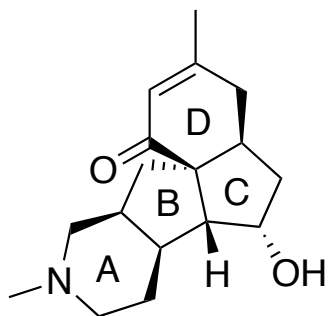


A 11-Step Total Synthesis of Magellanine through a Gold(I)-Catalyzed Dehydro Diels-Alder Reaction

Philippe McGee, Geneviève Bétournay, Francis Barabé, and Louis Barriault*

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Professor S.-Y. Liu
02/23/2017

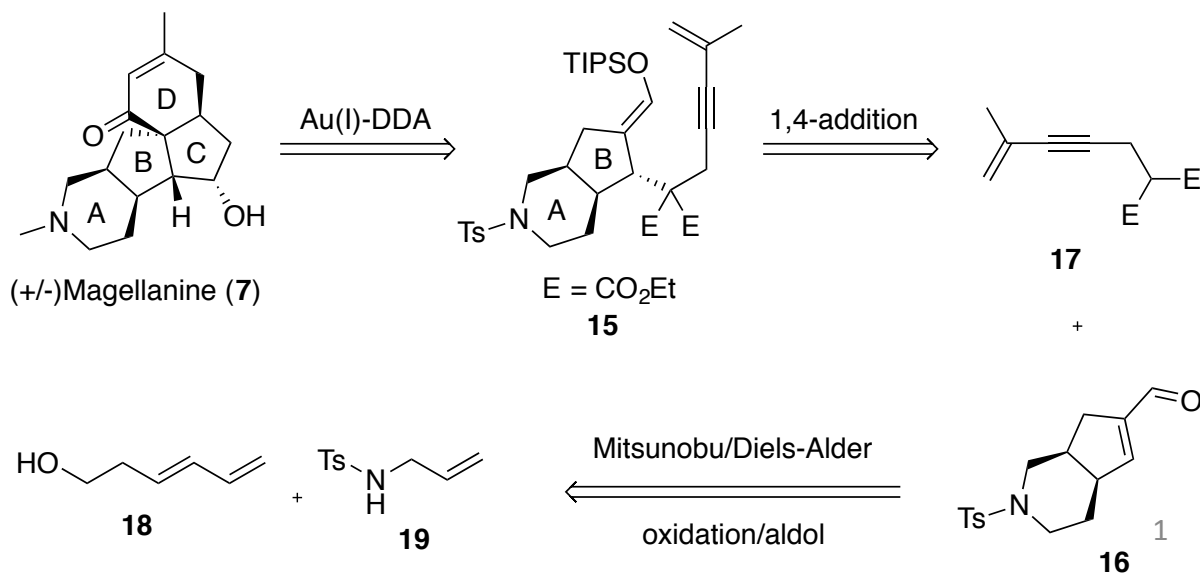
Angew. Chem. Int. Ed. 2017, 56, Early view.



