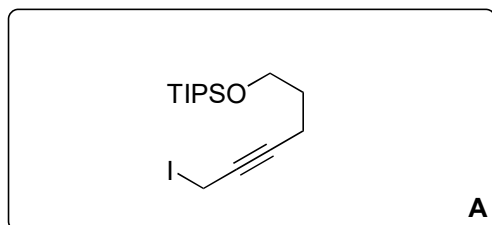


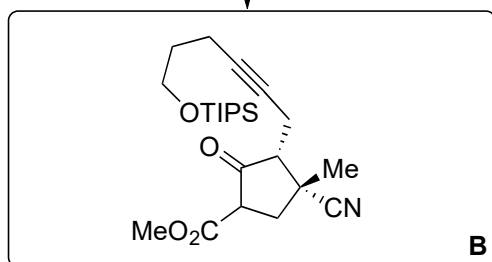
# Concise and Stereoselective Synthesis of Annotinolides C, D, and E

Pei Qu and Scott Snyder

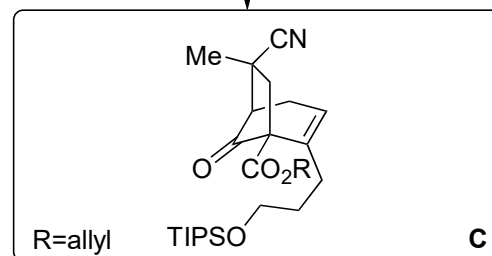
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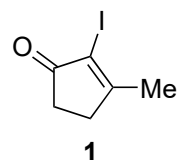
1–3



4–5



6–11



- 1) **1**, *i*-PrMgCl, CuCN•2LiCl, *then A*
- 2) Et<sub>3</sub>Al, TMSCN, *then HCl*
- 3) LDA, NCCO<sub>2</sub>Me

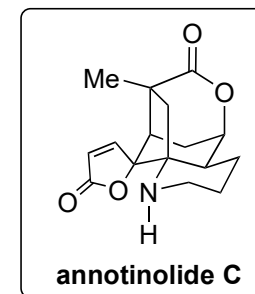
- 4) TBSOTf,
- 5) JohnPhosAu-(NCMe)SbF<sub>6</sub>

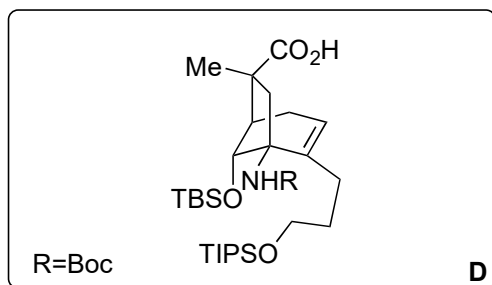
- 6) CeCl<sub>3</sub>, NaBH<sub>4</sub>
- 7) TBSOTf, 2,6-lutidine
- 8) Pd(PPh<sub>3</sub>)<sub>4</sub>, pyrrolidine
- 9) DPPA, Et<sub>3</sub>N, *t*-BuOK
- 10) DIBAL-H
- 11) NaClO<sub>2</sub>

2) Name of reagent, which is generated *in situ*? Nagata's reagent.

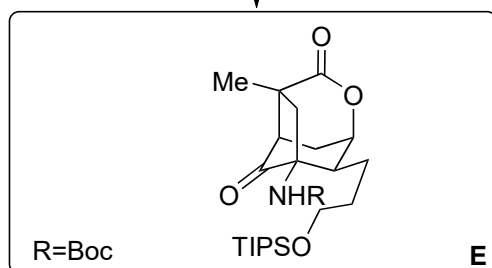
5) Hint: Key cyclization step.

9) Name of reaction? Curtius rearrangement.

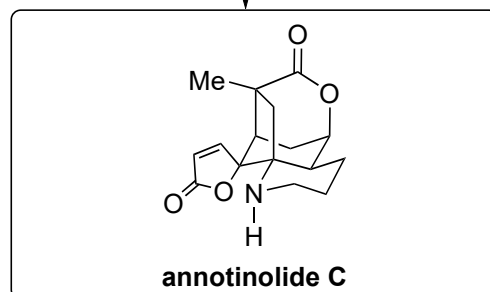




12–15



16–19



- 12) NIS  
 13) TBAF  
 14)  $n\text{-Bu}_3\text{SnH}$ ,  $\text{Et}_3\text{B}$ , air  
 15) Dess–Martin periodinane

13) Hint: Only one protecting group is removed.

- 16)  $\text{Li}-\text{C}\equiv\text{C}-\text{CO}_2\text{Me}$   
 17)  $\text{H}_2$ , Pd/C, quinoline, *then* silica gel  
 18) TBAF  
 19) MsCl,  $\text{Et}_3\text{N}$ , *then* TFA, *then*  $\text{NaHCO}_3$