Total Synthesis of Taxol

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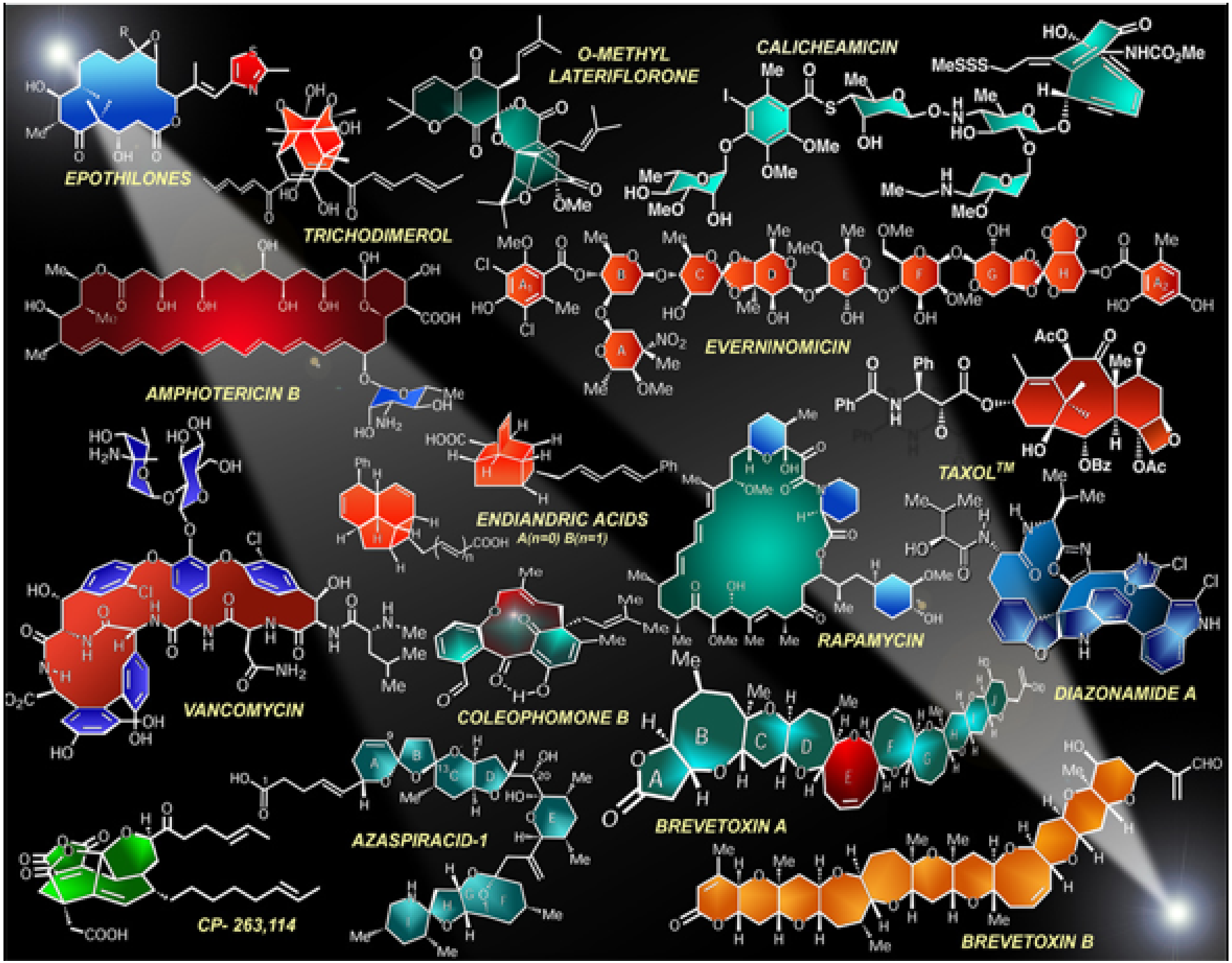
K.C. Nicolaou

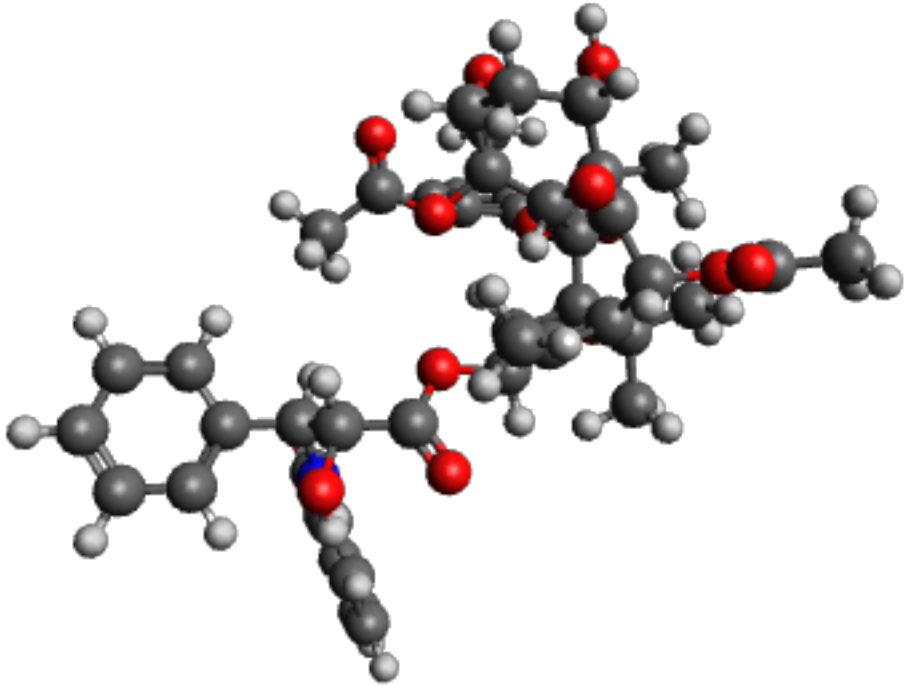
- Kyriacos Costa Nicolaou born in Cyprus 1946
- B.Sc. 1969: Bedford College
- Ph.D. 1972: University College London under F. Sondheim and P.J. Garratt
- Post-doc 1973 with T.J. Katz (Columbia) and 1976 E.J. Corey (Harvard)
- 1976-1989: UPenn faculty
- 1989-present: Faculty at UC San Diego and The Scripps Research Institute