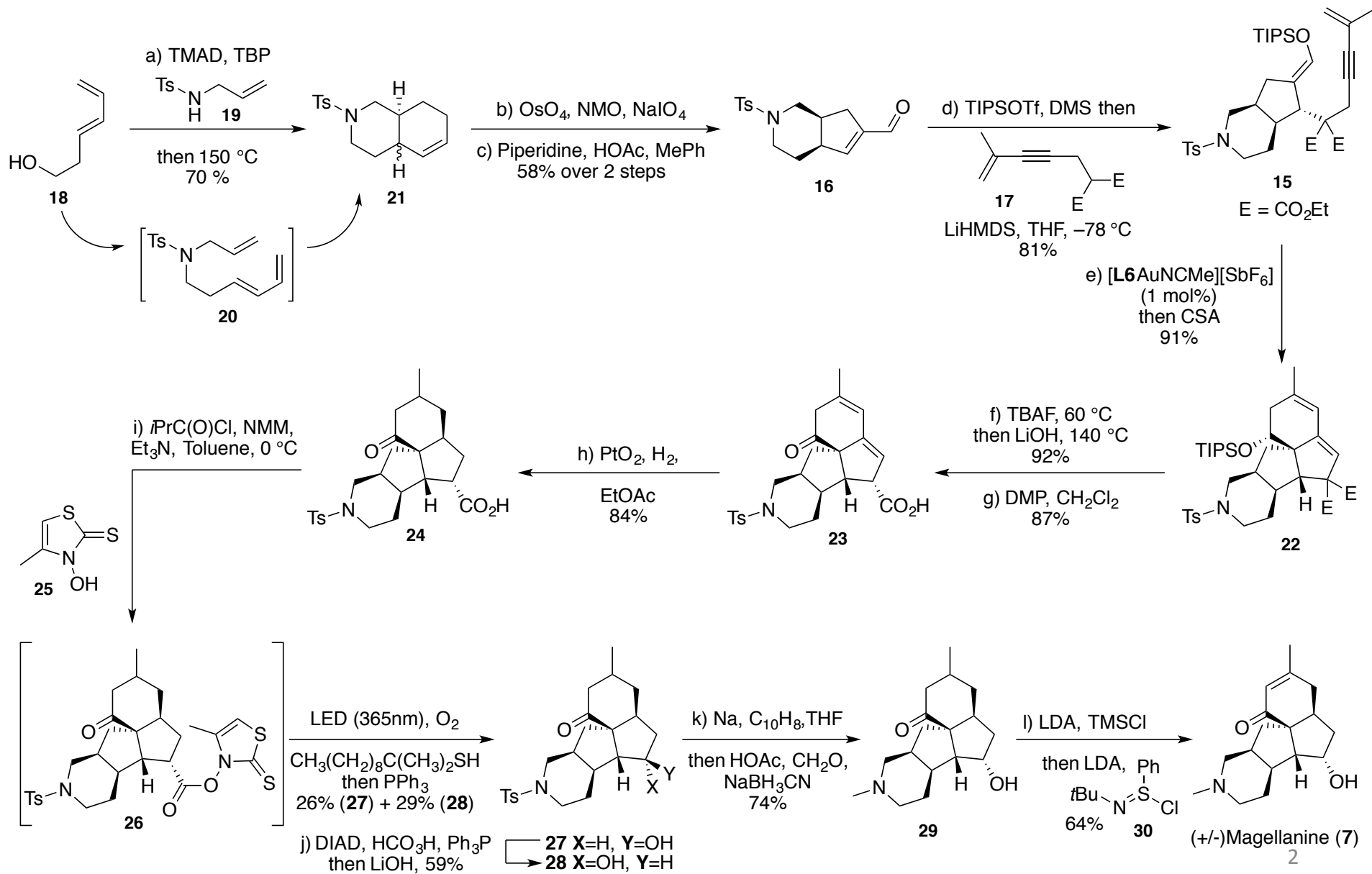
(+/-)-Magellanine (7)

- Alkaloid isolated from the club moss, *Lycopodium Magellanicum*
- Tetracyclic angular carbon framework
- Six contiguous stereogenic centers
- Application of Gold-catalyzed DDA reaction

