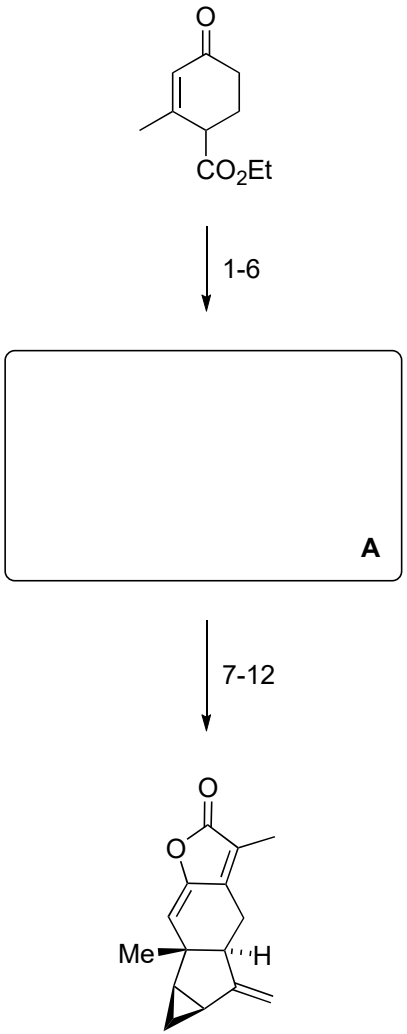
Total Synthesis of (±)-Chloranthalactone A

G. Yue, L. Yang, C. Yuan, X. Jiang, B. Liu, *Org. Lett.* **2011,** *13*, 5406–5408



Chloranthalactone A

1) vinylMgBr, CuBr • Me_2S
2) PTSA, ethylene glycol
3) HNMe(OMe) • HCl, *n*-BuLi
4) *n*-Bu_3SnCH_2OMOM, *n*-BuLi
5) CH_2Br_2, *n*-BuLi
6) LTMP

7) aq. HCl
8) $(imidazolyl)_2C{=}S$
9) $P(OMe)_3$
10) ethyl pyruvate, LDA, $ZnCl_2$
11) PTSA, Ac_2O
12) DBU

Name of the starting material how would you make it? (at least 2 synthetic routes)

Hagemann's Ester

step 5) Name the reaction, name an alternative reaction

Matteson epoxidation
alternative: Corey-Chaykovsky

keystep 6) Name and classify the reaction, draw the transition state

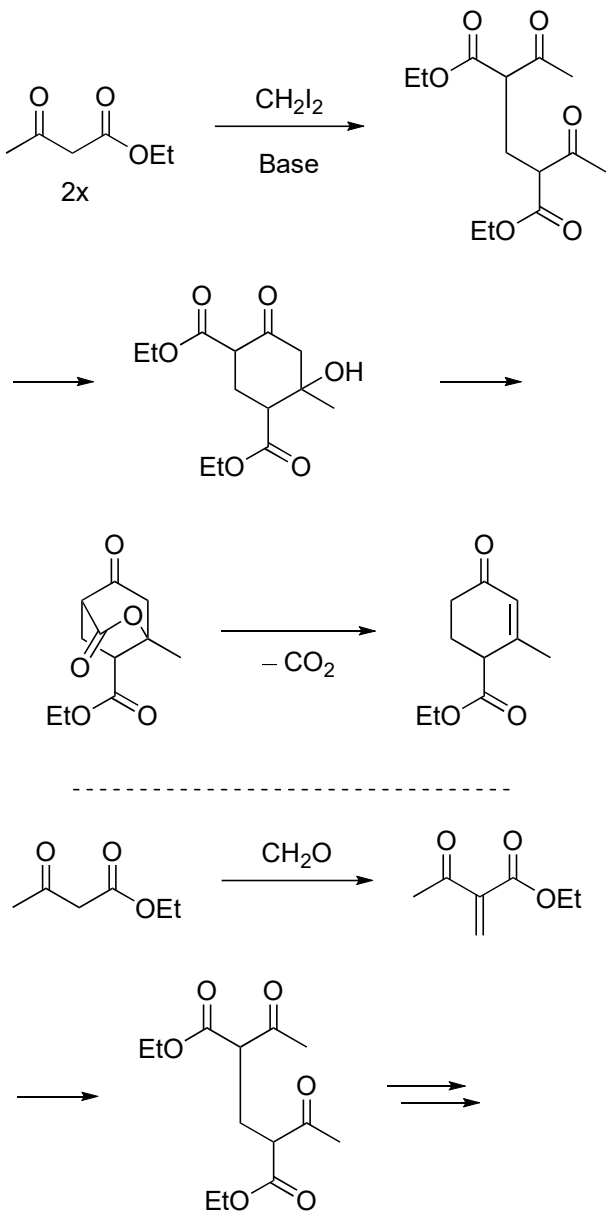
Hodgson Cyclopropanation
type: Cheletropic reaction

