nature

RESEARCH ARTICLE

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Collective synthesis of natural products by means of organocascade catalysis

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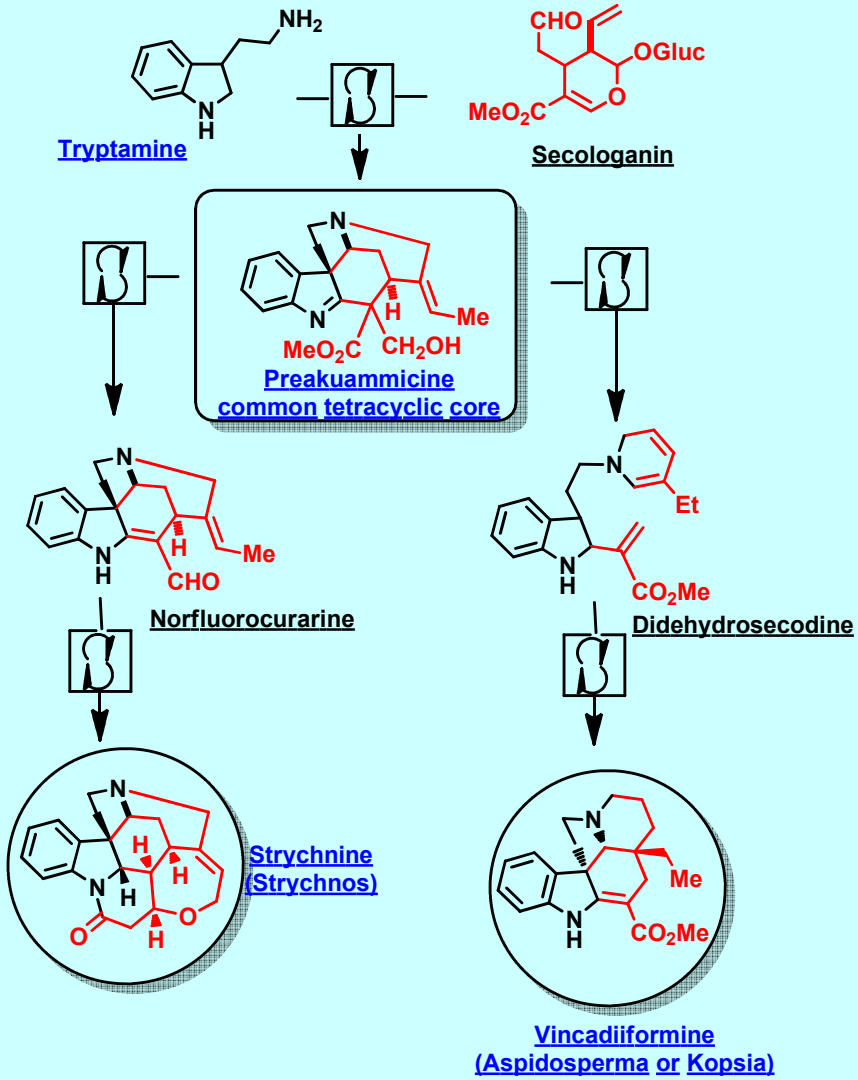
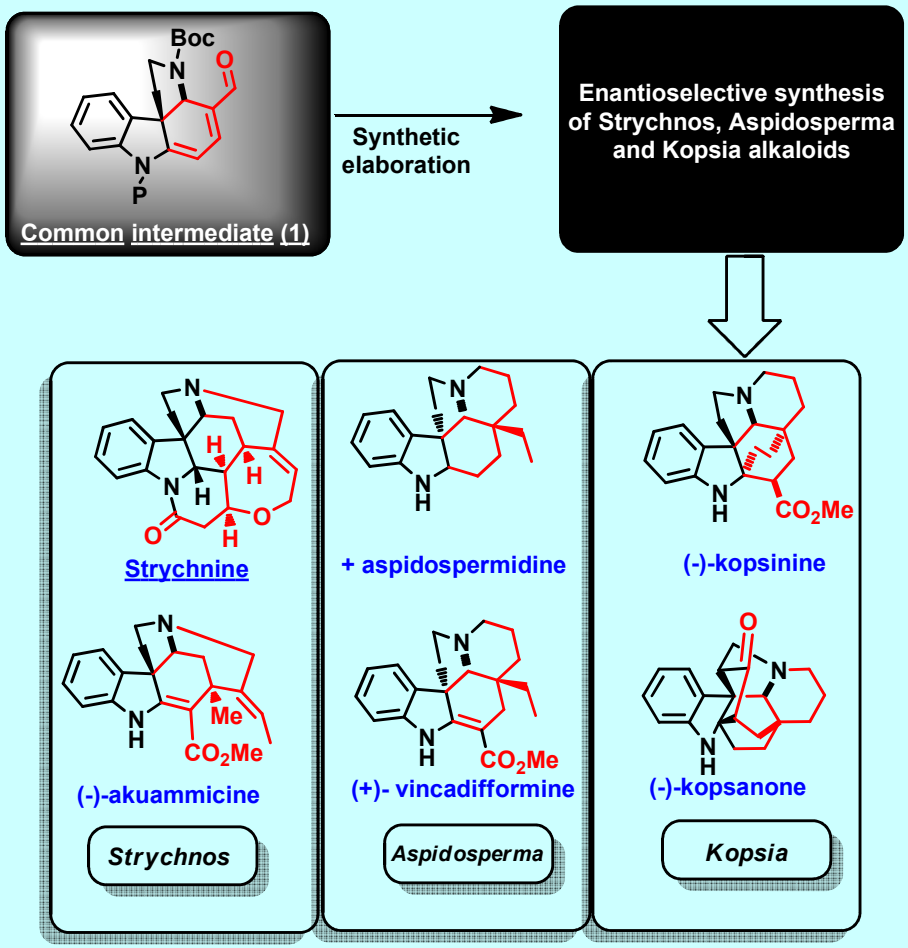
Introduction……..





