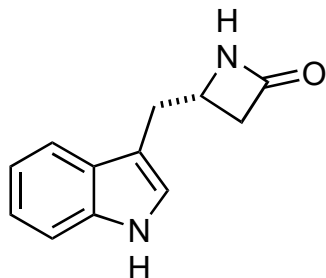
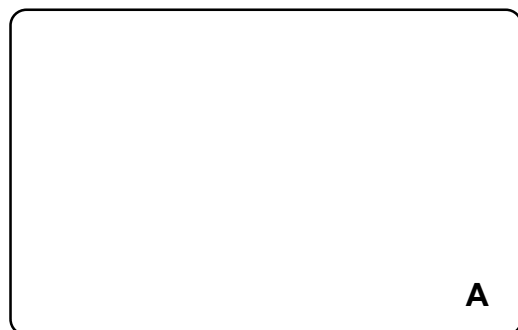


Total Synthesis of Indole Alkaloid (+)-Alstonlarsine A

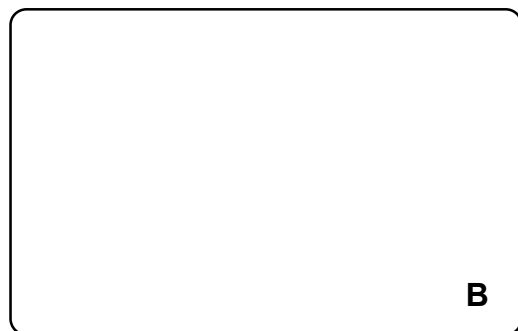
Z. Ferjancic, A. Kukuruzar, F. Bihelovic
Angew. Chem. Int. Ed. **2022**, 61, e202210297



↓ 1-8

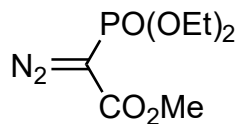


↓ 9



- 1) DMAP (10 mol%), TBSCl, Et₃N
- 2) NaH, TBSCl, 0 °C to r.t.
3. LDA, THF, –78 °C then MeI
- 4) Et₂NLi, THF, –78 °C
then MeCHO, –100 °C
- 5) DMAP, Ac₂O, Et₃N
- 6) KF, MeOH, 0 °C
- 7) DMAP (20 mol%), (Boc)₂O, Et₃N
- 8) 50% aq HF

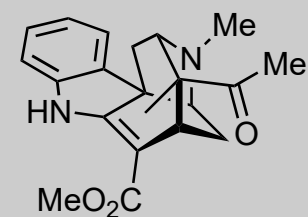
- 9) Cu(acac)₂ (2 mol%), **1**, 120 °C



1

- 4) Name the reaction.

- 9) *Hint*: a formal C-H insertion occurs.



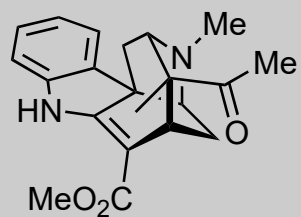
(+)-alstonlarsine

B

10-15



16-18



- 10) NaBH_4 , $\text{MeOH}/\text{H}_2\text{O}$, $0\text{ }^\circ\text{C}$
- 11) PIDA, $75\text{ }^\circ\text{C}$
- 12) LiBr , Et_3N
- 13) $(\text{Boc})_2\text{O}$, Et_3N , DMAP (10 mol%)
- 14) NaH , $0\text{ }^\circ\text{C}$
then MeI , $0\text{ }^\circ\text{C}$ to r.t.
- 15) TFA

- 16) MeCHO , PhMe , $100\text{ }^\circ\text{C}$
- 17) NaH , LiAlH_4 , THF , $0\text{ }^\circ\text{C}$
- 18) Me_2S , NCS , $0\text{ }^\circ\text{C}$
then **substrate**, -78 to $-50\text{ }^\circ\text{C}$,
then Et_3N , $-50\text{ }^\circ\text{C}$

11) Draw the structure of PIDA.

12) Name the reaction.

16) Name the reaction.

18) Name the reaction.