

A Comparative Analysis of the Syntheses of Reserpine

Joëlle Gauchet

5/12/92

References:

Woodward: JACS **1956**, 78, 2023, 2657.

Tet **1958**, 2, 1.

Pearlman: JACS **1979**, 101, 6398, 6404.

Wender: JACS **1980**, 102, 6157.

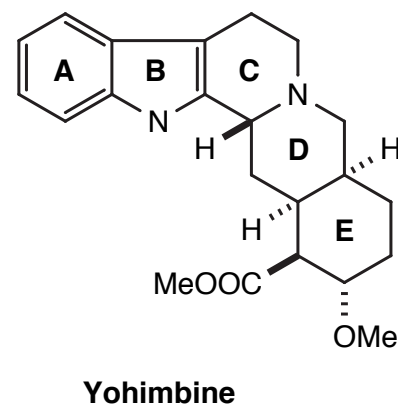
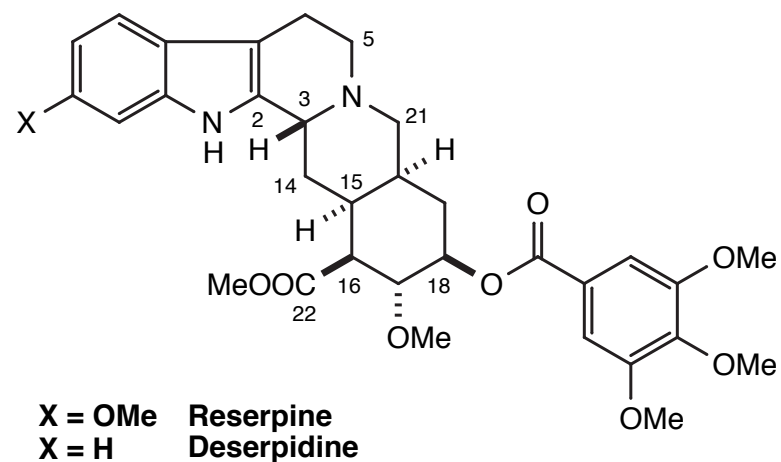
Het **1987**, 25, 263.

Martin: JACS **1985**, 107, 6124.

JACS **1987**, 109, 4072.

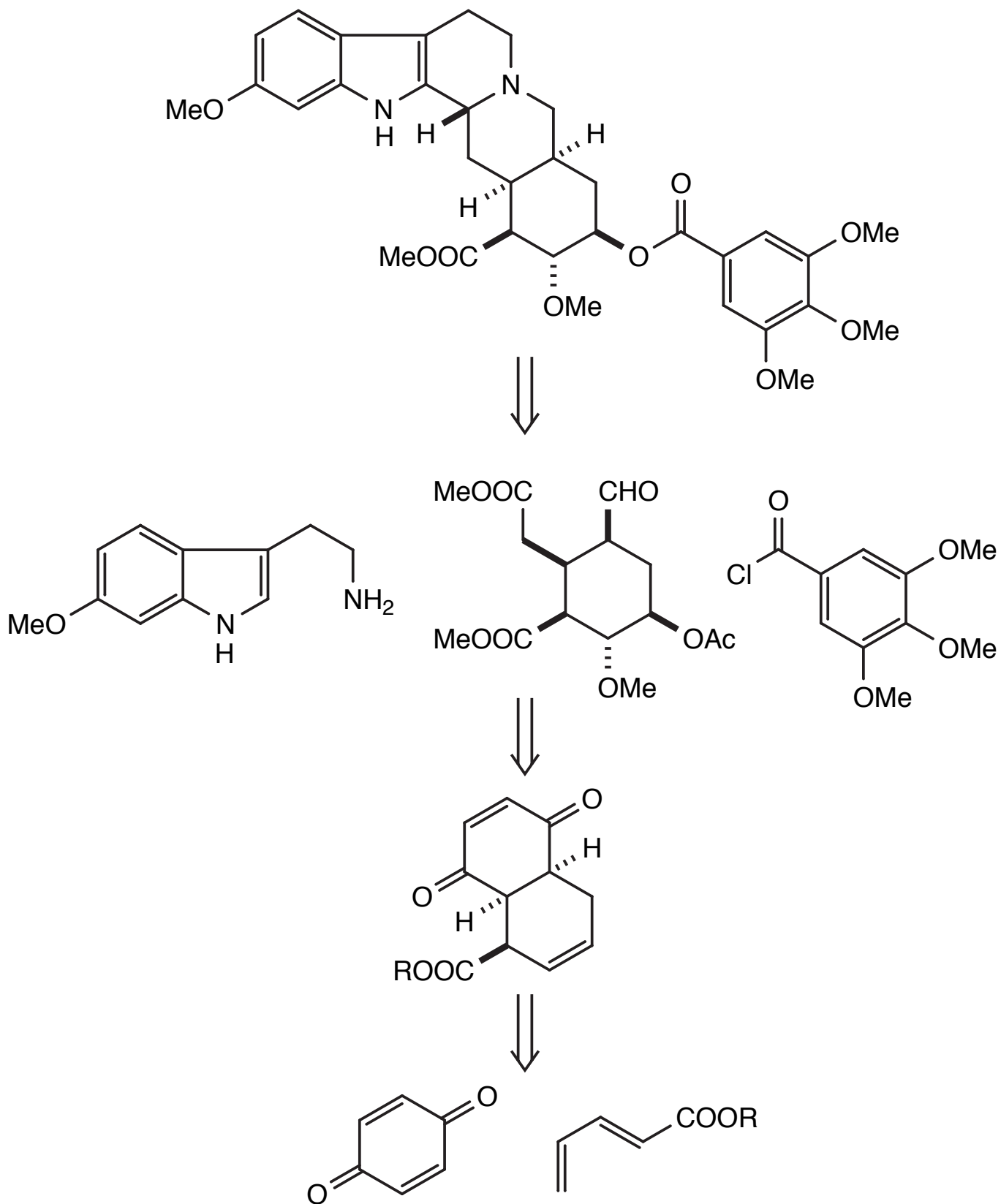
Stork: *Pure & Appl. Chem.* **1989**, 61, 439.

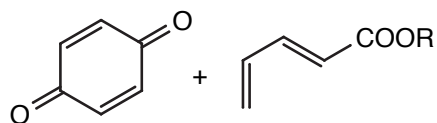
Reserpine Alkaloids



Reserpine was isolated in 1952 from the indian snake root
Rauwolfia serpentina

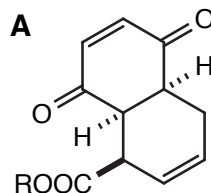
Woodward-Retrosynthesis



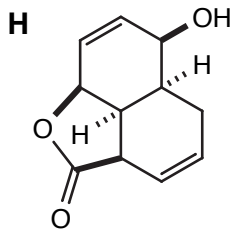


Woodward-Synthesis of Ring E

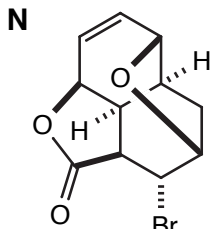
Benzene Δ



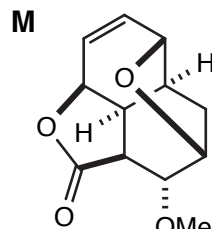
$\text{Al(O}i\text{-Pr)}_3$



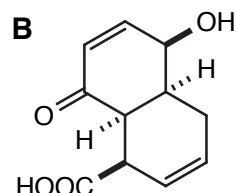
Br_2



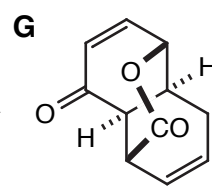
MeONa
 MeOH



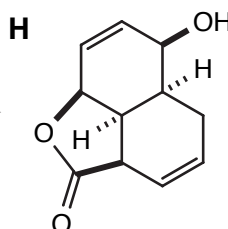
NaBH_4



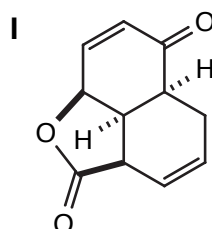
Ac_2O
 AcONa



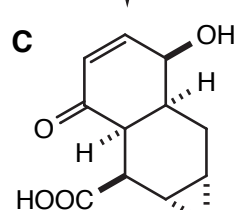
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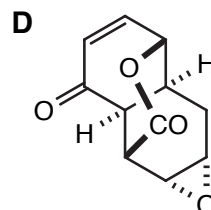
H_2CrO_4



