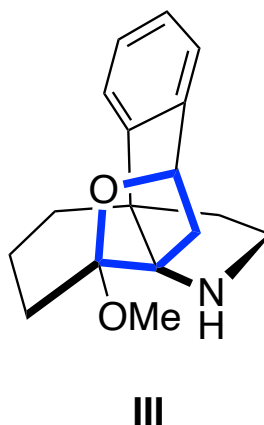
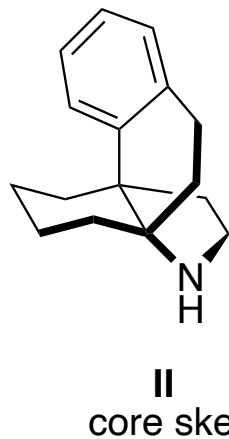
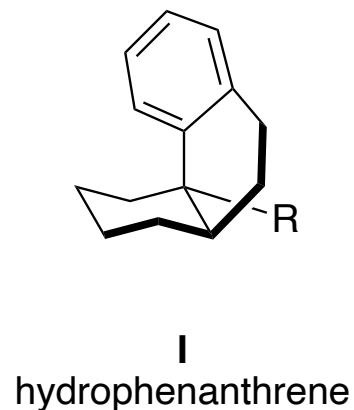


Total Synthesis

--Emma
05/17/2023

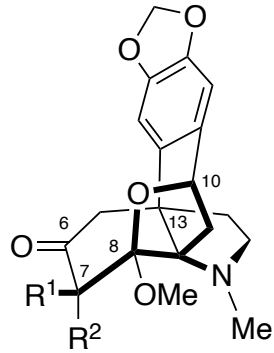
Asymmetric Total Synthesis of Hasubanan Alkaloids: Periglaucines A–C, *N,O*-Dimethyloxostephine and Oxostephabesine

*Shaolei Ding, Yingbo Shi, Baochao Yang, Min Hou, Haibing He, and Shuanhu Gao**

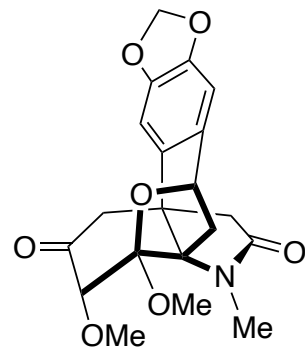


- Isolated from the plants of the genus *Stephania*
- Exhibit a range of biological activities, e.g.: antiviral, antimicrobial and cytotoxic activities

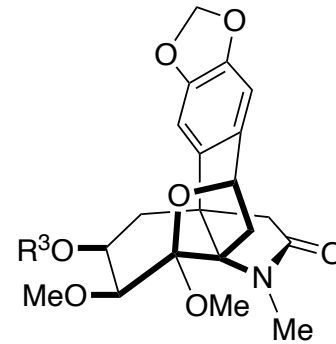
Introduction



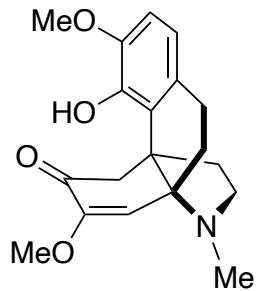
$R^1 = H, R^2 = OMe$
periglaucine A (**1**)
 $R^1 = OMe, R^2 = H$
periglaucine B (**2**)



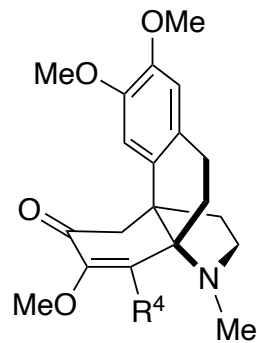
periglaucine C (**3**)



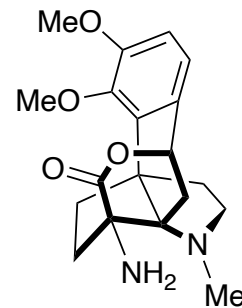
$R^3 = H, N, O$ -dimethyloxostephine (**4**)
 $R^3 = Bz$, Oxostephabenine (**5**)



cepharamine (**6**)



$R^4 = H$, 8-demethoxyrunanine (**7**)
 $R^4 = OMe$, runanine (**8**)



stephadiamine (**9**)

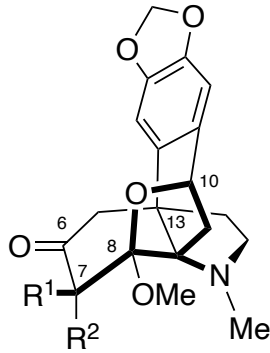
➤ Periglaucine A-C (**1-3**) was isolated from *Pericampylus glaucus* in 2008

➤ **2,4** and **5** was synthesized via Corey CBS-catalyzed enantioselective Diels-Alder reaction in 2011

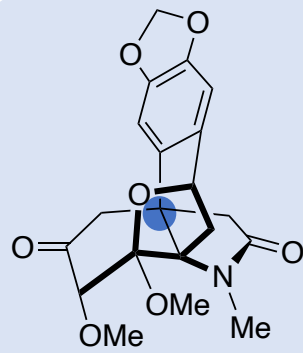
➤ **6** was the first case of enantioselective total synthesis of hasubanan alkaloid

Introduction

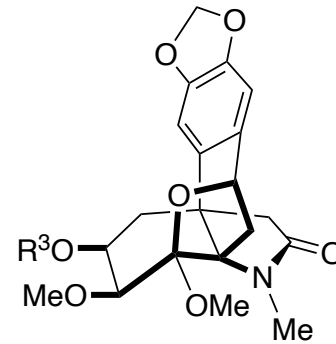
This work



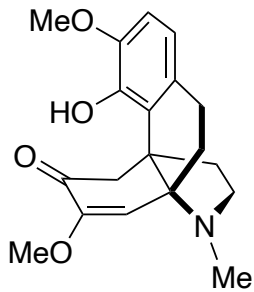
R¹ = H, R² = OMe
periglaucine A (1)
R¹ = OMe, R² = H
periglaucine B (2)



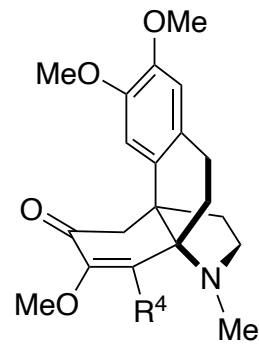
periglaucine C (3)



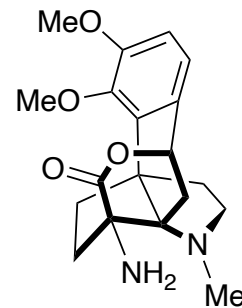
R³ = H, *N*, *O*-dimethyloxostephine (4)
R³ = Bz, Oxostephabenine (5)



cepharamine (6)



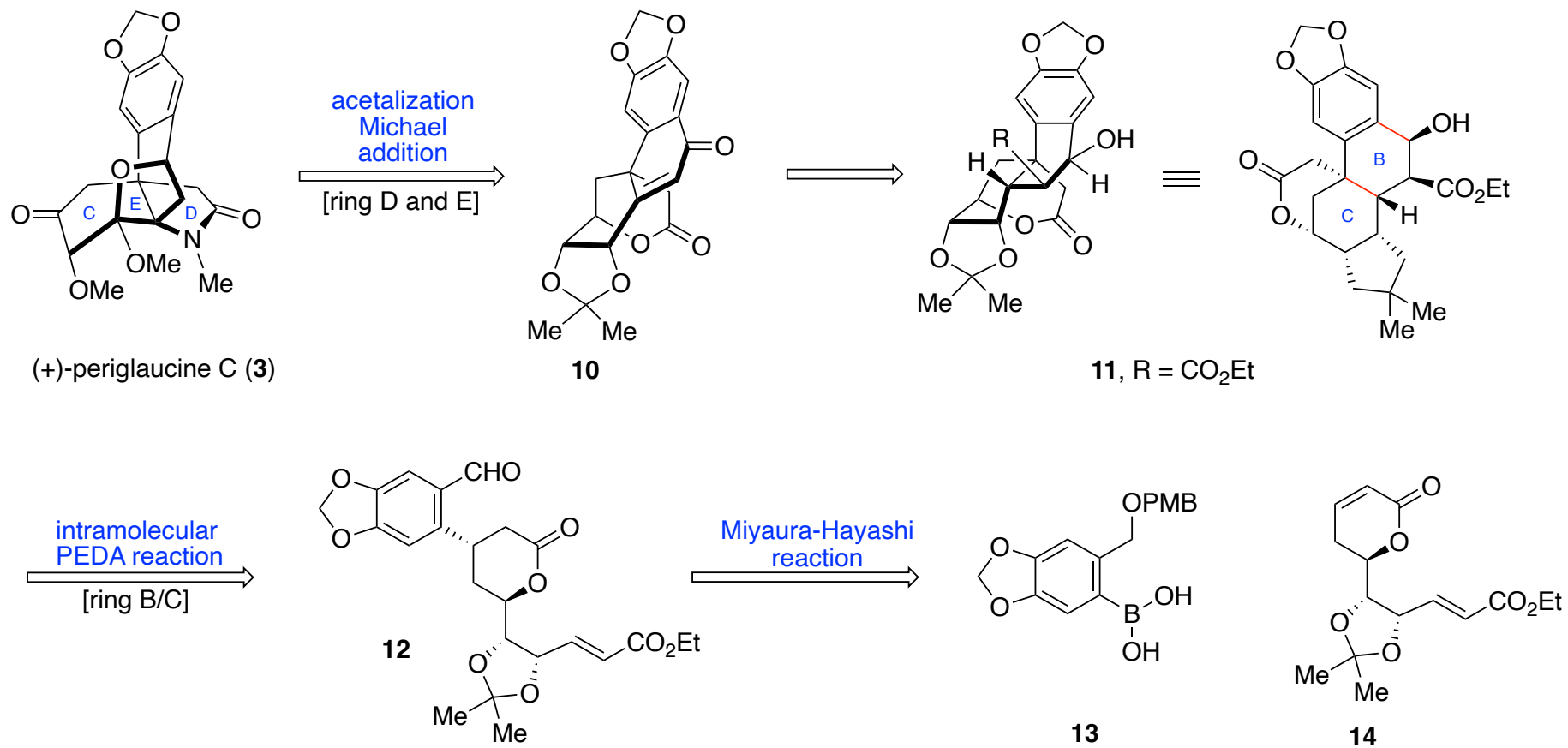
R⁴ = H, 8-demethoxyrunanine (7)
R⁴ = OMe, runanine (8)



