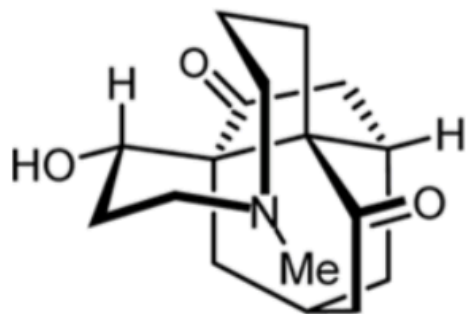
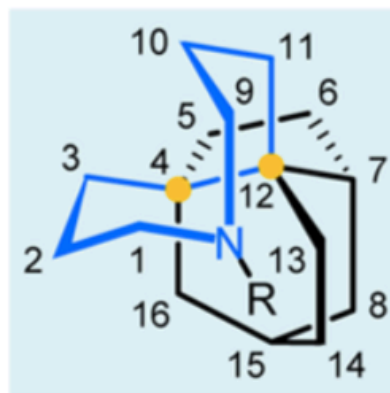


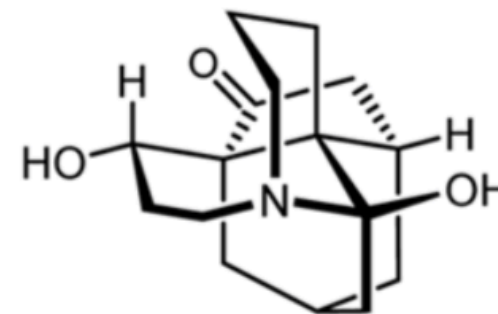
Total Synthesis of *Lycopodium* Alkaloids Palhinine A and Palhinine D



palhinine A



Skeleton of Palhinine-type
Lycopodium Alkaloids



palhinine D

Literature Presentation

levgeniia Kovalova

23. 03. 2017

Chun-An Fan et al.

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Chun-An Fan

Education:

1999 – B.Sc. in Chemistry at Lanzhou University, China

2004 – Ph.D. with Professor Yong-Qiang Tu, Lanzhou University, China

2004-2005 - CNRS Postdoctoral Fellow in the laboratory of Professor Henri B. Kagan at Université de Paris-Sud (XI), France

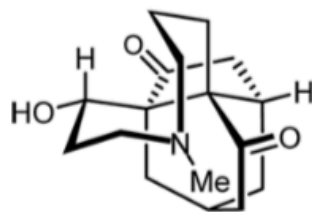
2005 - joined the group of Prof. Andreas Gansäuer as an Alexander von Humboldt Research Fellow at Universität Bonn, Germany

2007 - full professorship position at Lanzhou University

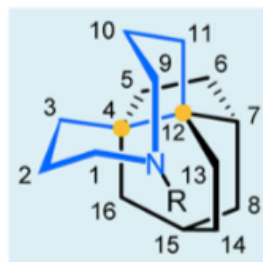
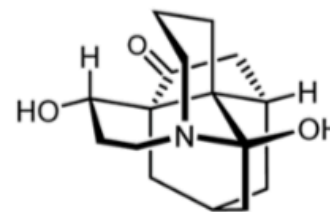


Research interests:

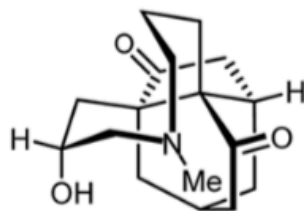
- synthetic methodology
- asymmetric catalysis
- synthesis of structurally interesting and biologically active molecules