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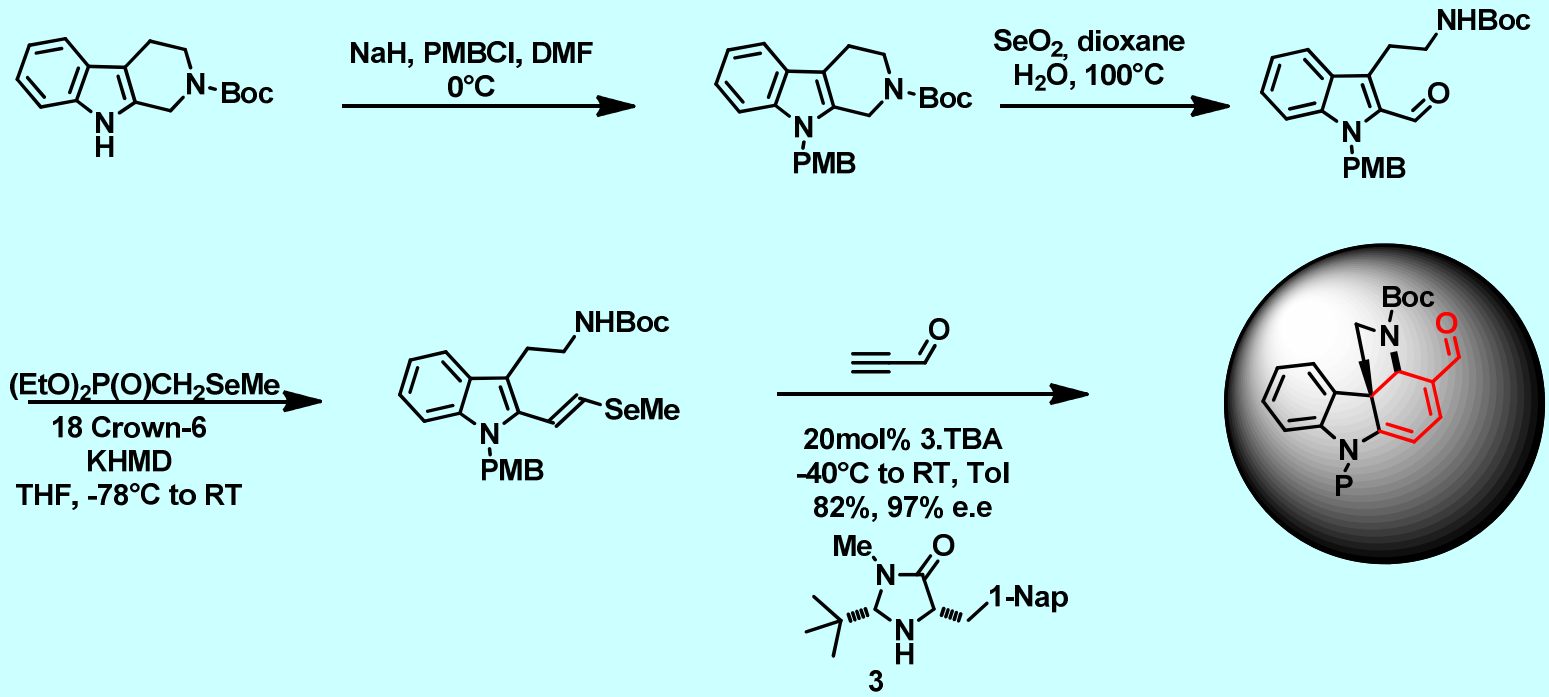
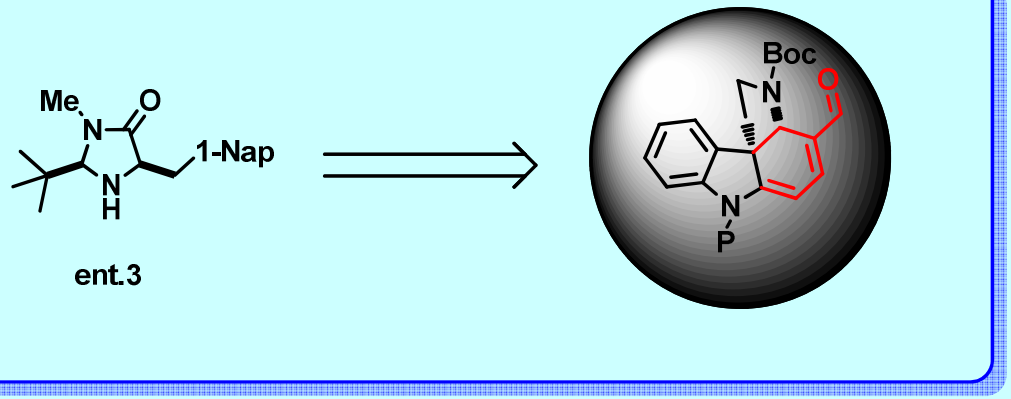
Synthesis of Common Intermediate





