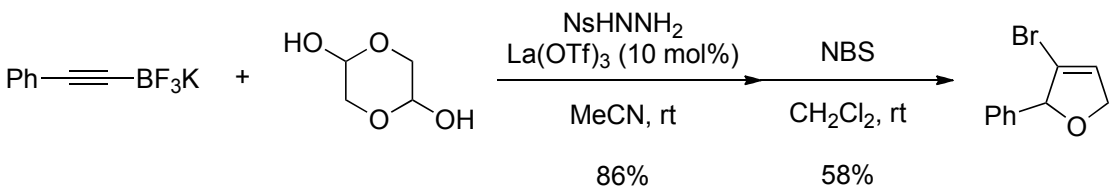
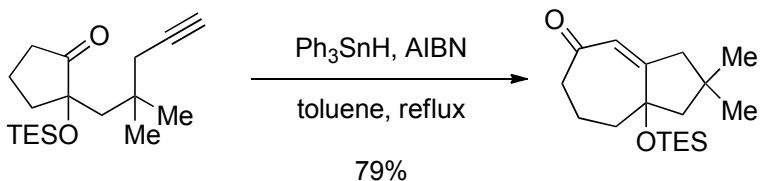
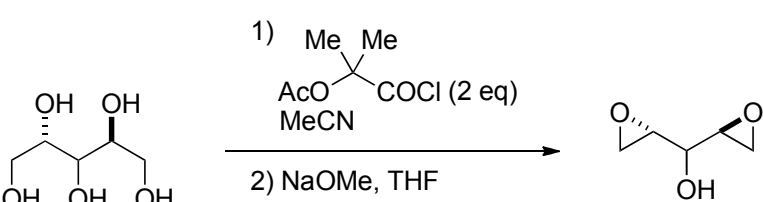
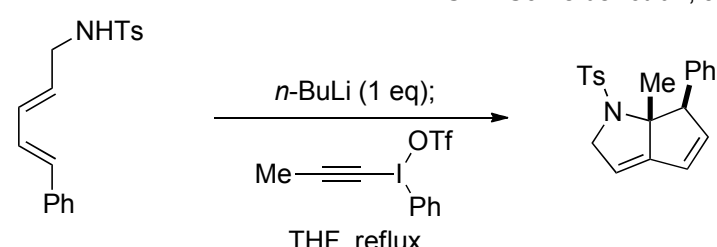
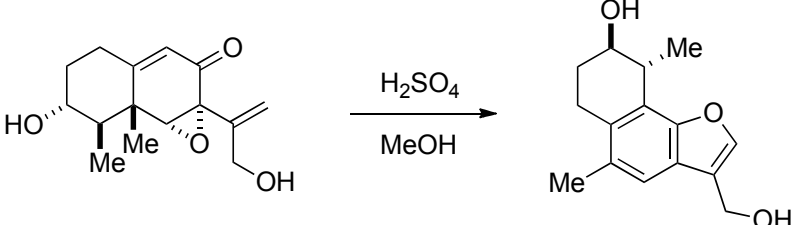
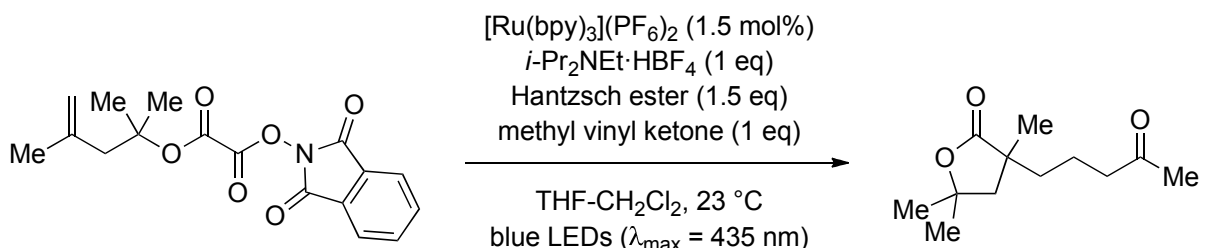


Name

1. 
86%
58%
R. J. Thomson *et al.*, *J. Am. Chem. Soc.*, **134**, 5782 (2012)
2. 
79%
A. Nishida *et al.*, *Tetrahedron Lett.*, **36**, 3015 (1995)
3. 
演習で学ぶ有機反応機構C070 (化学同人)
S. L. Schreiber *et al.*, *J. Org. Chem.*, **54**, 15 (1989)
4. 
THF, reflux
演習で学ぶ有機反応機構C055 (化学同人)
K. S. Feldman and D. A. Mareska, *J. Org. Chem.*, **64**, 5650 (1999)
5. 
R. Capasso *et al.*, *Tetrahedron*, **42**, 4493 (1986)
6. 
[Ru(bpy)₃](PF₆)₂ (1.5 mol%)
i-Pr₂NEt·HBF₄ (1 eq)
Hantzsch ester (1.5 eq)
methyl vinyl ketone (1 eq)
THF-CH₂Cl₂, 23 °C
blue LEDs (λ_{max} = 435 nm)

hint: Hantzsch ester can be synthesized by a reaction of ethyl acetoacetate with formalin and ammonia.