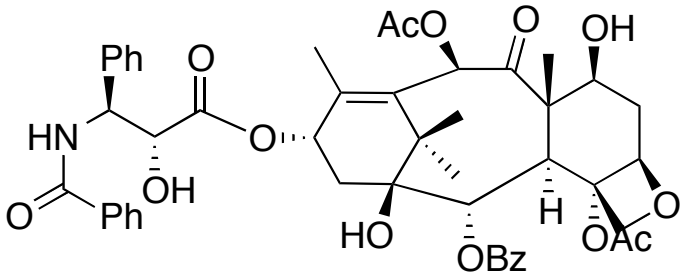


http://www.scripps.edu/nicolaou/

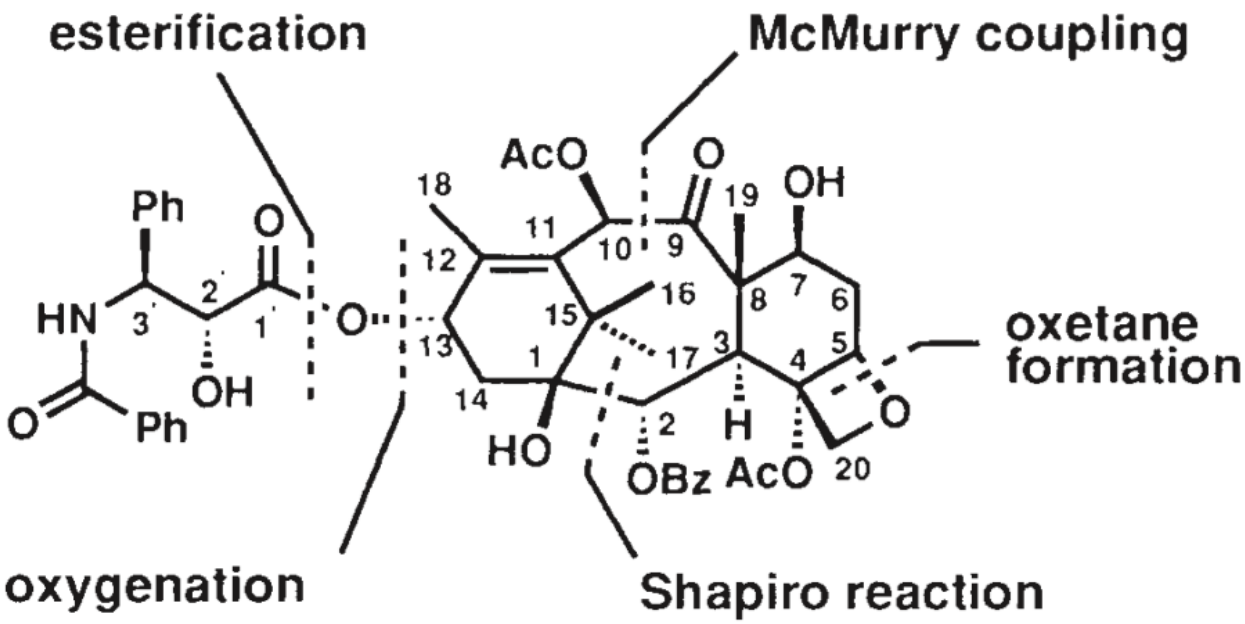
Taxol

- Extracted from the bark of the Pacific Yew tree
- Used for the treatment of ovarian, breast, lung and melanoma cancer