Isolation of Palhinine-type *Lycopodium* Alkaloids

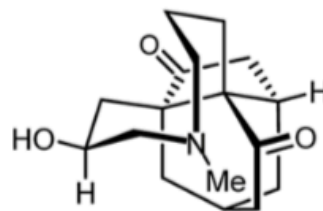
palhinine A

Skeleton of Palhinine-type
Lycopodium Alkaloids

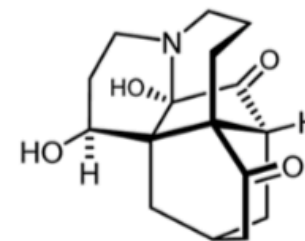
palhinine D



palhinine B



palhinine C



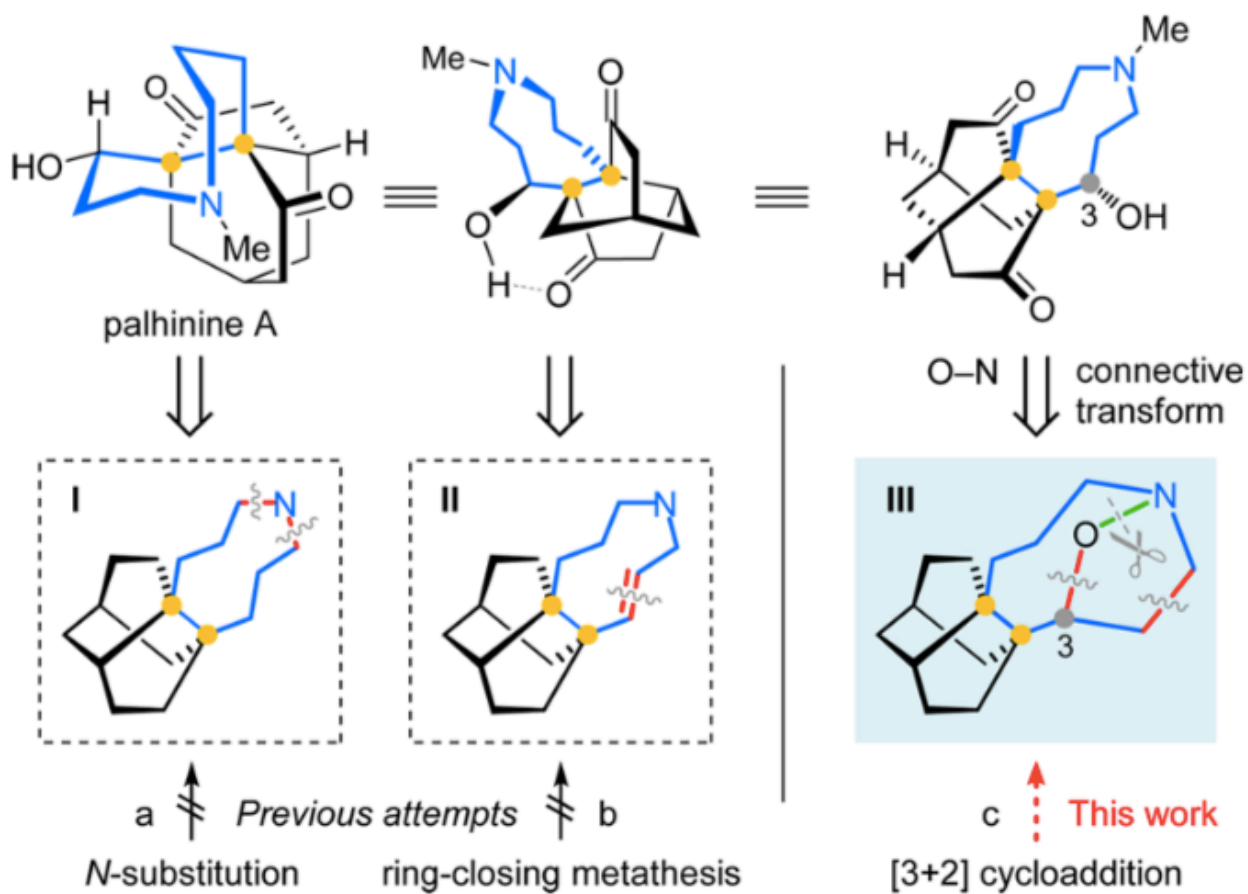
isopalhinine A