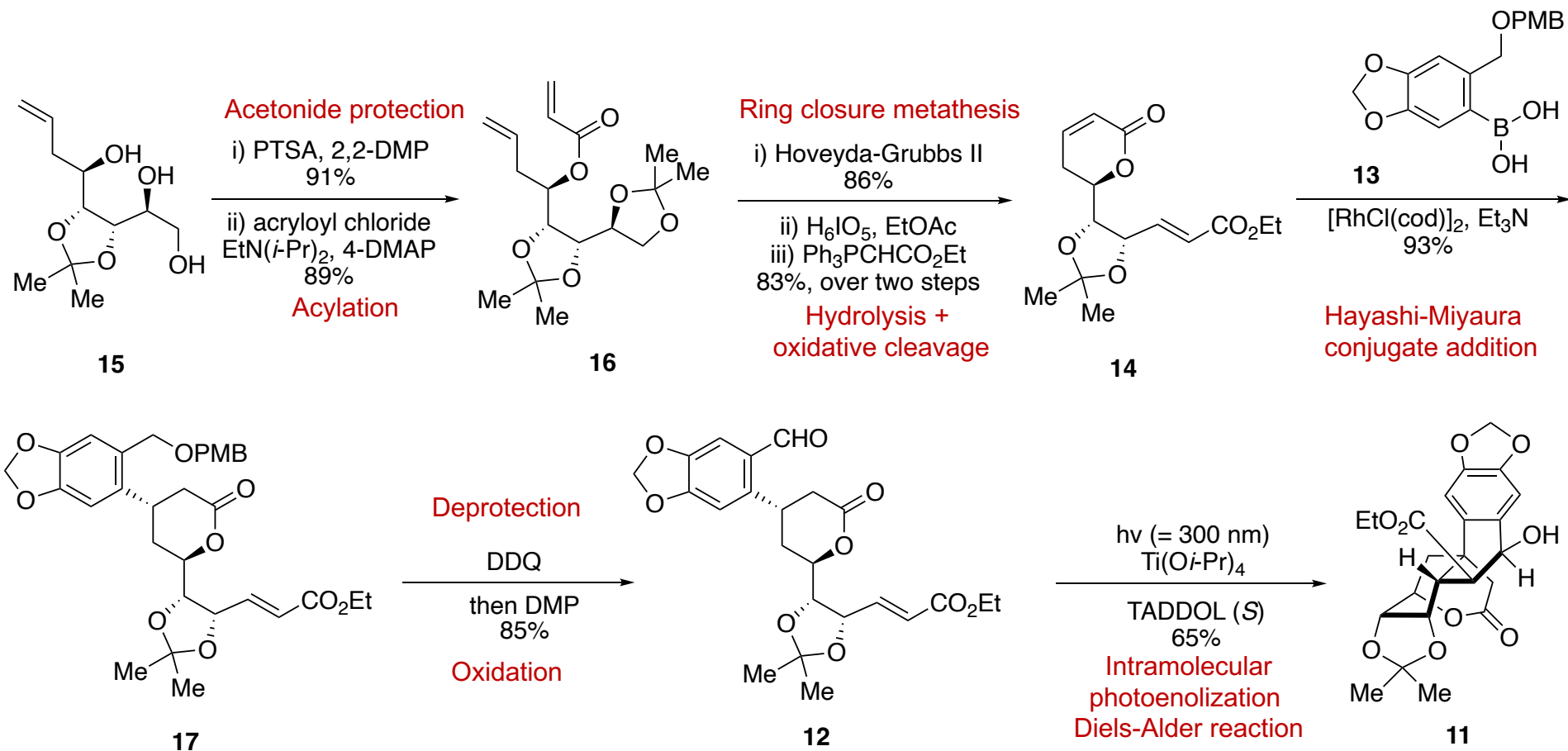
stephadiamine (9)

- Periglaucine A-C (1-3) was isolated from *Pericampylus glaucus* in 2008
- **2,4** and **5** was synthesized via Corey CBS-catalyzed enantioselective Diels-Alder reaction in 2011
- **6** was the first case of enantioselective total synthesis of hasubanan alkaloid

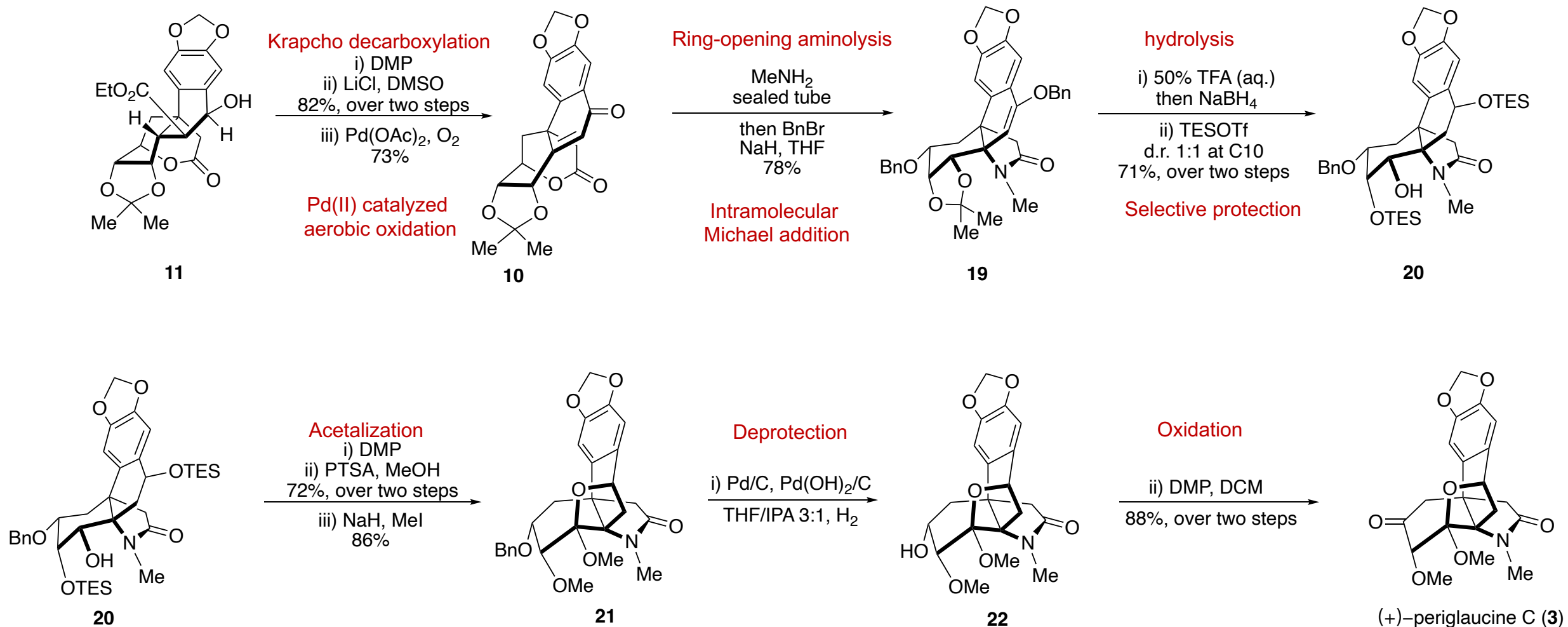
Retrosynthesis of (+)-periglaucine C (3)



