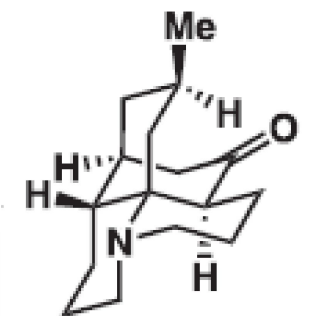
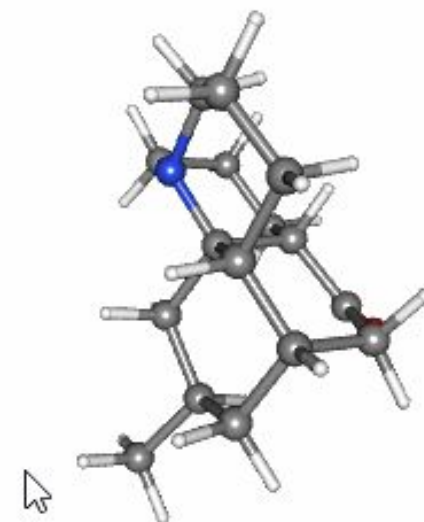
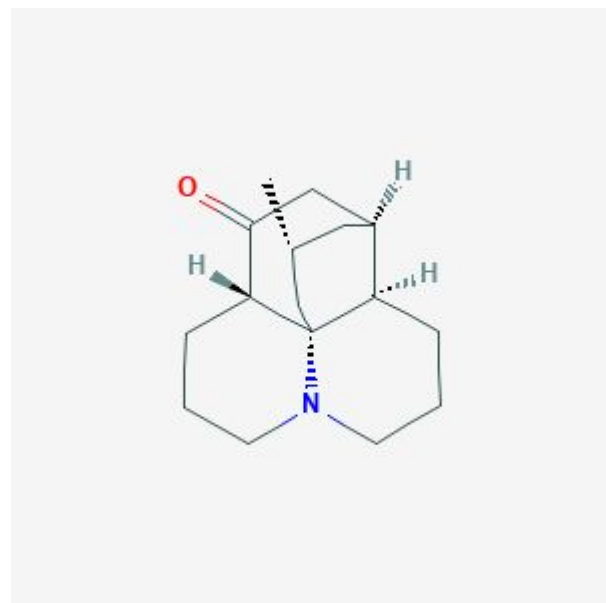


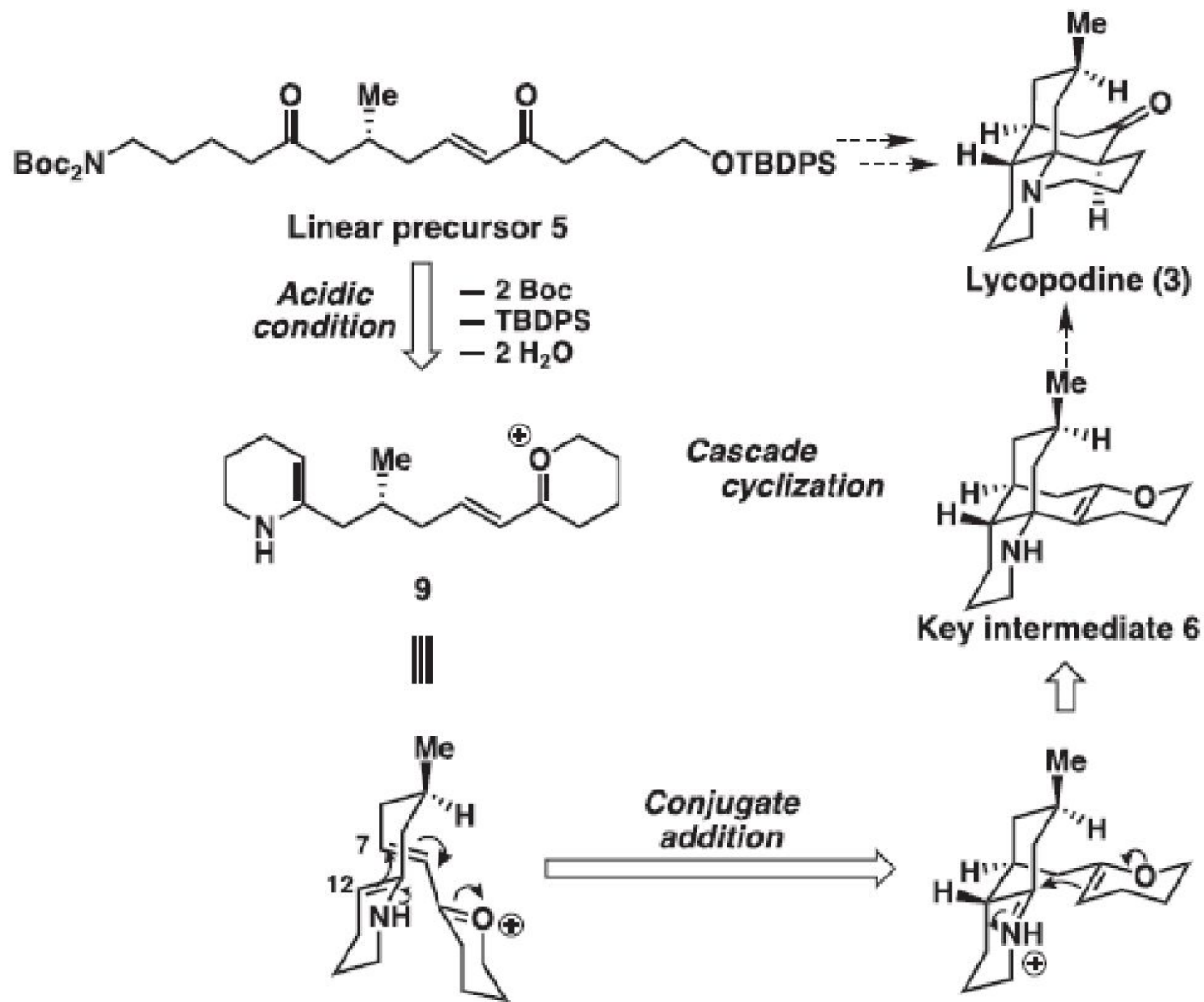
Concise asymmetric total synthesis of lycopodine and flabelliformine via cascade cyclization reaction