Areal: North America, Eastern and Southern
China

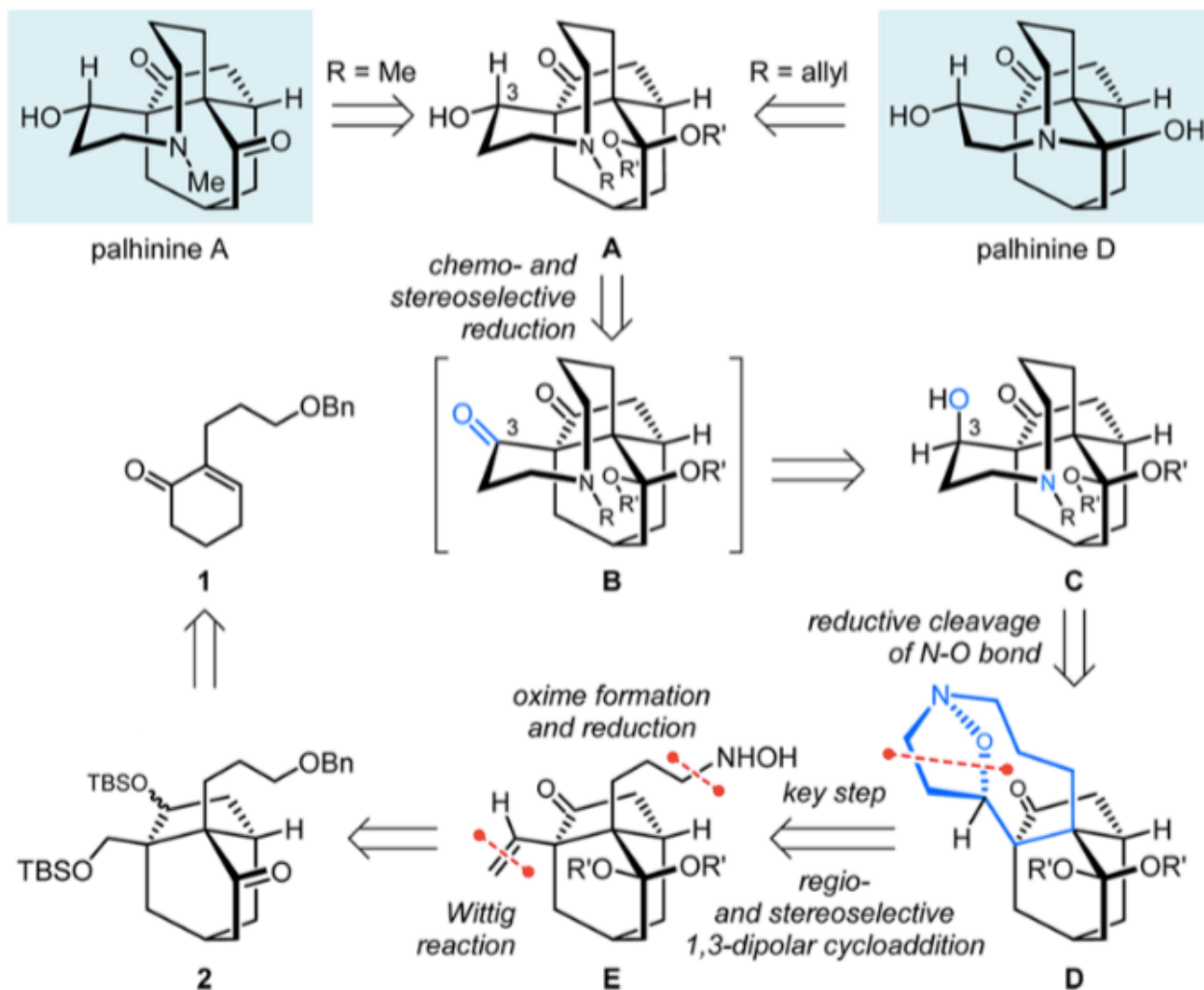
The species is traditionally used to
heal contusions, scald, and
rheumatism^{a,b}

*Palhinhaea cernua* L.a) Wang, Y.-H.; Long, C.-L. et al., *Org. Lett.* 2010, 12, 3922b) Zhao, Q.-S. et al., *Org. Lett.* 2013, 15, 3570

