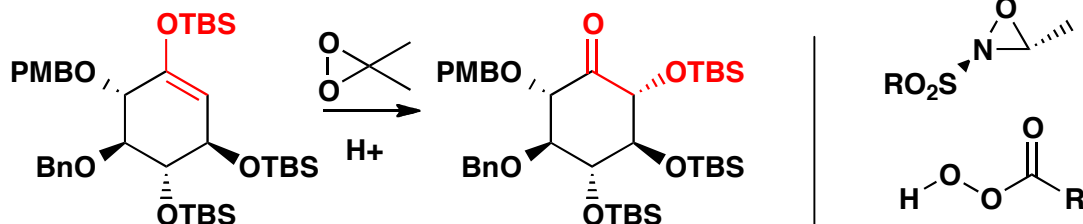


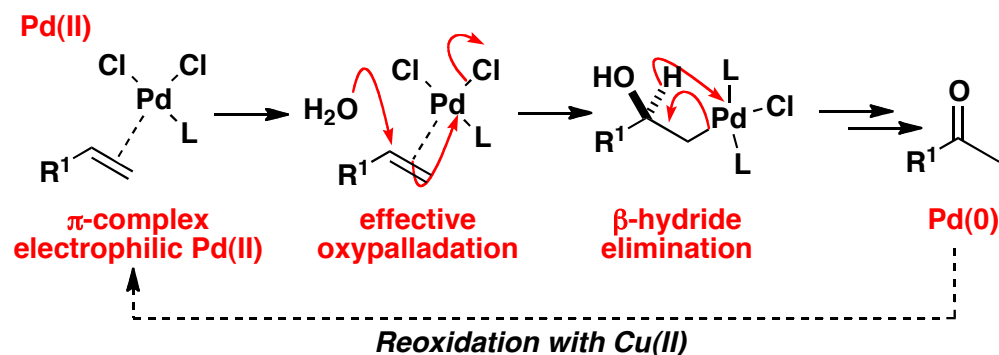
■ Lecture 5 Recap

■ Enolates and enol ethers can be oxidized



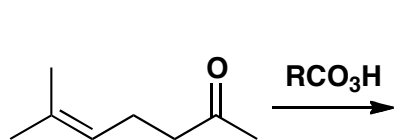
- *Electrophilic oxygen reagents ("O⁺") all have weak O-X bond*
- *Enolates and enol ethers are viable substrates for oxidation*
- *Rubottom Oxidation: remember silyl migration occurs as part of mechanism*

■ The Wacker oxidation: regioselective ketone synthesis

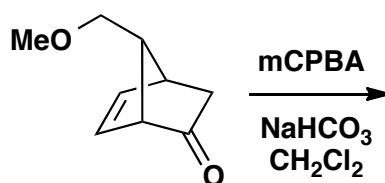


- *Electrophilic Pd(II)*
- *Regiochemistry: consider charge in TS (and hence attack with H₂O at most substituted centre)*
- *Reoxidized to Pd(II) so catalytic*

■ Epoxidation vs Bayer Villiger



- *ketone; ν_{\max} : 1715 cm⁻¹*
 - *Alkene trisubstituted so more nucleophilic*
- Epoxidation**

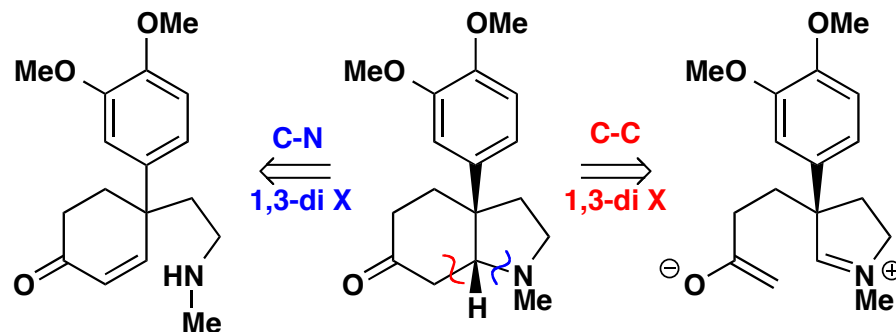


- *strained ketone; ν_{\max} : 1745 cm⁻¹*
 - *Alkene disubstituted & only slightly strained*
- Baeyer-Villiger**

- *No definitive rule: examine and justify each case on its merits*
- *Strain in ketone can accelerate B-V*
- *Substitution on alkene can increase nucleophilicity*

■ Lecture 7 Recap

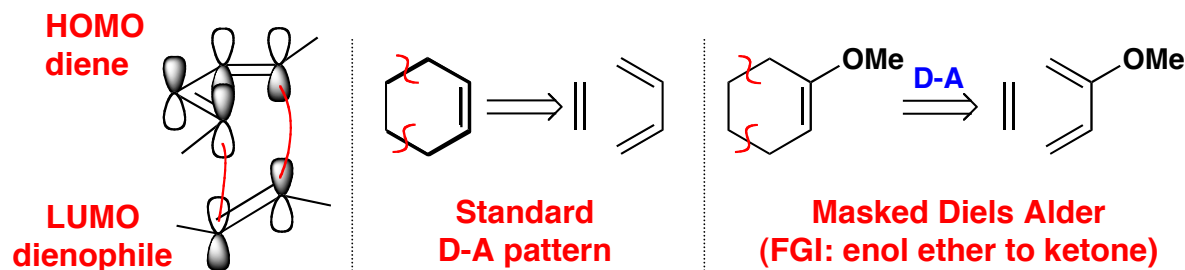
■ Two group disconnections are powerful



- **Disconnect: branch points, heteroatoms, functional groups and rings from chains**

- **Both two-group disconnections are viable options for synthetic approaches to these materials**

■ The Diels Alder rxn has a recognizable pattern...

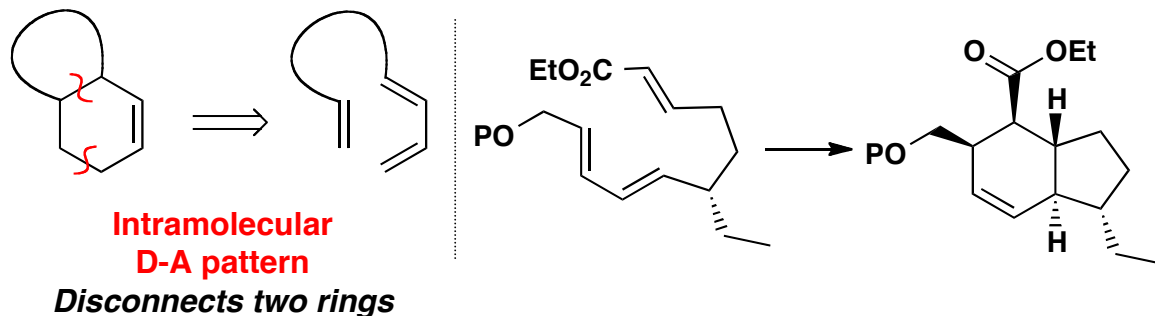


- **Best to have EWG on dienophile and EDG on the diene (better HOMO-LUMO overlap)**

- **Reaction is stereospecific, concerted and pericyclic**

- **Endo TS usually favoured**

■ ...including intramolecular variants



Intramolecular D-A pattern
Disconnects two rings

- **Alkene geometry is key for stereochemistry (stereospecificity)**

- **Can make two rings and up to four stereocentres with appropriate substitution**

- **Diels Alder very powerful C-C bond forming reaction**