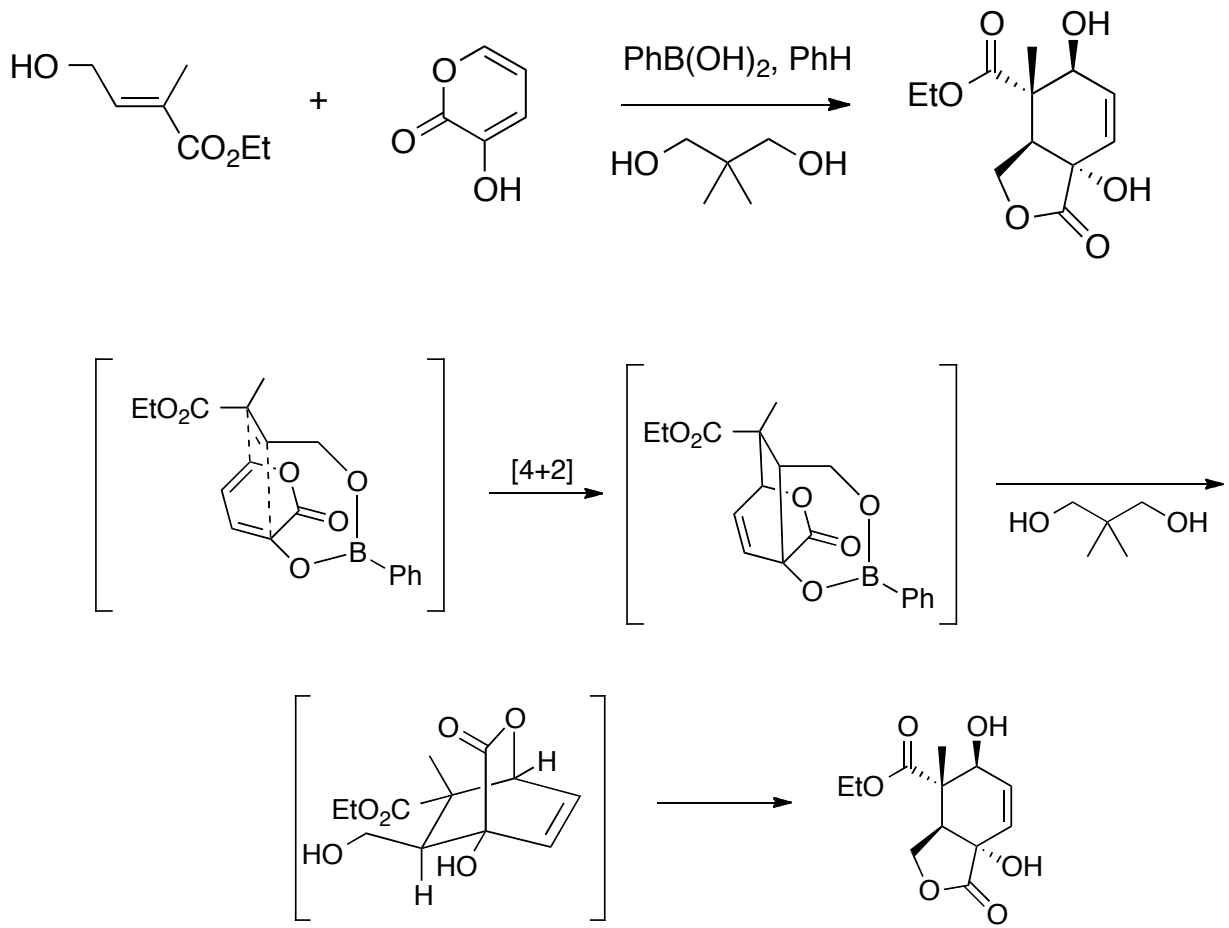




Retrosynthetic Analysis



Forward Synthesis



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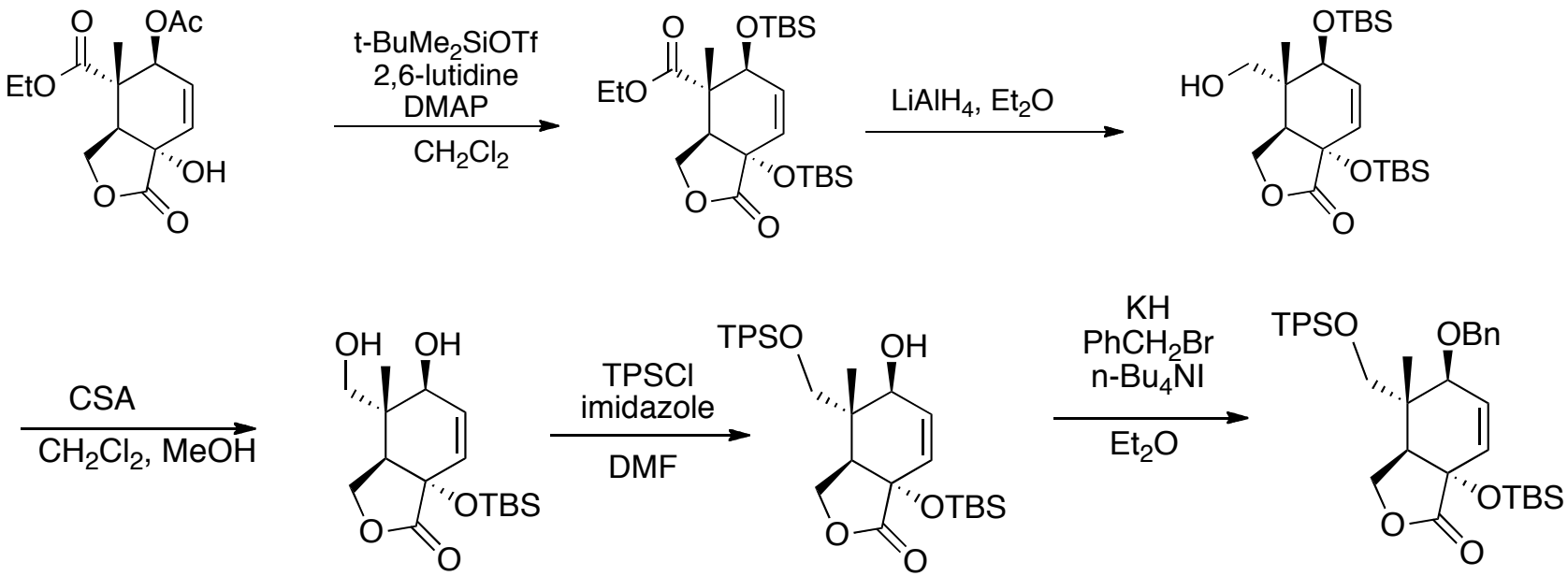

