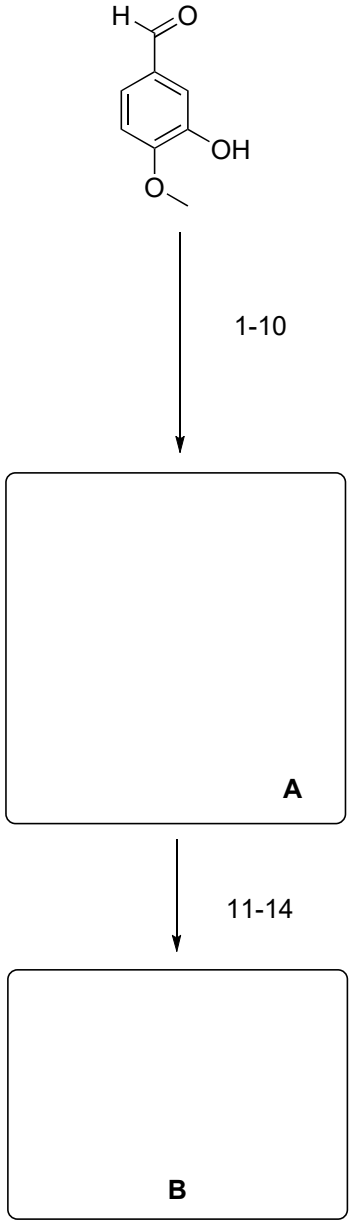
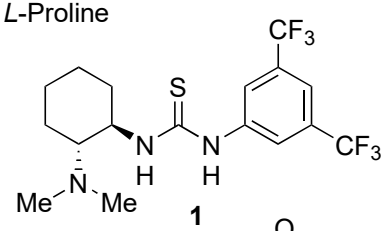
Enantioselective Total Synthesis of (+)-Stephadiamine

B. Yang, G. Li, Q. Wang, J. Zhu, *J. Am. Chem. Soc.* **2023**, *145*, 5001–5006.



1) Allyl bromide, K_2CO_3
2) 180 °C
3) MeI, K_2CO_3
4) $PdCl_2$, $CuCl_2$, O_2, H_2O
5) NaOH
6) Allyl bromide, K_2CO_3
7) 180 °C
8) **1**, nitroethylene
9) OsO_4, $NaIO_4$, 2,6-lutidine
10) **2**, **3**, *L*-Proline



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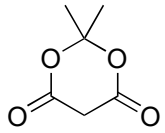

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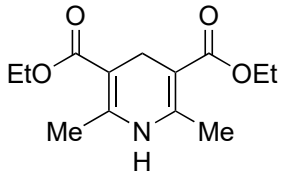

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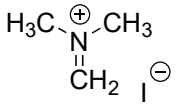
11) L-Selectride
12) **4**, MeOH, 65 °C
13) $Na_2S_2O_4$
14) Zn, AcOH



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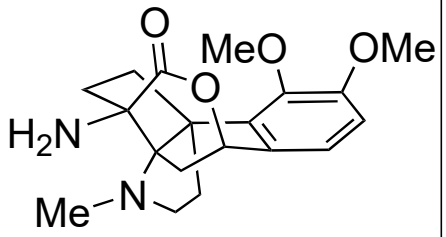
1) Name of starting material?

8) Name of **1**
9) Name of the reaction?
10) Name of **2** and **3**?

13) Hint: 3 transformations:



Stephadiamine

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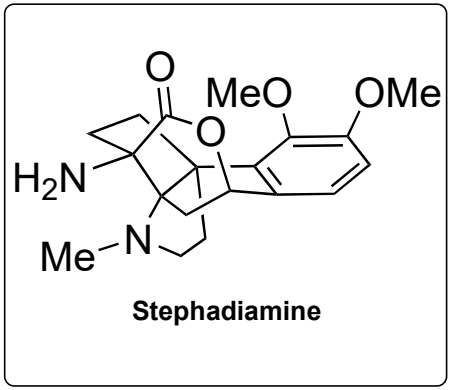
Stephadiamine

15) HCO_2Et, *then* DMP
16) $NaClO_2$, NaH_2PO_4, 2-methyl-2-butene
17) DIPEA, diphenyl chlorophosphate, *then* NaN_3
18) Allyl alcohol, 80 °C
19) $[Ir(dF(CF_3)ppy)_2(5,5´\text{-}dCF_3bpy)]PF_6$, $Cu(TFA)_2{\cdot}(MeCN)$, K_2HPO_4, blue LED, air
20) $NaBH_4$, $CeCl_3{\cdot}7H_2O$
21) NaH
22) $Pd(PPh_3)_4$, dimedone

16) Name of the reaction?

18) Name of the reaction?



Stephadiamine