common intermediate

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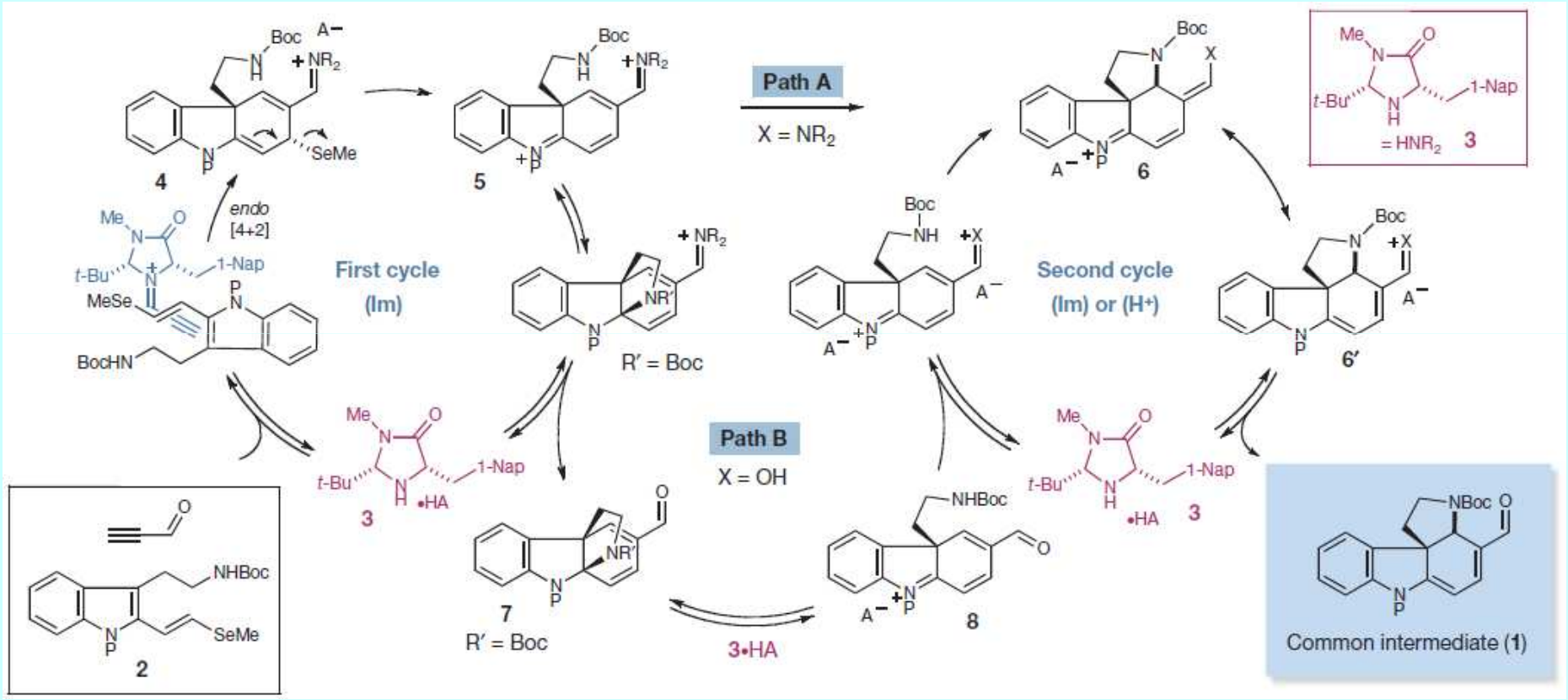
Proposed mechanism of organocascade cycles for the generation of common tetracyclic intermediate



