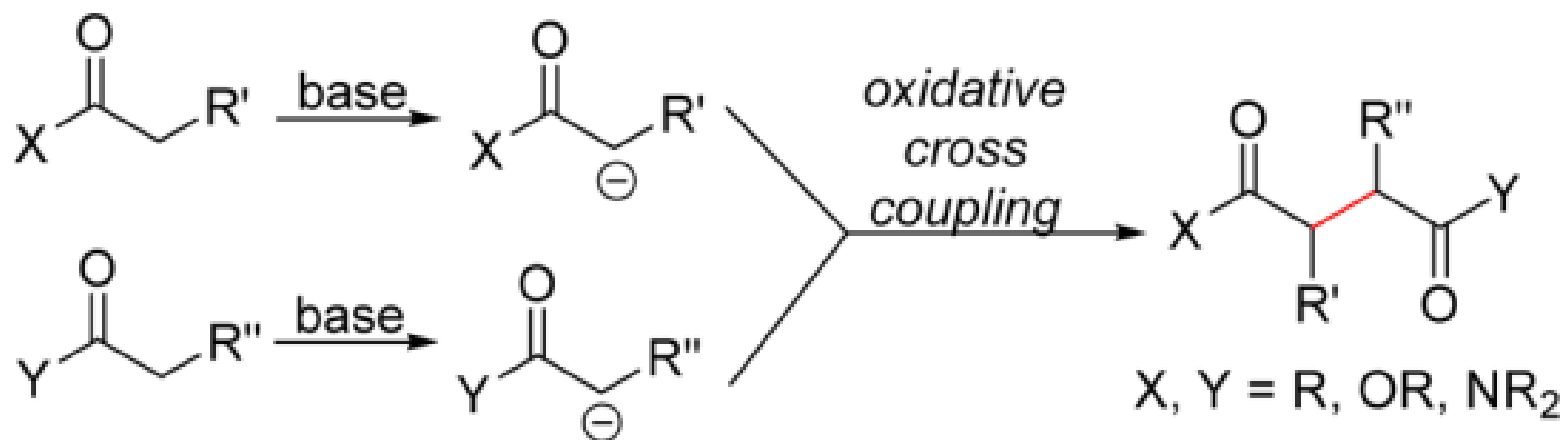


Intramolecular Dearomative Oxidative Coupling of Indoles

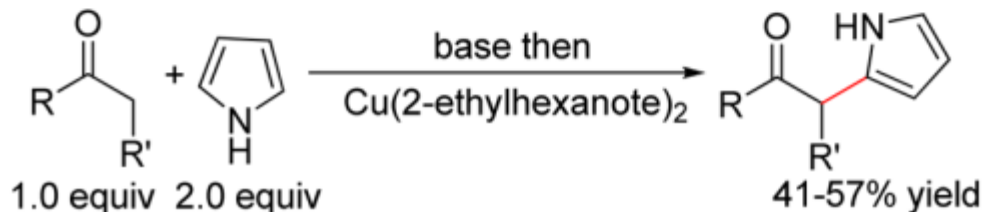
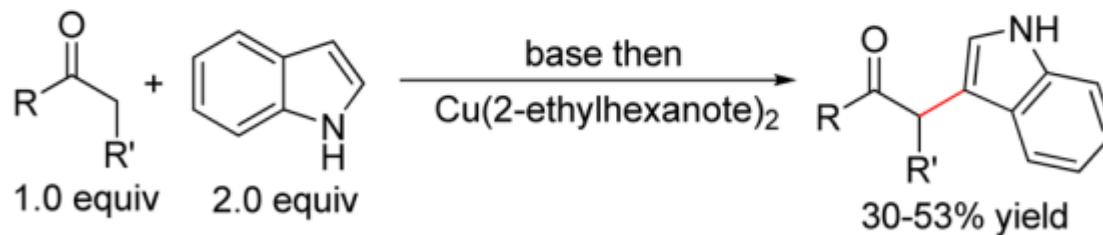
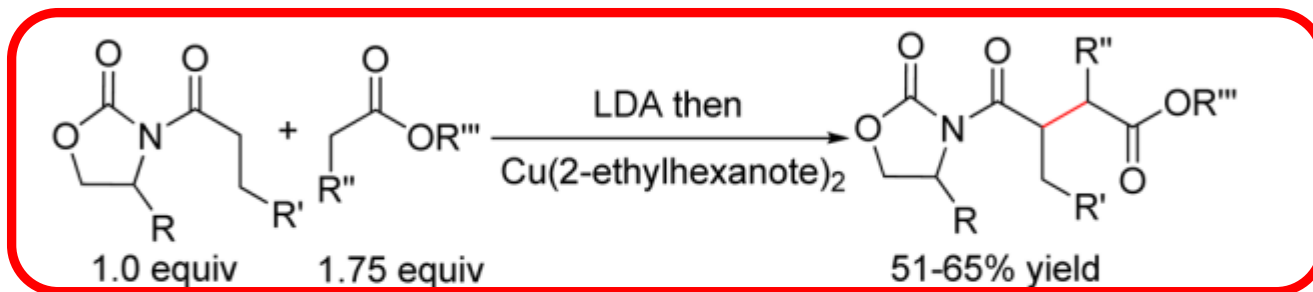
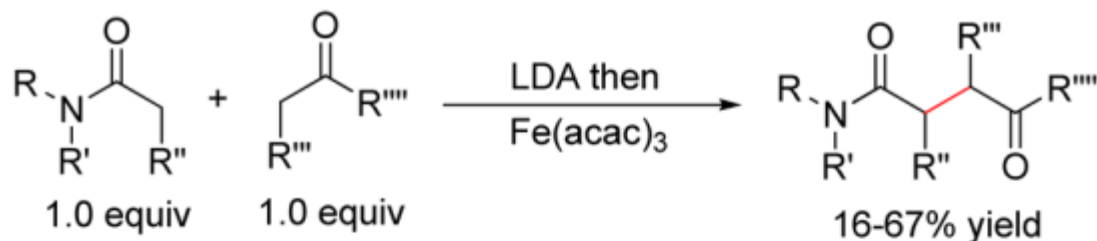
Ming-Liang Lou