Kentaro Wada, Noriyuki Kogure, Mariko Kitajima, Hiromitsu Takayama *

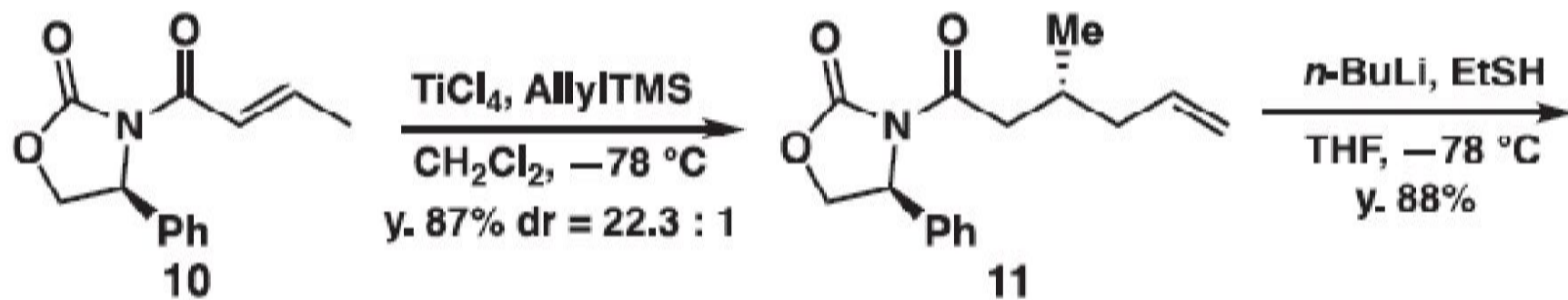
Graduate School of Pharmaceutical Sciences, Chiba University, 1-8-1 Inohana, Chuo-ku, Chiba 260-8675, Japan



