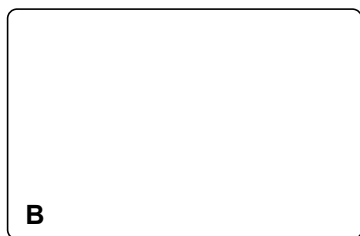
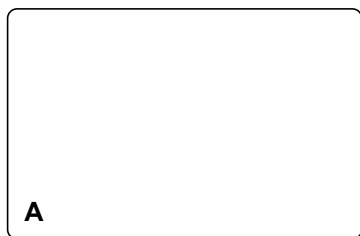
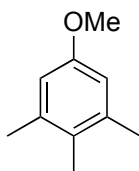


Total Synthesis of (±)-Nakafuran-8

Uyehara, T., Sugimoto, M., Suzuki, I., Yamamoto, Y., *J. Chem. Soc. Chem. Commun.* **1989**, 1841–1842



- 1) NH_3 , *t*-BuOH, Li, THF, -78°C
- 2) Chloroacrylonitrile, benzene, reflux
- 3) Na_2S , $\text{H}_2\text{O}/\text{EtOH}$, reflux
- 4) BF_3 , MeOH

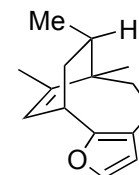
- 5) DIBALH
- 6) PTSA, PhH, reflux
- 7) TMSCN, ZnI_2

How would you rationalize the outcome of steps 1 and 2? Provide a mechanism for both
Hint: Isomerization takes place in 2 and allows cycloaddition

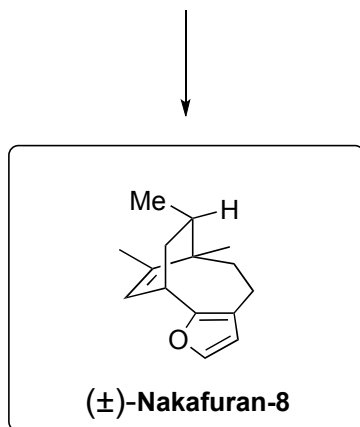
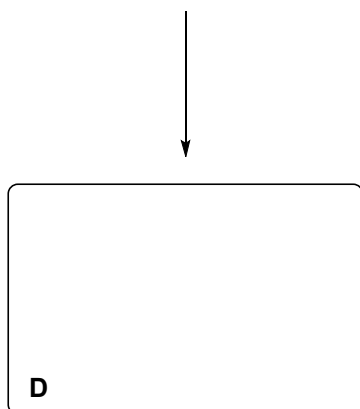
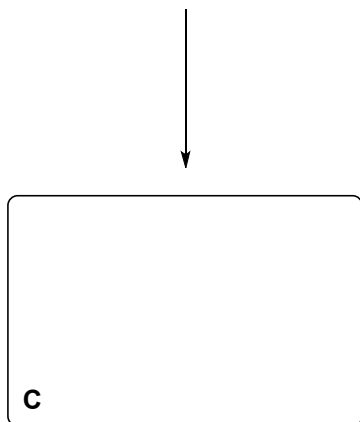
provide a mechanism for step 4

provide a mechanism for step 6

What is the role of ZnI_2 in step 7?



(±)-Nakafuran-8



8) LiAlH_4
9) NaNO_2 , AcOH, H_2O
10) TMSCHN_2 , $\text{BF}_3 \cdot \text{Et}_2\text{O}$

11) K_2CO_3 , MeOH/ H_2O
12) LDA, $\text{ICH}_2\text{CO}_2\text{Et}$
13) K_2CO_3 , MeOH/ H_2O

14) PTSA, PhH, reflux
15) DIBALH
16) H^+

provide a name and mechanism for step 9