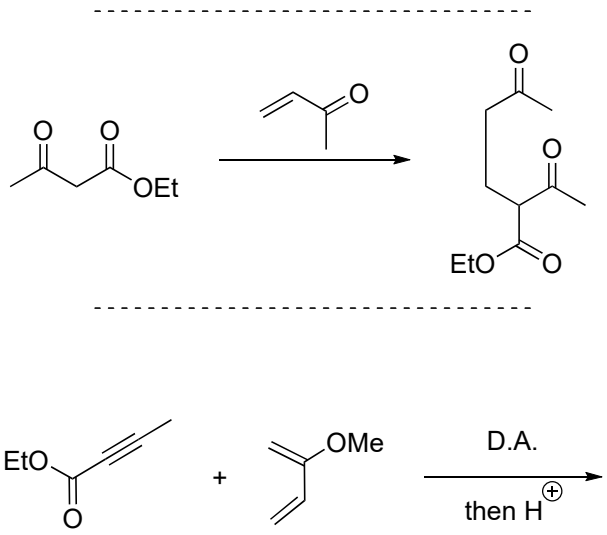
step 8/9: Name the reaction and explain the mechanism, alternative conditions for same modification
which famous 8-membered ring can be synthezied by this method?

Corey-Winter Elimination
alterantive: Eastwood reaction
$(OEt)_3CH$, then AcOH)

(*E*)-Cycloocten

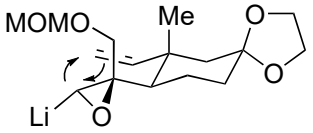
Hagemann's Ester



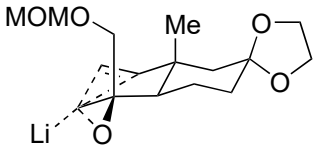


keystep TM

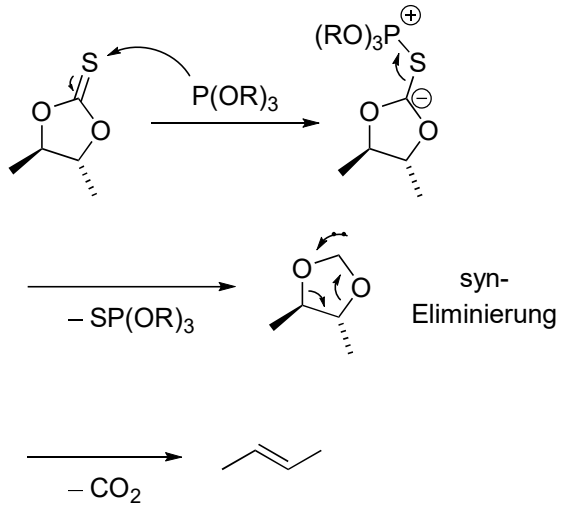
proposed mechanism this paper



proposed mechanism original paper



Corey-Winter



(*E*)-Cycloocten

chiral