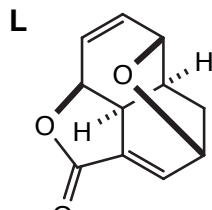
PhCO_3H



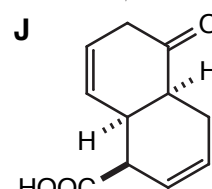
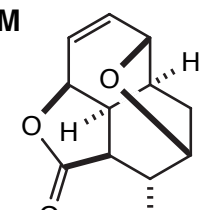
Ac_2O AcONa



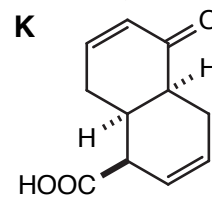
$\text{Al(O}i\text{-Pr)}_3$



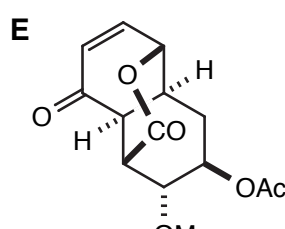
MeONa
 MeOH



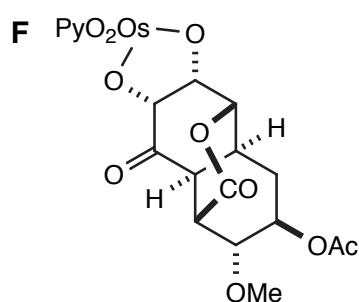
KOAc EtOH



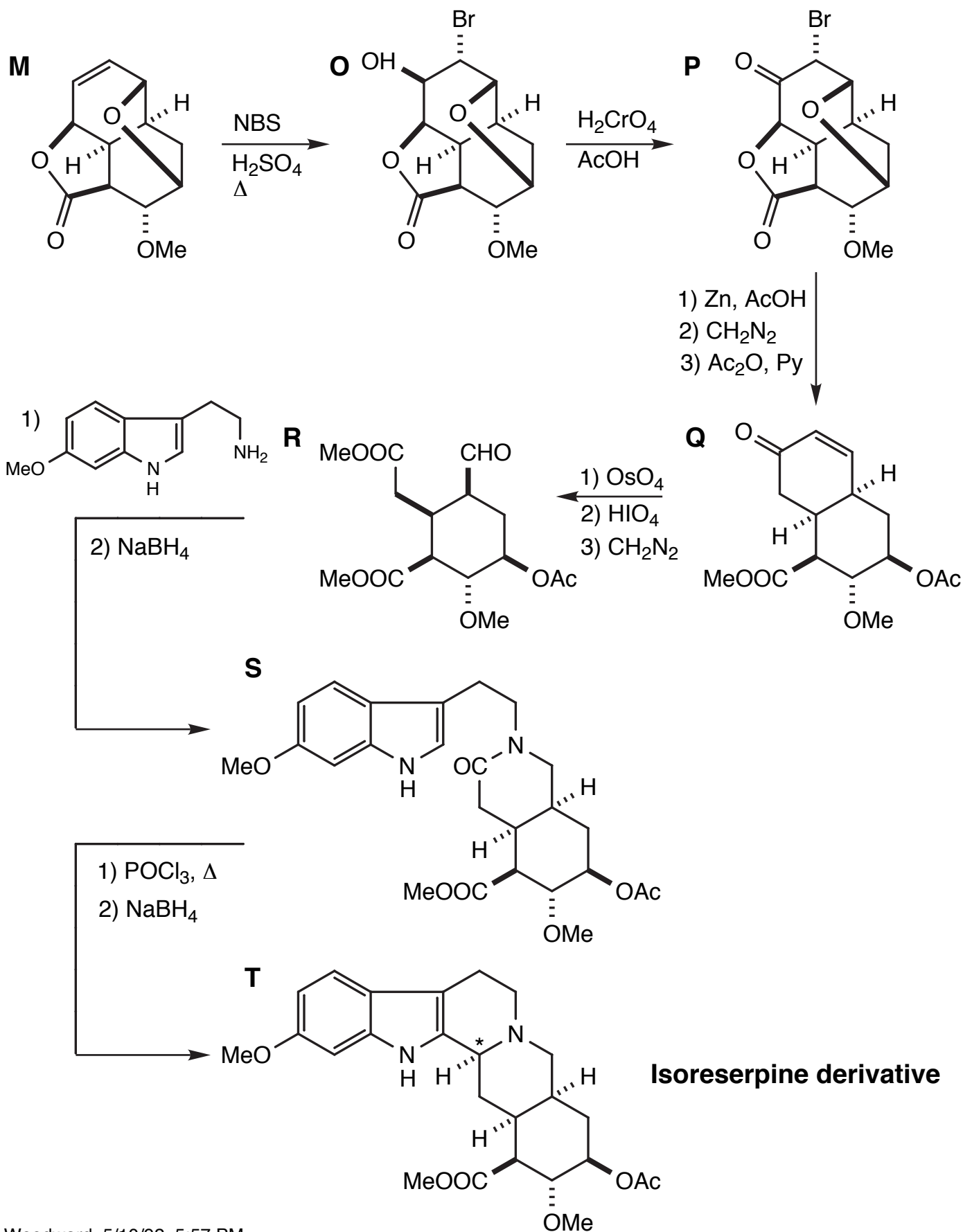
1) AcOH Δ 2) Ag_2O MeI



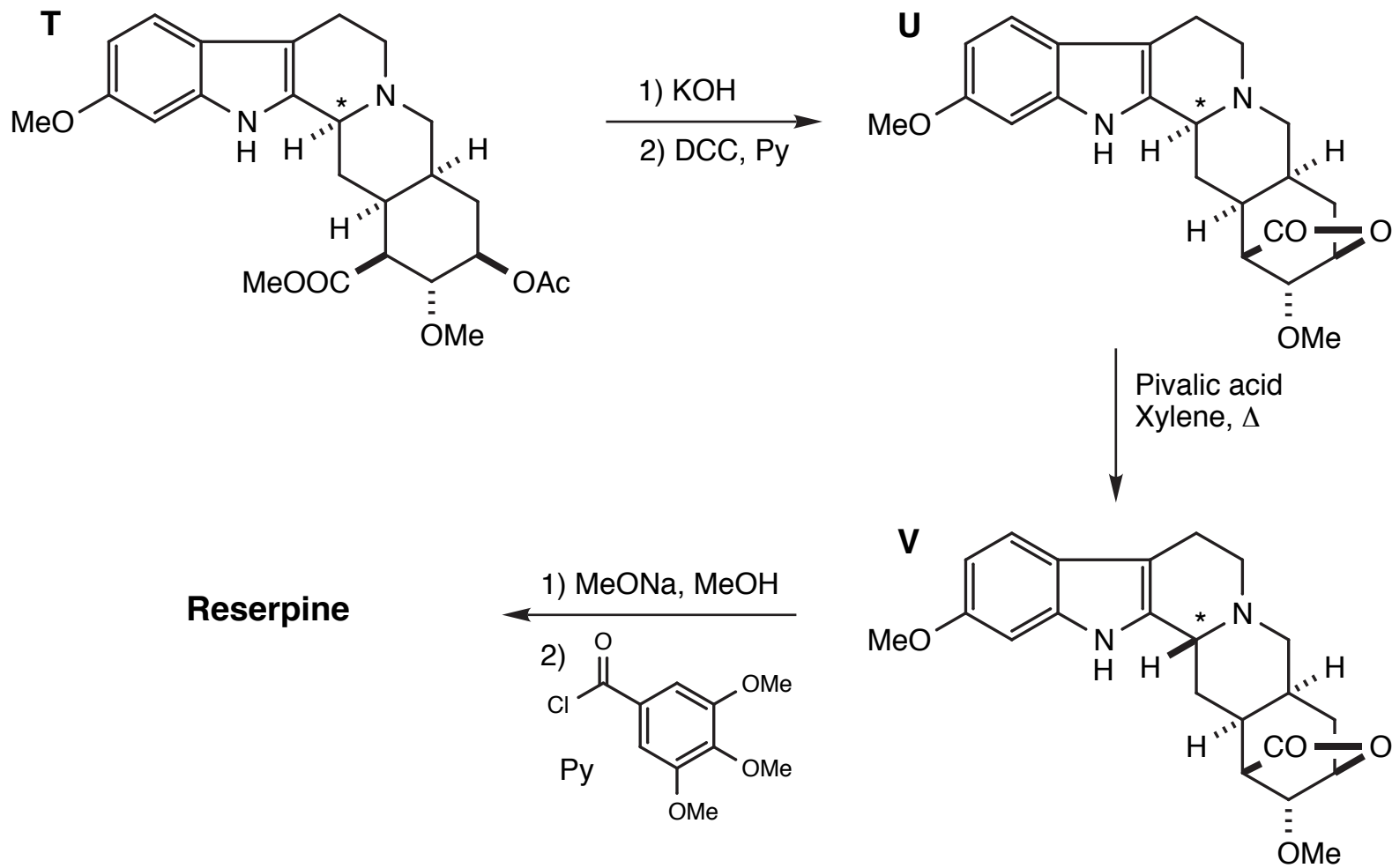
