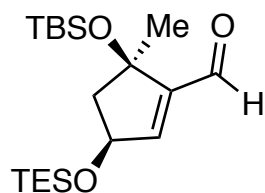


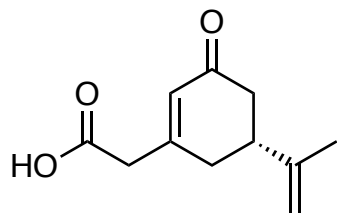
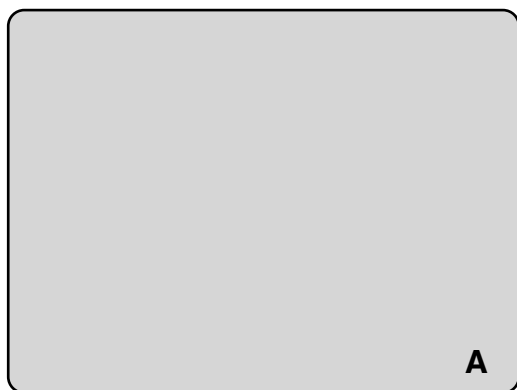
## A Convergent Total Synthesis of (+)-Ineleganolide

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1-9



10-13

- 1)  $\text{CH}_2\text{Br}_2$ , *n*-BuLi, THF, -78 to 23 °C
- 2) TBAF, THF, 60 °C
- 3) TBSCl, imidazole, DMAP,  $\text{CH}_2\text{Cl}_2$
- 4)  $\text{MgI}_2$ , THF, 40 °C
- 5) TESCl, imidazole,  $\text{CH}_2\text{Cl}_2$
- 6) NaH, THF
- 7) PPTS, EtOH
- 8)  $(\text{COCl})_2$ , DMSO,  $\text{CH}_2\text{Cl}_2$ , then  $\text{Et}_3\text{N}$
- 9) HF (aq), THF

- 10)  $\text{Ph}_3\text{P}=\text{O}$ ,  $(\text{COCl})_2$ , then **A**, then DIPEA,  $\text{CH}_2\text{Cl}_2$
- 11) DMF, 120 °C, then DBU
- 12) TESCl, THF, 60 °C
- 13)  $\text{Sml}_2$ ,  $\text{H}_2\text{O}$ , THF, -78 °C

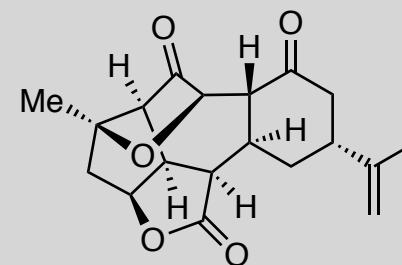
1) How would you make the starting material?

7) Draw the structure of PPTS

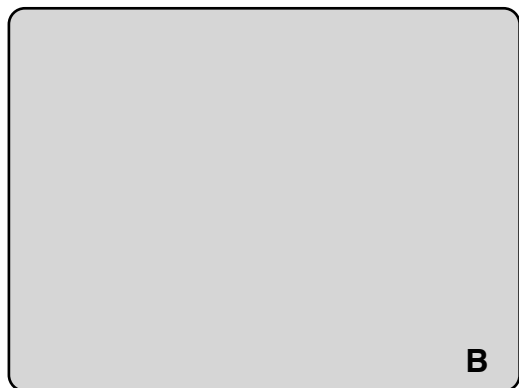
8) Name of reaction?

11) Propose mechanism.

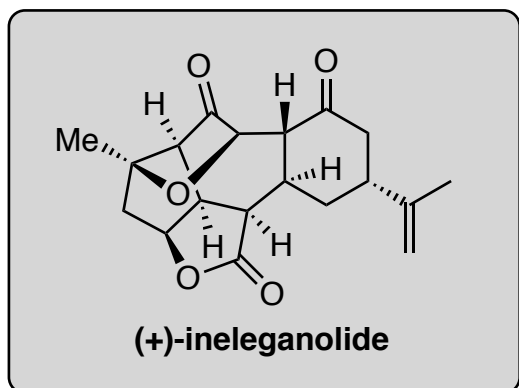
*Hint: Cascade reaction to form 5/5/5/6/6 fused ring system*



**(+)-ineleganolide**



14-16  
↓



- 14) DBU, O<sub>2</sub>, benzene, 70 °C  
15) Ac<sub>2</sub>O, Et<sub>3</sub>N, DMAP, CH<sub>2</sub>Cl<sub>2</sub>  
16) Sml<sub>2</sub>, THF:NaOH (1M) (8:1), -78 to 23 °C

14) Draw the structure of DBU  
*Hint: Formation of endoperoxide intermediate*

16) Name of reaction?