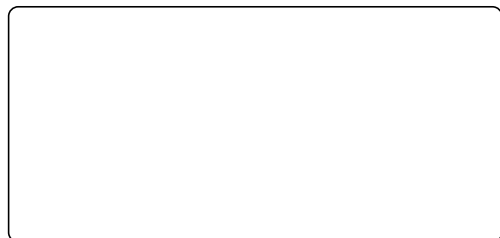
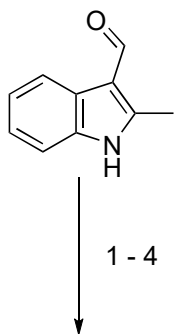


Asymmetric Total Syntheses of Kopsane Alkaloids

Xuelei Jia, Dr. Honghui Lei, Feipeng Han, Tao Zhang, Ying Chen, Dr. Zhengshuang Xu, Dr. Pratanphorn Nakliang, Prof. Dr. Sun Choi, Dr. Yian Guo, Prof. Dr. Tao Ye



A

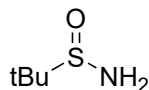
5 - 12



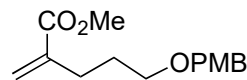
B

Angew. Chem., Int. Ed., **2020**, 59, 12832-12836.

- 1) pTsCl, $i\text{Pr}_2\text{NEt}$, MeCN
- 2) $\text{Ti}(\text{OEt})_4$, **1**, CH_2Cl_2
- 3) **2**, LiHMDS, THF, -78°C then allyl-Br, DMF, 0°C to 23°C
- 4) DIBAL-H, CH_2Cl_2 , 0°C

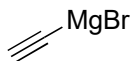


1



2

- 5) HCl, MeOH, CH_2Cl_2 , 0°C
- 6) TBSCl, ImH, DMAP, CH_2Cl_2 , 0°C to 23°C
- 7) CbzCl, K_2CO_3 , CH_2Cl_2
- 8) Mg, MeOH, ultrasonic
- 9) PMBBBr, NaH, DMF, 0°C to 23°C
- 10) OsO_4 , NMO, acetone, H_2O
- 11) NaIO_4 , CH_2Cl_2
- 12) **3**, LiHMDS, THF, -20°C

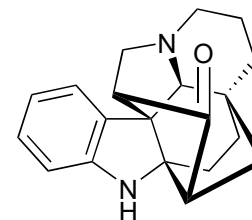


3

3) *Hint*: 1 ring is formed, names of the reactions ? Provide a mechanism

7) Structure of Cbz ?

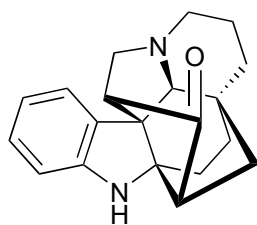
10) and 11) Name of both reactions ?



(-)-Kopsanone

B

13-21



(-)-Kopsanone

- 13) **4**, PPTS
- 14) PtCl_2 , DCE, 85°C
- 15) PTSA, MeOH, 0°C
- 16) MsCl, Et_3N , DMAP, CH_2Cl_2 , 0°C
- 17) HCl, THF, 0°C
- 18) NaH, THF, 0°C to 23°C
- 19) DDQ, CH_2Cl_2 , 0°C to 23°C
- 20) DMP, NaHCO_3 , CH_2Cl_2 , 0°C
- 21) H_2 , Pd/C, MeOH



4

14) *Hint*: 2 rings are formed, provide a mechanism.