OsO_4
 Py



Synthesis of Isoreserpine

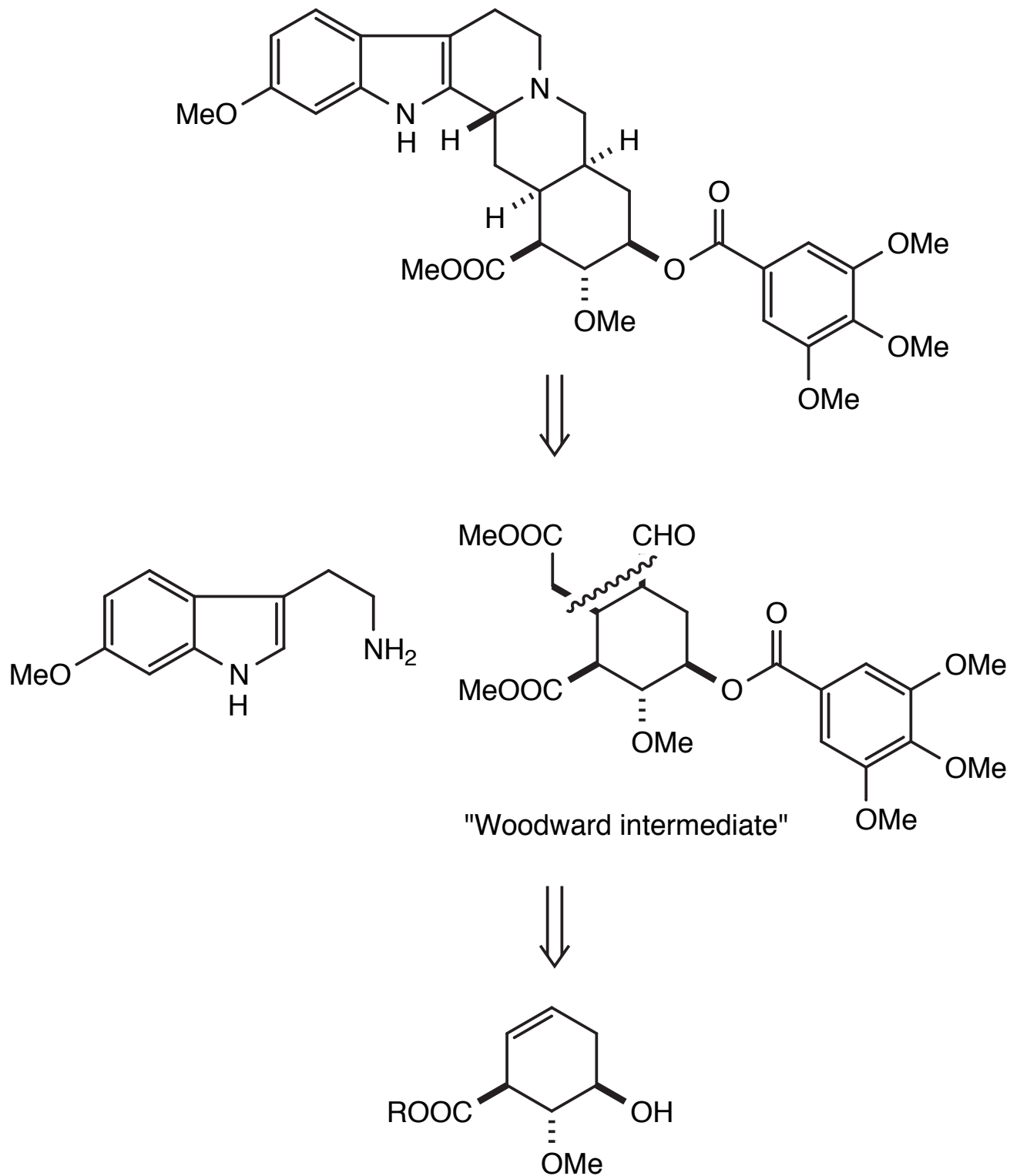


Woodward-Synthesis of Reserpine

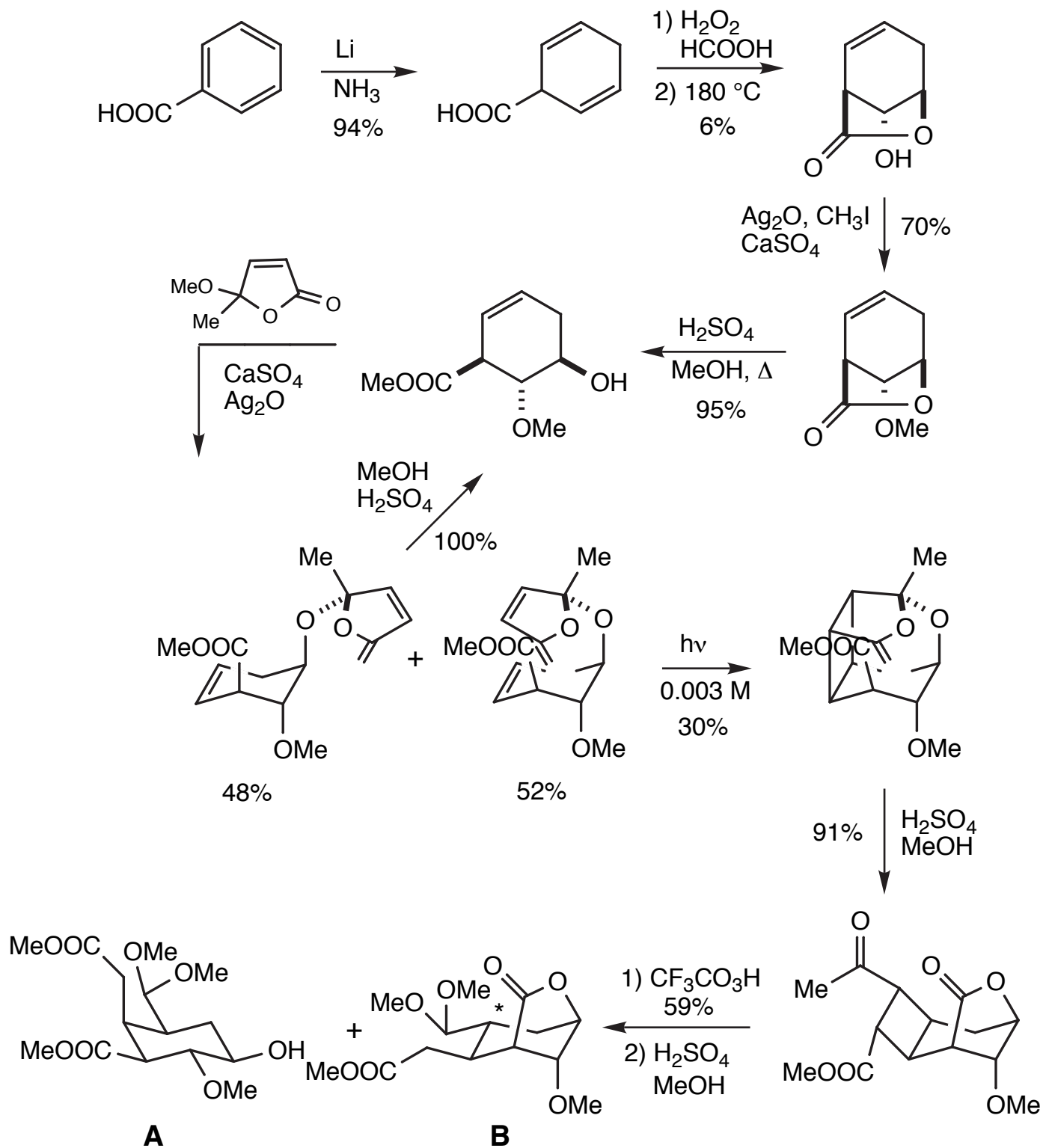


Resolution of (l)reserpine-(d)camphor sulfonate gives (-)-Reserpine