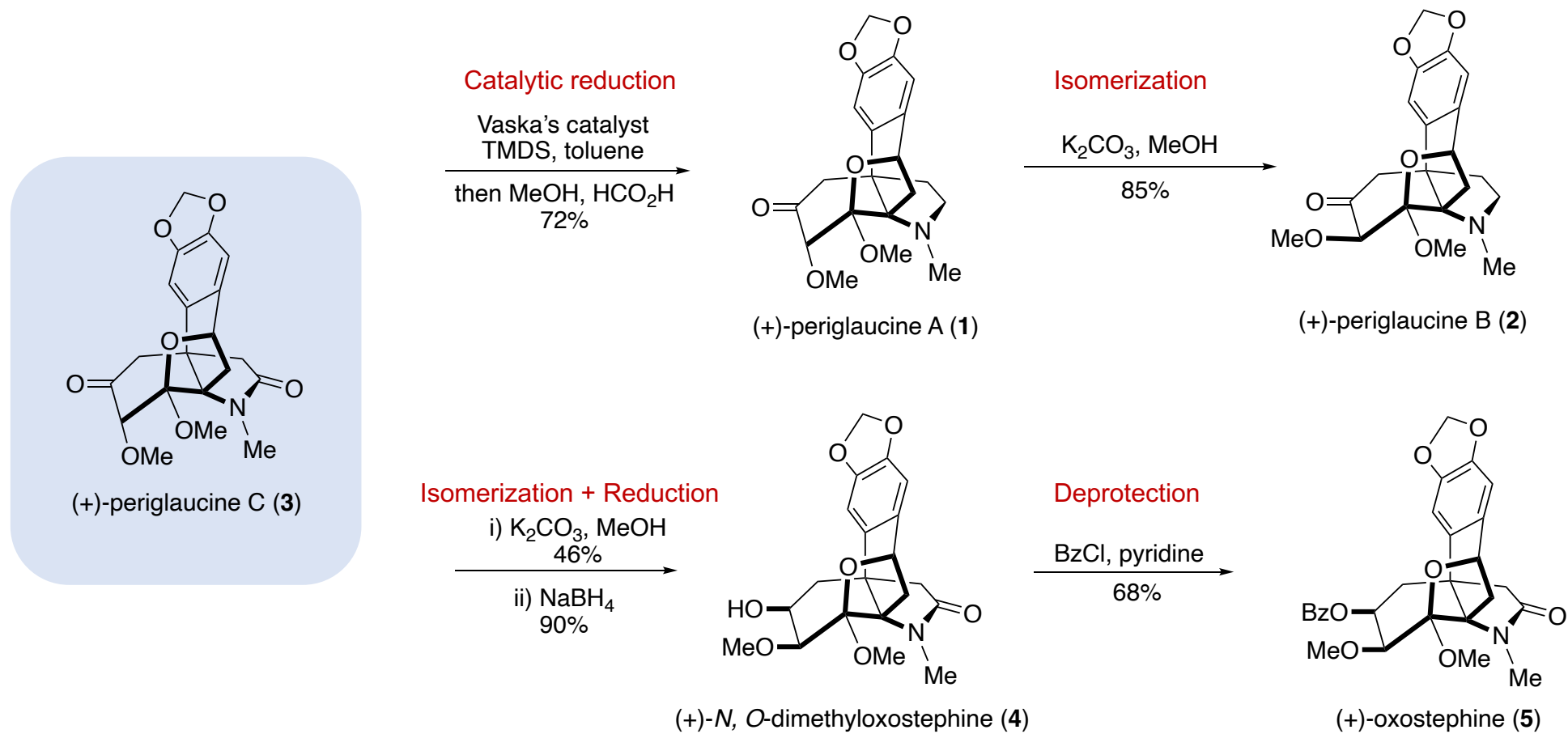
Synthetic Route of (+)-periglaucine C (3)

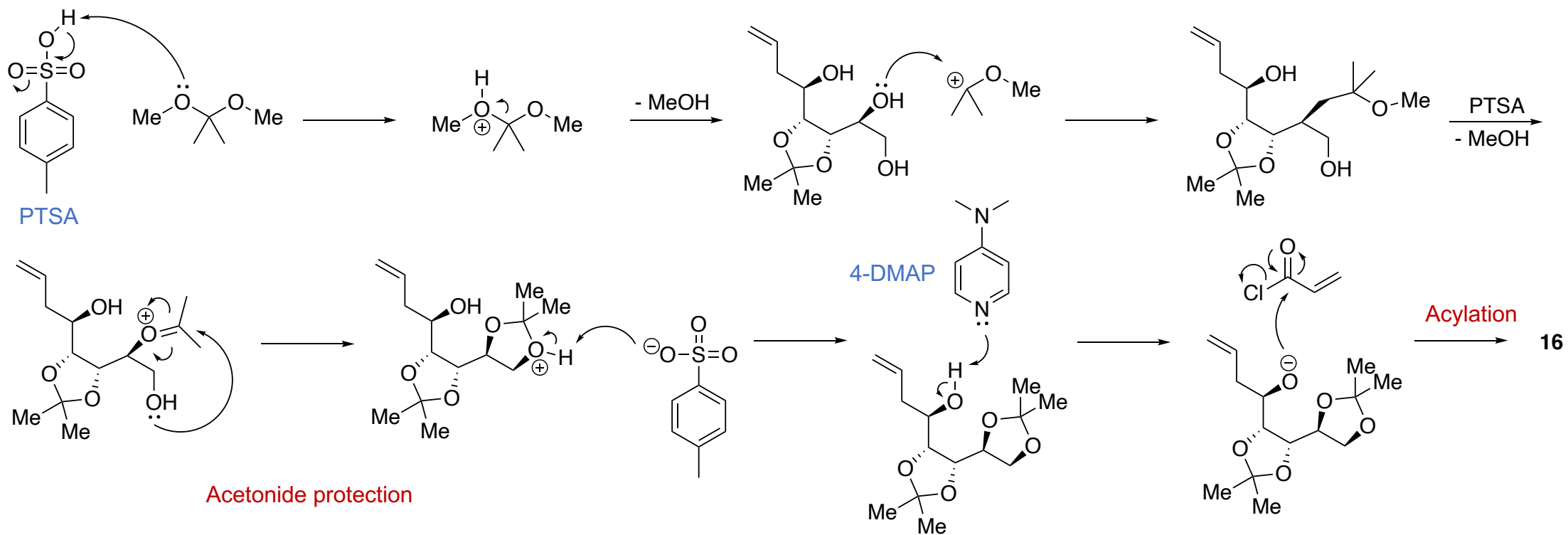
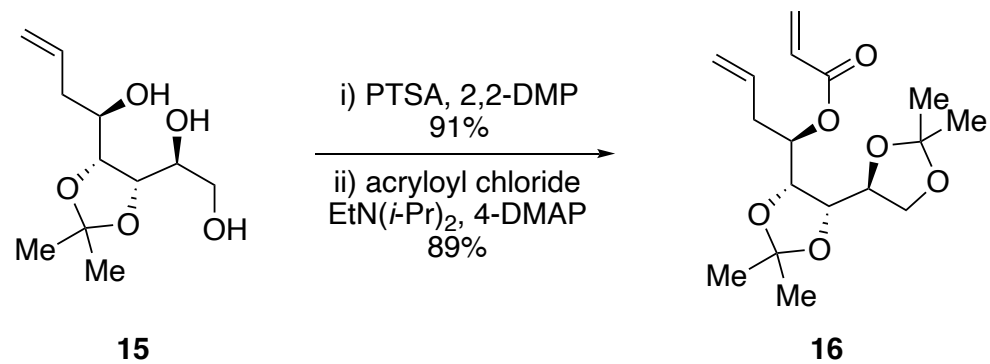


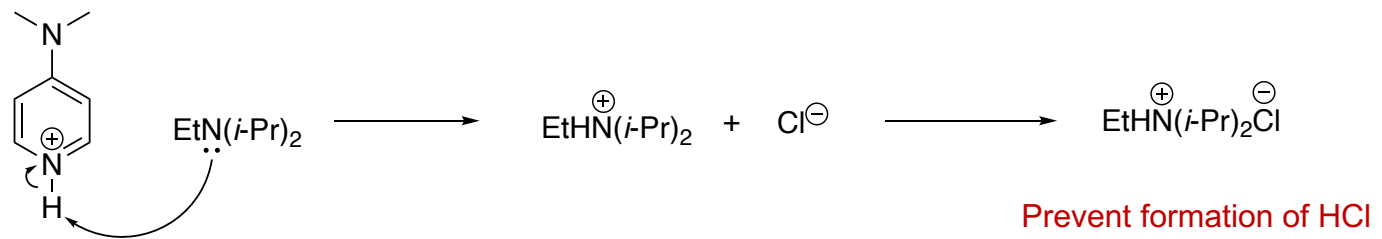
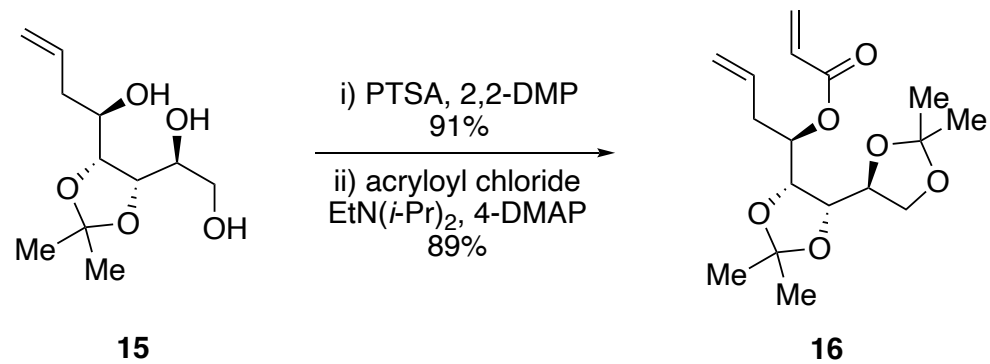
Synthetic Route of (+)-periglaucine C (3)