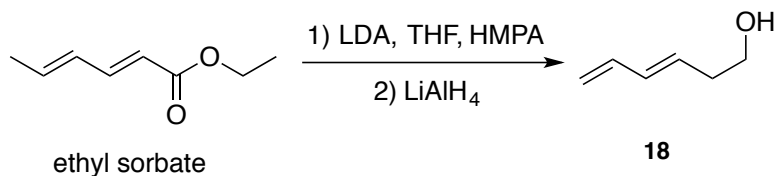
Retrosynthetic Analysis



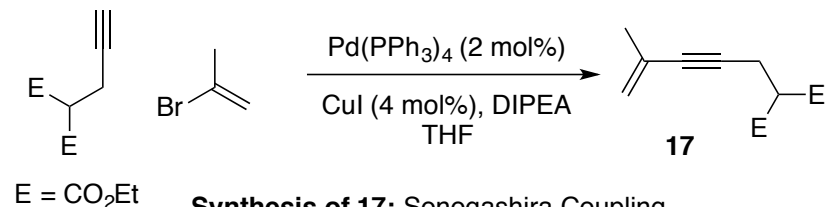
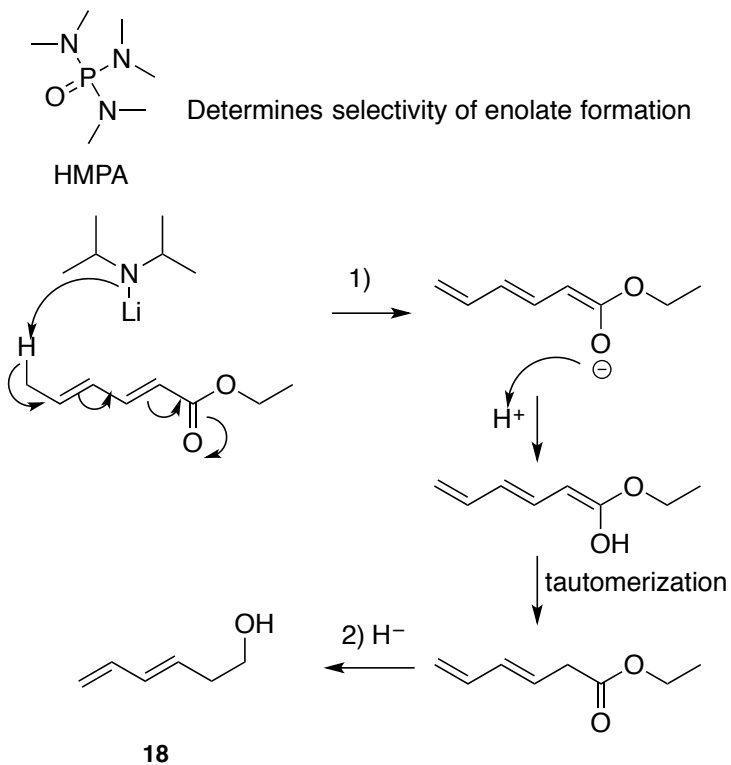
Forward Synthesis Overview