Trials to Construct 9-Membered Azonane Ring

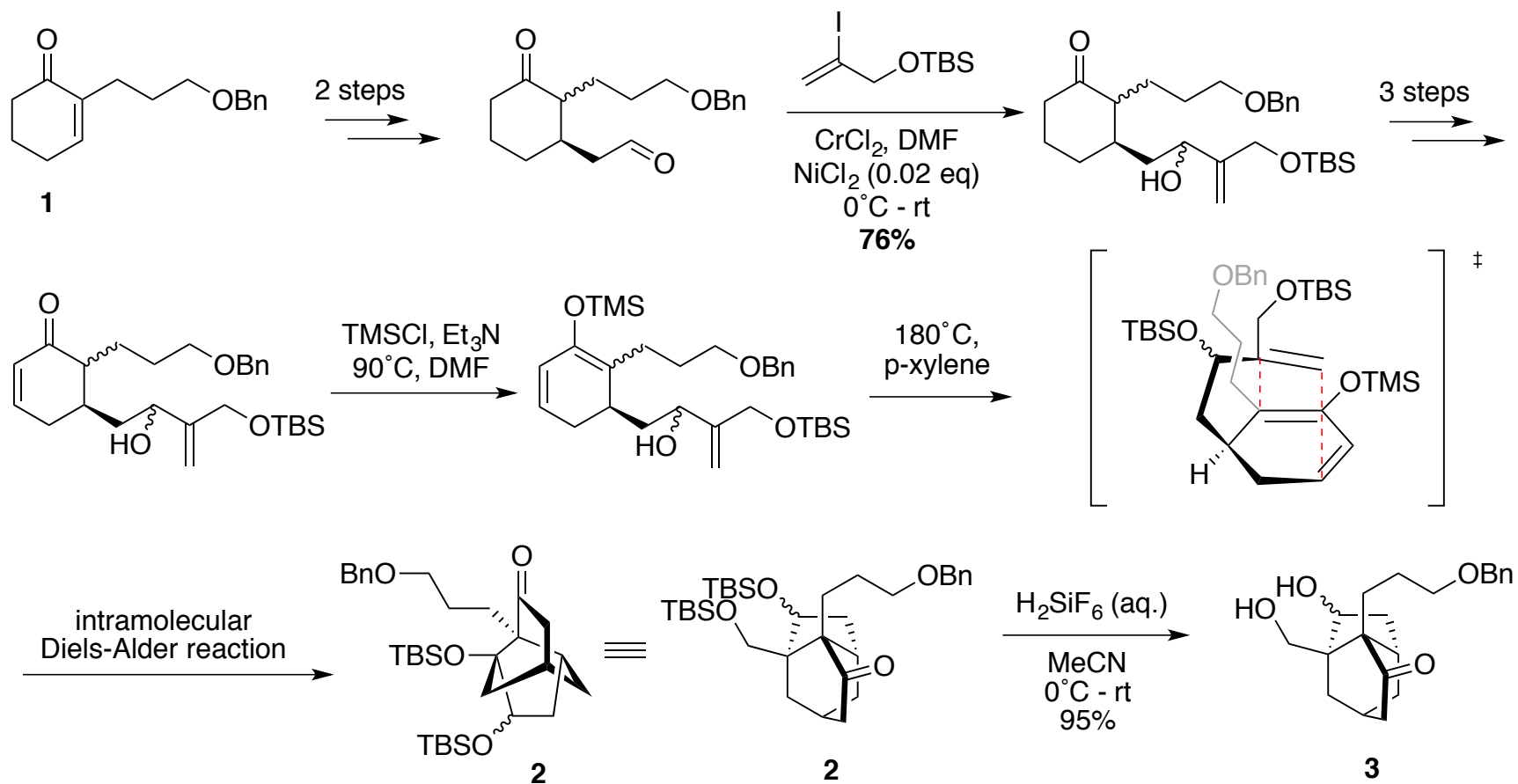


Retrosynthetic Analysis

