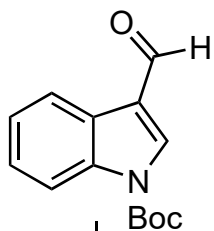


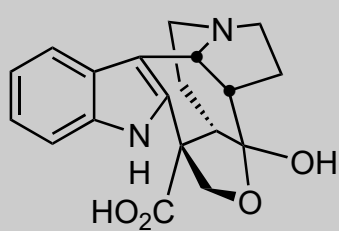
Catalytic Asymmetric Total Synthesis of (-)-Actinophyllic Acid

Linchao Cai, Kui Zhang, and Ohyun Kwon*

J. Am. Chem. Soc. **2016**, *138*, 3298–3301

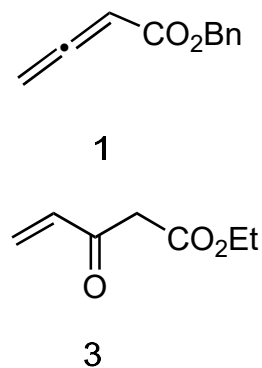
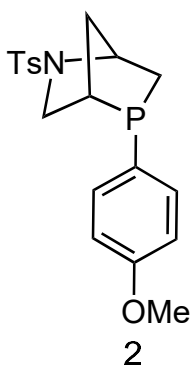


1-13



(-)-Actinophyllic Acid

- 1) *o*-NsNH₂, TiCl₄, NEt₃
- 2) 1, 2, (R)-BINOL
- 3) Hg(TFA)₂ KI, I₂
- 4) PhSNa
- 5) 3

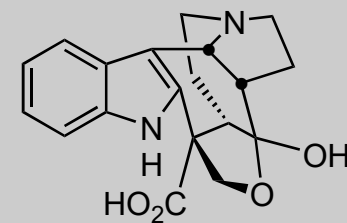


- 6) CuI, K₂CO₃
- 7) Pd/C, H₂
- 8) ClCH₂I, K₂CO₃
- 9) NaI, K₂CO₃
- 10) Sml₂, t-BuOH
- 11) Thiophosgene, DMAP
- 12) *n*-Bu₃SnH, AIBN
- 13) aq. HCl

1) Structure of *o*-NsNH₂

6) *Hint: cyclization*

12) Name of reaction?



(-)-Actinophyllic Acid