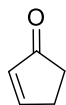


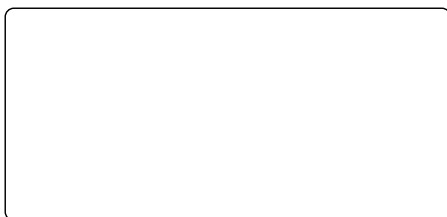
## Divergent Asymmetric Total Synthesis of (-)-Voacafricines A and B

Rémi Andres, Qian Wang, and Jieping Zhu.

*Angew. Chem. Int. Ed.* **2023**, 62, e202301517.



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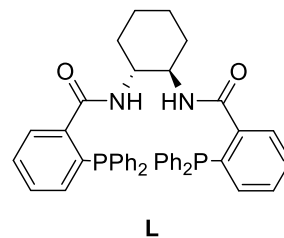
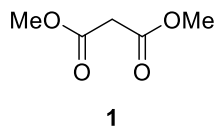
A

8 - 12

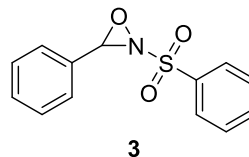
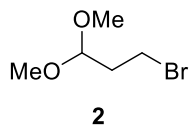


B

- 1) DIBAL-H
- 2) Ac<sub>2</sub>O
- 3) **1**, [ $\eta^3$ -C<sub>3</sub>H<sub>5</sub>PdCl]<sub>2</sub>, **L**, Cs<sub>2</sub>CO<sub>3</sub>
- 4) NaCl, DMSO, H<sub>2</sub>O, 160 °C
- 5) KOH (aq), MeOH/THF, 60 °C
- 6) KI, I<sub>2</sub>, NaHCO<sub>3</sub>, 0 °C
- 7) DBU, reflux

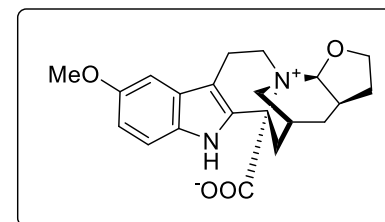


- 8) **2**, Mg, I<sub>2</sub> (cat.), then CuBr·Me<sub>2</sub>S, **A** then LAH
- 9) TIPSCl, imidazole
- 10) P(OEt)<sub>3</sub>, TESOTf, 0 °C then NEt<sub>3</sub>, LHMDS, -78 °C then O<sub>2</sub>, -78 °C
- 11) KHMDS, **3**, -78 °C
- 12) DMP

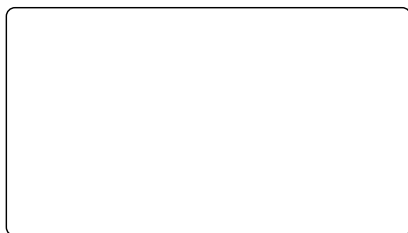
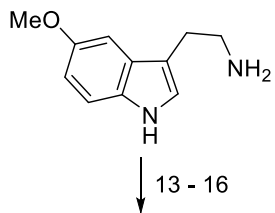


- 3) Name of the reaction?
- 4) Name of the reaction?

- 10) A side reaction occurred when using acidic condition. Which one? Role of NEt<sub>3</sub>?
- 11) Name of the reagent?

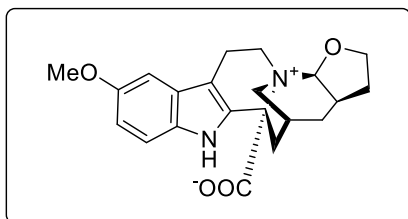


**Voacafricine A**



**C**

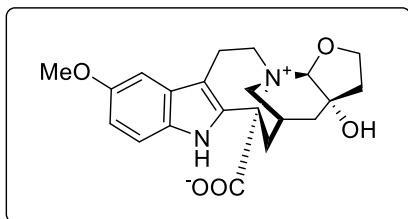
↓ 17



**Voacafricine A**

**C**

↓ 18 - 20



**Voacafricine B**

- 13) **B**, benzoic acid, reflux  
 14) HCl (aq, 4N), MeOH  
 15) K<sub>2</sub>OsO<sub>4</sub>·2H<sub>2</sub>O (4mol%), NaIO<sub>4</sub>  
 16) NaBH<sub>3</sub>CN

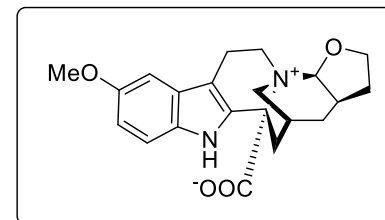
- 17) MsCl, NEt<sub>3</sub> *then* sat. Na<sub>2</sub>CO<sub>3</sub> (aq)

- 18) MsCl, DIPEA  
 19) K<sub>2</sub>OsO<sub>4</sub>·2H<sub>2</sub>O (4mol%), NMO·H<sub>2</sub>O  
 20) MsCl, NEt<sub>3</sub> *then* sat. Na<sub>2</sub>CO<sub>3</sub> (aq)

13) Name of the reaction?

15) Name of the reaction  
*Hint: 3 cycles are formed*

18) *Hint: No cyclization*  
 19) Name of the reaction?



**Voacafricine A**