

An Expedient Total Synthesis of Chivosazole F: an Actin-Binding Antimitotic Macrolide from the Myxobacterium *Sorangium Cellulosum*

Simon Williams, Jialu Jim, S. B. Jennifer Kan, Mungyuen Li, Lisa J. Gibson, and Ian Peterson*

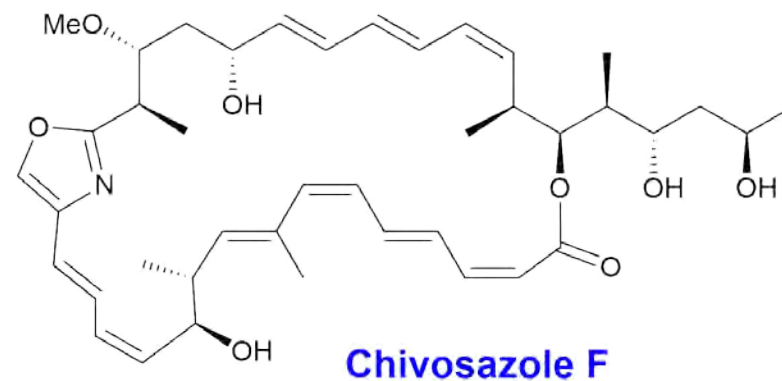
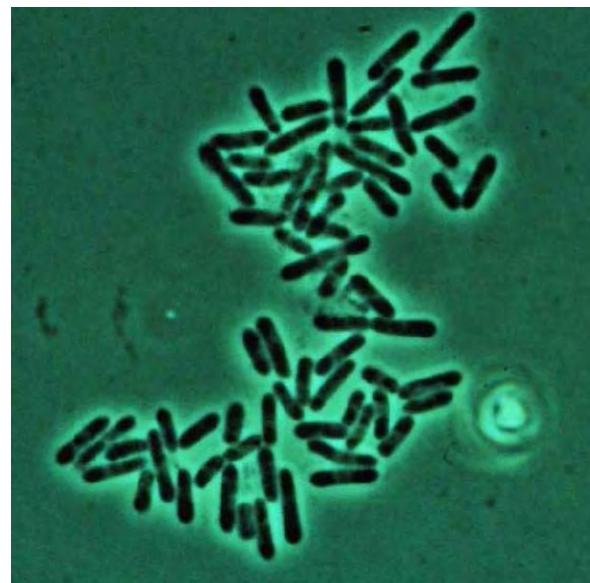
University Chemical Laboratory, University of Cambridge
Cambridge, UK

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Presented by: Pauline Mansour

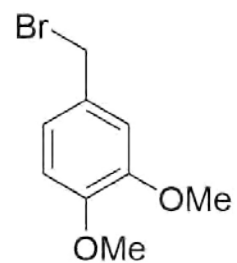
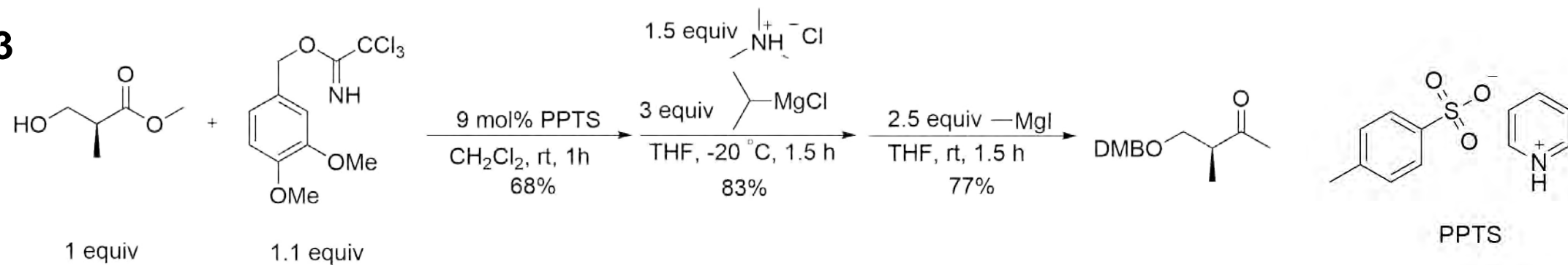
Chivosazoles

- Bioactive polyene macrolides
- First isolated by Hofle and Reichenbach in 1995 from the myxobacterium *Sorangium cellulosum*
- Studies show it inhibiting cancer cell growth