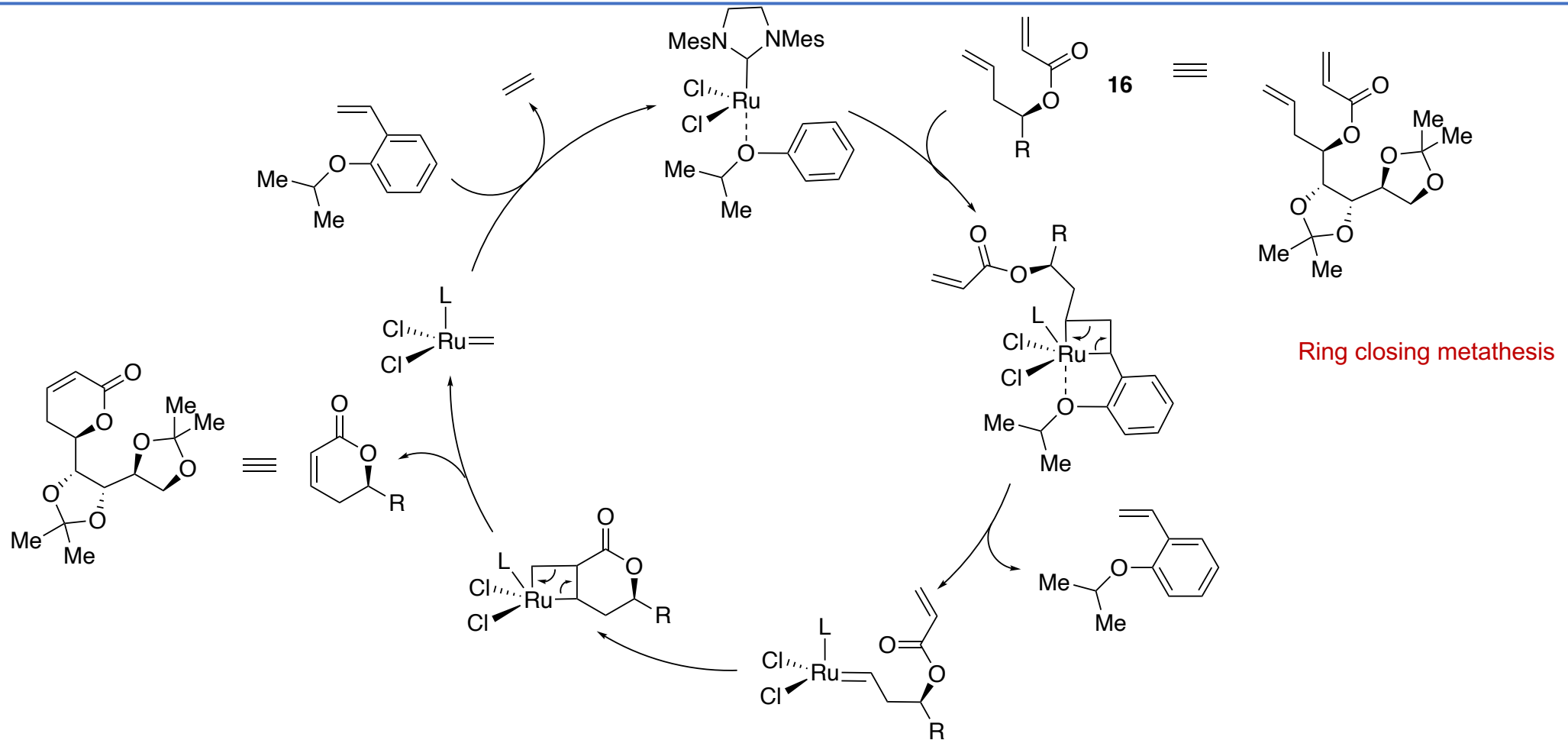
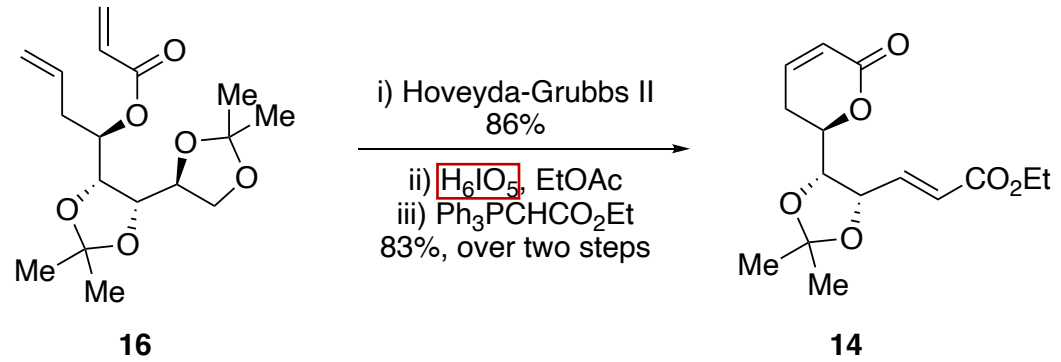


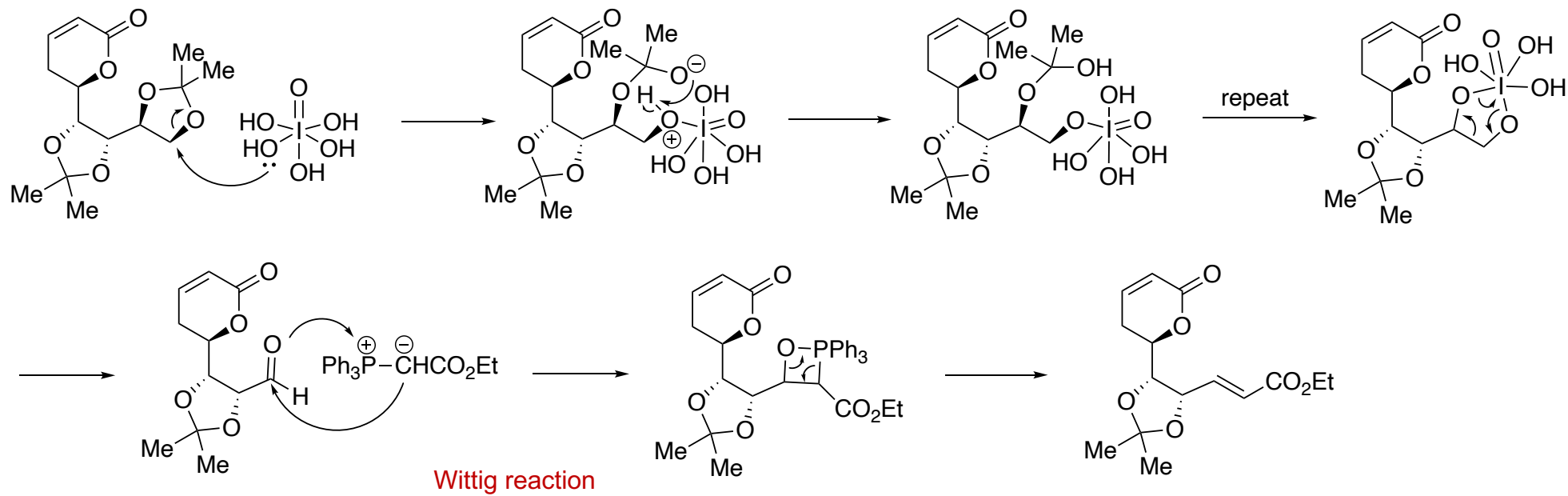
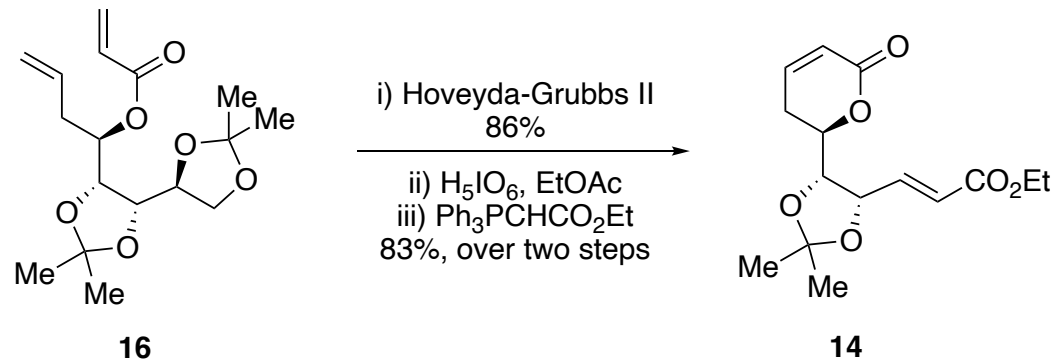
Functionalization of (+)-periglaucine C (3)

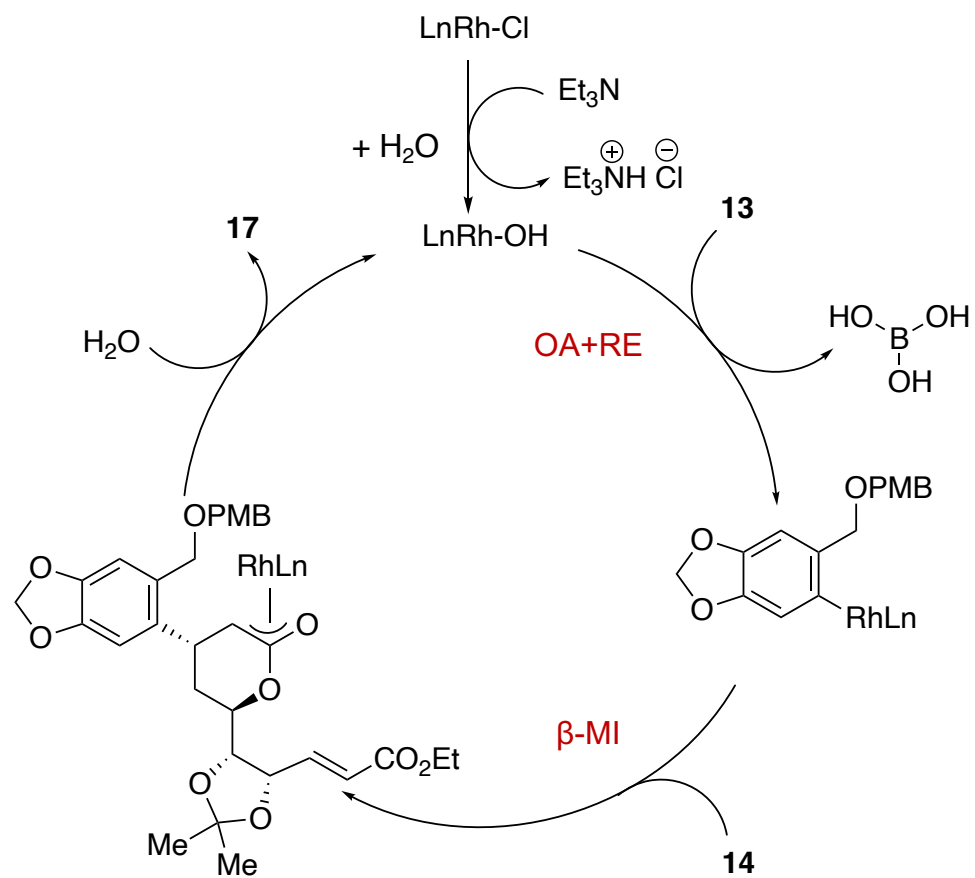
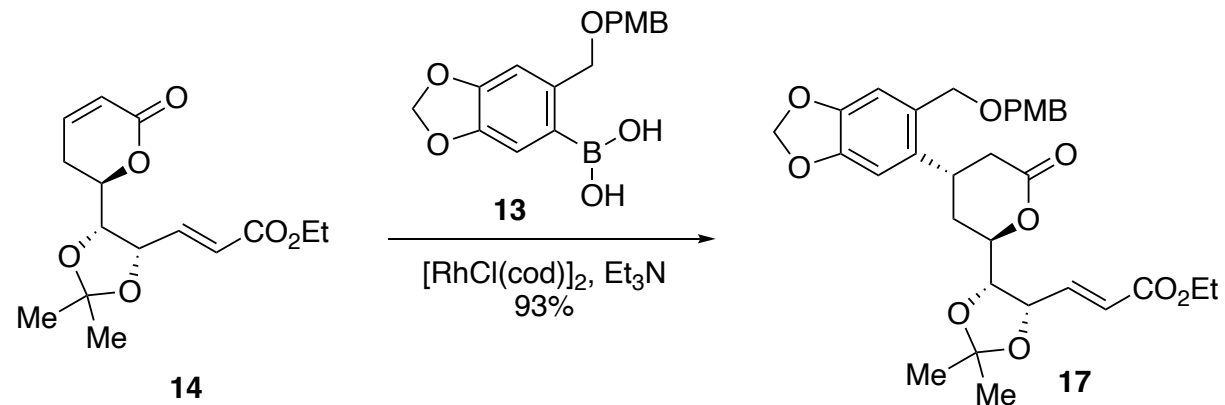