09/06/2016

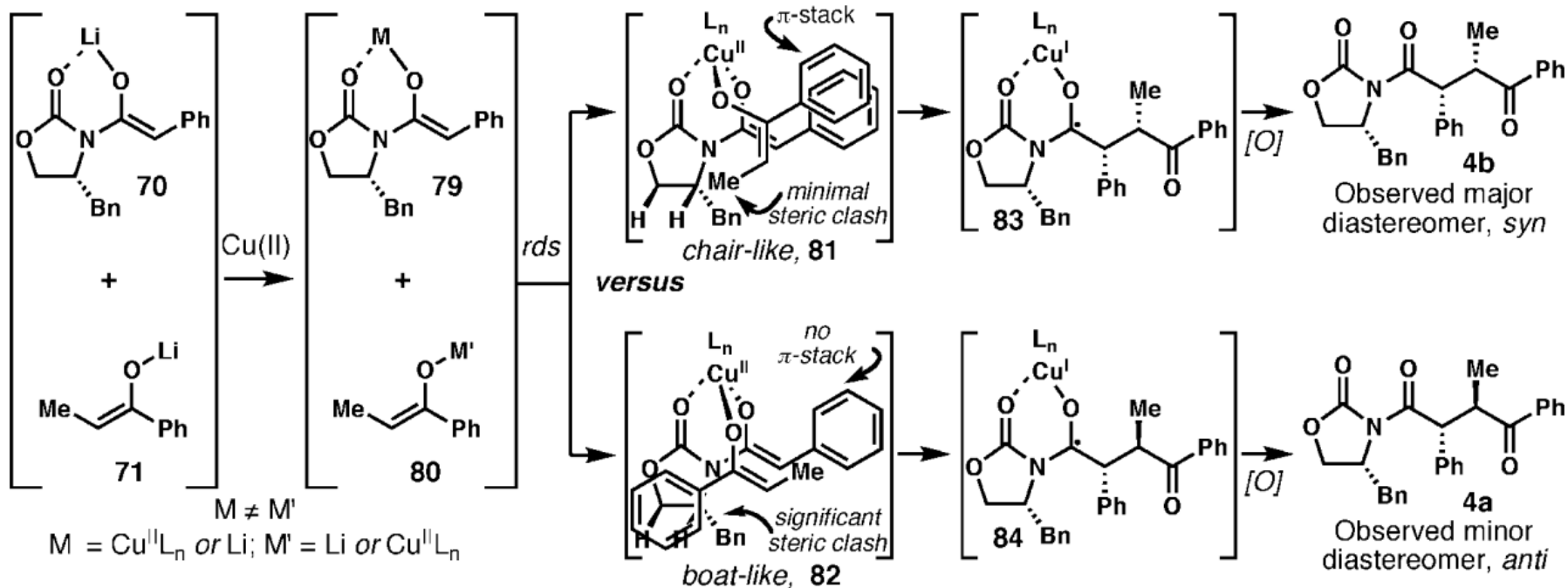
General Process of Oxidative C(sp³)-C(sp³) Cross Coupling