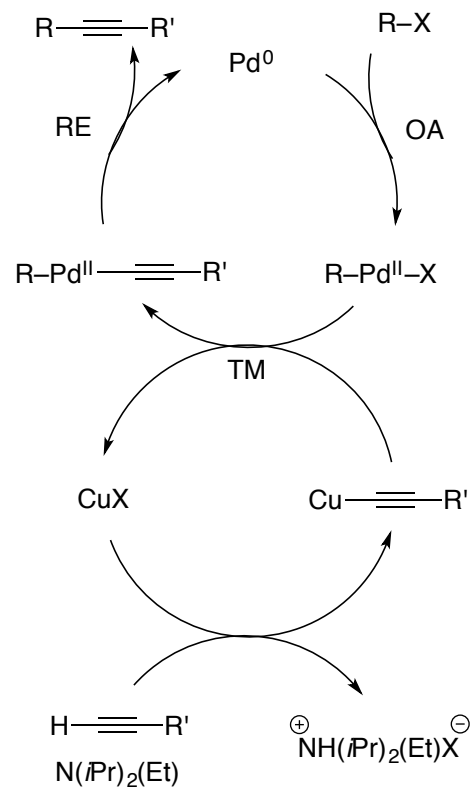
Forward Synthesis Mechanisms

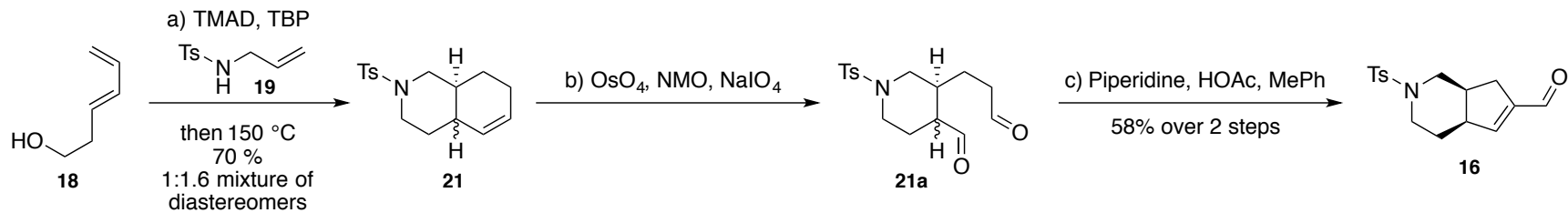


Synthesis of 18: Isomerization/Reduction



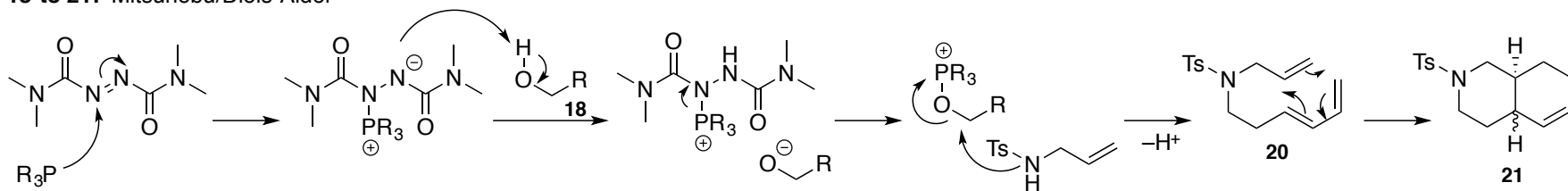
Synthesis of 17: Sonogashira Coupling