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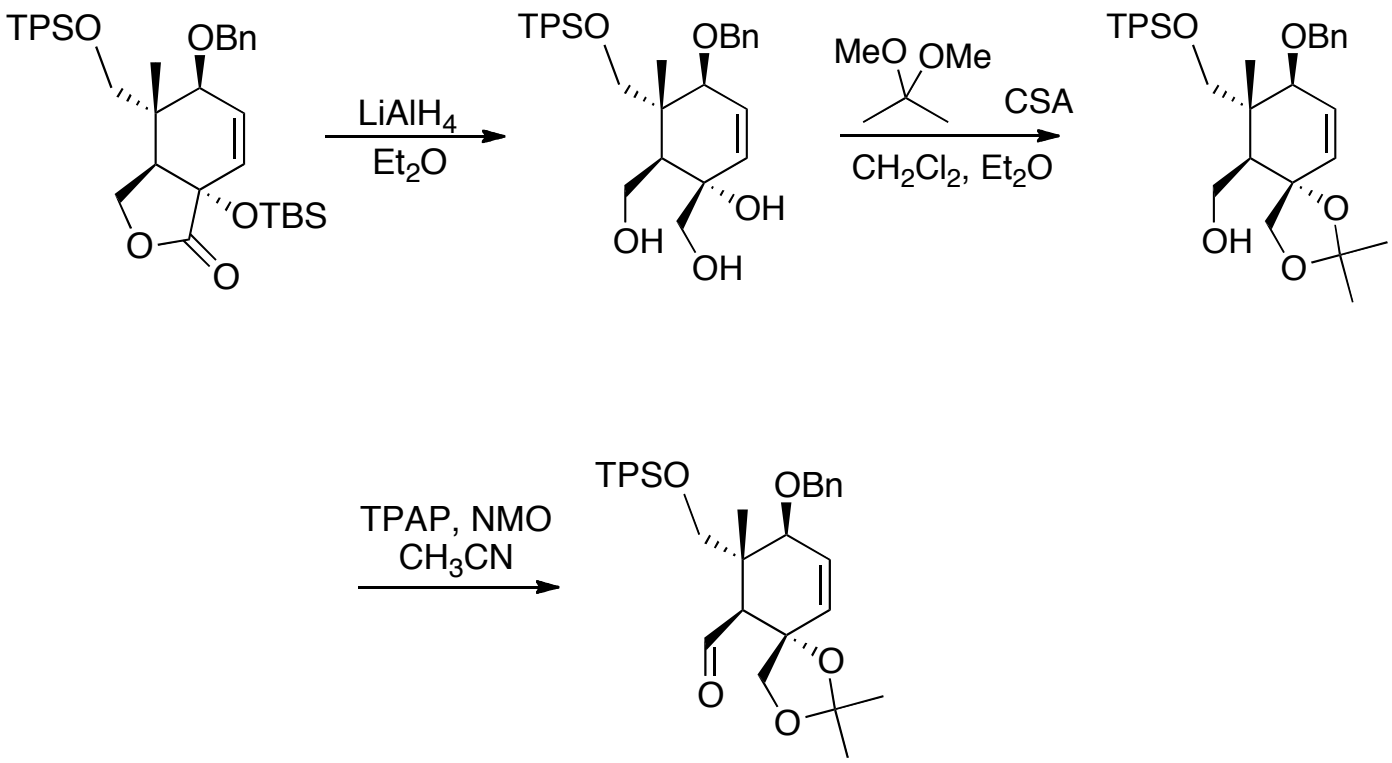