Oxidative Cross Coupling Reactions Developed by the Baran Group

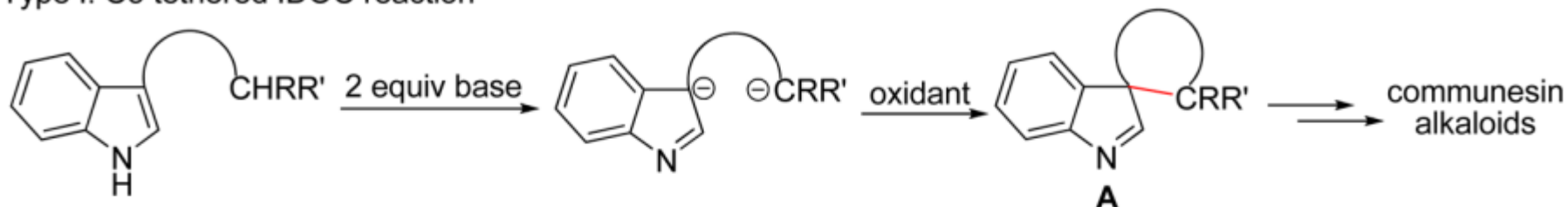


Proposed $\text{Cu}(\text{2-ethylhexanoate})_2$ Mechanism by the Baran Group

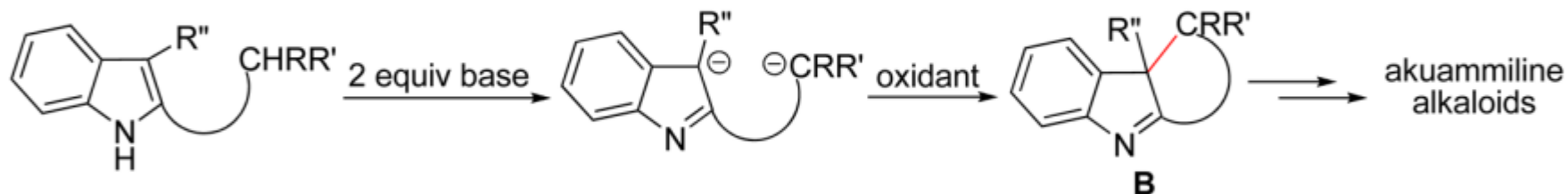


Three Types of Intramolecular Dearomative Oxidative Coupling (IDOC) Reaction of Indoles

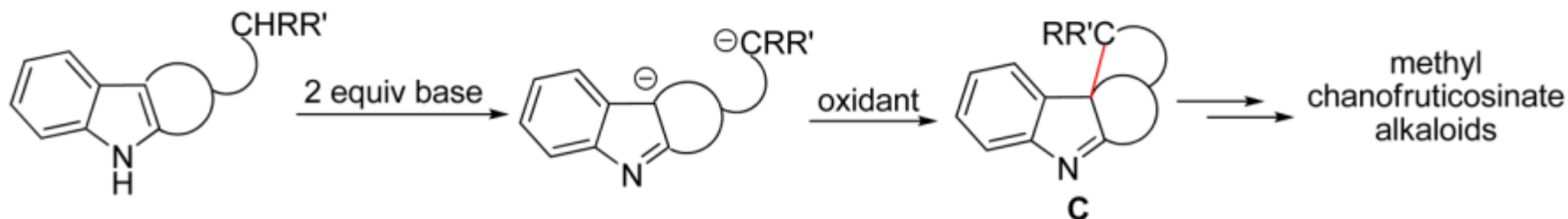
Type I: C3 tethered IDOC reaction



Type II: C2 tethered IDOC reaction

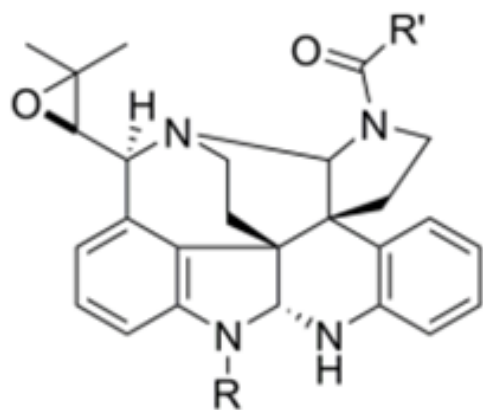
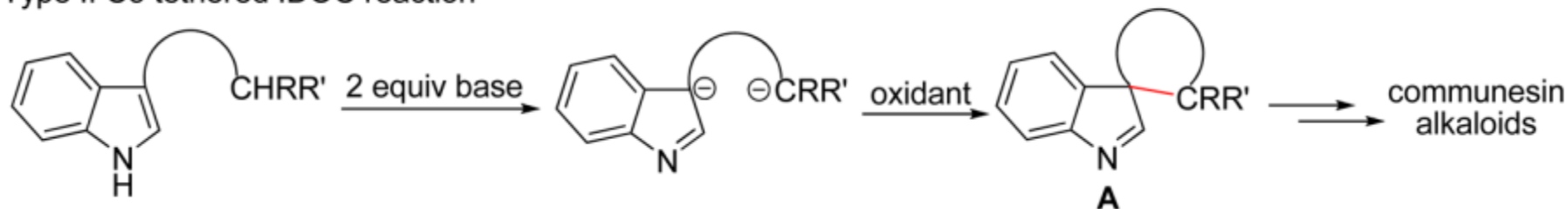