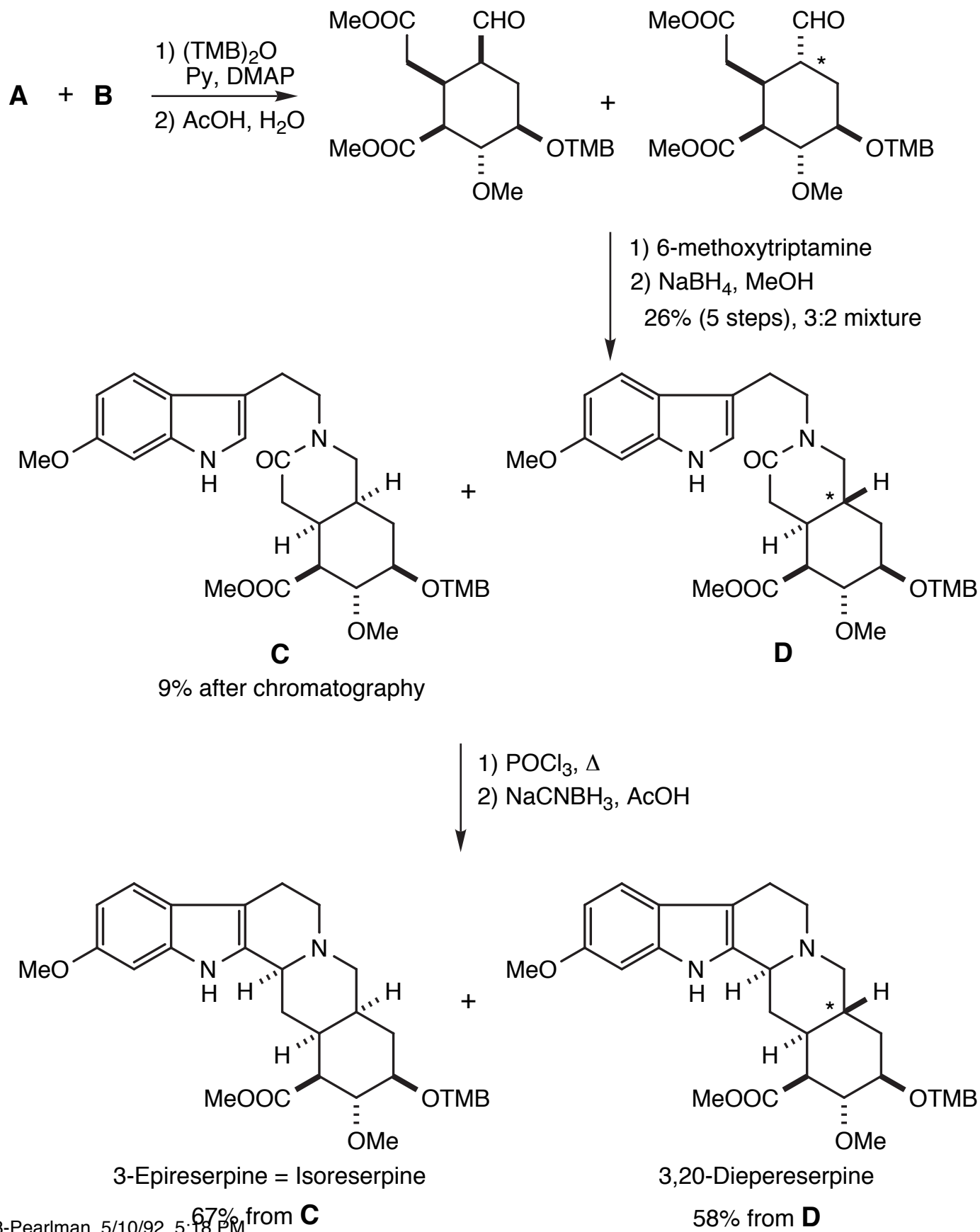
Pearlman-Retrosynthesis



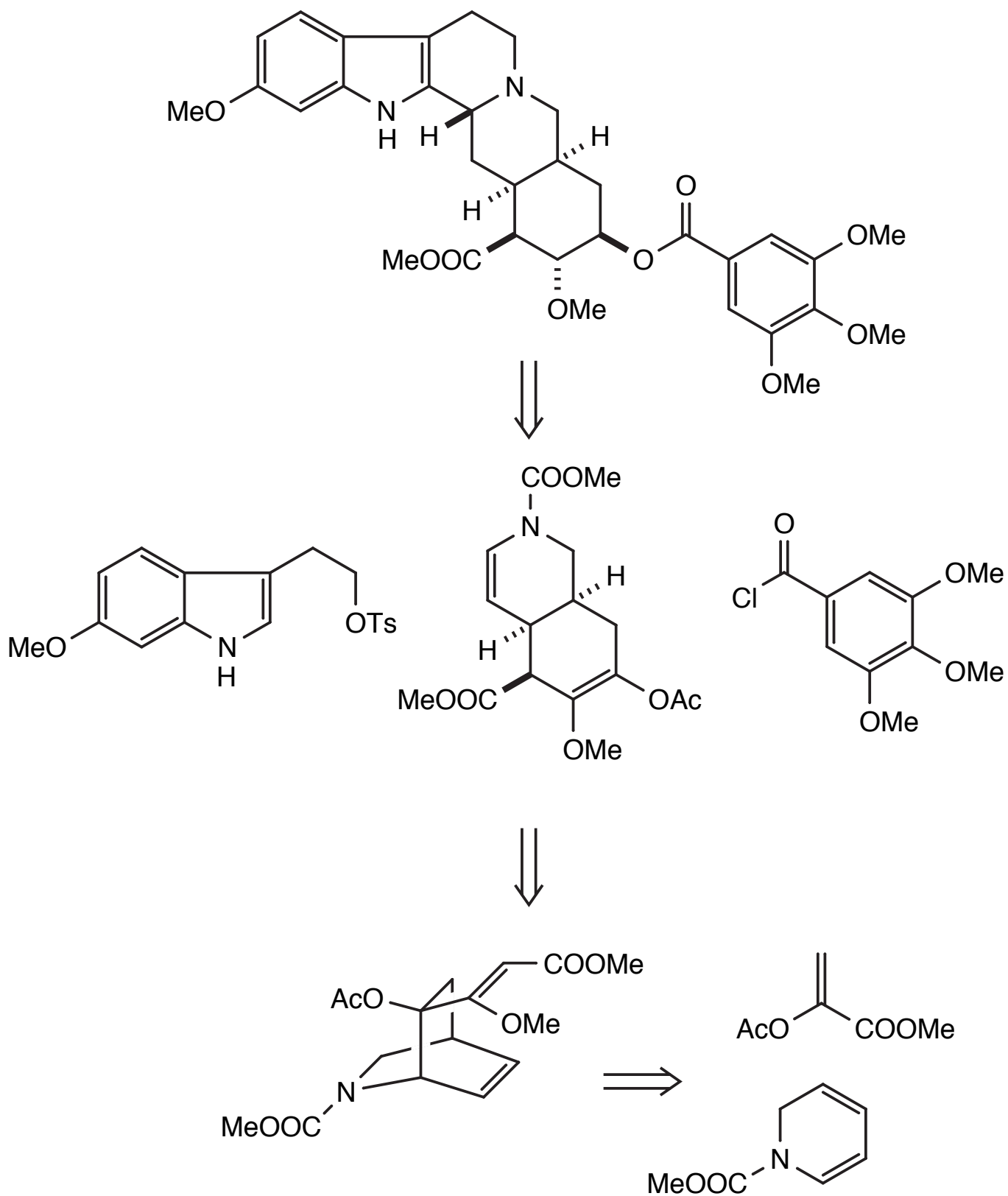
Pearlman-Synthesis of Ring E



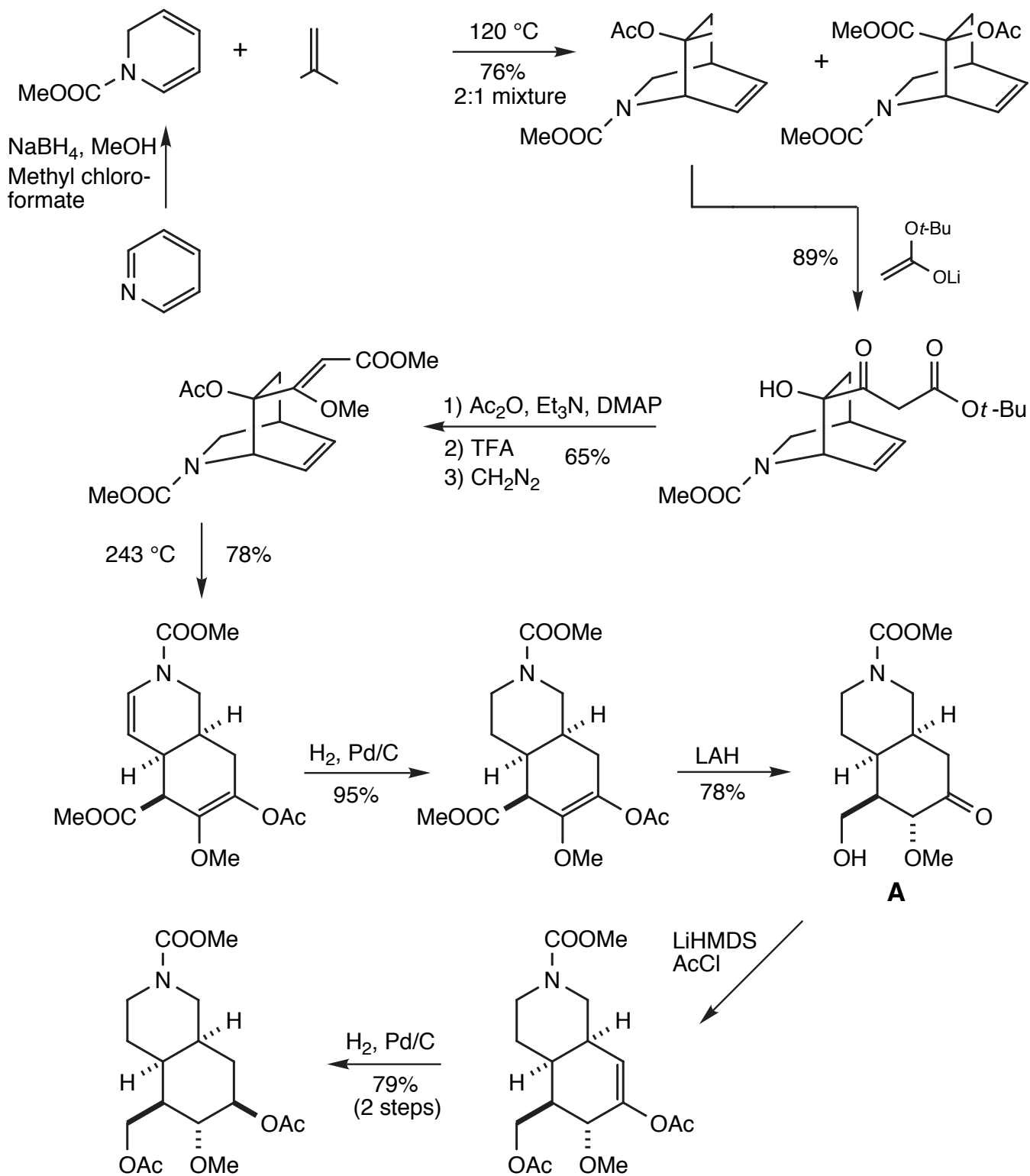