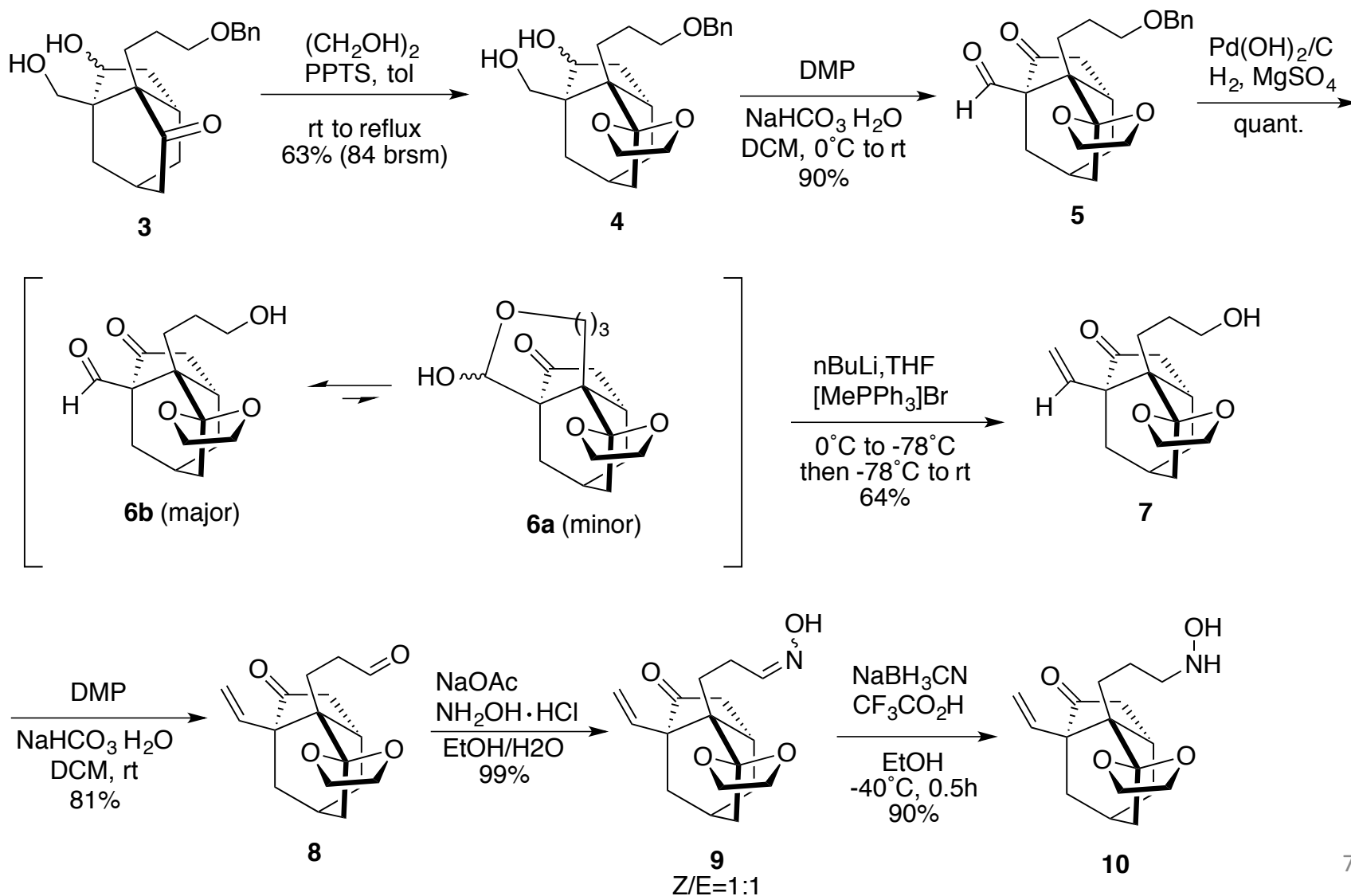


Synthesis of Fragment 3

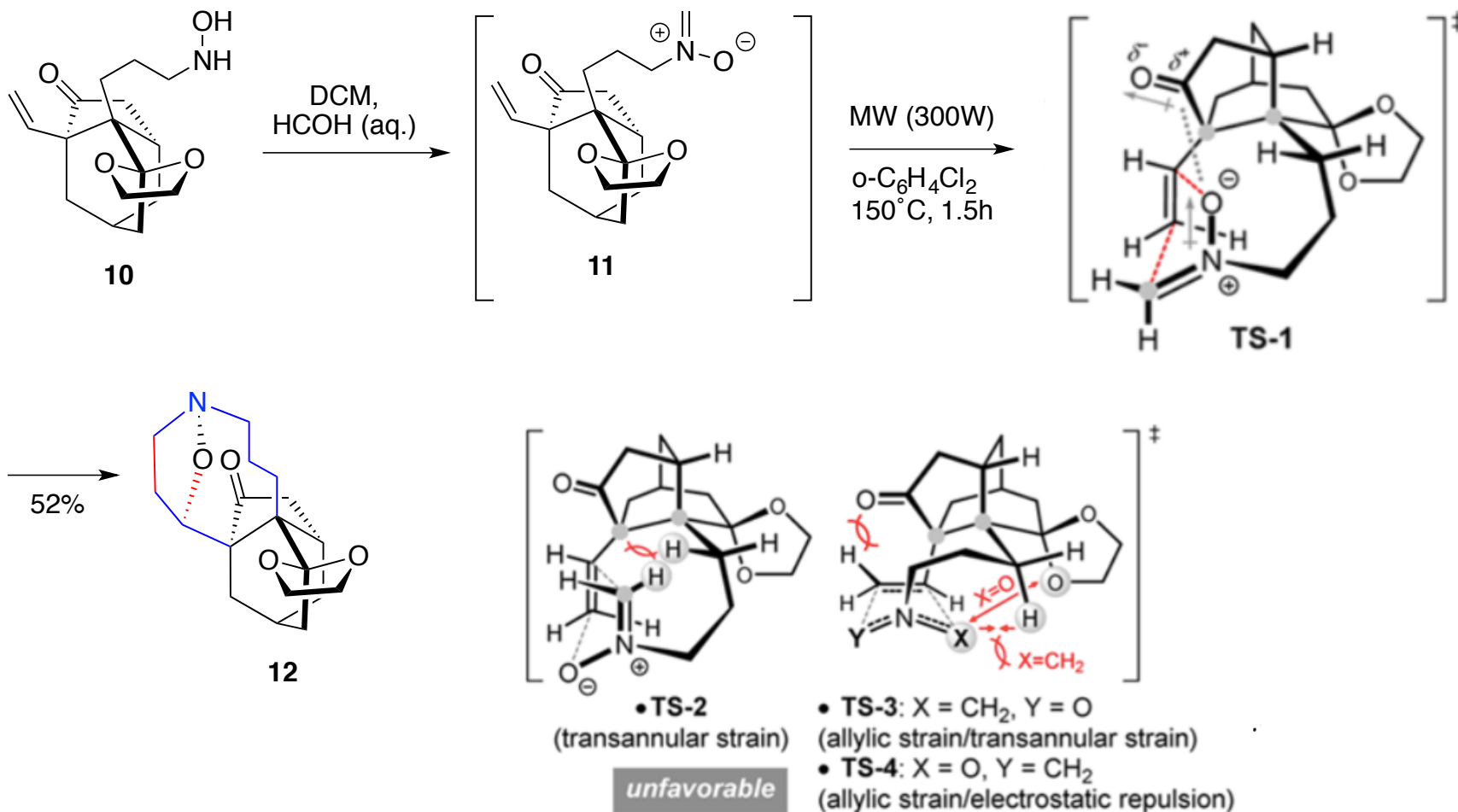