Type III: C2/C3 tethered IDOC reaction

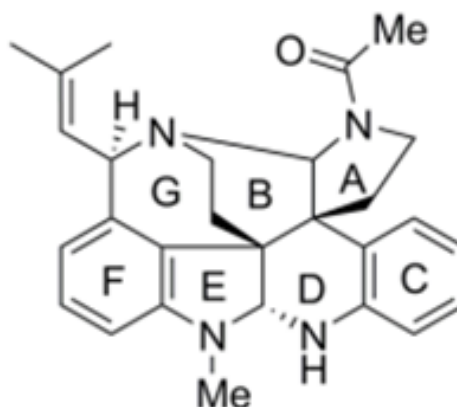


Application of Type I IDOC Reaction In the Total Synthesis of Communesin F

Type I: C3 tethered IDOC reaction

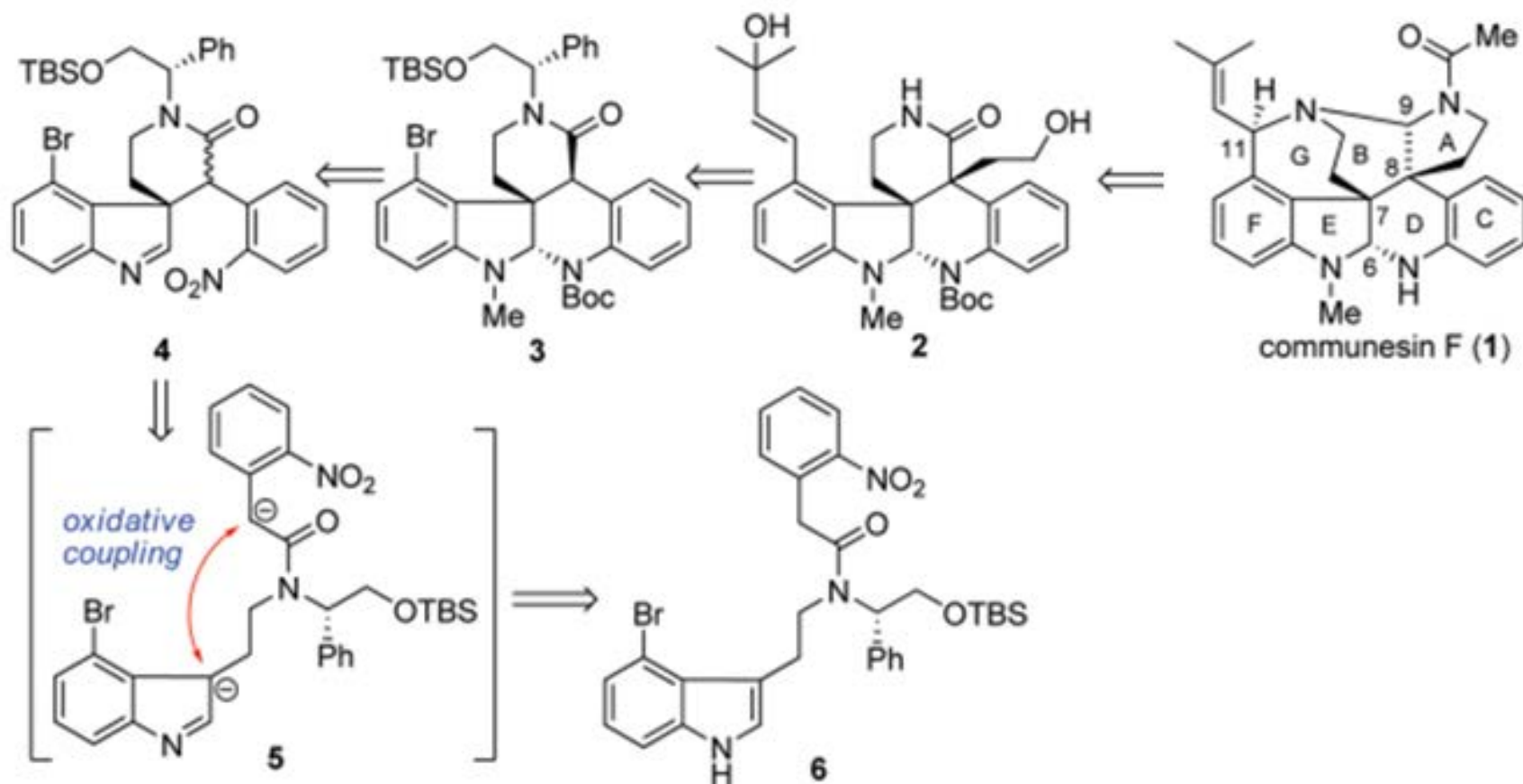