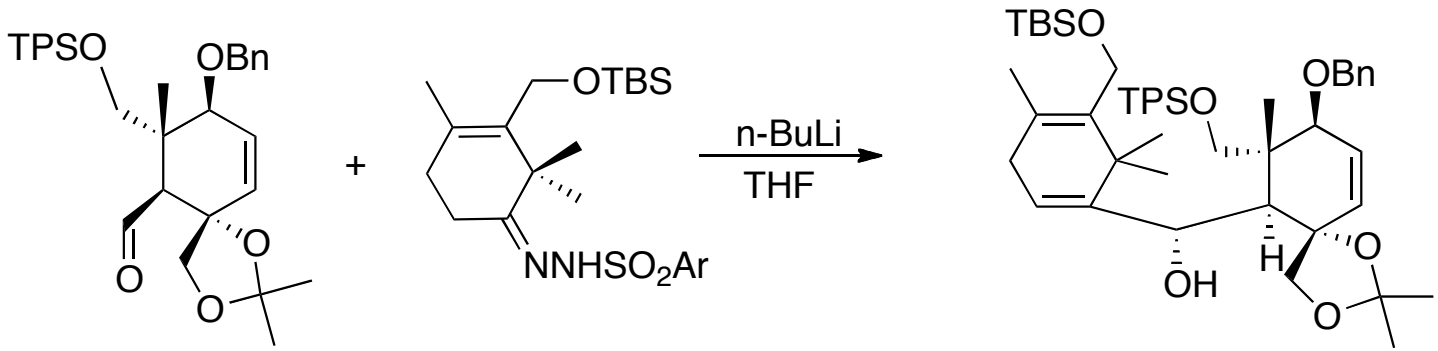
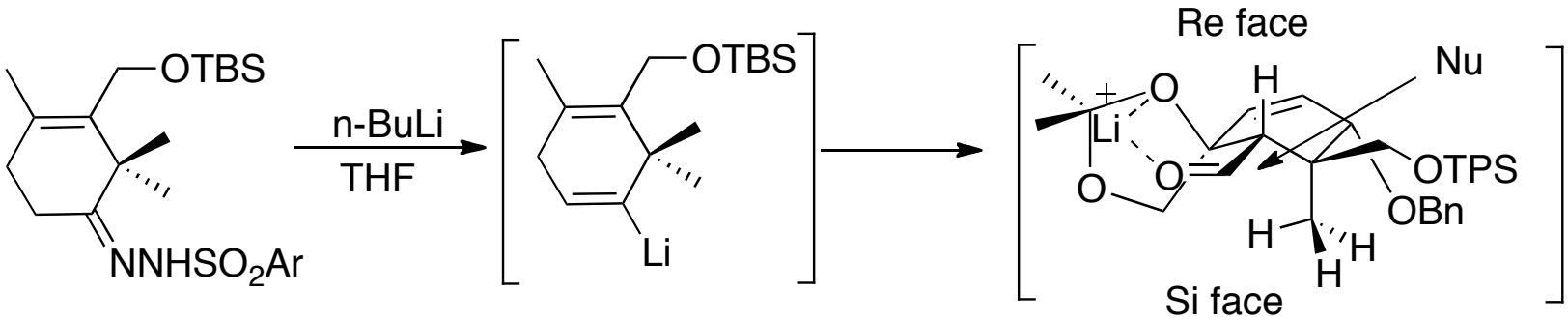
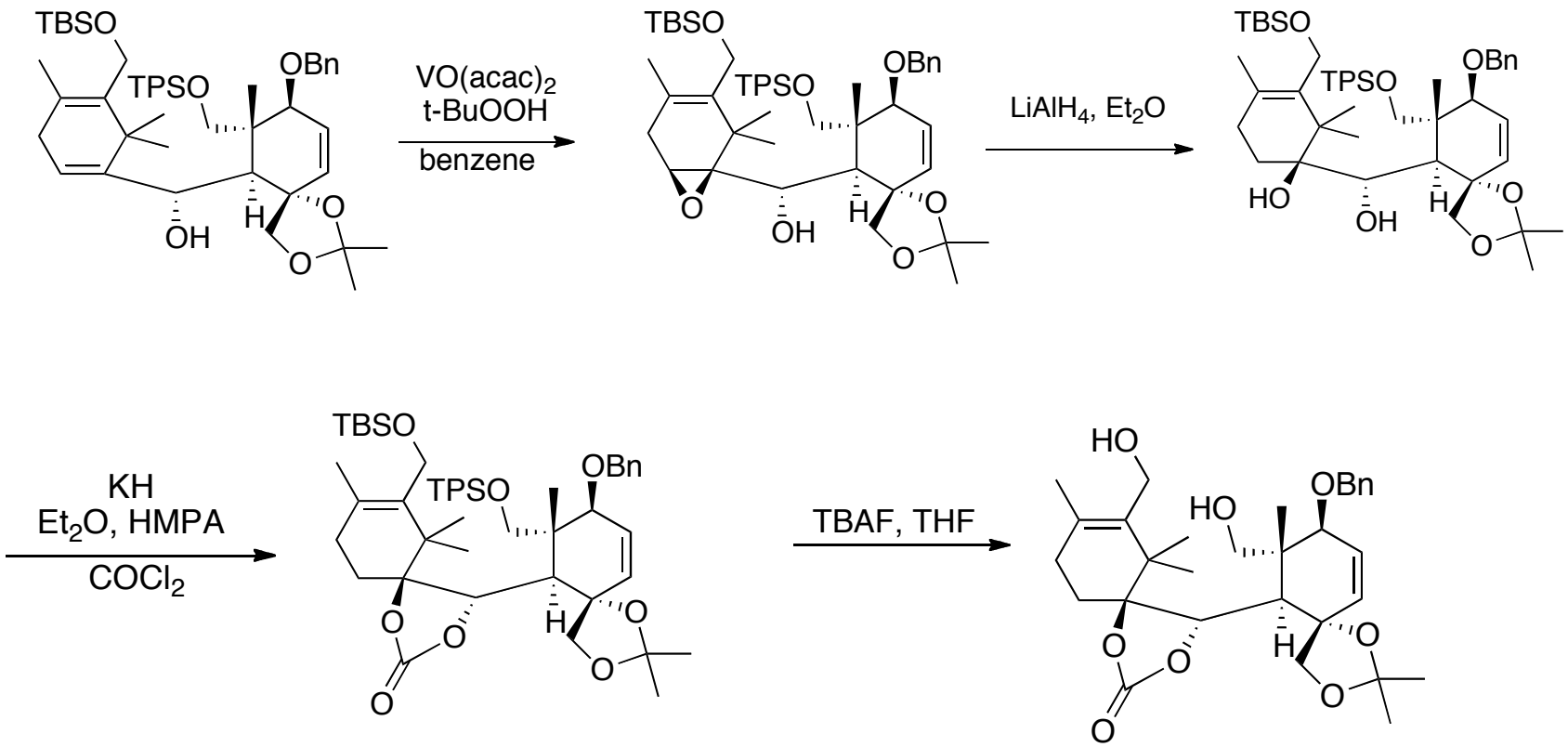