Nozaki-Hiyama-Kishi



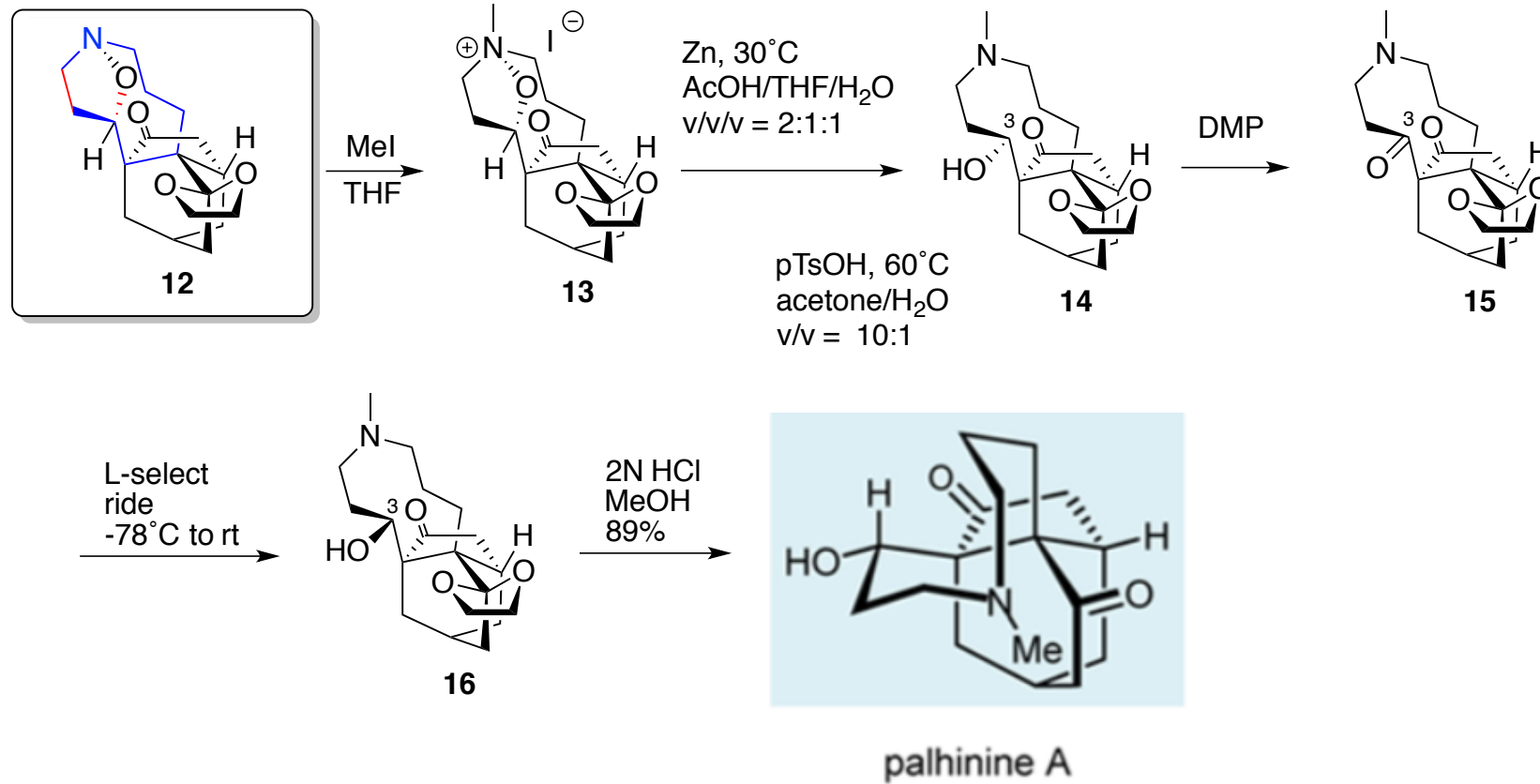
Synthesis of Fragment 10



