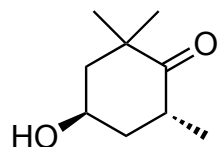
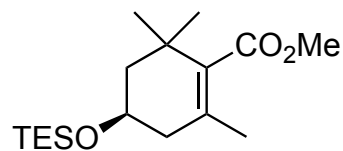


Stereocontrolled First Total Syntheses of Amarouciaxanthin A and B

Yumiko Yamano,* Mahankhali Venu Chary, and Akimori Wada, *Org. Lett.*, **2013**, ASAP, DOI:
10.1021/ol402540g
15.10.2013

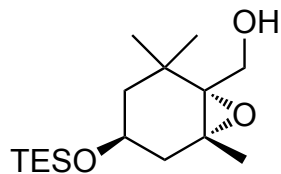


1,2,3



A

4,5



B

- 1) TESCO
- 2) LDA, Tf₂NPh
- 3) Pd(PPh₃)₄, CO, Et₃N, MeOH

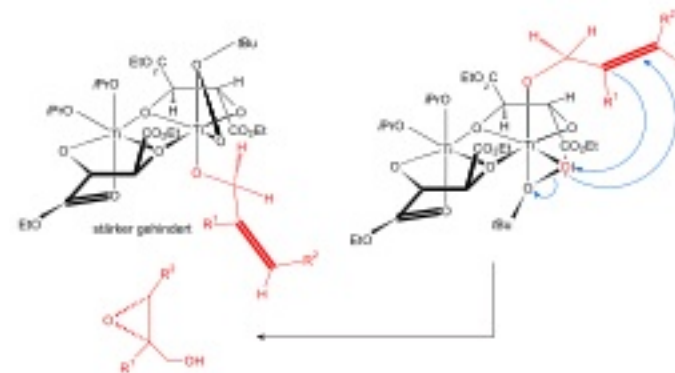
- 4) DIBALH
- 5) (-)-D-DET, Ti(O*i*Pr)₄, TBHP

please provide a detailed mechanism for step 3)

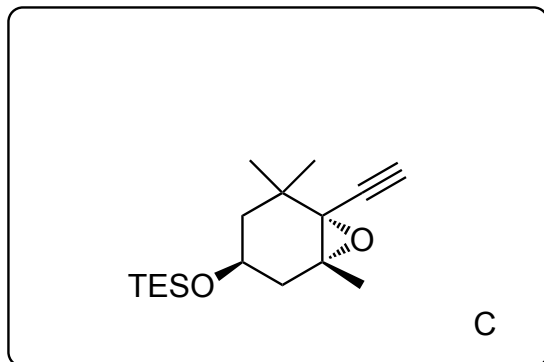
Palladium-catalyzed methoxycarbonylation

please provide a detailed mechanism for step 5)

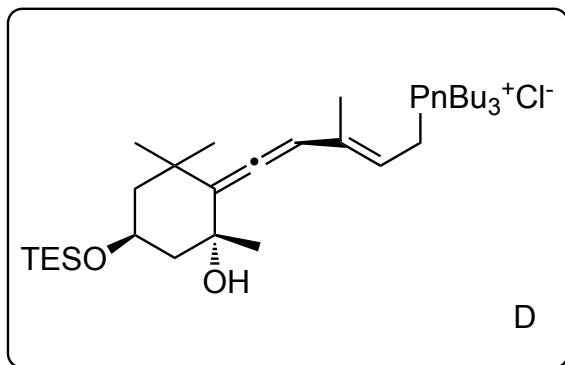
Sharpless asymmetric epoxidation



6,7

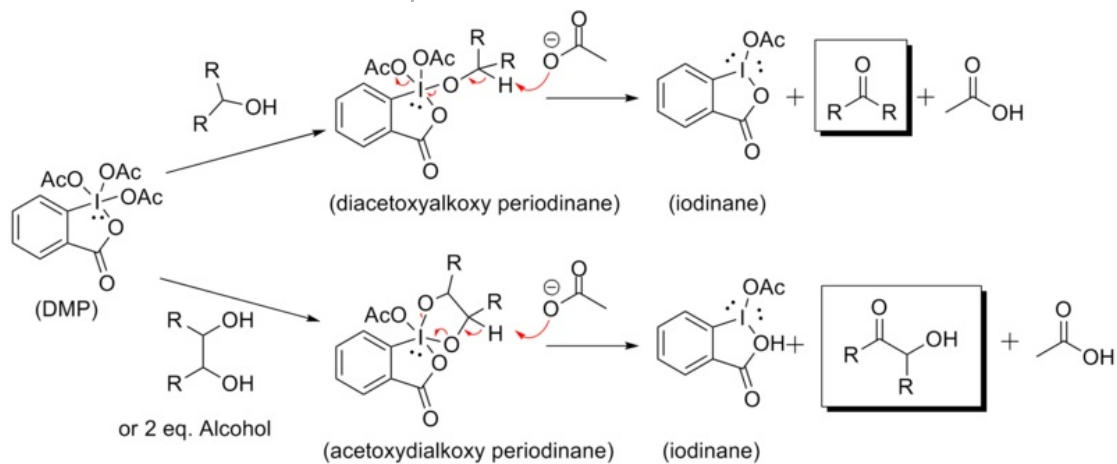


8-11

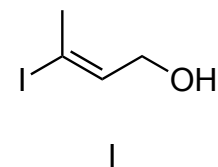


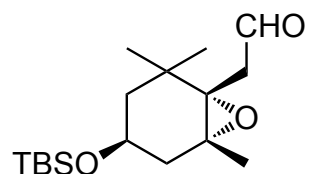
- 6) DMP
7) LDA, TMSCHN₂

What is DMP? How does it work? Please provide a mechanism.

