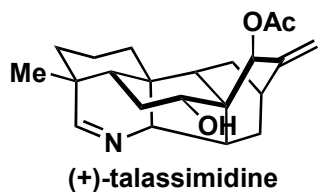


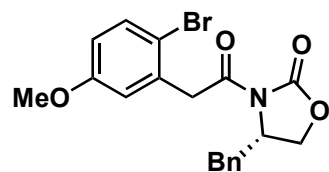
Zhang, 2021



- First isolated from *Aconitum talassicum* and reisolated from *Delphinium campylocentrum*
- First asymmetric total synthesis of (+)-talassimidine
- Hetidine-type C₂₀-diterpinoid

<https://doi.org/10.1021/jacs.1c01865>

Stereochemistry & model?



1

1. TiCl₄, DIPEA (HCHO)₃, 72%
2. TIPSOTf, 83%

Type of reaction?

3. AgOAc (cat.) DBU
- 60%, *dr* = 6:1

4, E = CO₂Me

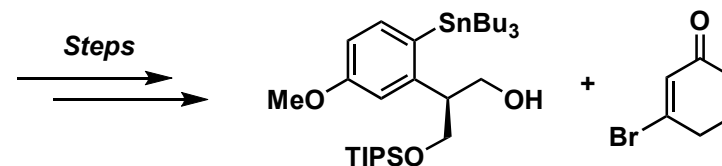
1. BnBr, K₂CO₃, 99%
2. Ph₃P=CH₂OMe 96%

- Sml₂, HMPA HCl-MeOH

87%

5, E = CO₂Me

2

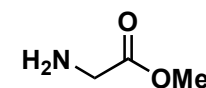


Steps

Pd(PPh₃)₄, 77%

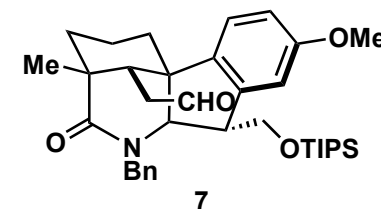
1. TEMPO (cat.), NaClO
2. methyl glycinate·HCl, NEt₃