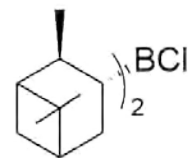


Outline

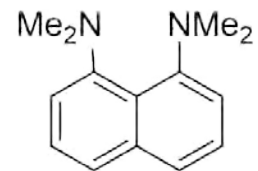
Fragment 3



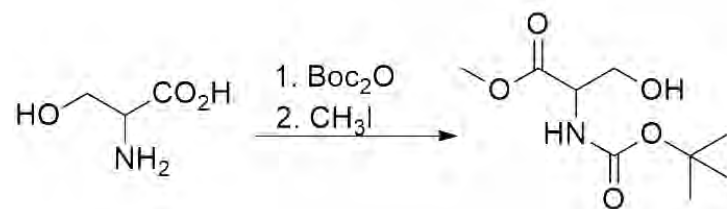
DMB-Br



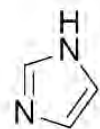
(-)-DIP-Cloride
or (-)-lpc₂BCl



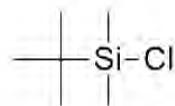
proton sponge



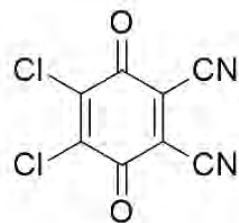
Garner's alcohol



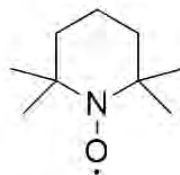
imidazole



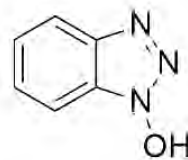
TBSCl



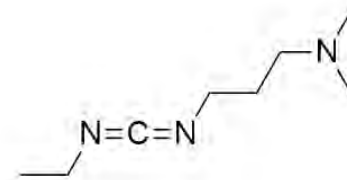
DDQ



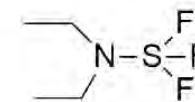
TEMPO



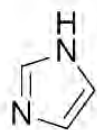
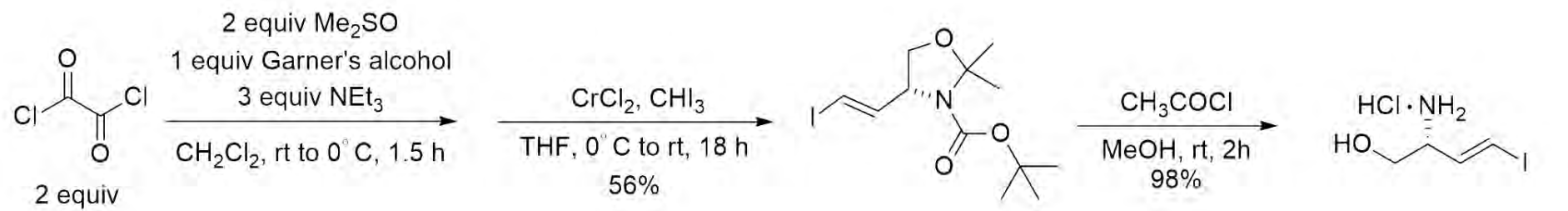
hydroxybenzotriazole



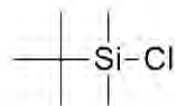
EDC



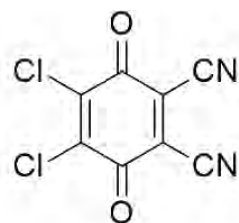
DAST



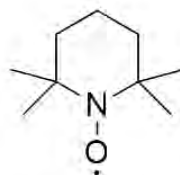
imidazole



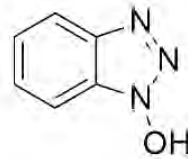
TBSCl



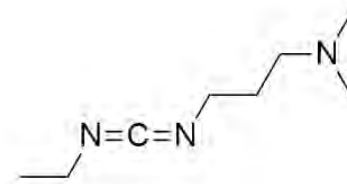
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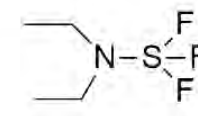
TEMPO