Pearlman-Synthesis of Isoreserpine



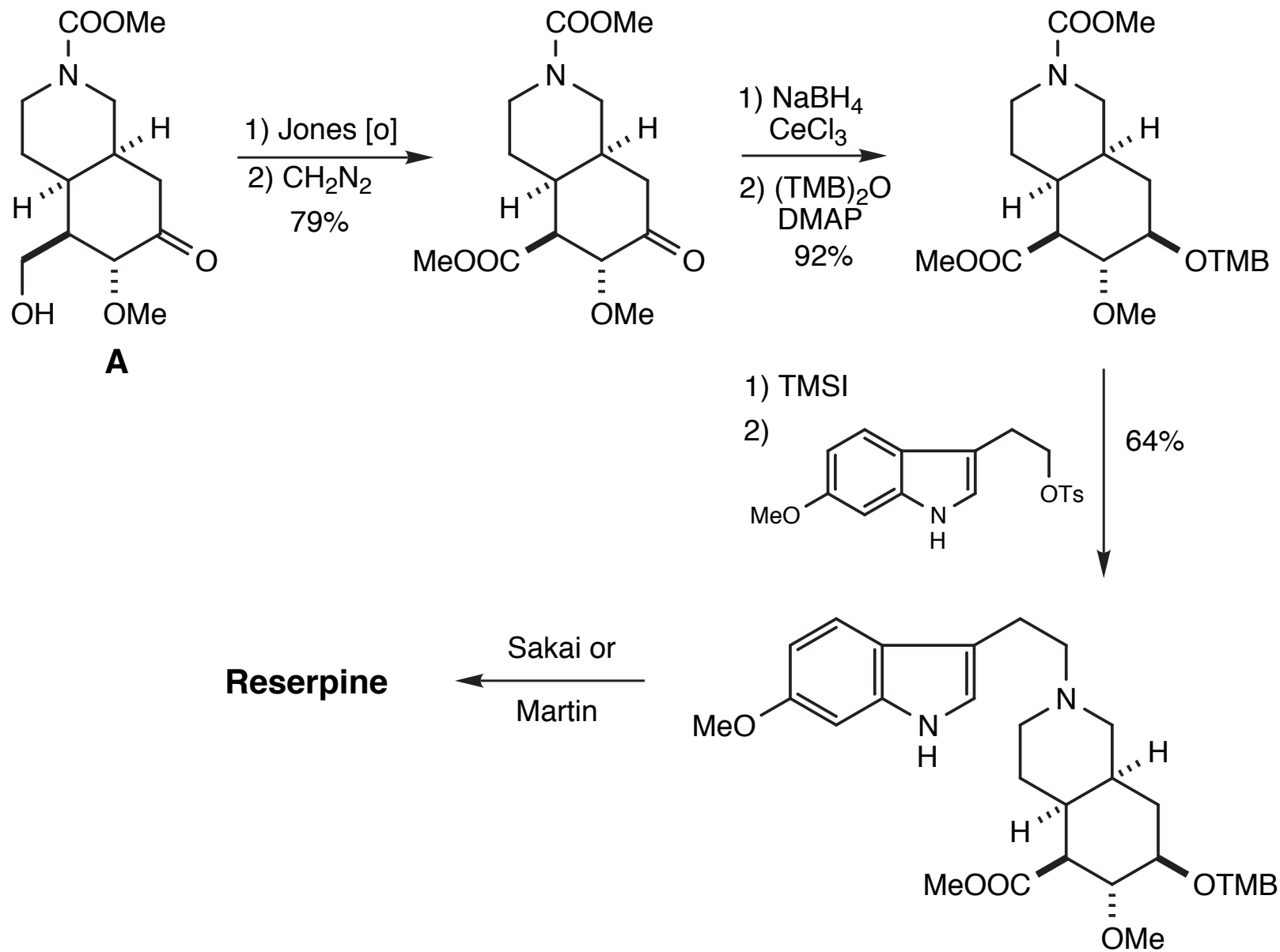
Wender-Retrosynthesis



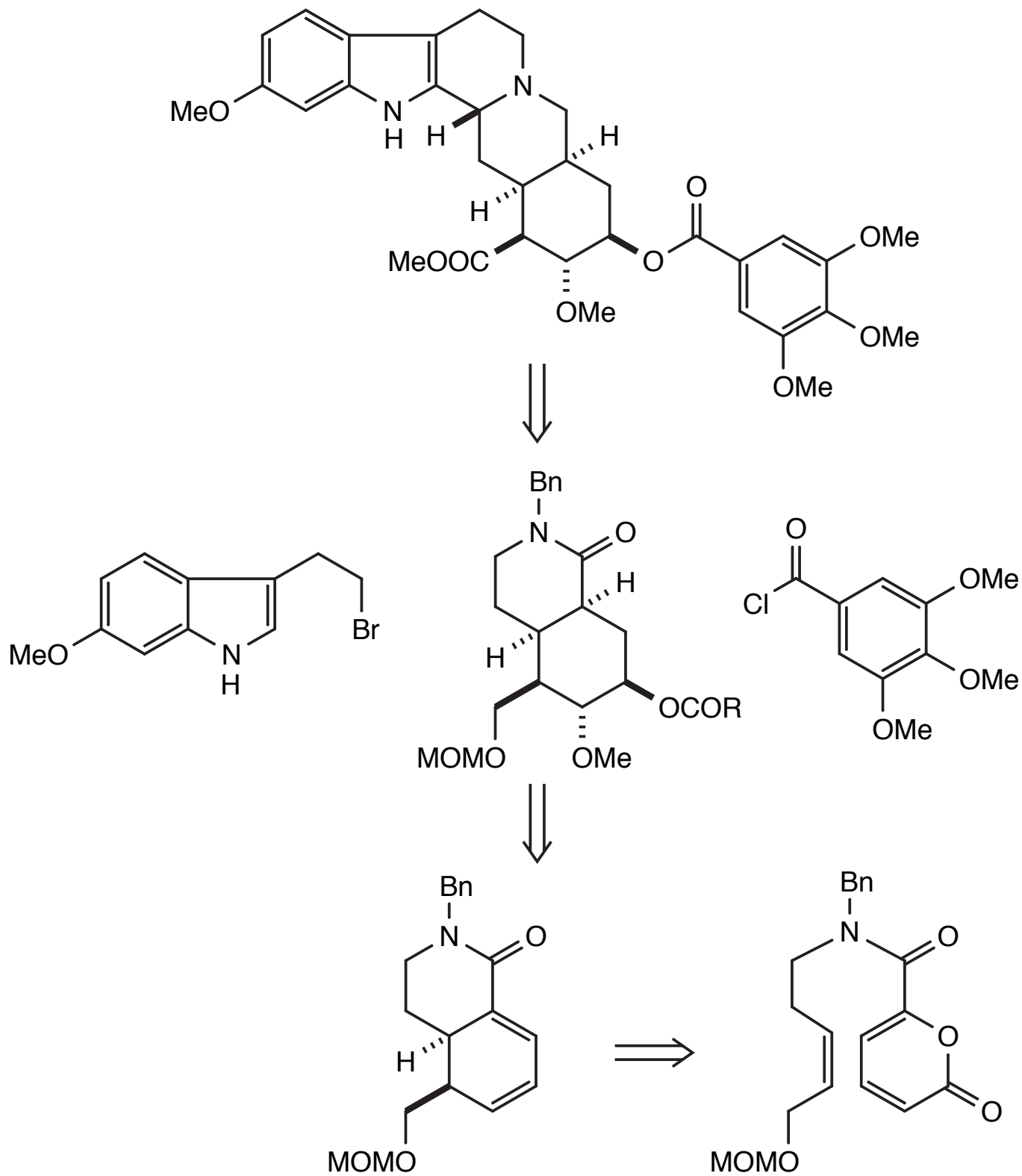
Wender-Synthesis of Ring D and Ring E



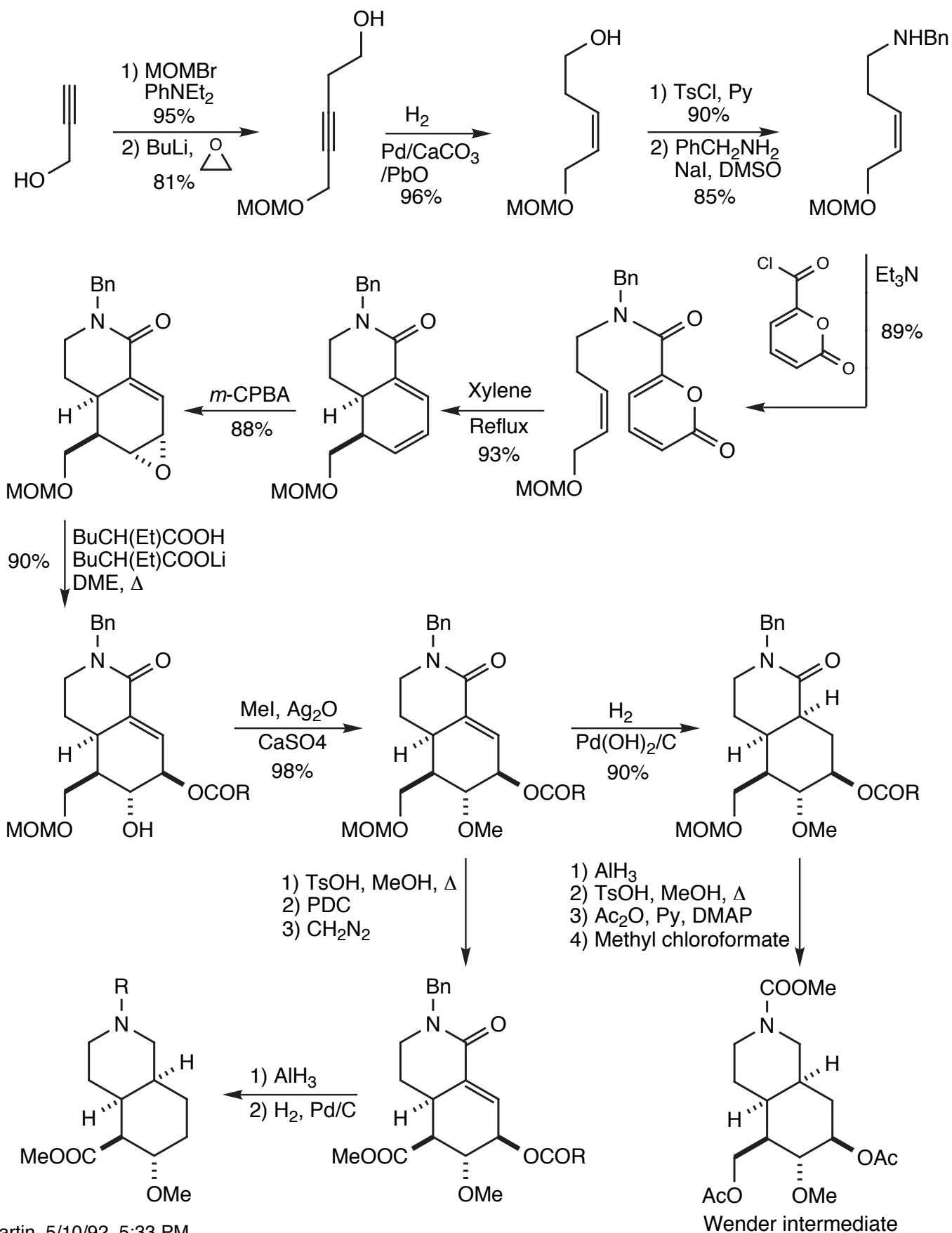