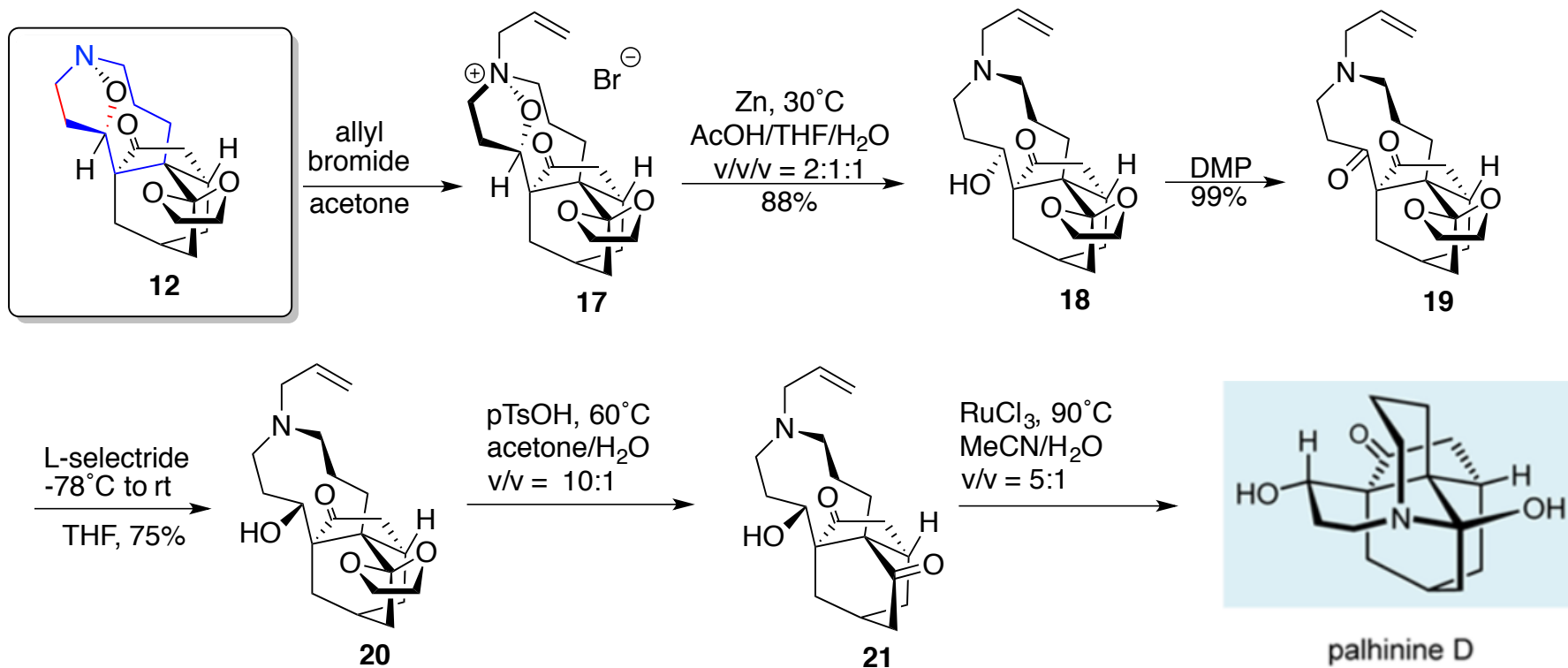
Construction of Azonane-Containing Auxiliary Ring Embedded in the Isotwistane Scaffold



