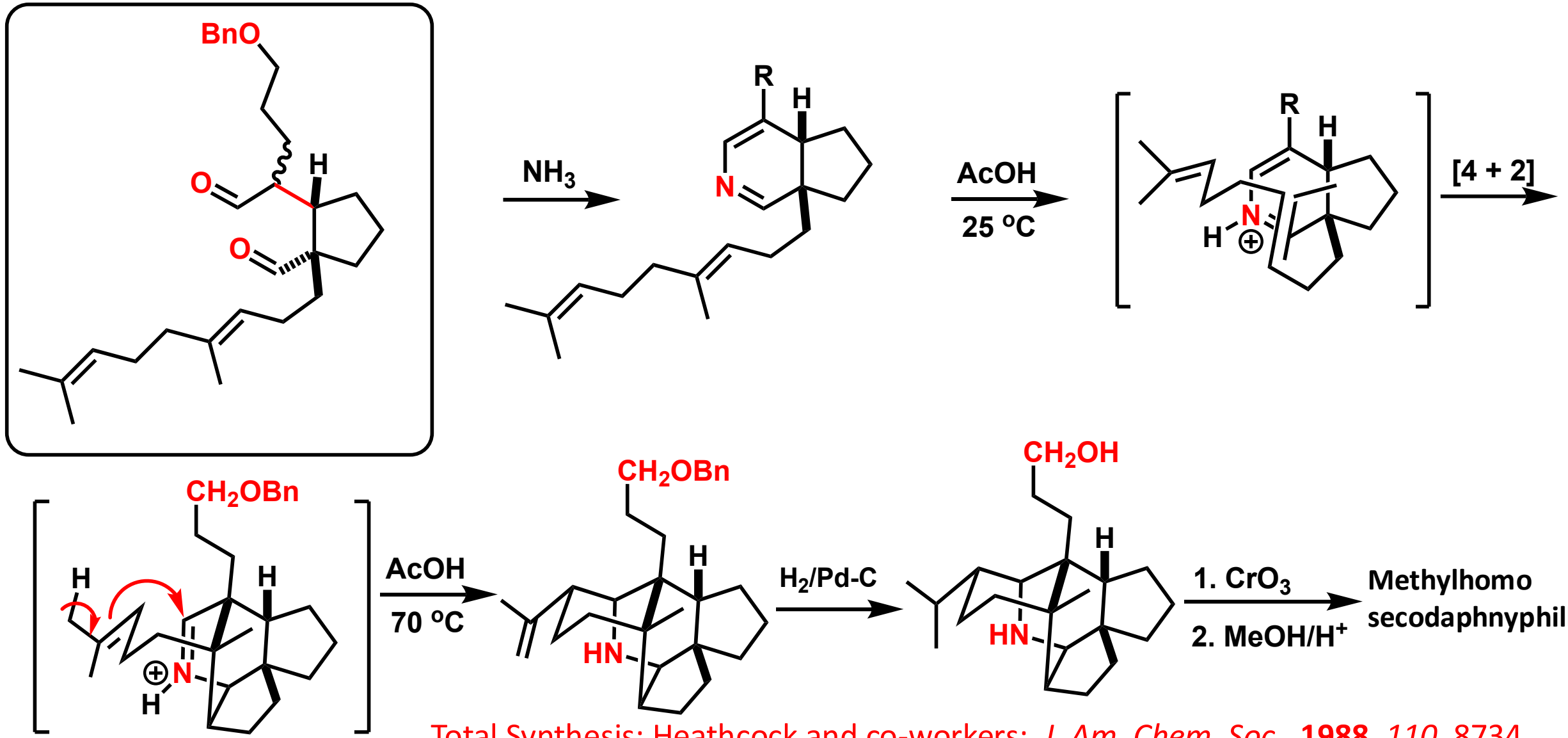

Total Synthesis: Heathcock and co-workers: *J. Am. Chem. Soc.*, **1988**, *110*, 8734.