Wender-Synthesis of Reserpine



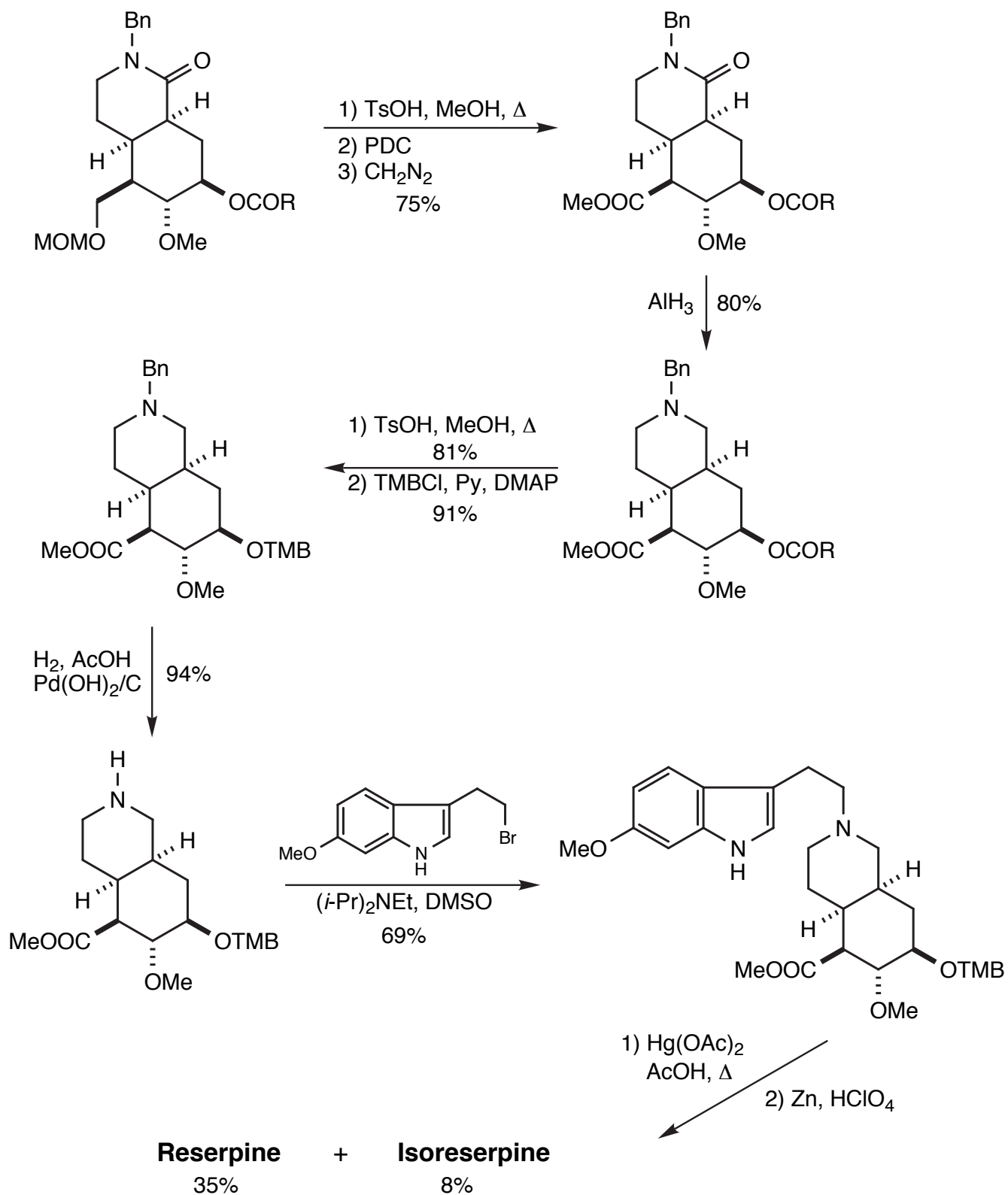
Martin-Retrosynthesis



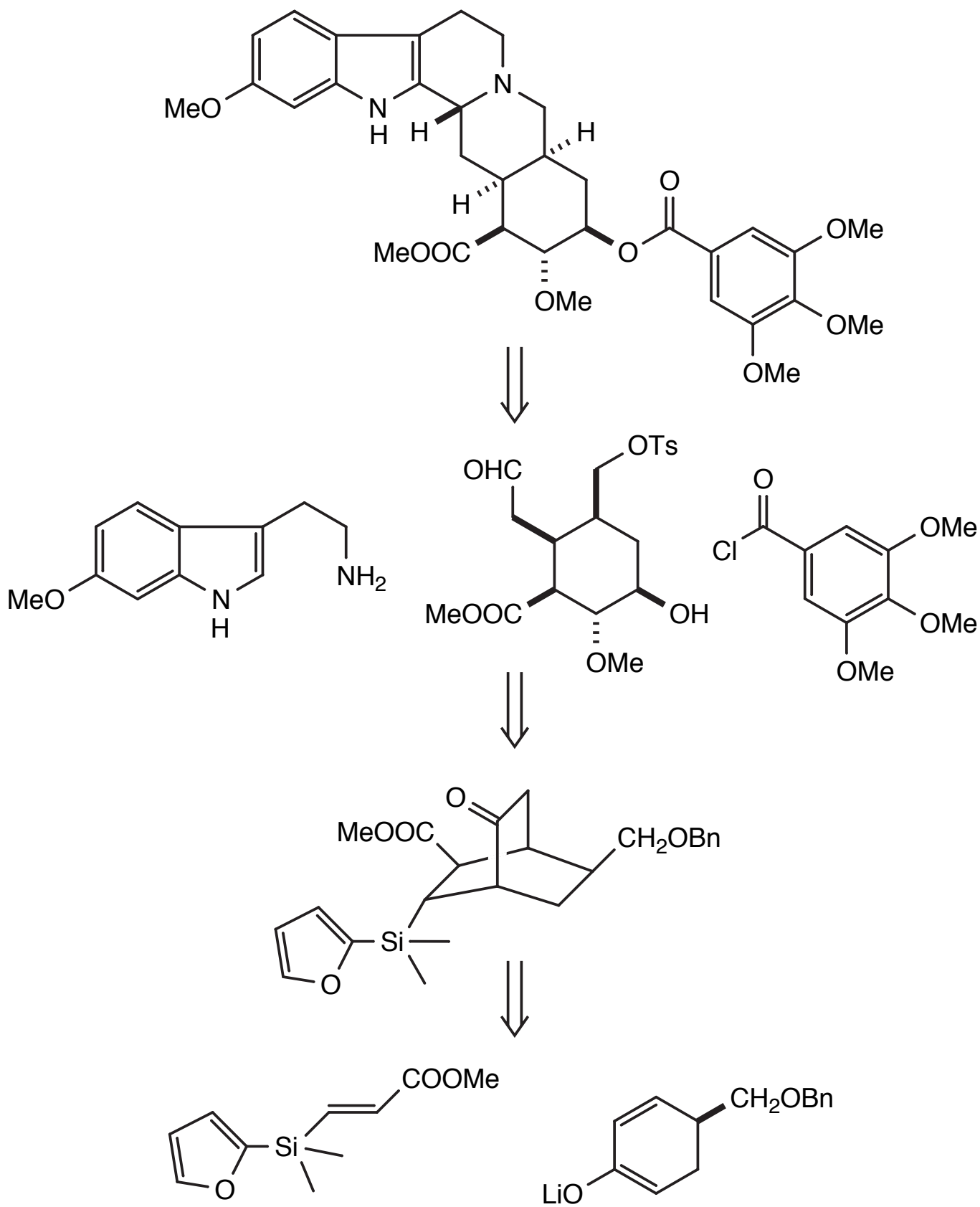
Martin-Synthesis of Ring D and Ring E



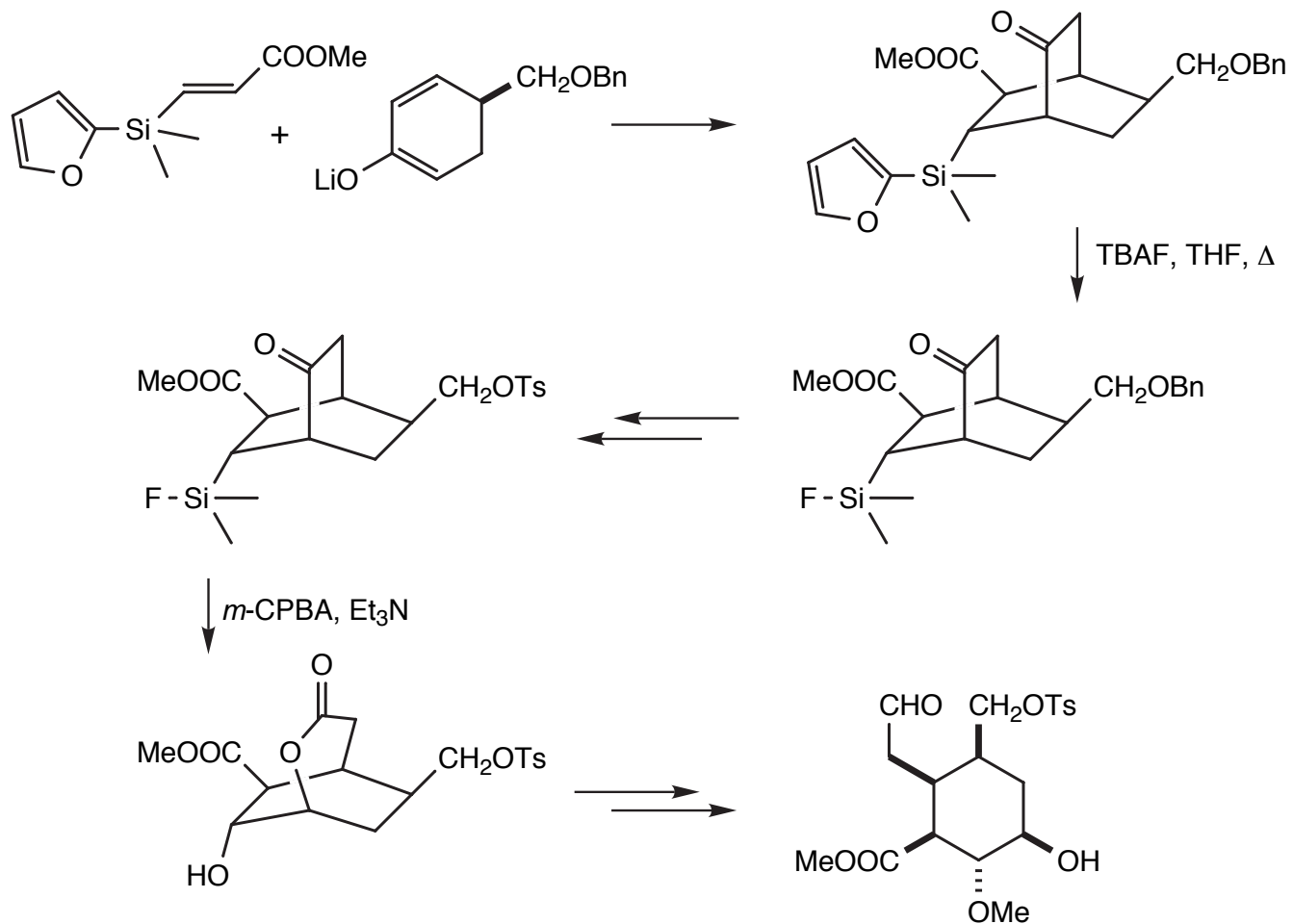
