Total Synthesis of Lycoricidine and Narciclasine by Chemical Dearomatization of Bromobenzene

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Background

- Isocarbostyril alkaloids from the Amaryllidaceae family
- Inhibitory activity against multiple cancer cell lines
- Highly functionalized Aminocyclitol core with 4-6 stereocenters
- Dozen syntheses of lycoricidine, but not the late stage conversion into narciclasine

https://keys.lucidcentral.org/keys/v3/South_African_Plant_Families/key/South%20African%20Plant%20Families/Media/Html/Amaryllidaceae.htm

Retrosynthetic Analysis

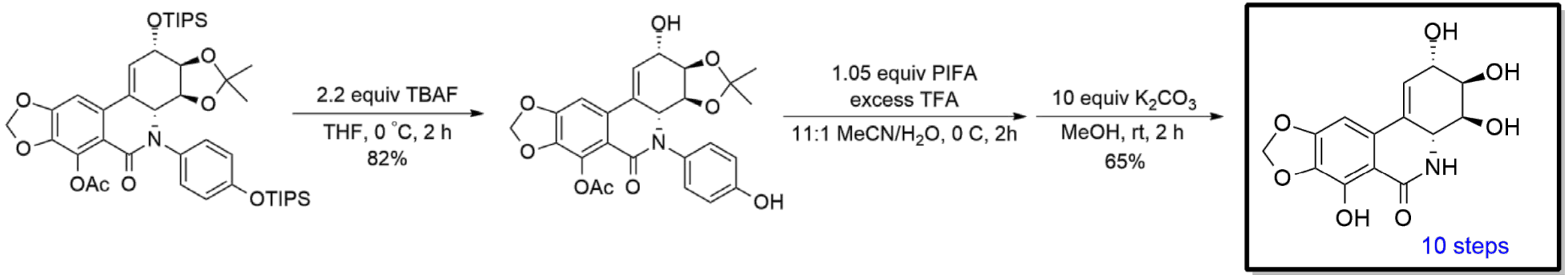
Synthesis of lycoricidine, 1

N. Iwasawa, T. Kato, K. Narasaka, *Chem. Lett.* **1988**, *17*, 1721.
A. Gypser, D. Michel, D. S. Nirschl, K. B. Sharpless, *J. Org. Chem.* **1998**, *63*, 7322.
C. Genès, S. Michel, F. Tillequin, F.-H. Poreé, T*etrahedron*, **2009**, *65*, 10009.

N. Iwasawa, T. Kato, K. Narasaka, *Chem. Lett.* **1988**, *17*, 1721.
A. Gypser, D. Michel, D. S. Nirschl, K. B. Sharpless, *J. Org. Chem.* **1998**, *63*, 7322.
C. Genès, S. Michel, F. Tillequin, F.-H. Poreé, T*etrahedron*, **2009**, *65*, 10009.

Synthesis of narciclasine, 2

N. Tezuka, K.Shimojo, K. Hirano, S. Komagawa, K. Yoshida, C. Wang, K. Miyamoto, T. Saito, R. Takita, M. Uchiyama, *J. Am. Chem. Soc.* **2016**, *138*, 9166.



(±)-narcicalasine

2

N. Tezuka, K.Shimojo, K. Hirano, S. Komagawa, K. Yoshida, C. Wang, K. Miyamoto, T. Saito, R. Takita, M. Uchiyama, *J. Am. Chem. Soc.* **2016**, *138*, 9166.