Methyl glycinate =



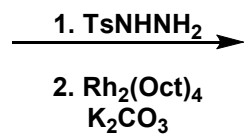
>99% ee

Steps

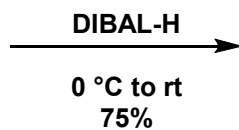


7

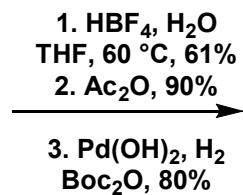
6



8

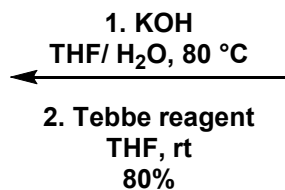


9



10

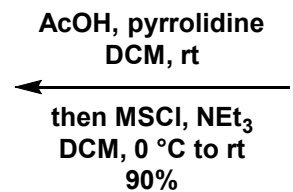
HF then
DMP, 95%



13

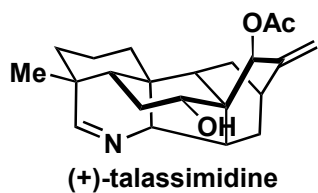
Structure & orbital of Tebbe reagent

12

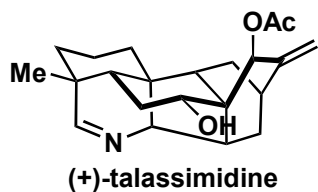


11

Steps



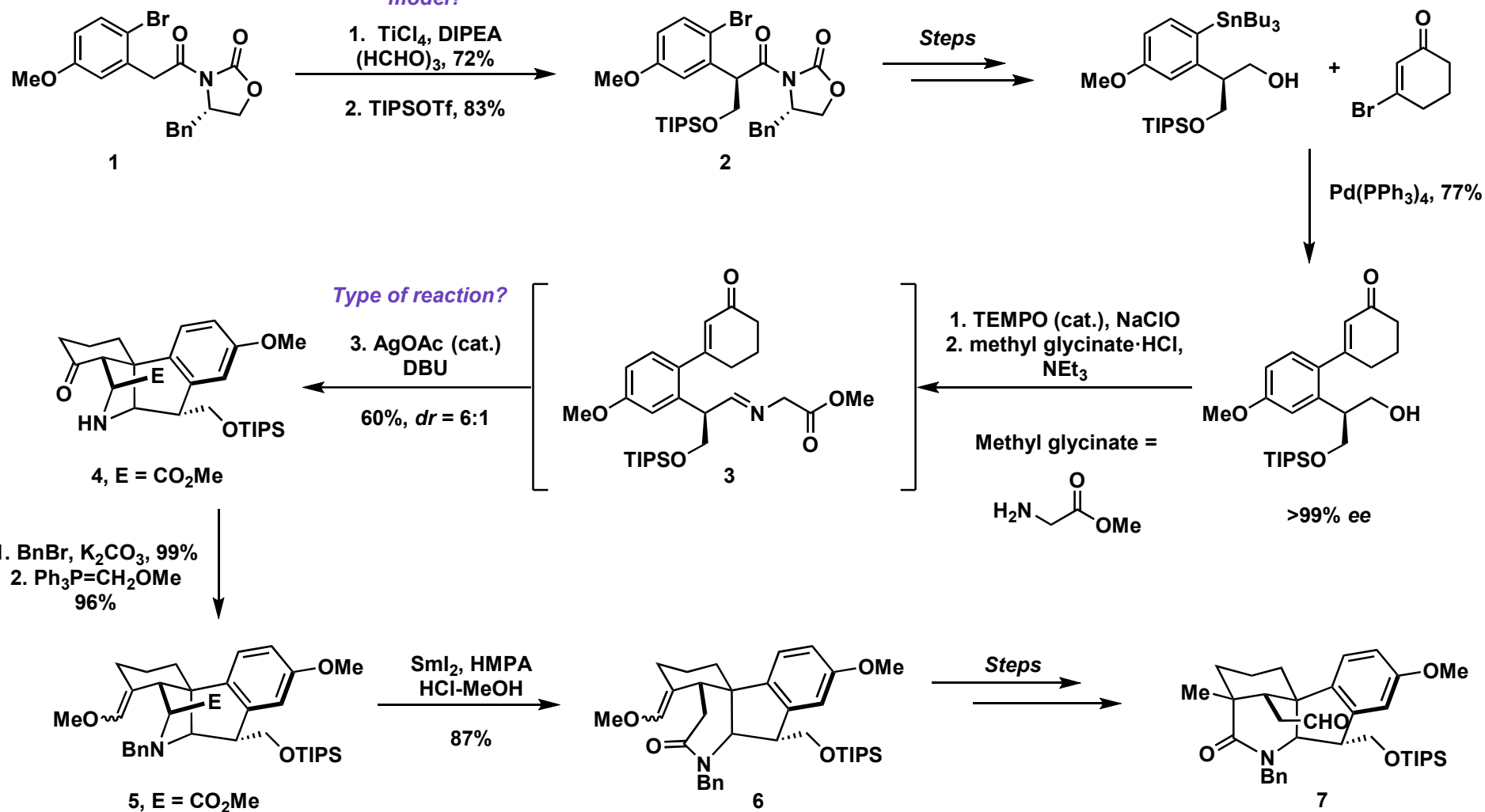
Zhang, 2021

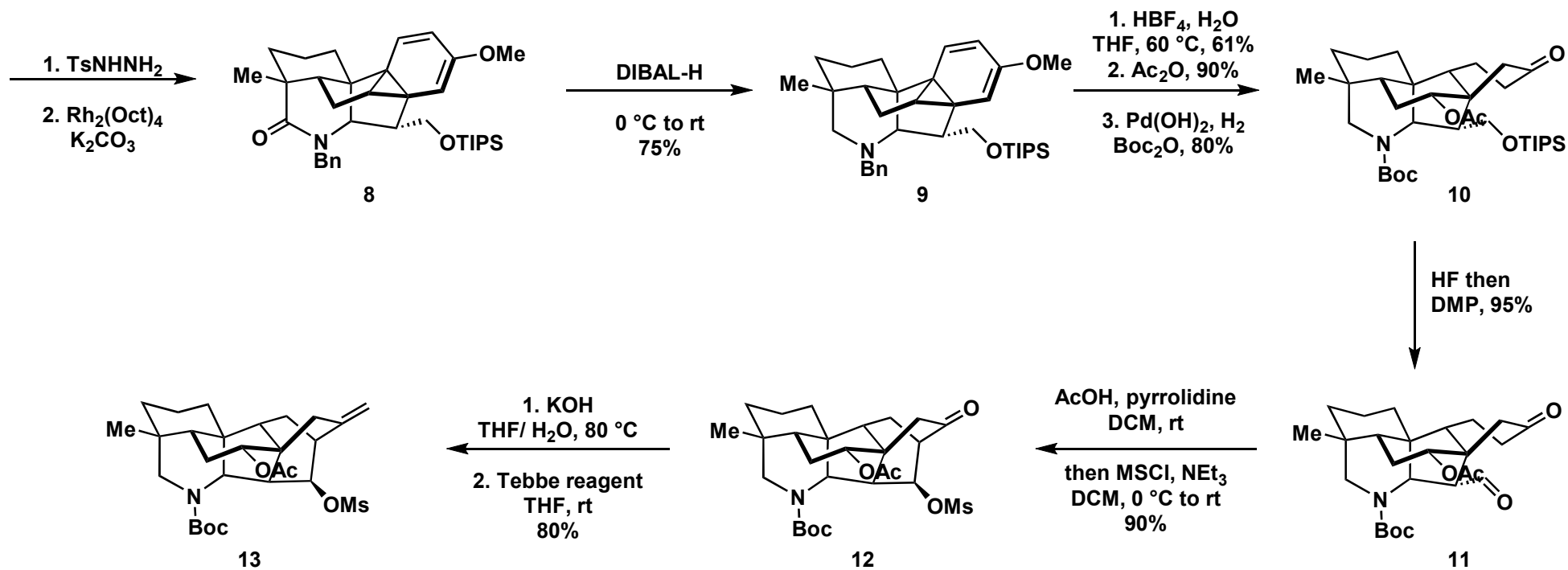


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Stereochemistry & model?





Structure & orbital of Tebbe reagent

Steps