communesins A-E, G and H
(R = Me, H, CHO, R' = Me,
(*E,E*)-1,3-pentadienyl, Et, *n*-Pr)

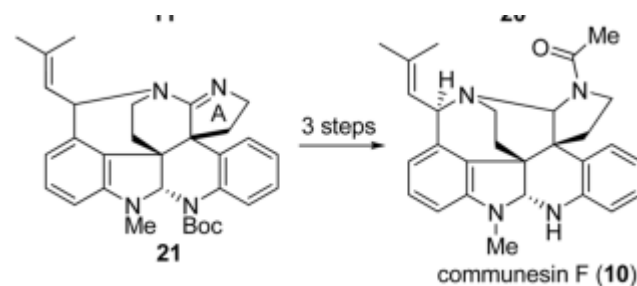
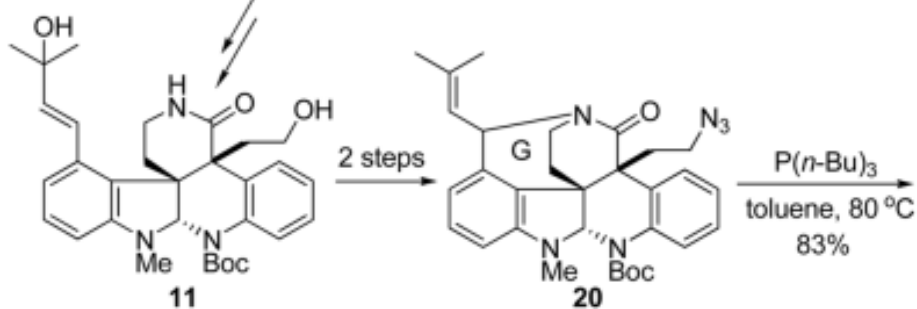
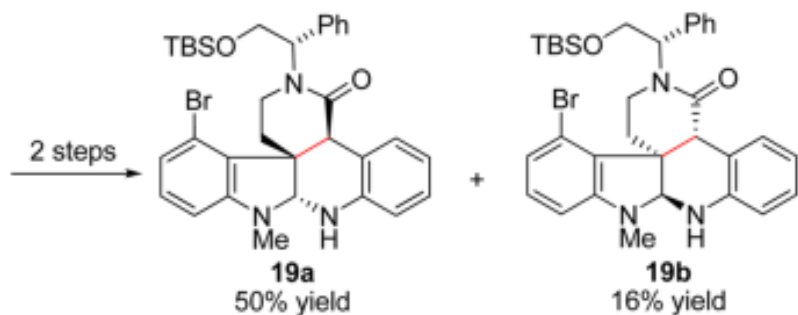
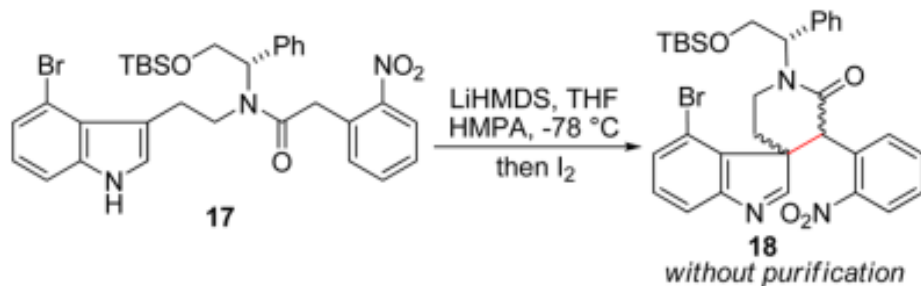