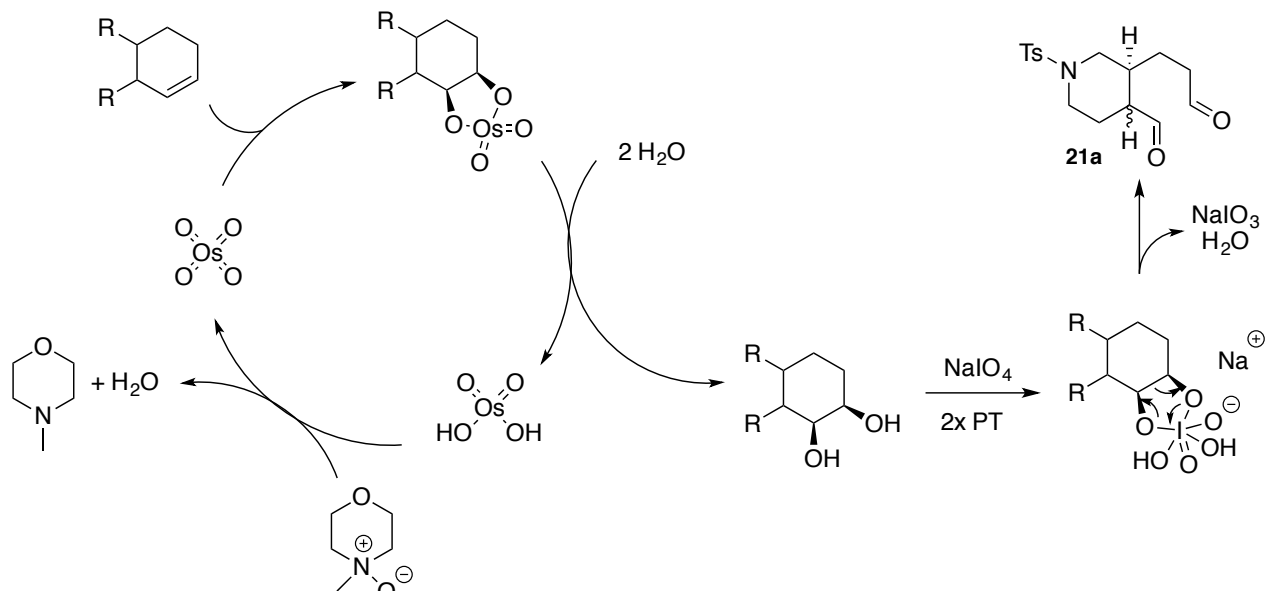


TMAD: Tetramethylazodicarboxamide
TBP: Tributylphosphine

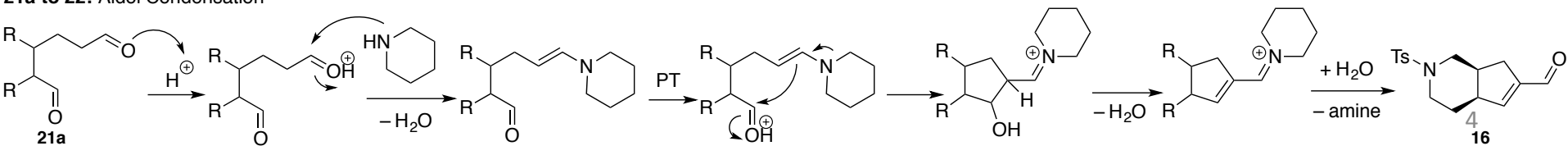
18 to 21: Mitsunobu/Diels-Alder

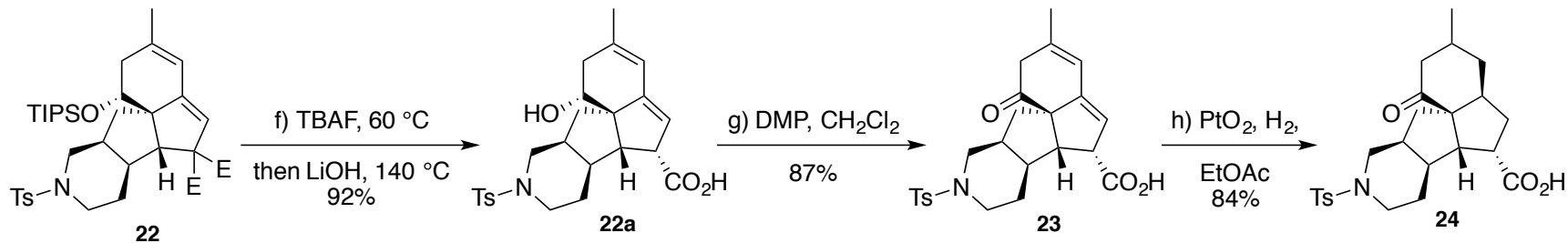