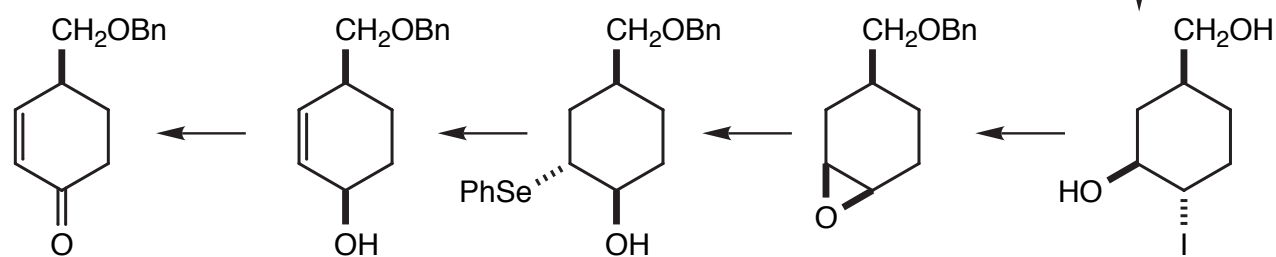
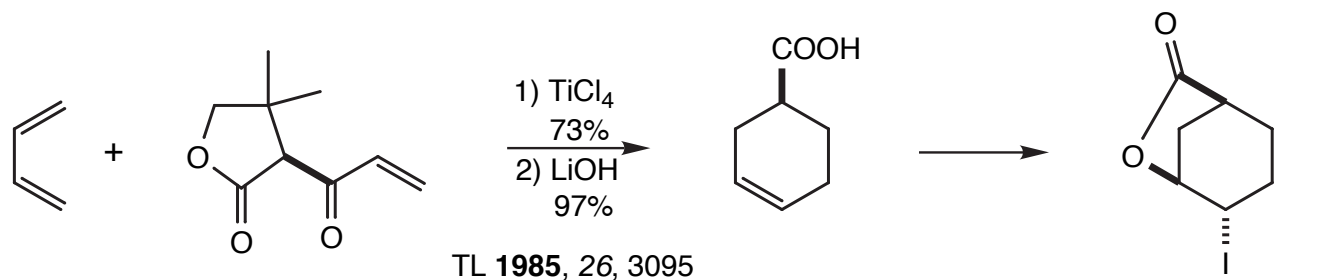
Martin-Synthesis of Reserpine



Stork-Retrosynthesis



Stork-Synthesis of Ring E



Stork-Synthesis of Reserpine