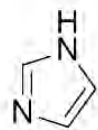
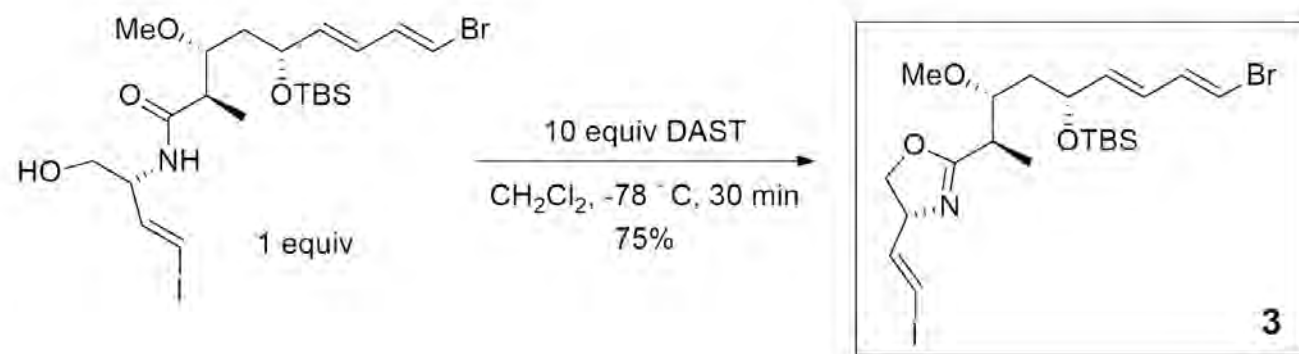
hydroxybenzotriazole



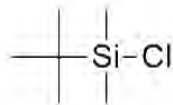
EDC



DAST



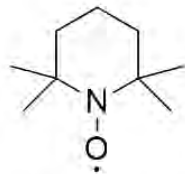
imidazole



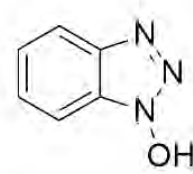
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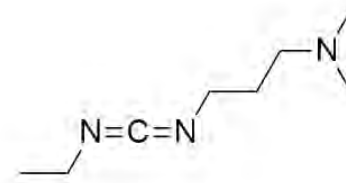
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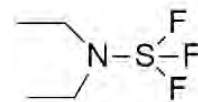
TEMPO



hydroxybenzotriazole



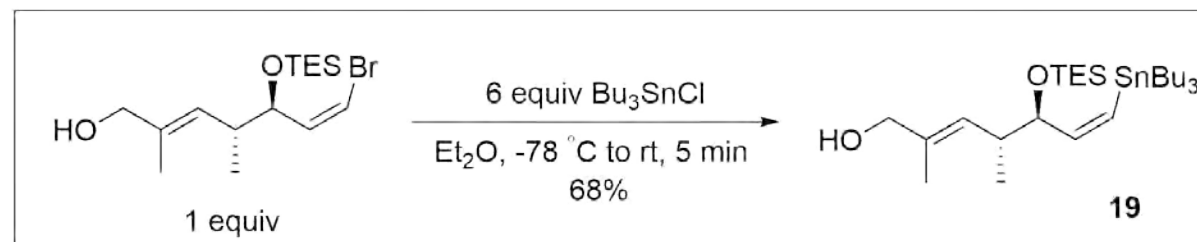
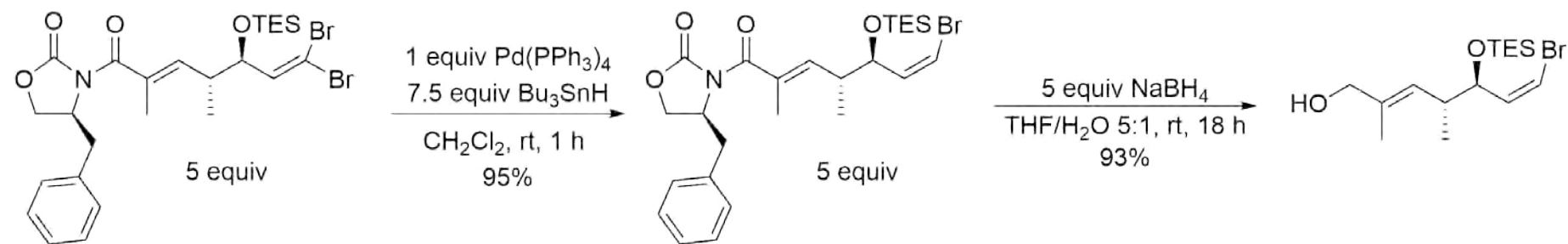
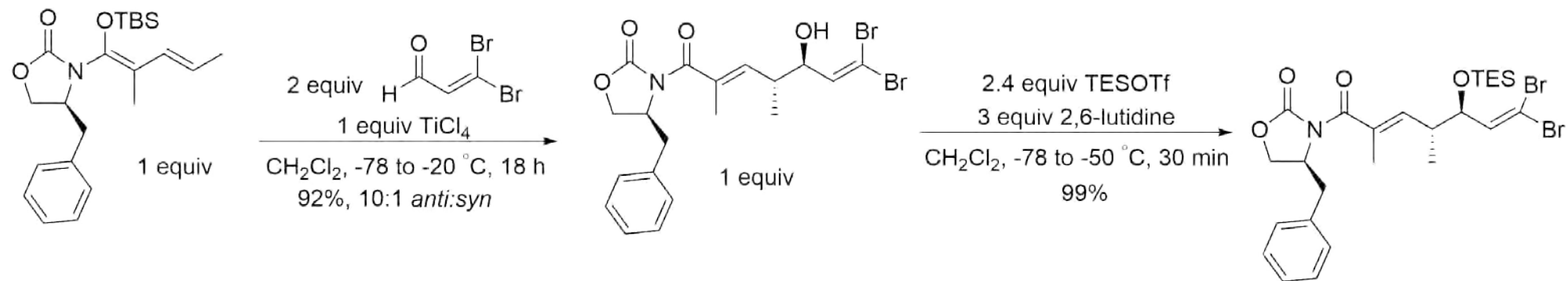
EDC