21 to 21a: Lemieux-Johnson protocol

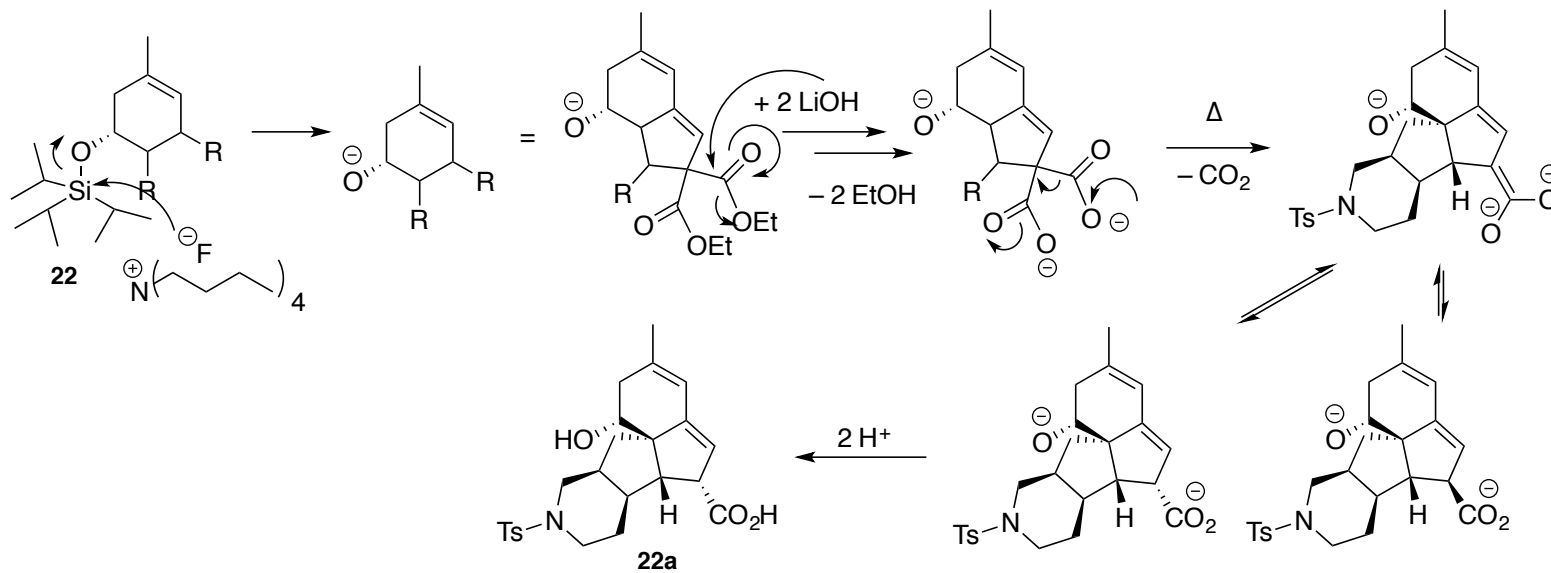


21a to 22: Aldol Condensation

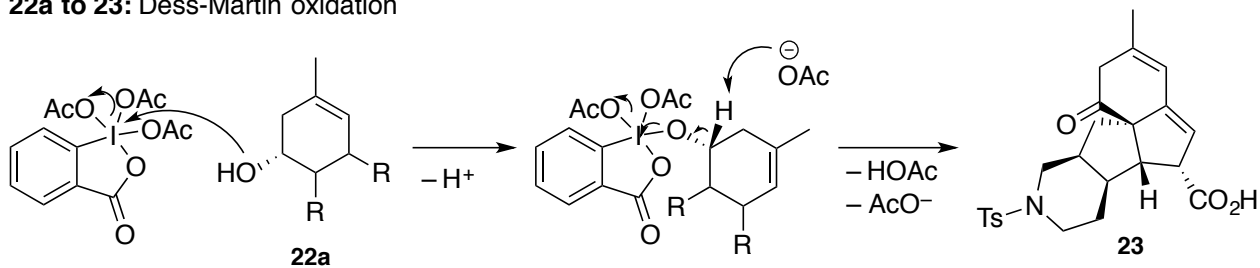


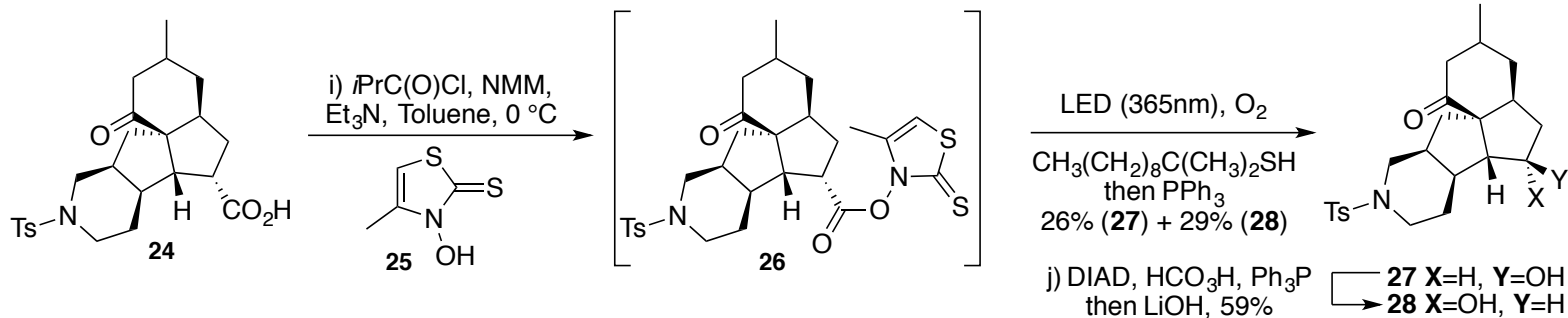