communesin F

Retrosynthetic Analysis of (-)-Communesin F

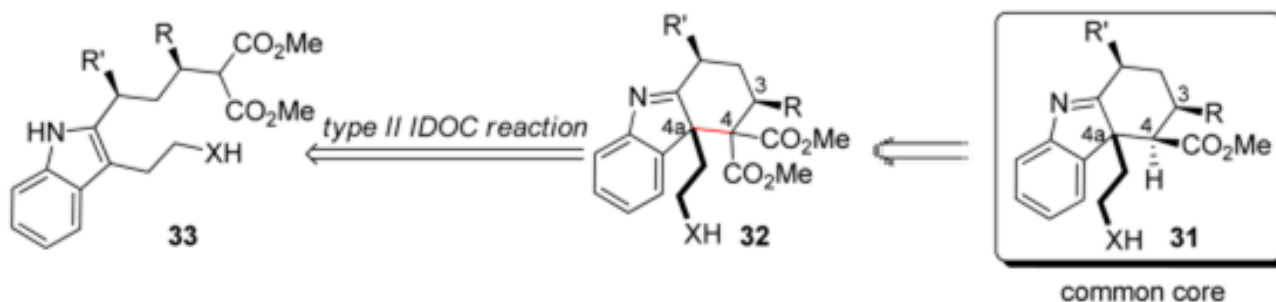
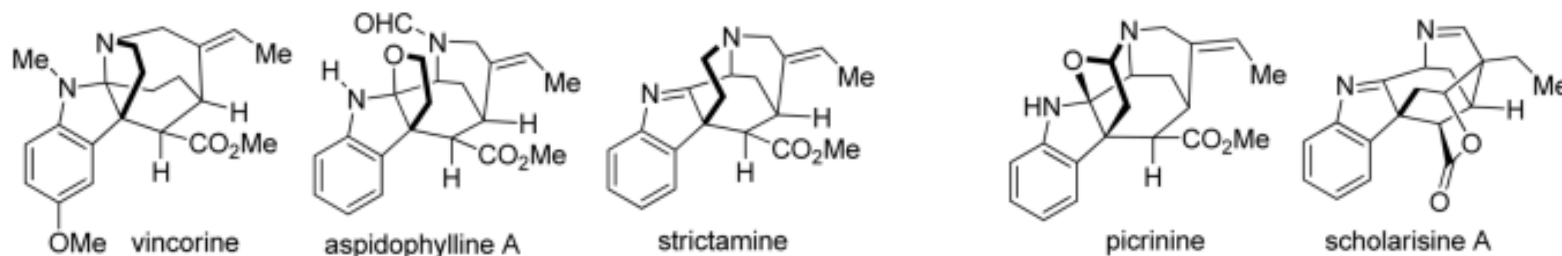


Asymmetric Total Synthesis of Communesin F

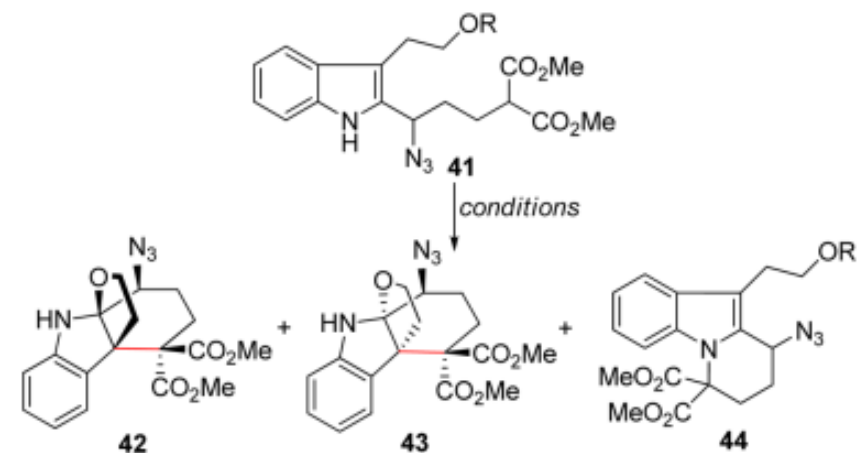


Application of Type II IDOC Reaction In the Total Synthesis of Akuammiline Alkaloids