Shapiro Reaction

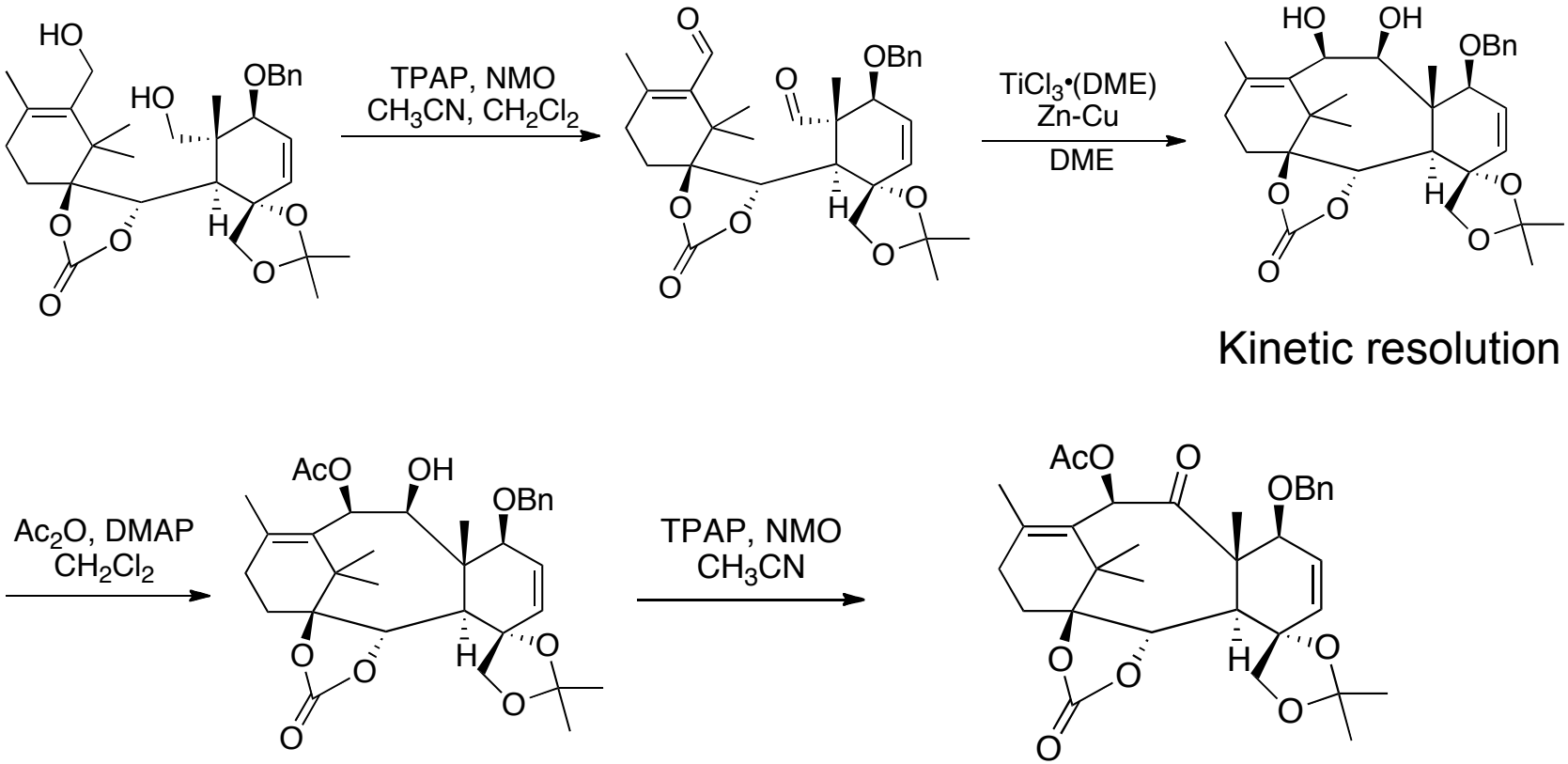




Sharpless Epoxidation



McMurry Coupling



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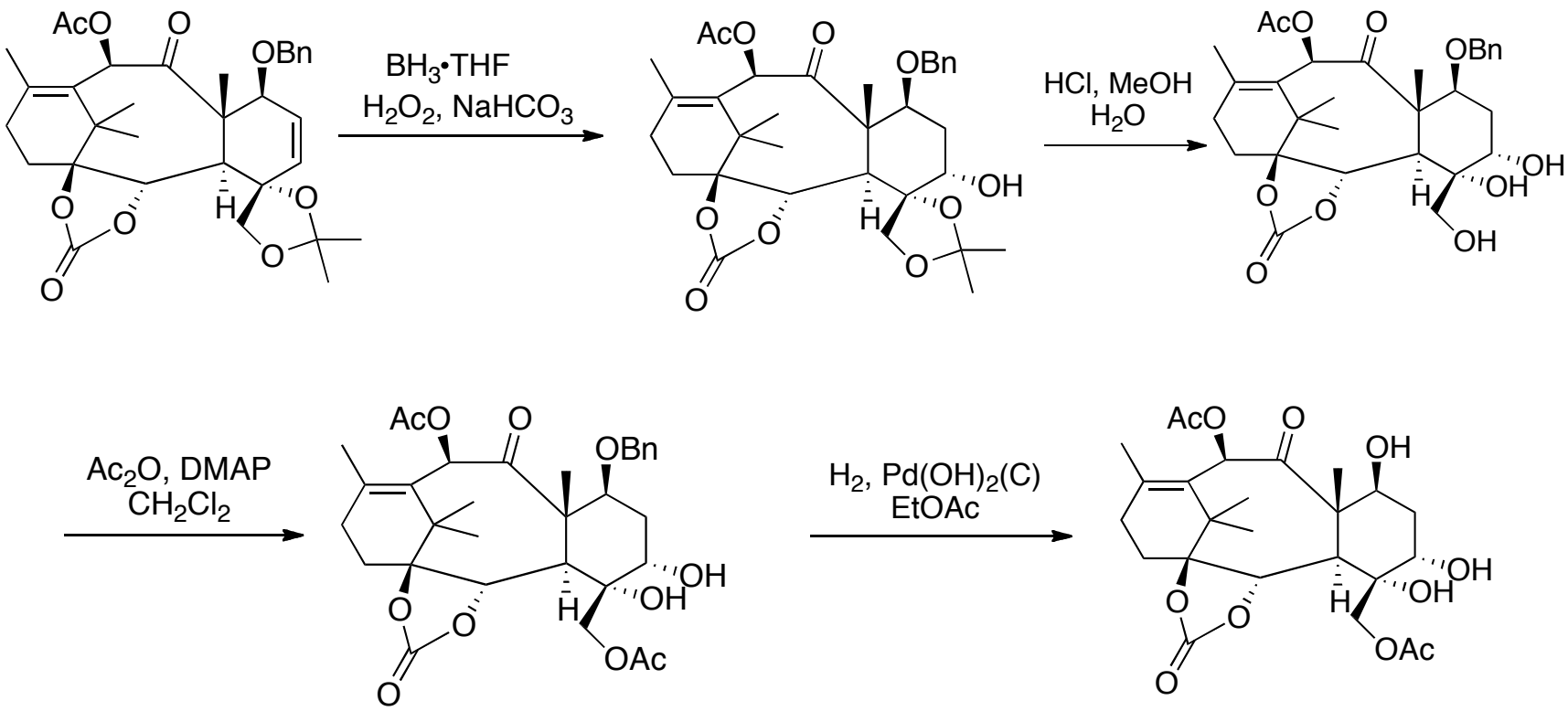