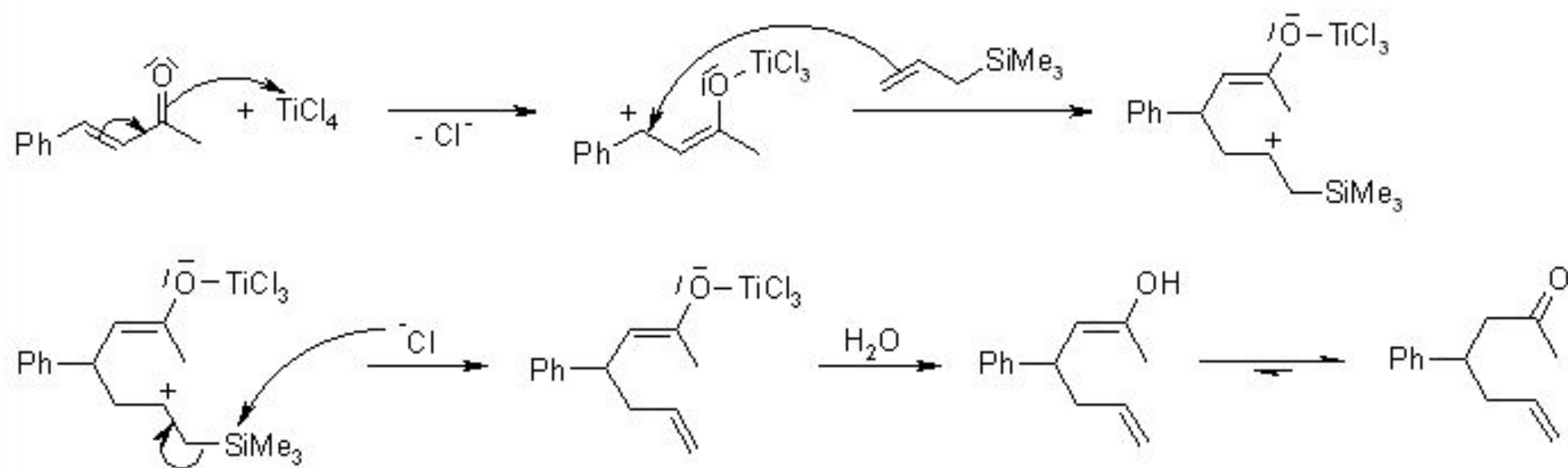
Lycopodine (3)

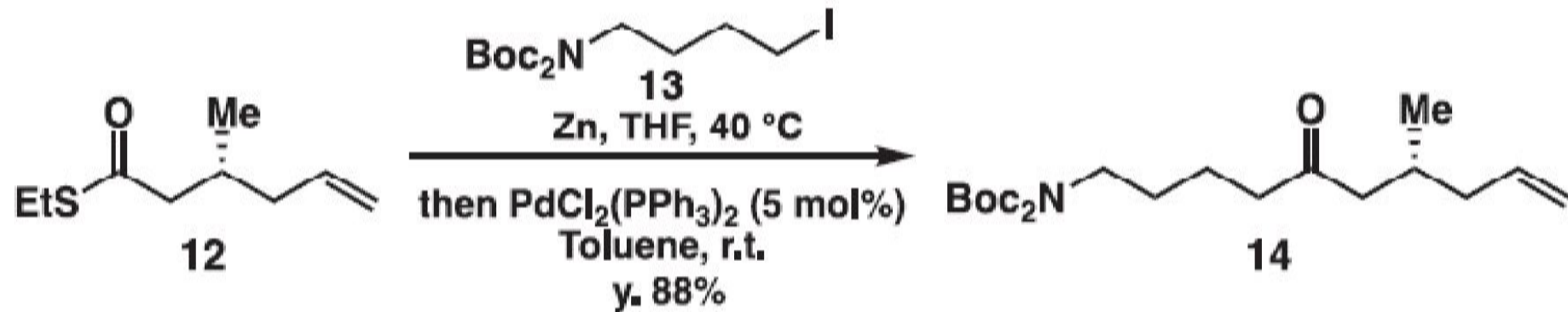


Scheme 2. Synthetic plan in this work.



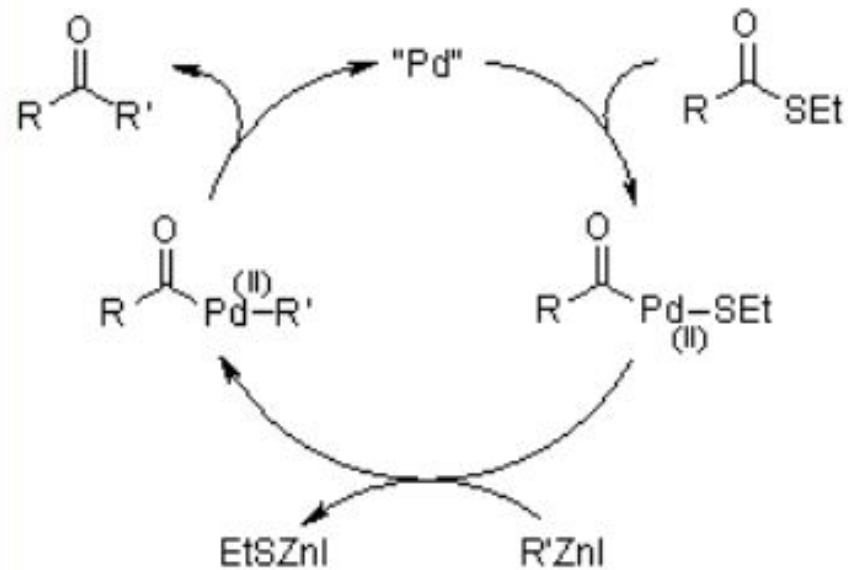
Mechanism of the Hosomi-Sakurai Reaction