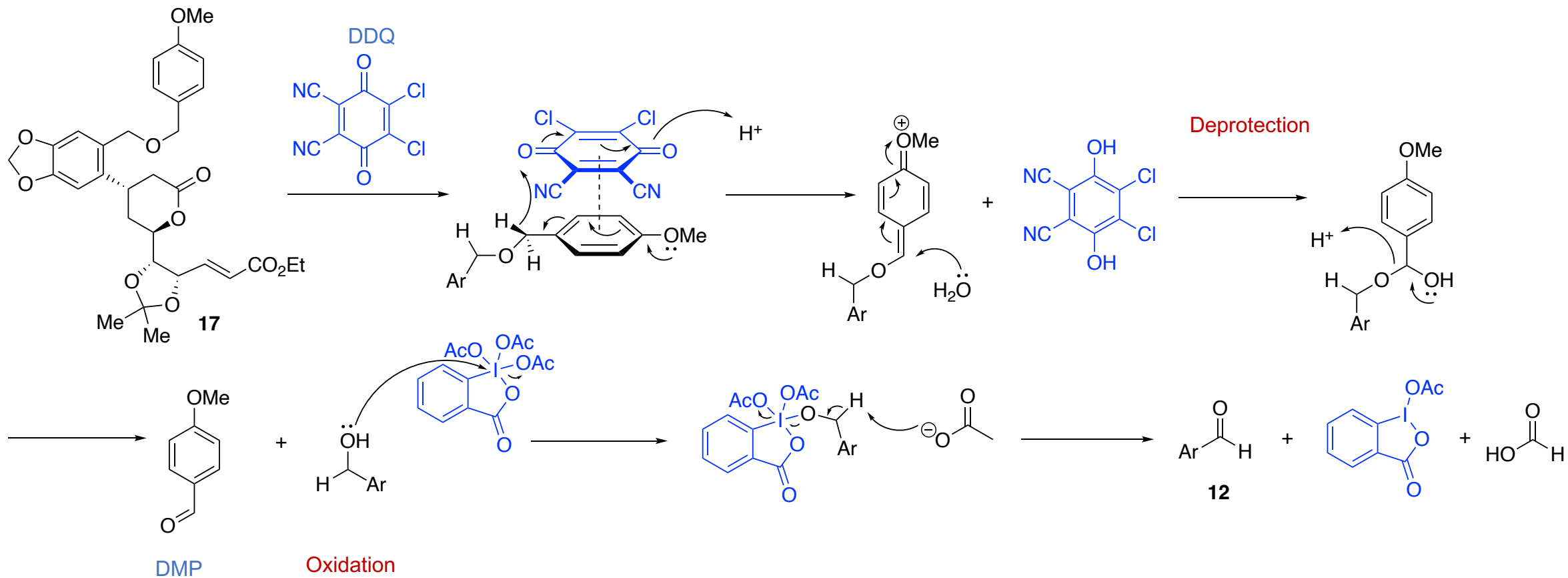
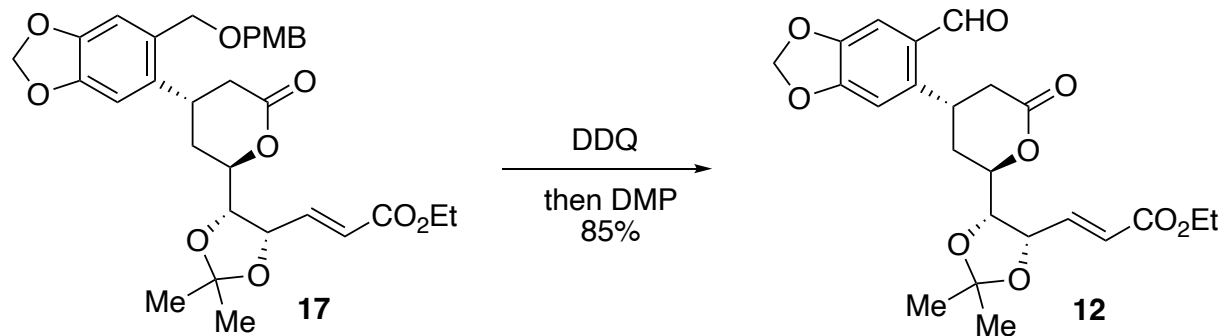


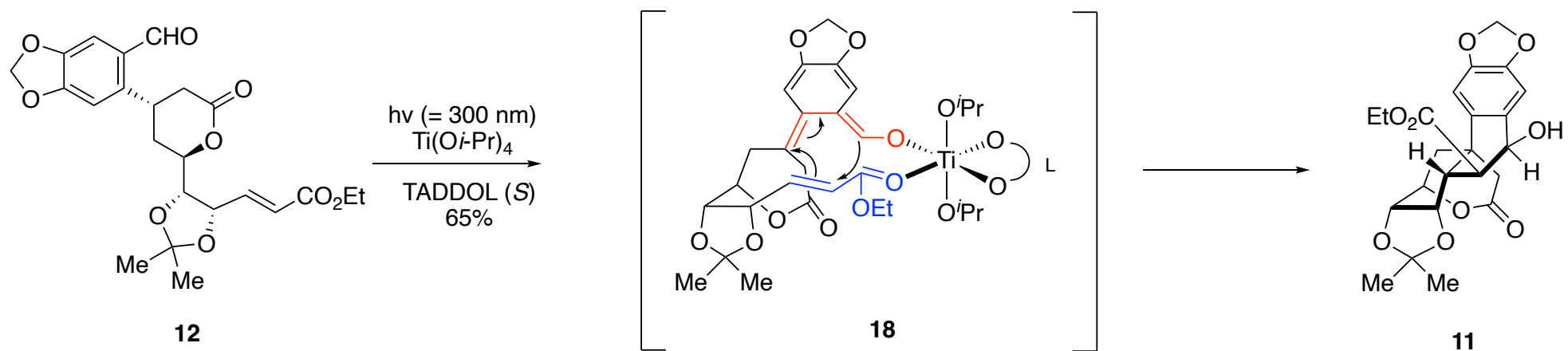
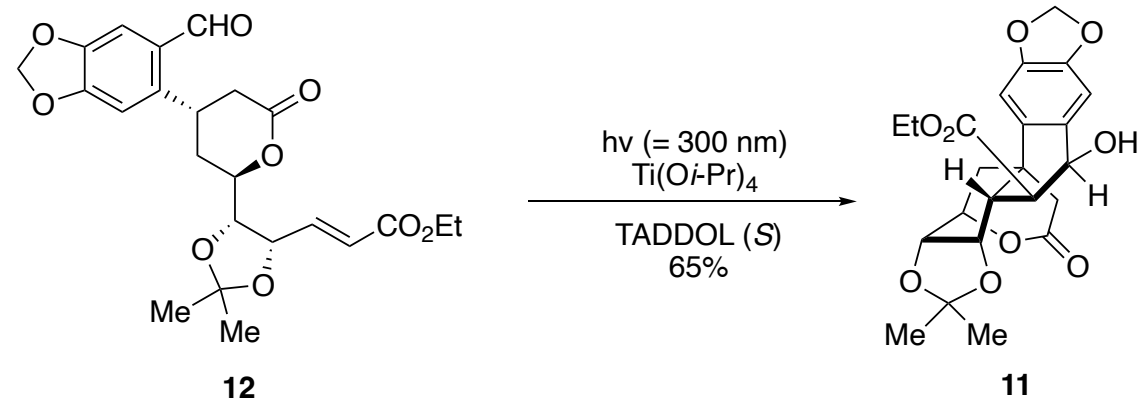