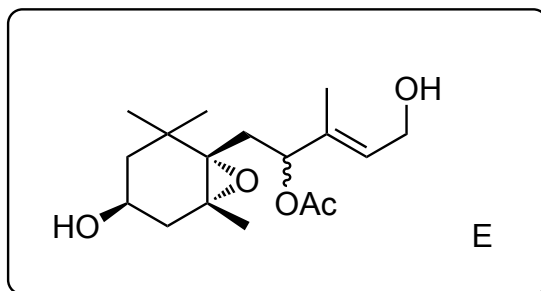


- 8) $\text{Pd}(\text{PPh}_3)_4$, CuI , $i\text{Pr}_2\text{NH}$, **I**
9) DIBALH
10) MsCl , LiCl
11) $n\text{Bu}_3\text{P}$

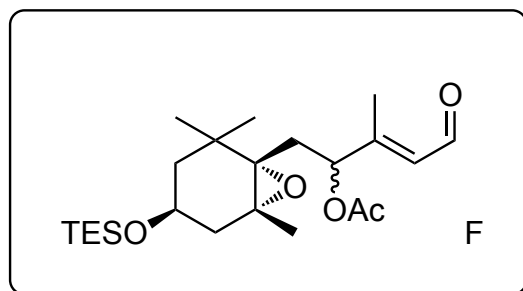




12-14



15,16

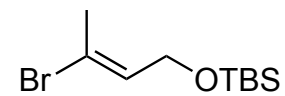


17-20

- 12) *t*BuLi, II
- 13) Ac₂O
- 14) TBAF

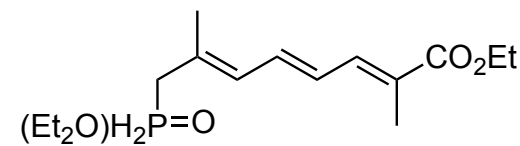
- 15) MnO₂
- 16) TESCl

- 17) III, *n*BuLi, DMPU
- 18) LAH
- 19) MnO₂
- 20) TBAF, AcOH

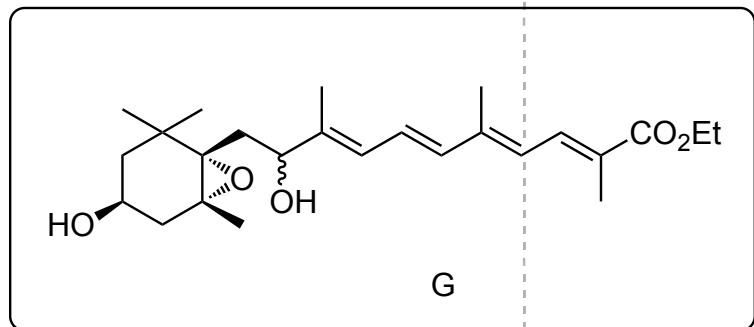


II

What is the name of the reaction in Step 16)?
Horner-Wadsworth-Emmons-Reaction

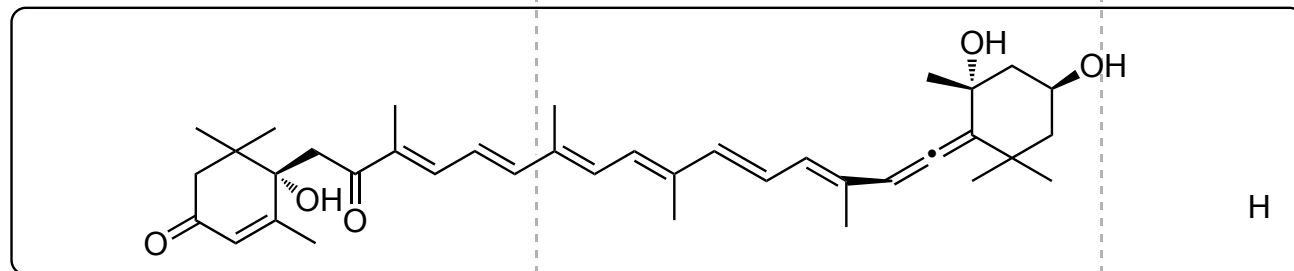


III



21-24
↓

21) D, NaOMe
22) IBX
23) SiO₂
24) PPTS



Amarouciaxanthin A