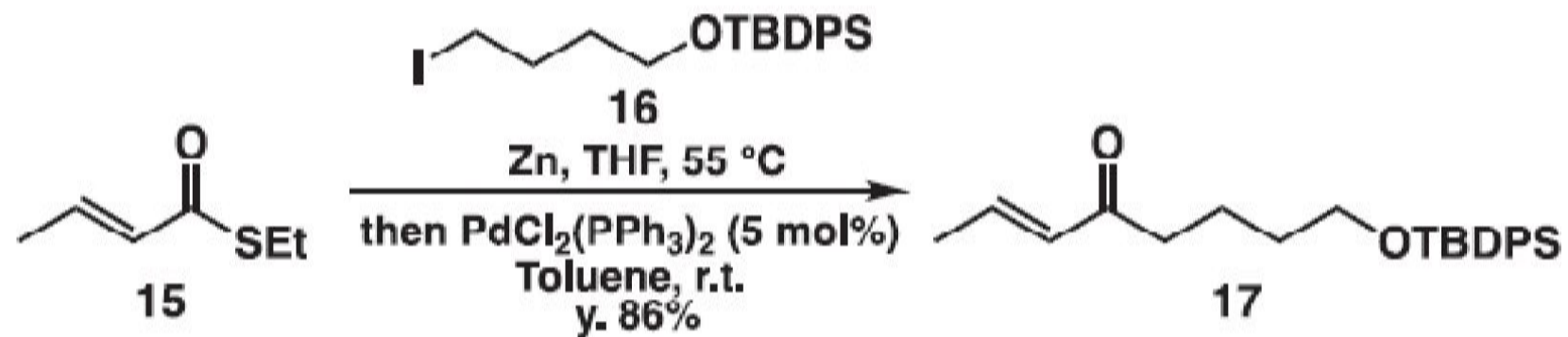




Mechanism of the Fukuyama Coupling

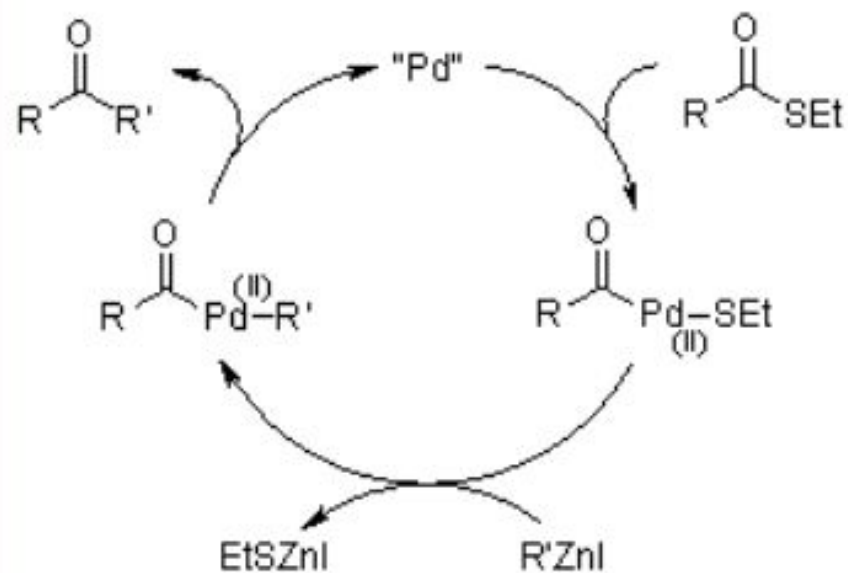
Oxidative addition of the thioester is followed by transmet

