### Total Synthesis of dl-Coriolin

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1) 1, MeONa, MeOH  
2) p-TsOH, toluene (0.2% H₂O), reflux  
3) 2, 120 °C

1) Name this reaction. *Note: epimers are formed.*  
   Michael addition.

3) Name the reaction. *Hint: methyl groups will be vicinal.*  
   Diels-Alder cycloaddition.

6) MeLi (2.5 eq.), -78 °C

4, 5) *Hint: a selenoxide is formed with 4.*

6) *Hint: single addition to enone.*

8) Name the reaction.  
   Jones oxidation.

9) *Hint: decarboxylation of bridgehead /-keto acid.*
12) t-BuOK
13) DIBAL (3 eq.), -78 °C
14) Li, NH₃, MeOH
15) m-CPBA
16) PCC (1.5 eq.)

12) Hint: deconjugation of enone
13, 14) Hint: global reduction of carbonyls

15) Rationalize the direction of epoxidation. 

α-epoxidation would result in an energetically unacceptable trans ring fusion.

17) LDA, 0 °C then 5, 0 °C
18) m-CPBA
19) EtOAc, reflux
20) H₂O₂

17) Hint: first, β-elimination. Then, use target structure to guide further reactivity.
18) Hint: a sulfoxide is formed.