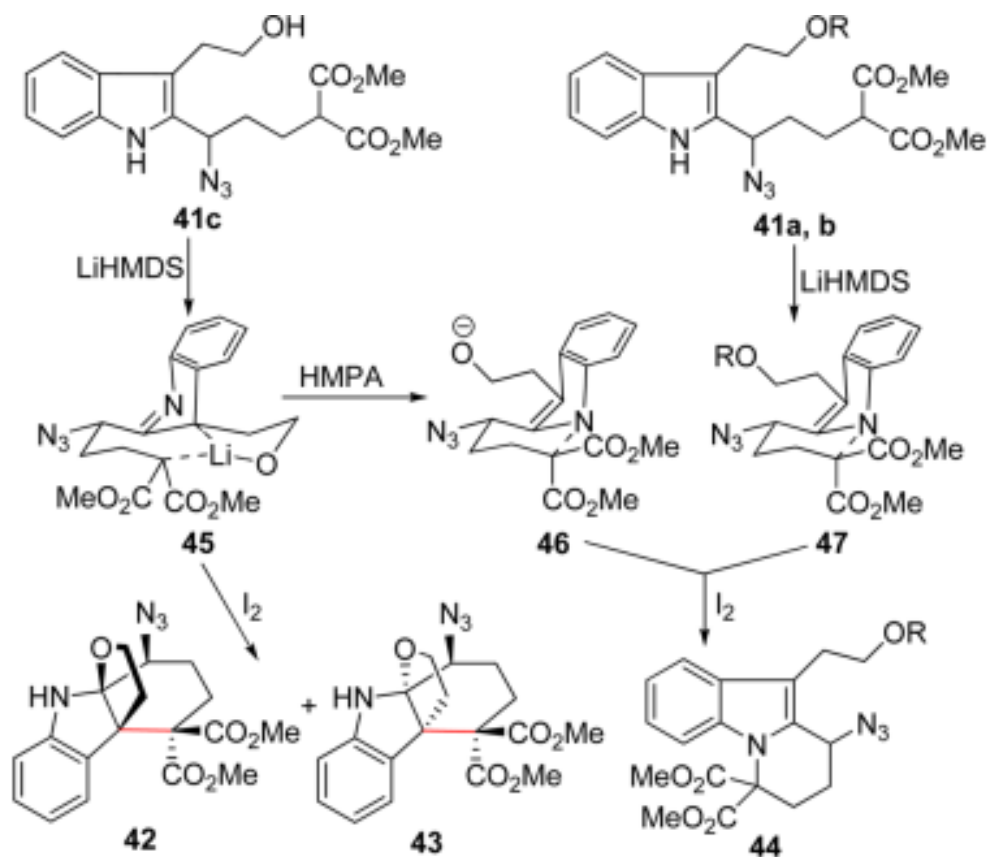
Type II: C2 tethered IDOC reaction



C–N Coupling Versus C–C Coupling of Malonate Compounds 41

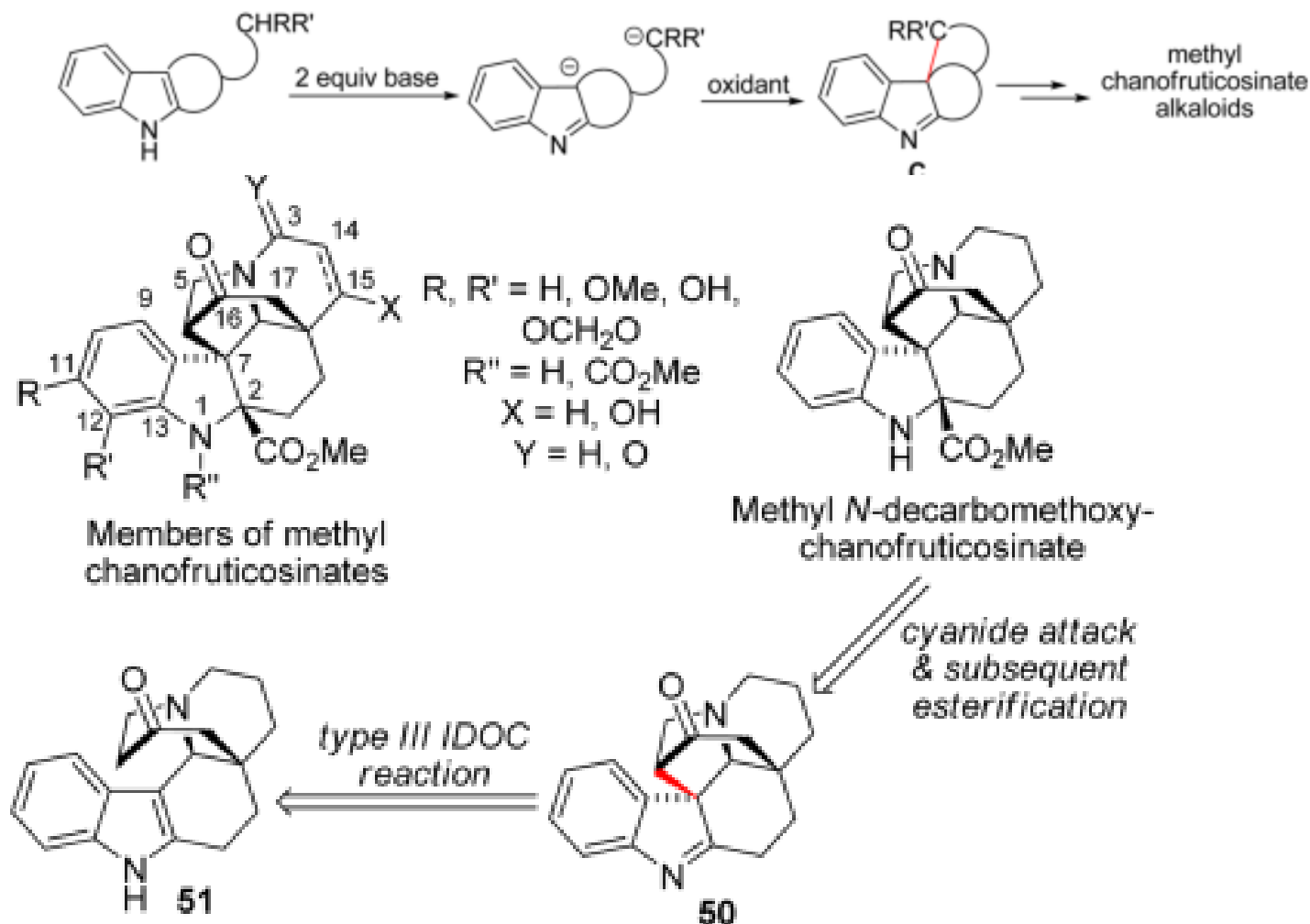


entry	R	conditions	product (yield, %)
1	TBS	LiHMDS, THF, -40 °C then I ₂ , -40 to 0 °C	44a (38)
2	TBS	LiHMDS, THF, HMPA, -40 °C then I ₂ , -40 to 0 °C	44a (73)
3	MOM	LiHMDS, THF, -40 °C then I ₂ , -40 to 0 °C	44b (40)
4	H	LiHMDS, THF, -40 °C then I ₂ , -40 to 0 °C	42/43 (2:1, 54)
5	H	LiHMDS, THF, HMPA, -40 °C then I ₂ , -40 to 0 °C	44c (36)