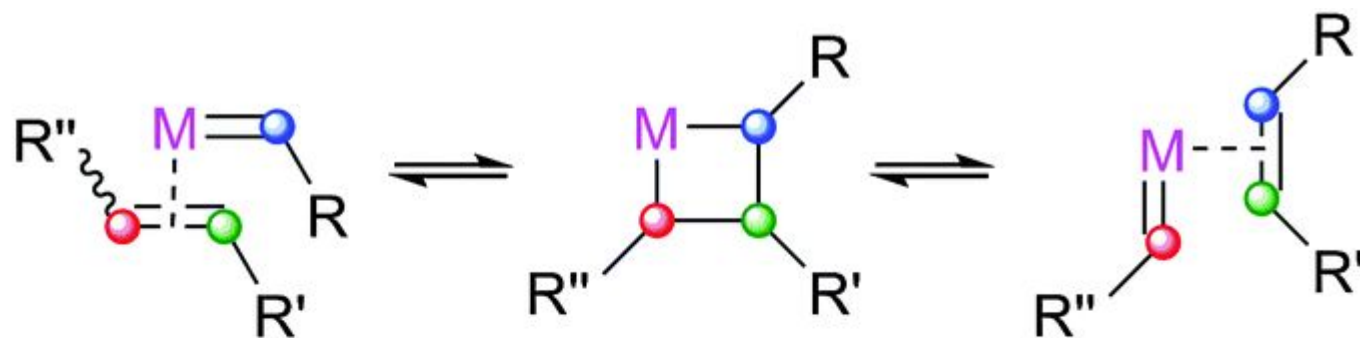
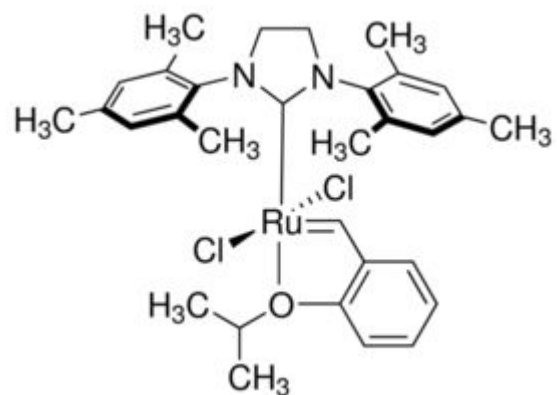
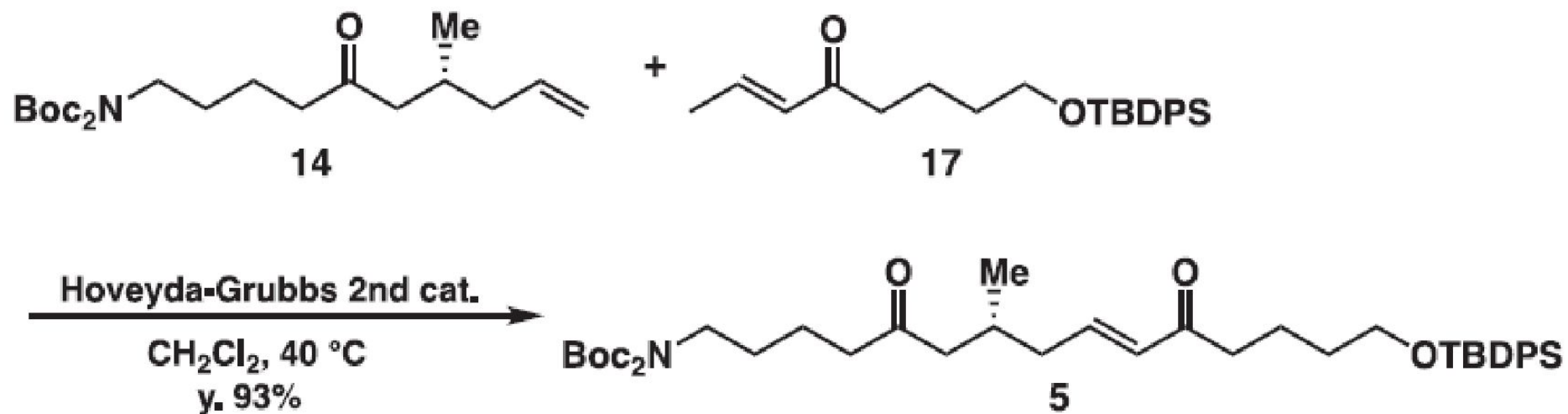


