

# Total Synthesis of the *Cephalotaxus* Norditerpenoids ( )-Cephanolides A–D

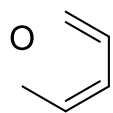
Maximilian Haider, Goh Sennari, Alina Eggert, Richmond Sarpong\*  
*J. Am. Chem. Soc.* **2021**, *143*, 2710 - 2715.

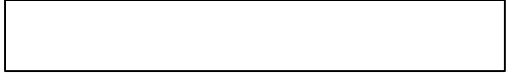
The larger family of *Cephalotaxus* diterpenoids have shown a broad range of bioactivity that includes plant growth inhibition as well as antineoplastic, antiviral, and antitumor properties.

Construction of the carbon framework through:  
iterative  $\text{C}-\text{C}$ -coupling,  
intramolecular inverse-  
cycloaddition,  
strategic late-stage oxidations,  
facilitated

# Retrosynthesis

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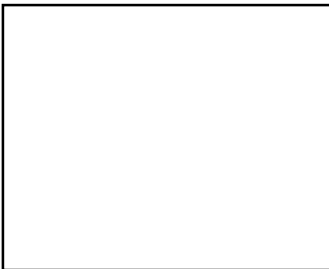
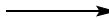


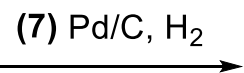


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Mukaiyama hydration, then base elimination

Olefination using a modified protocol

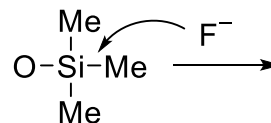




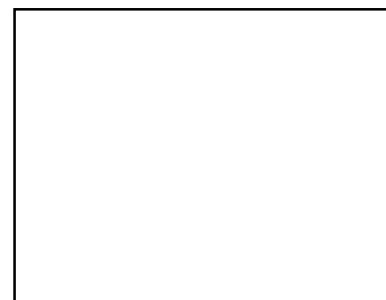
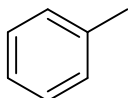
Heterogeneous Pd-catalyzed hydrogenation

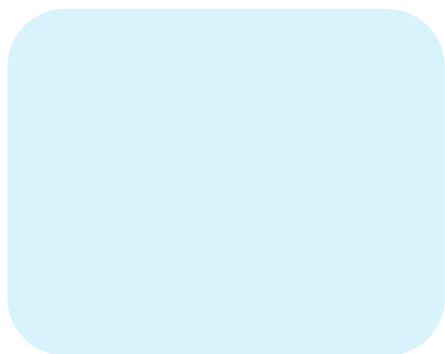
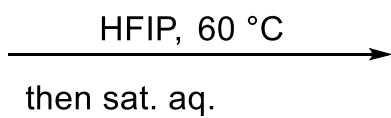
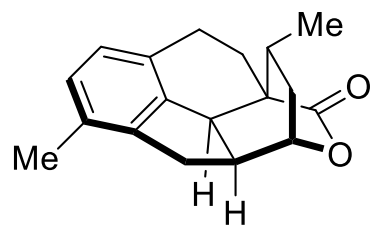


Silyl deprotection with fluoride



Ionic deoxygenation







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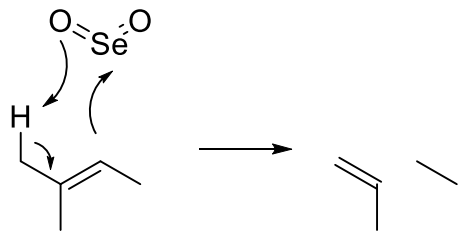
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Oxime-directed arene acetylation

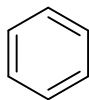


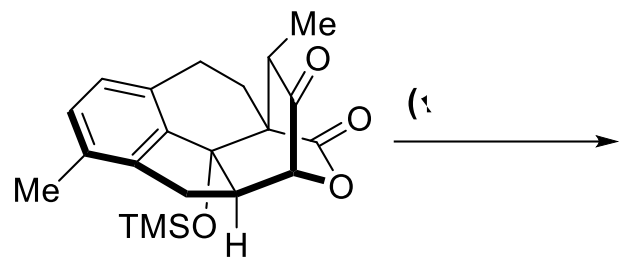
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Allylic oxidation with selenium dioxide

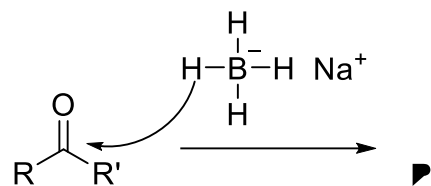


Dess-Martin Oxidation

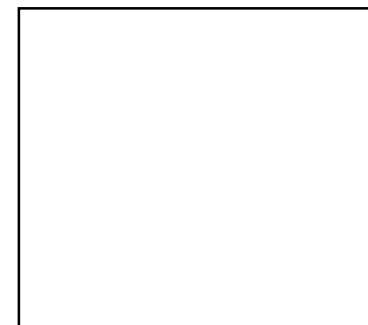
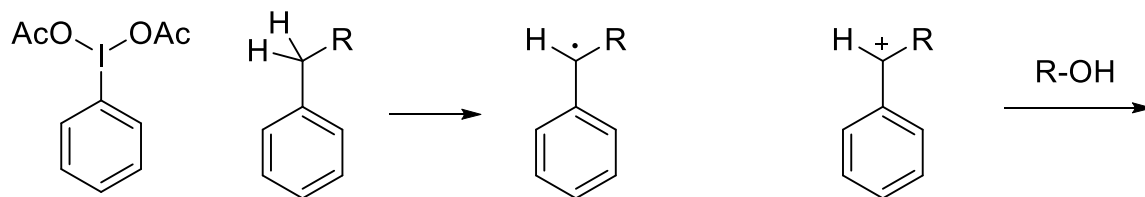


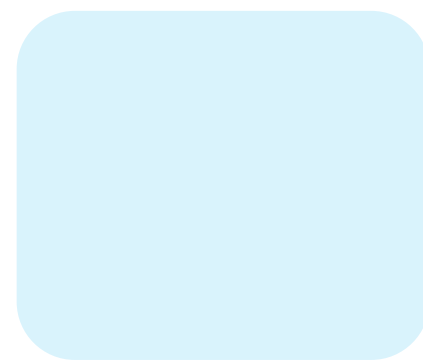


Ketone reduction with sodium borohydride



Intramolecular benzylic oxidation





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Formation of xanthate ester

Barton-McCombie deoxygenation