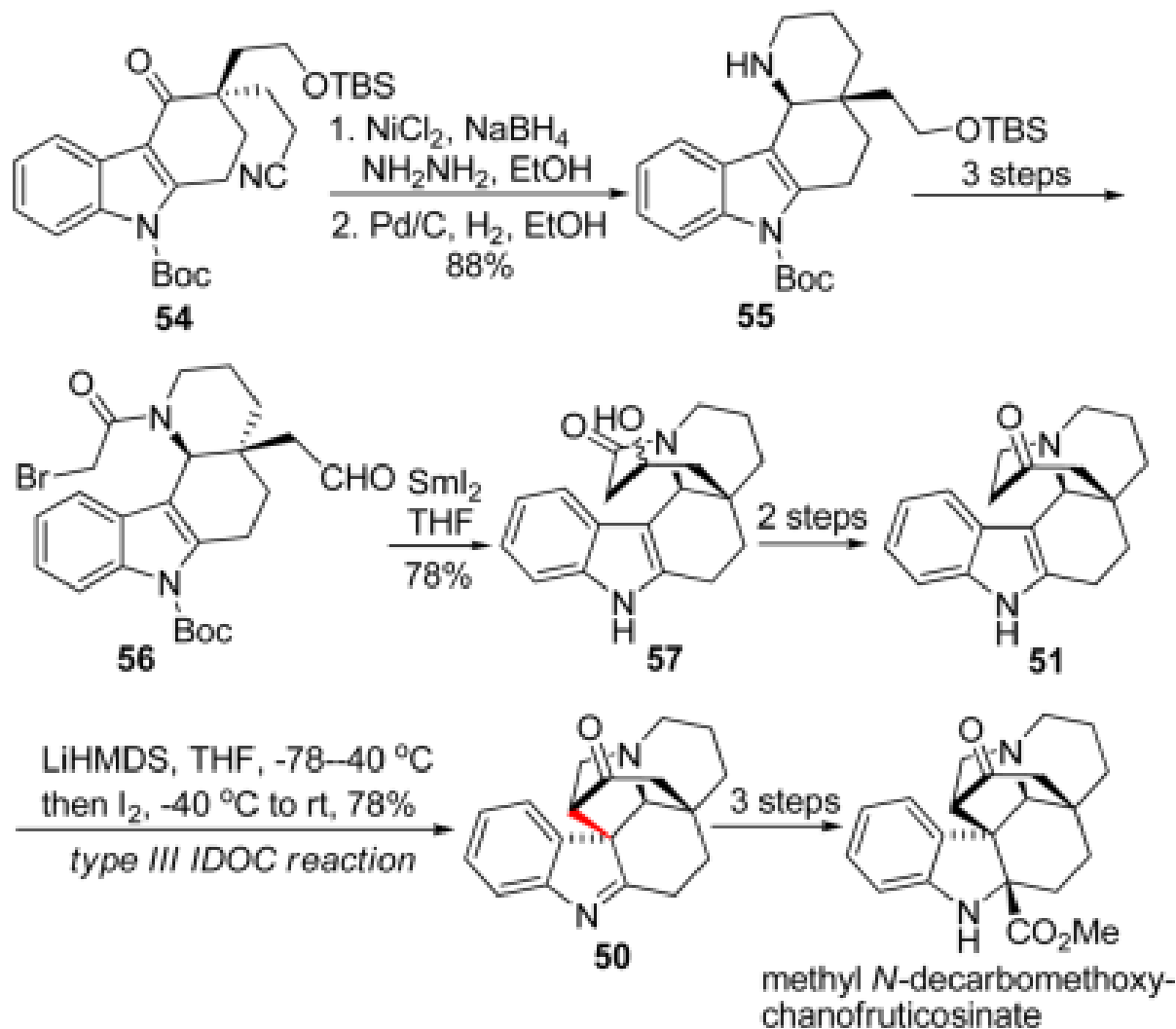


Application of Type III IDOC Reaction In the Total Synthesis of (+)-Methyl N-Decarbomethoxychanofrucosinate

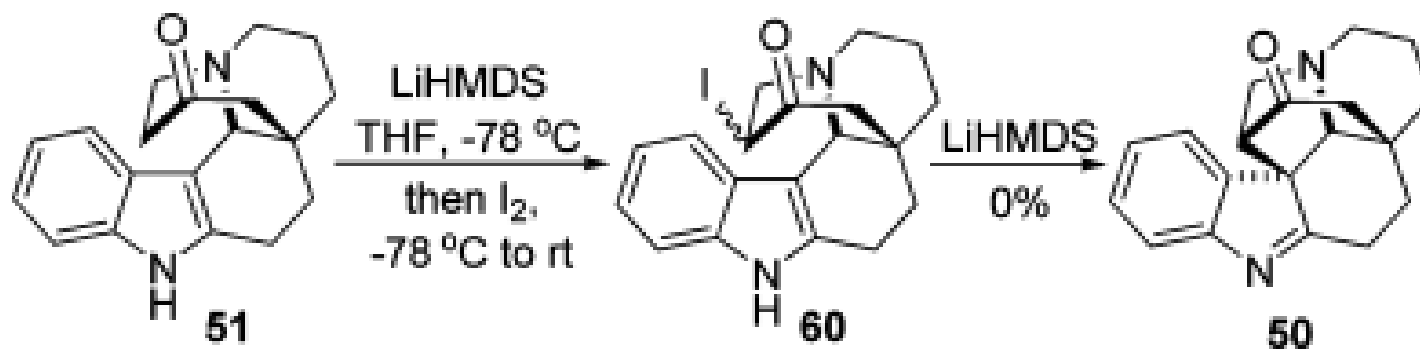
Type III: C2/C3 tethered IDOC reaction



Total Synthesis of (+)-Methyl N-Decarbomethoxychanofrucosinate

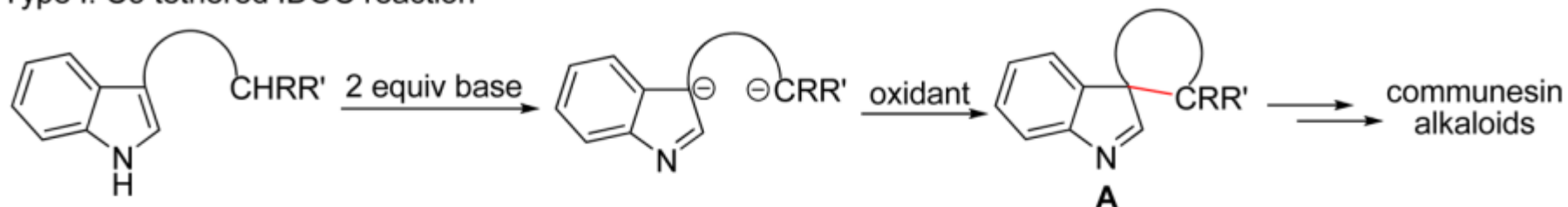


Cyclization of Iodination Products Under Basic Conditions

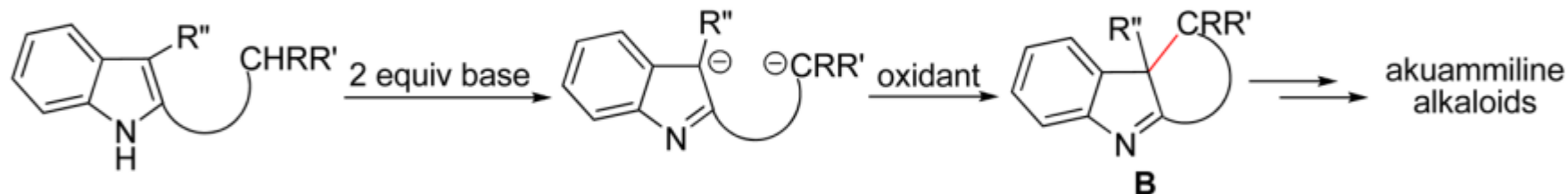


Three Types of IDOC Reaction of Indoles

Type I: C3 tethered IDOC reaction



Type II: C2 tethered IDOC reaction



Type III: C2/C3 tethered IDOC reaction