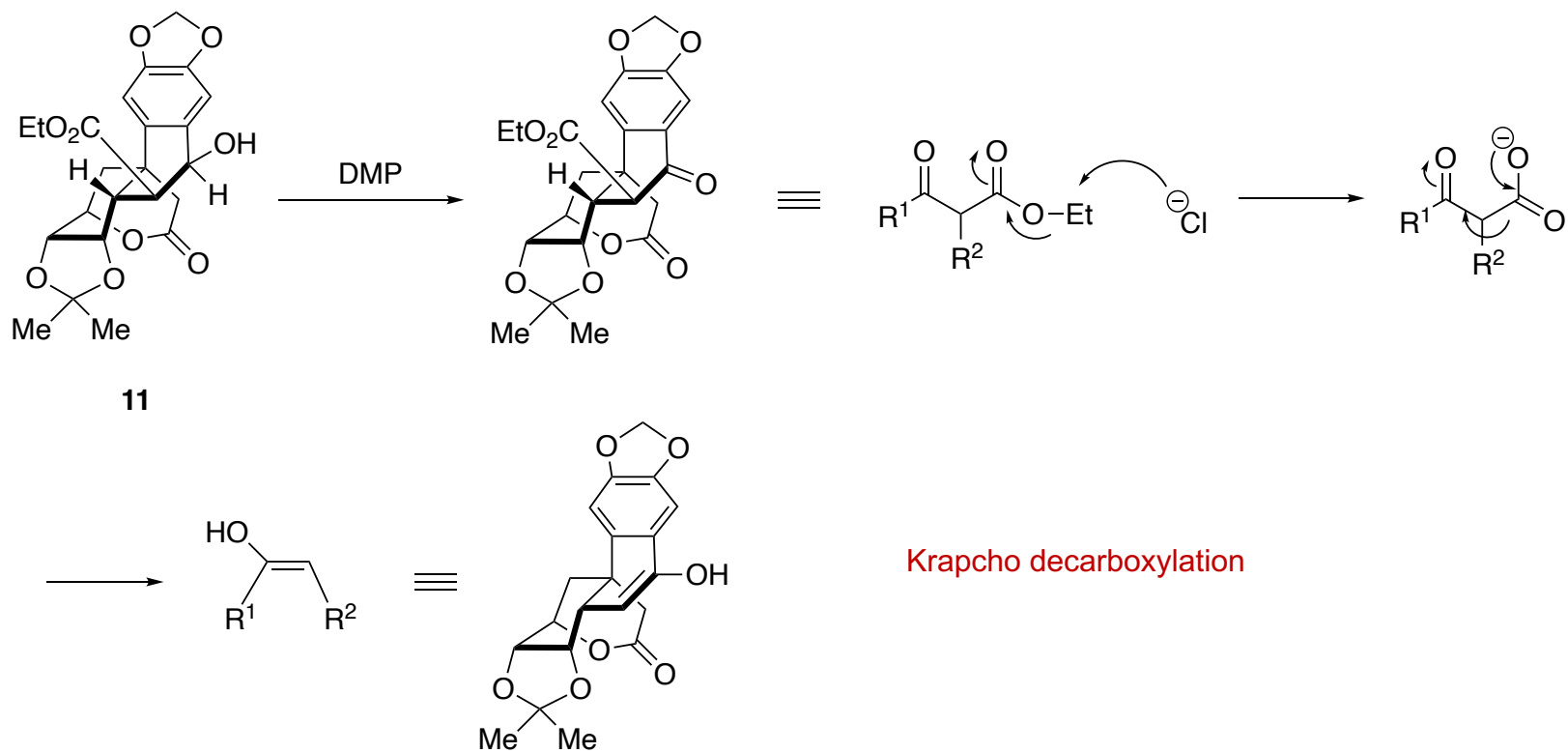
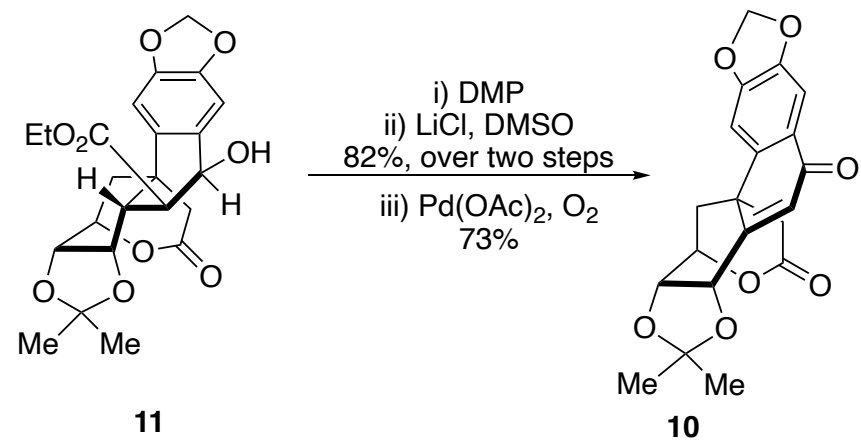