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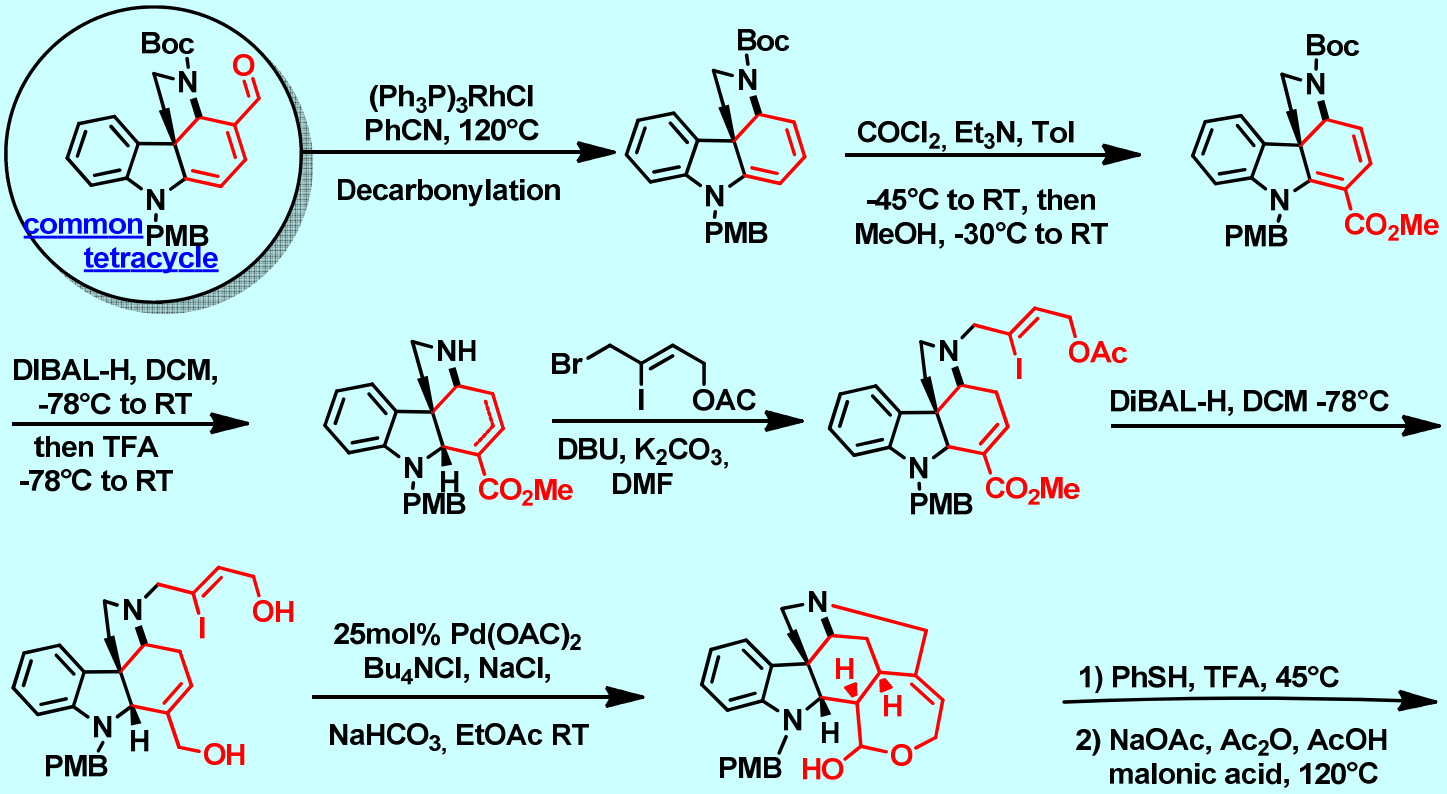
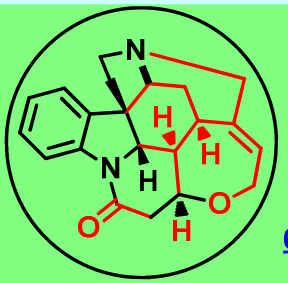
Synthesis of Strychnine