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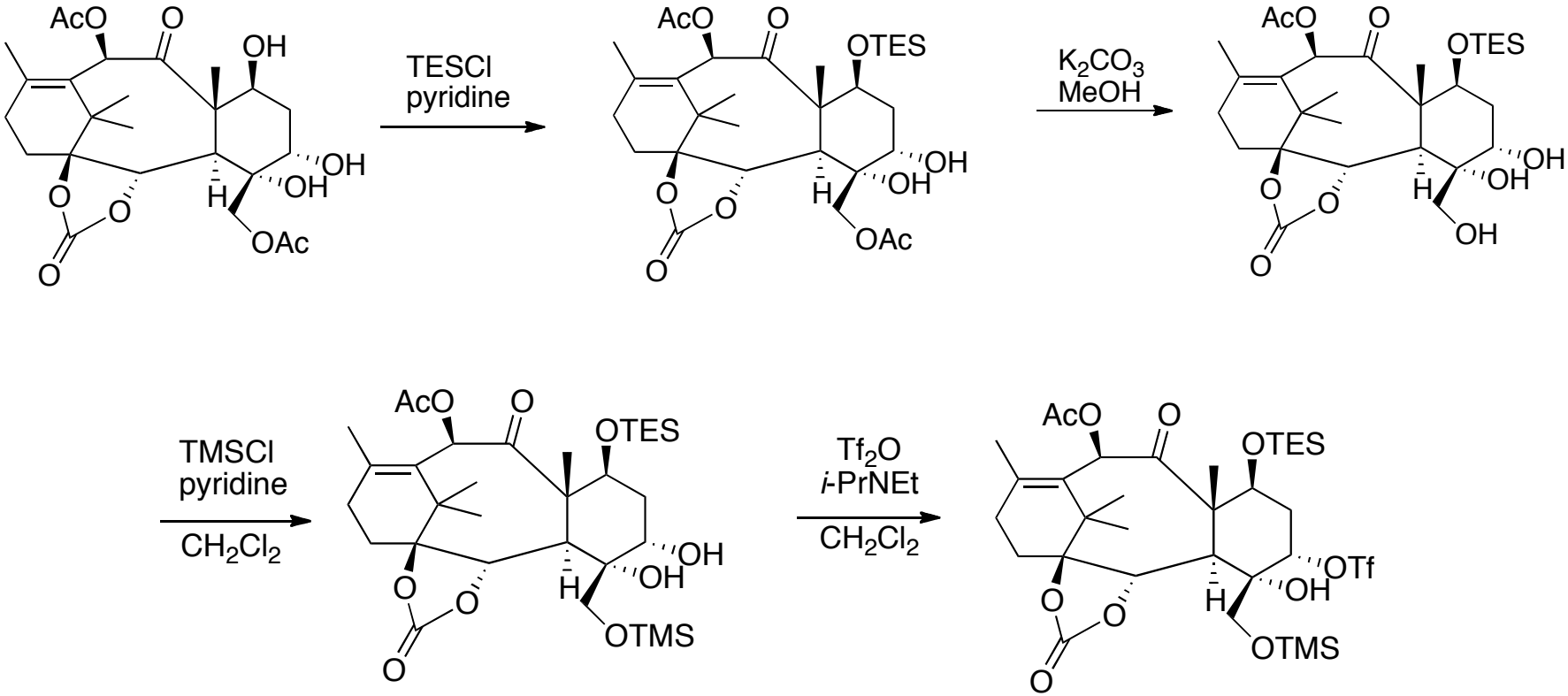