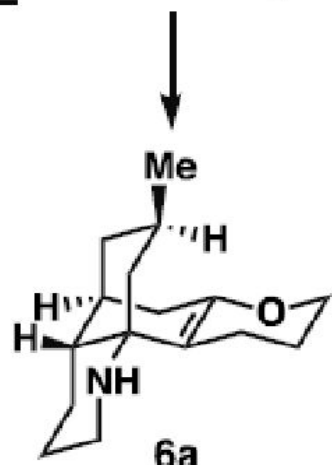
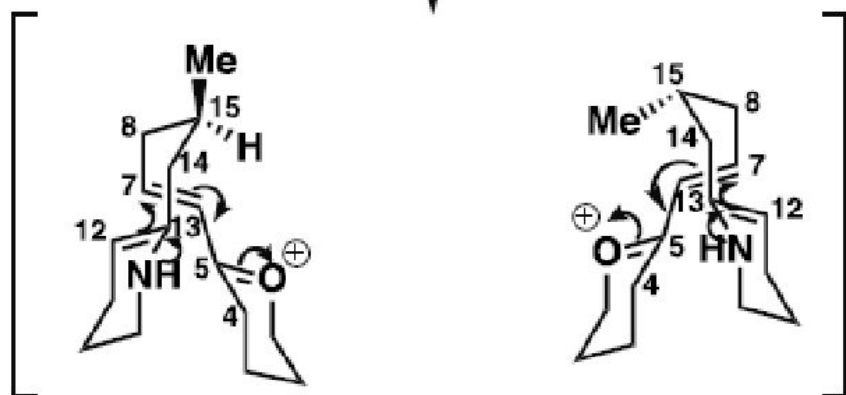
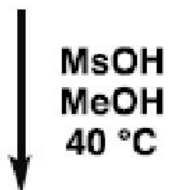
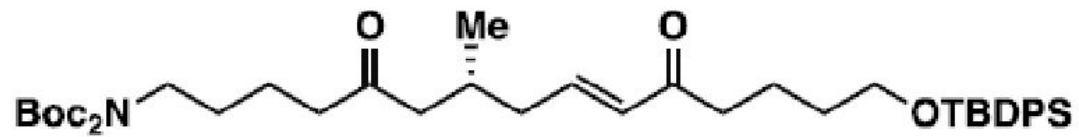


Mechanism of the Fukuyama Coupling

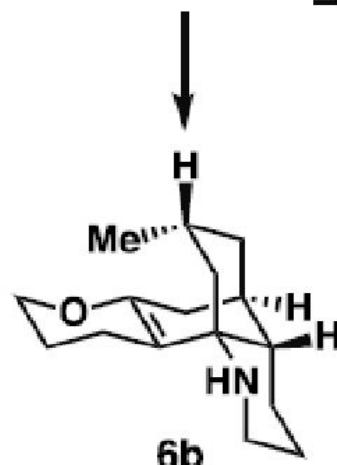
Oxidative addition of the thioester is followed by transmet



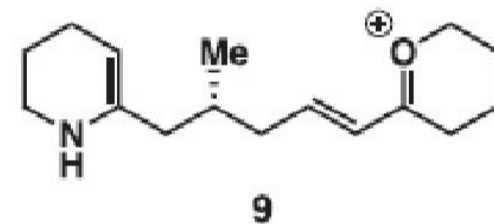


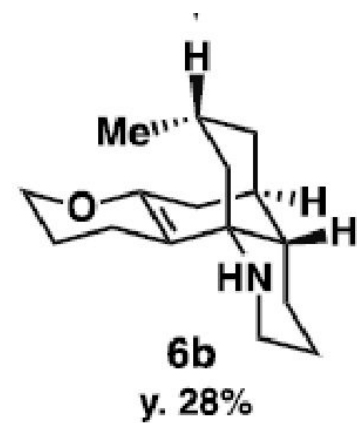
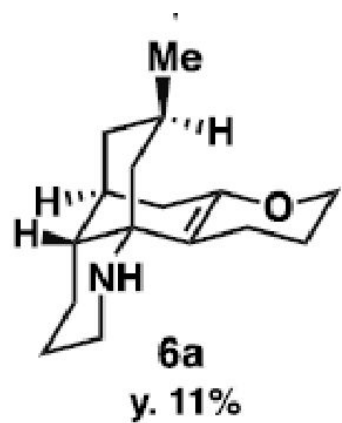


y. 11%



y. 28%





Et₃N
3,5-Dinitrobenzoyl chloride
CH₂Cl₂