Strychnine

12 steps

6.4% overall yield

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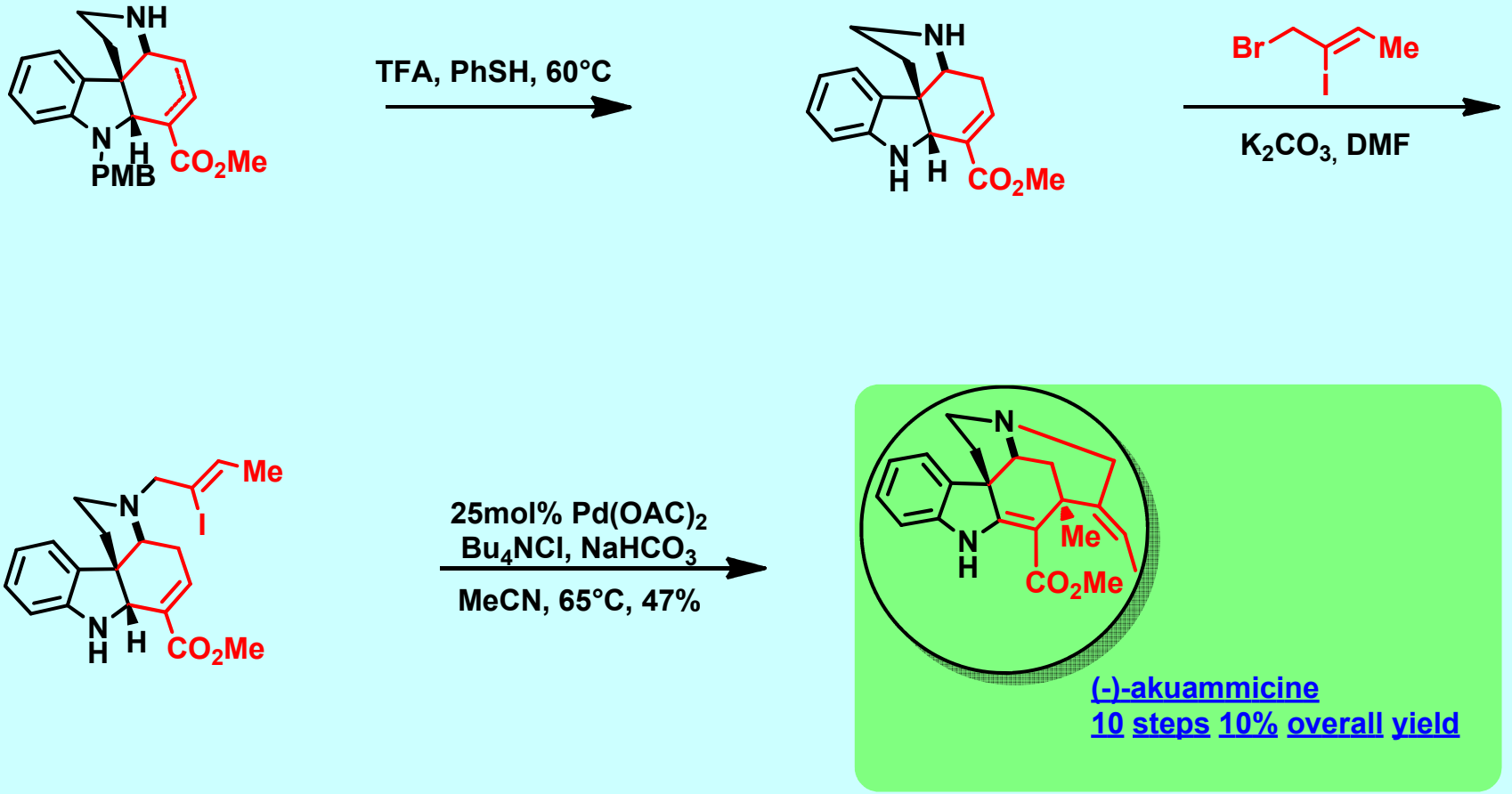
Synthesis of Akuammicine