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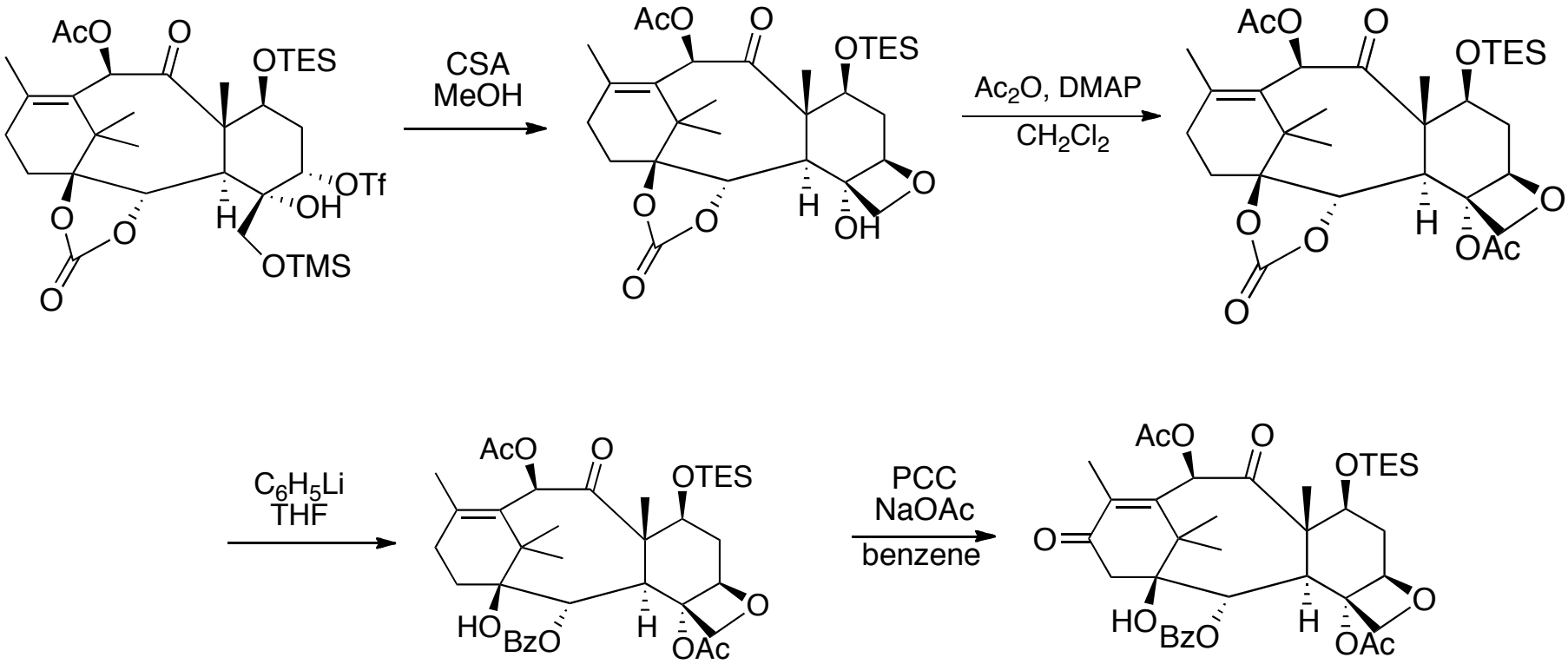

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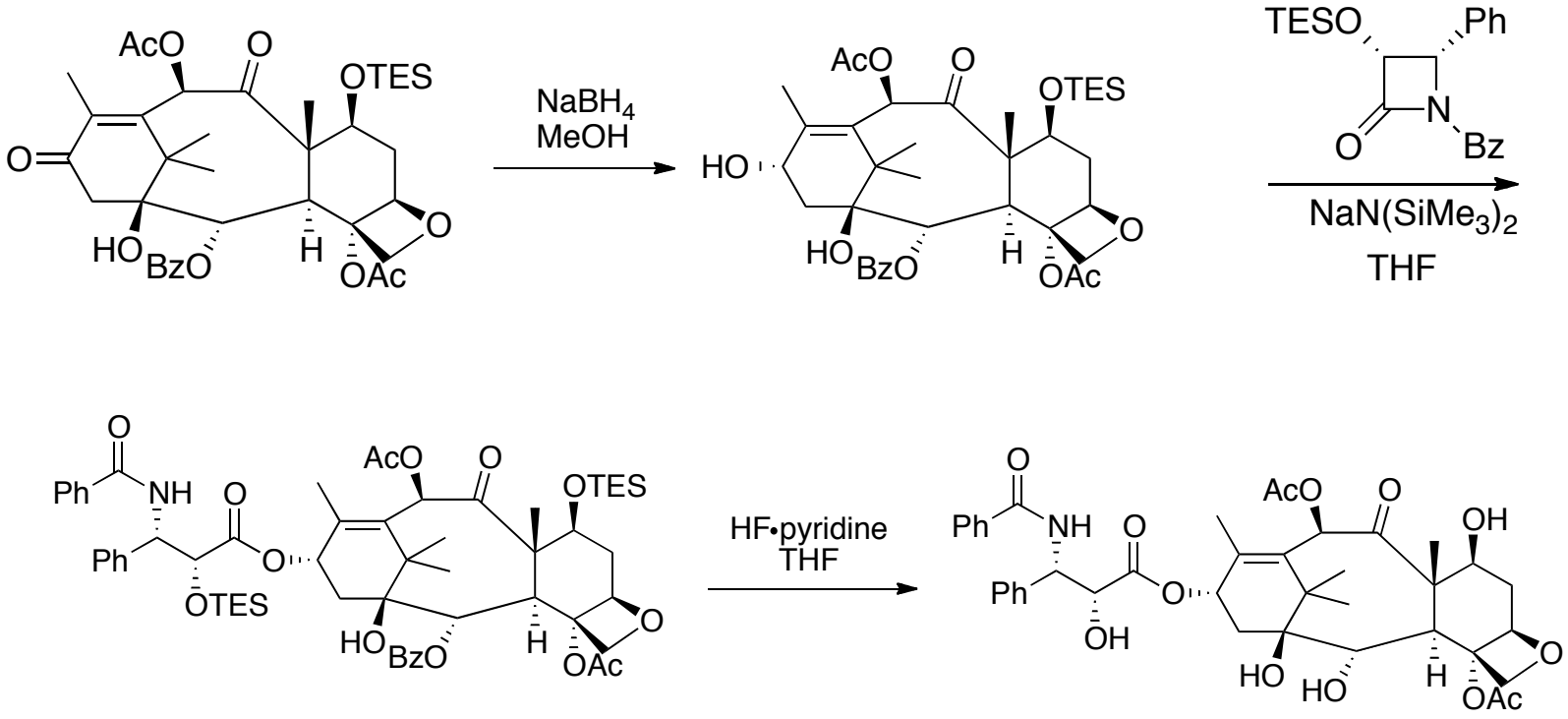

Taxol

Conclusion

"Offers a solution to formidable synthetic challenge"

- Convergent synthesis
- Took two years from conception to completion
- "May enable researchers to devise more effective, less toxic drugs of the taxol class" (C&EN, vol. 72, pp. 32-43)