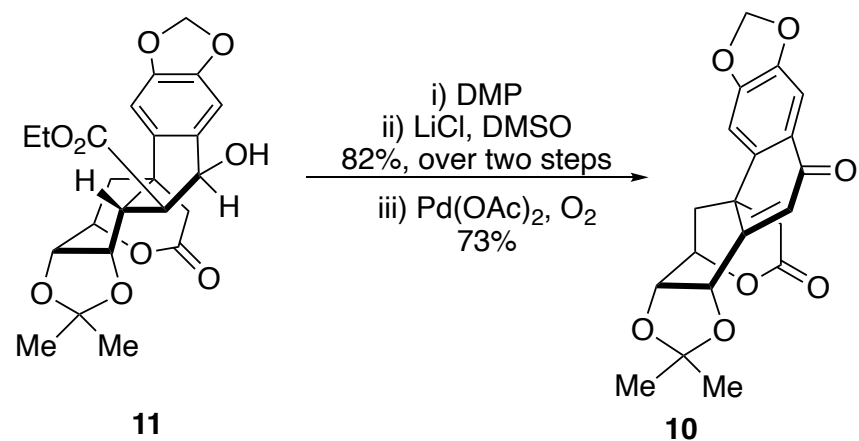
Hayashi-Miyaura
conjugate addition



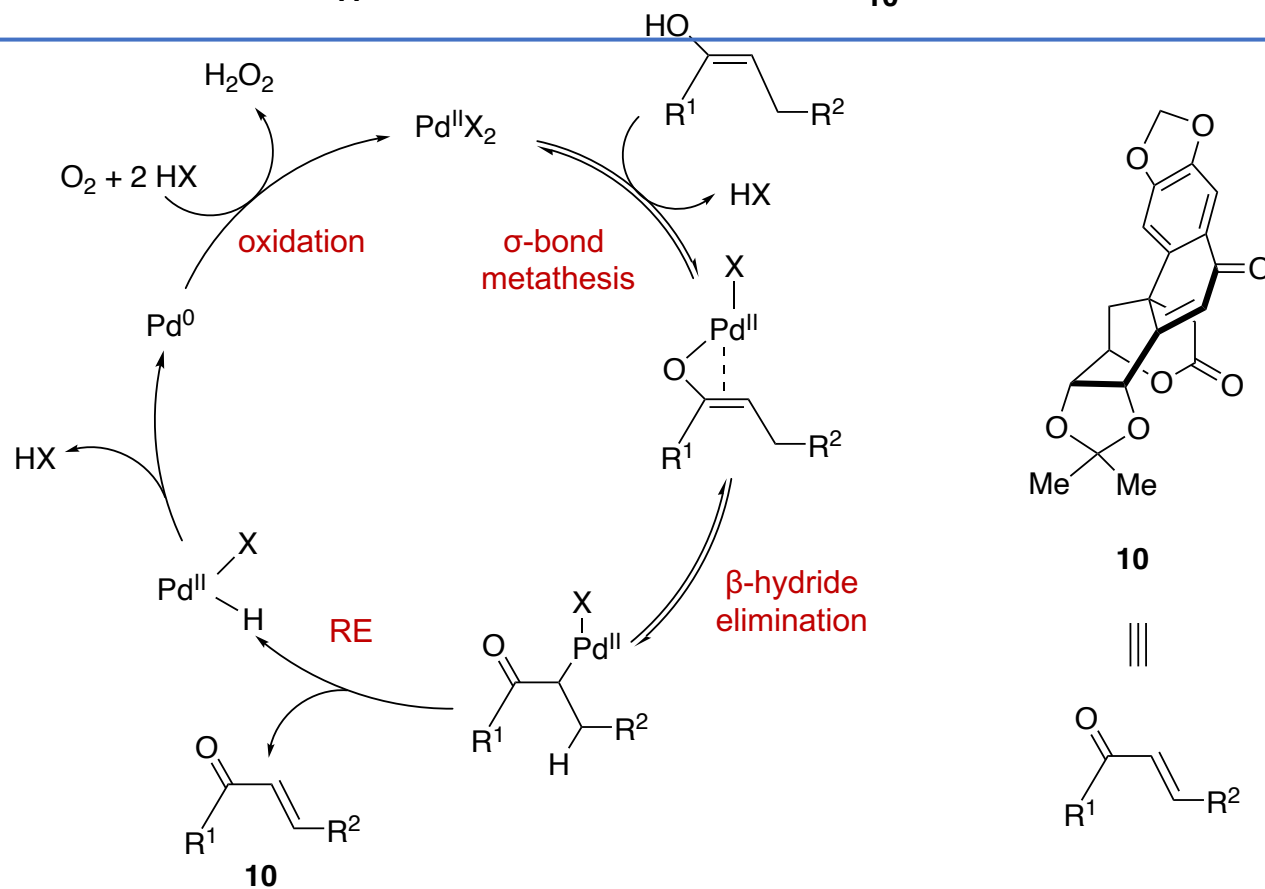


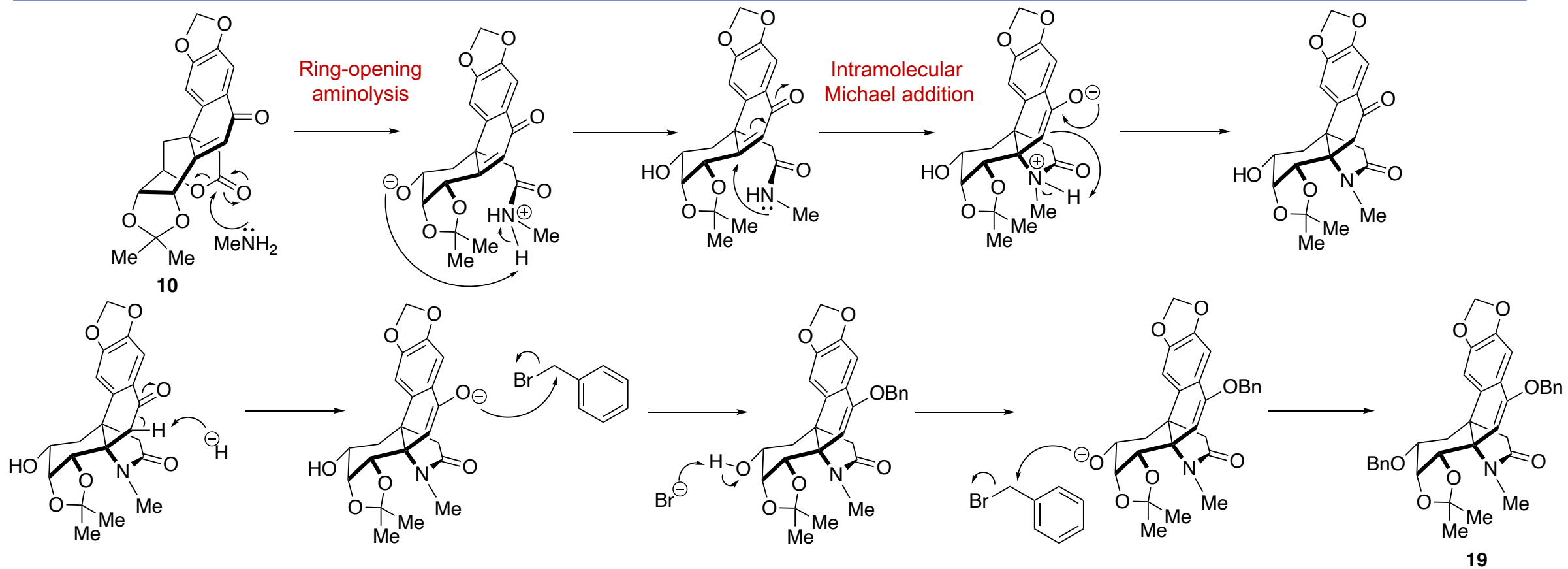
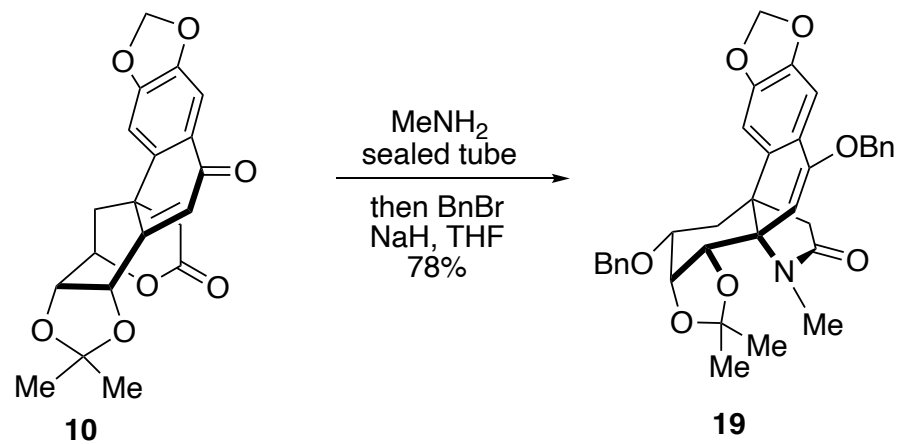
Intramolecular
photoenolization
Diels-Alder reaction

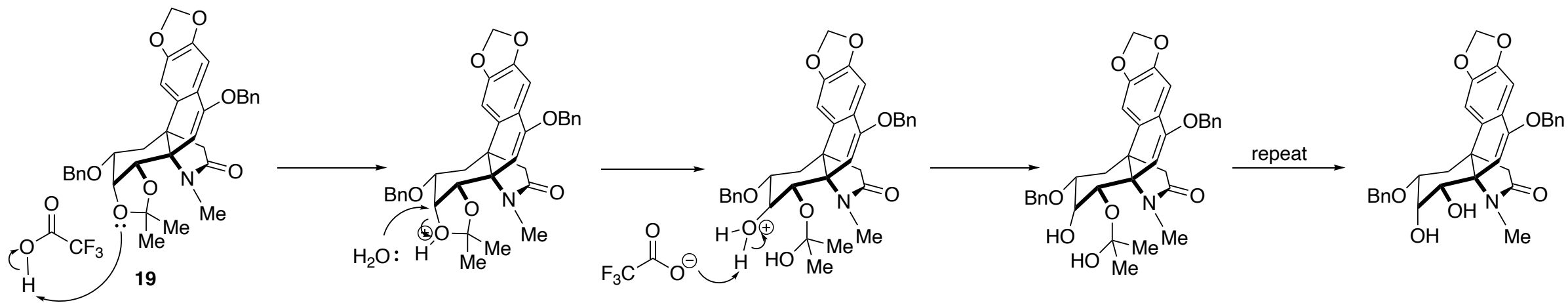
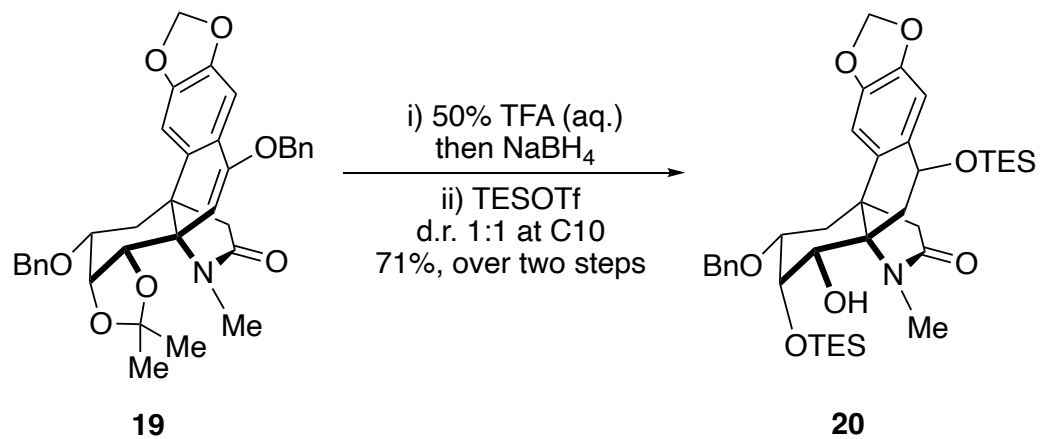


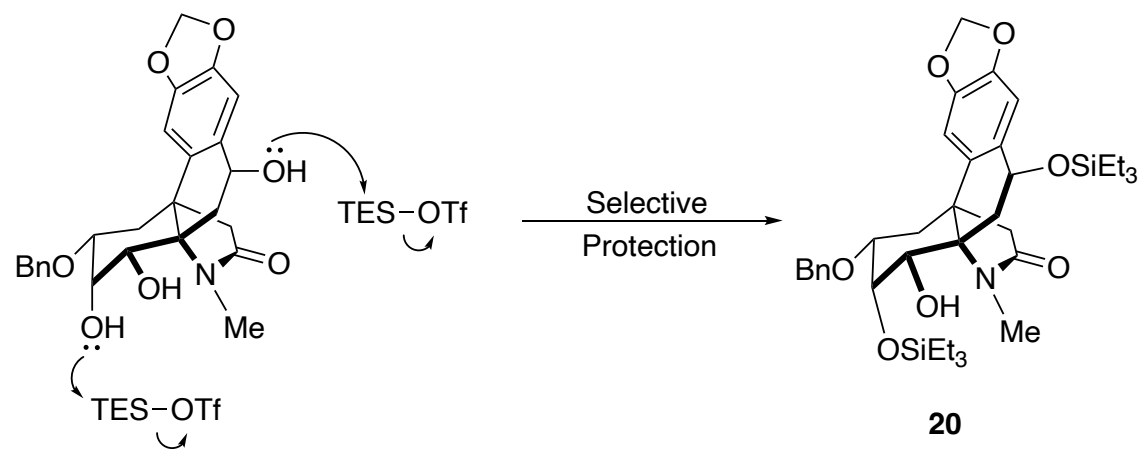
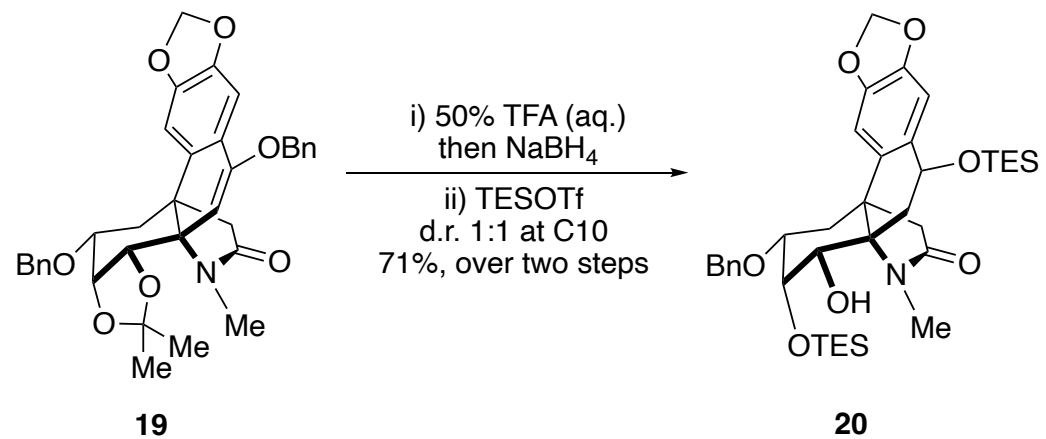