22 to 22a: One-pot desilylation/saponification/decarboxylation

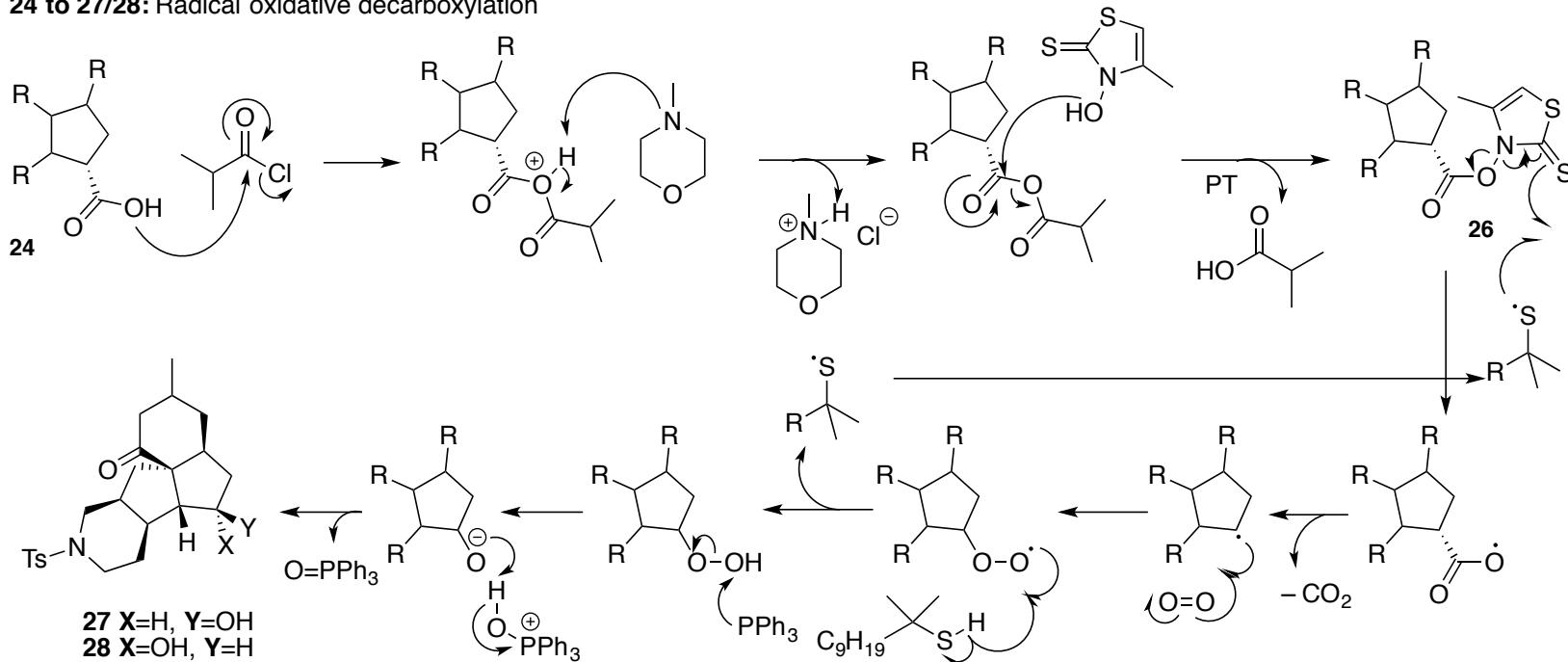


22a to 23: Dess-Martin oxidation





24 to 27/28: Radical oxidative decarboxylation



27 to 28: Mitsunobu reaction