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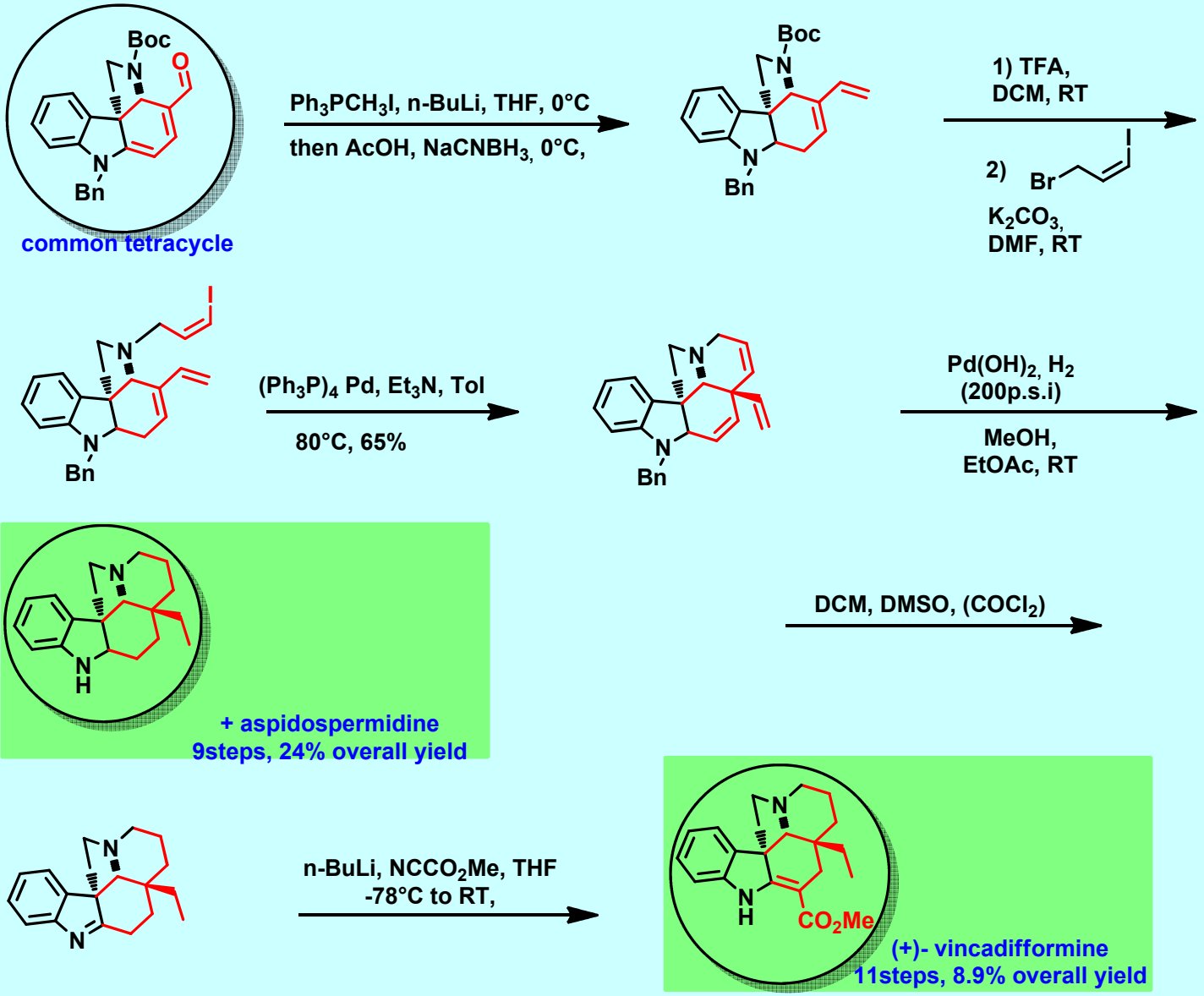
Synthesis of Aspidospermidine & Vincadiifformine