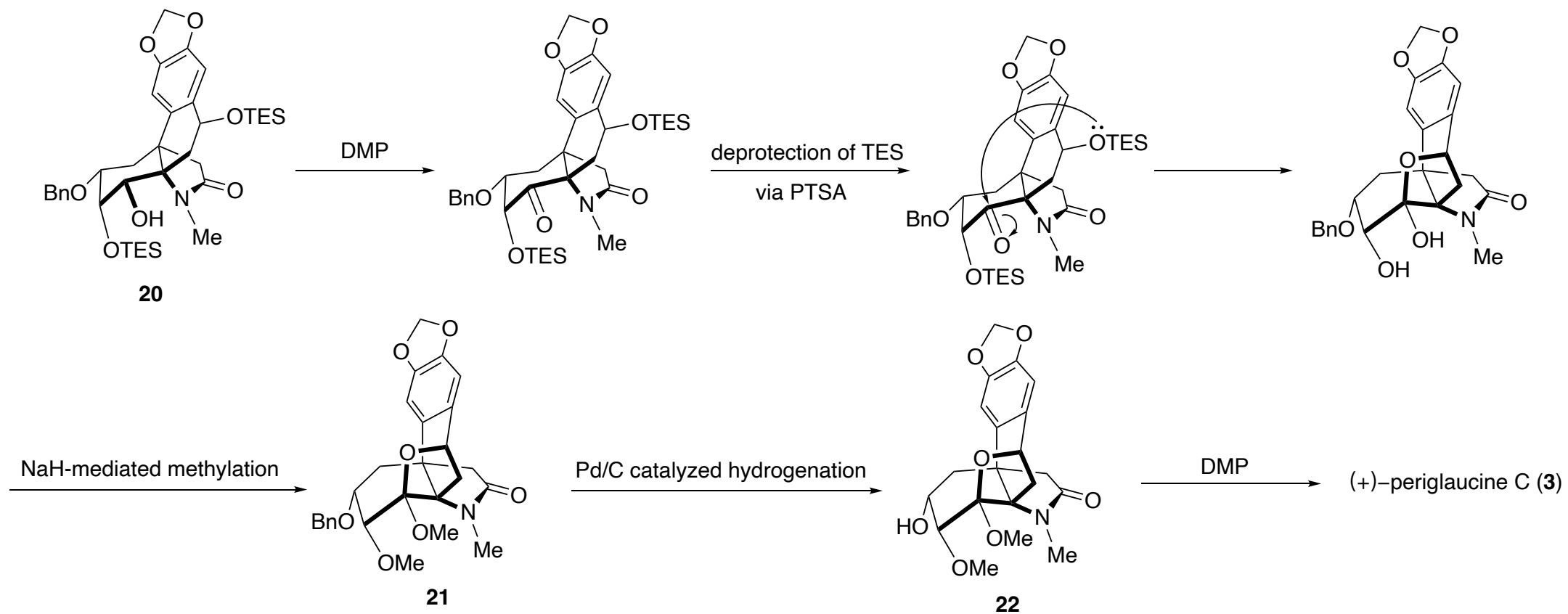
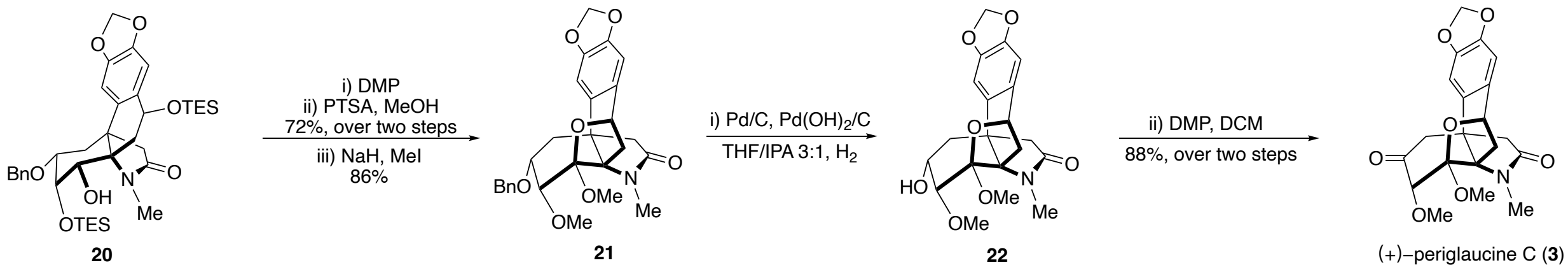
Pd(II) catalyzed aerobic oxidation

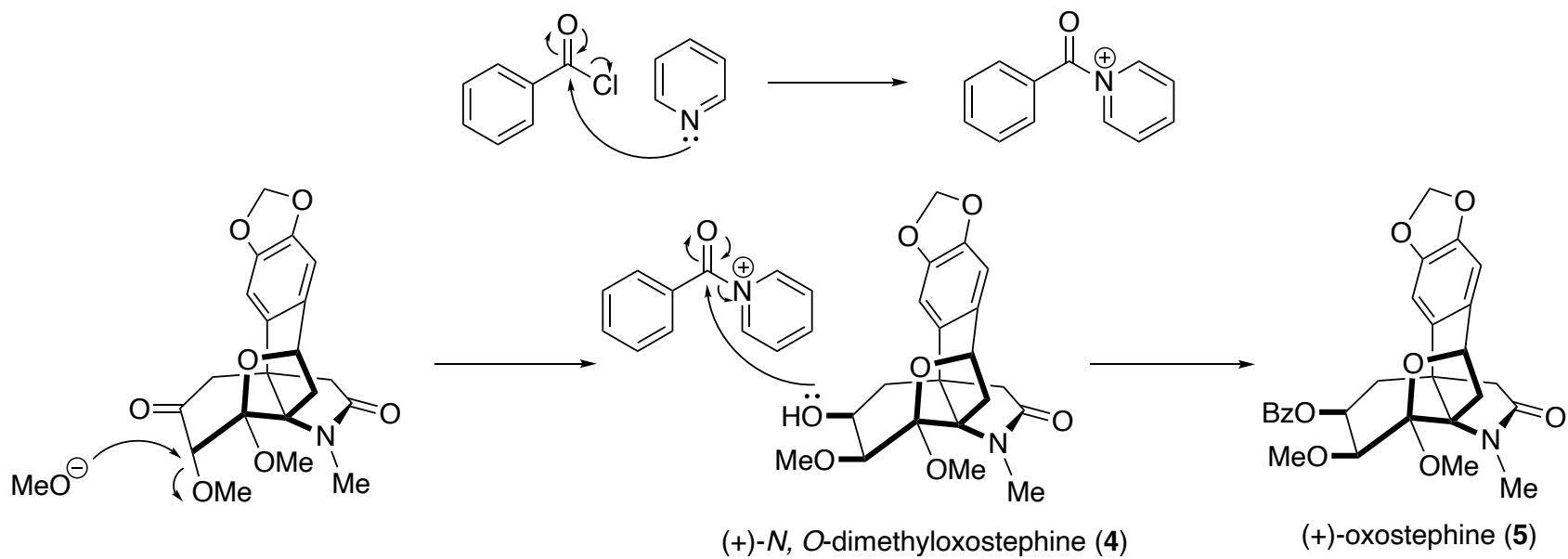
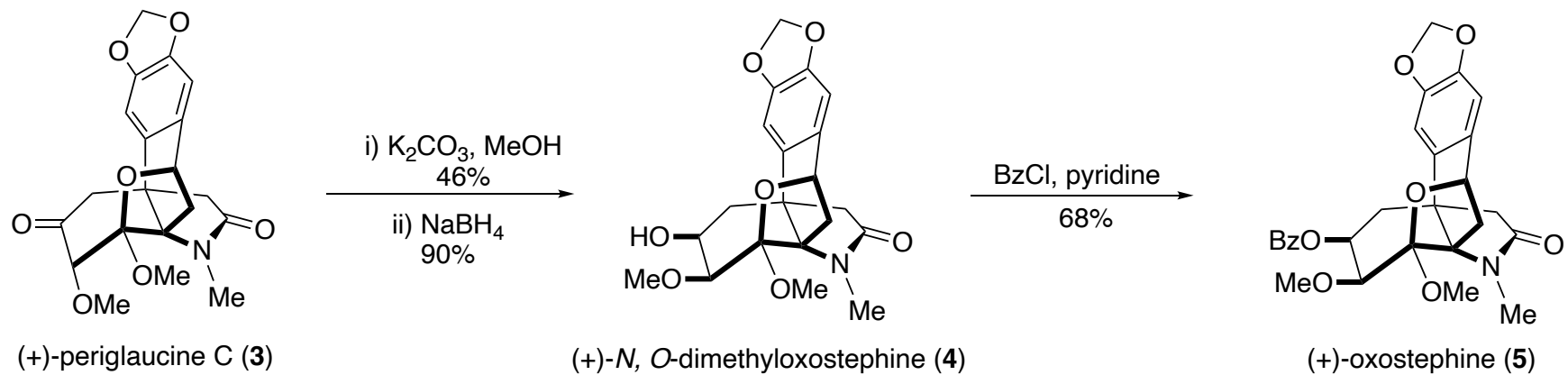












Thank you !