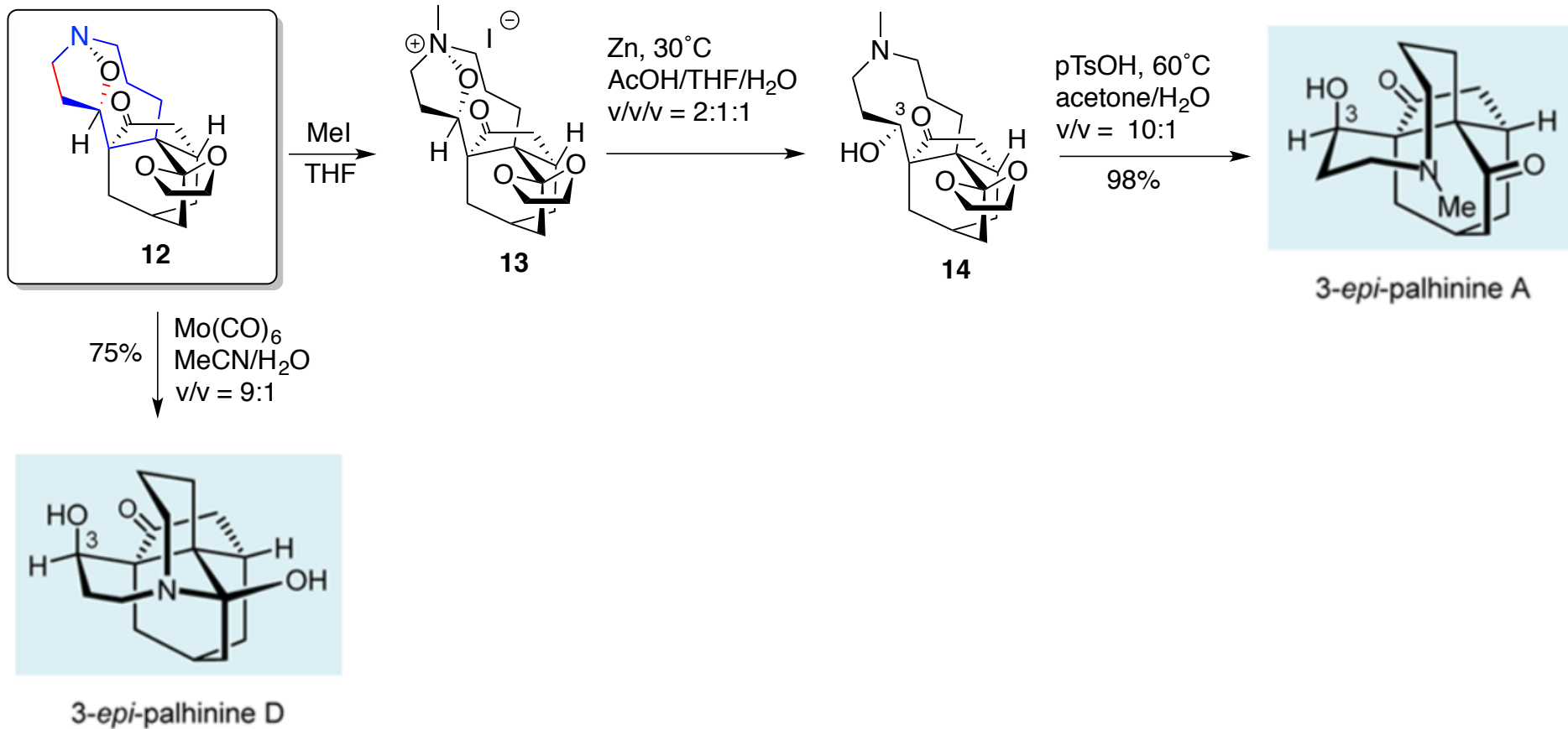
Synthesis of Palhinine A



Synthesis of Palhinine D



Synthesis of Epimers of Palhinine A and D



Thank you for your attention!