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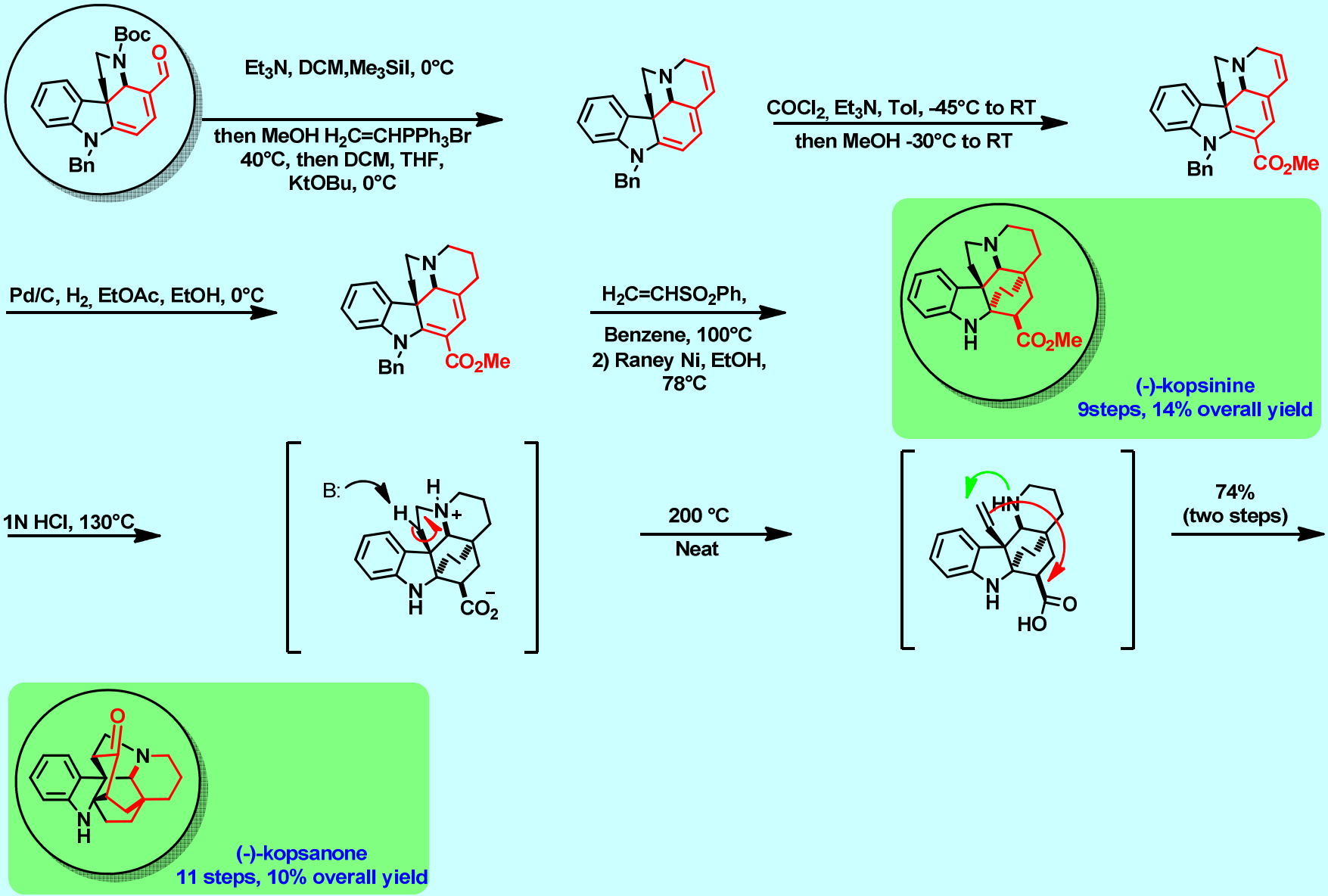
Synthesis of Kopsanone & Kopsinine



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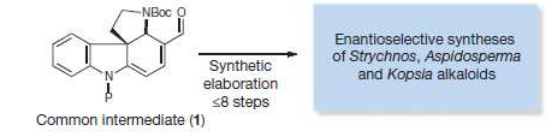
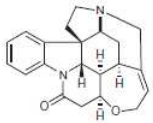
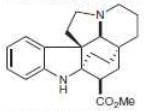
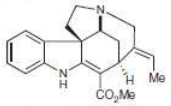
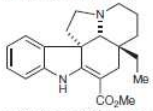
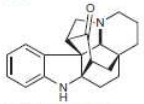
conclusion

Table 1 | Enantioselective synthesis of six well-known indole alkaloids



Compound	No. steps here*	Overall yield (%)	PSAC steps	PSCA steps
 (−)-strychnine	12	6.4	25 (refs 19, 20)	16 (ref. 21)
 (+)-aspidospermidine	9	24	13 (ref. 30)	11 (ref. 29)
 (−)-kopsinine	9	14	NA	19 (ref. 32)
 (−)-akuammicine	10	10	NA	NA
 (+)-vincadifformine	11	8.9	NA	10 (ref. 31)
 (−)-kopsanone	11	10	NA	NA

Step counts represent the longest linear sequence from commercially available **9**. NA, not applicable. PSAC, previous shortest asymmetric catalytic synthesis; PSCA, previous shortest chiral auxiliary or chiral pool synthesis.

- ***Novel Asymmetric approach to Total synthesis based on the application of these two nature-inspired concepts, namely collective total synthesis and organocascade catalysis.***
- ***Shortest Asymmetric synthesis of (-)-Strychnine.***
- ***Hope in terms of natural product and medicinal agent families in the near future.***
- ***These collective aymmetric syntheses took a total of 34steps for 6 Natural products (Previous 76 steps)***

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