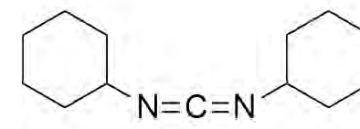
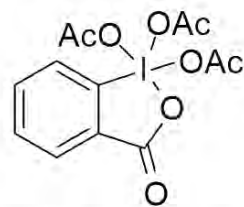
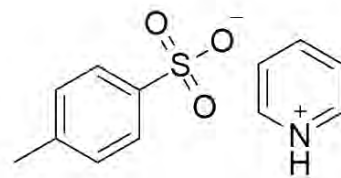
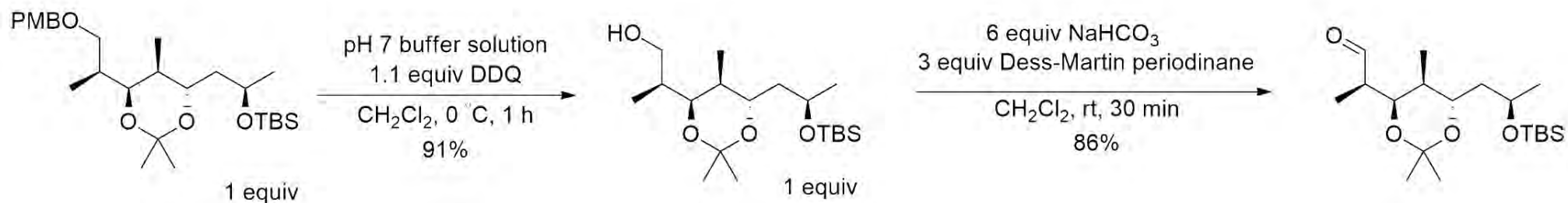
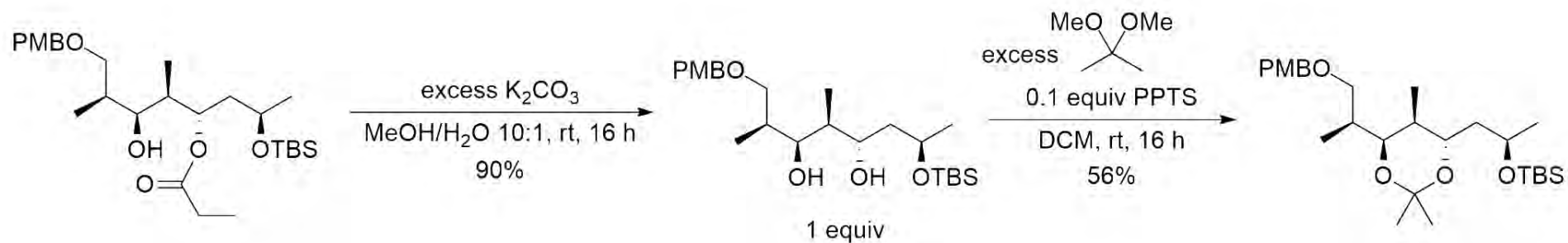
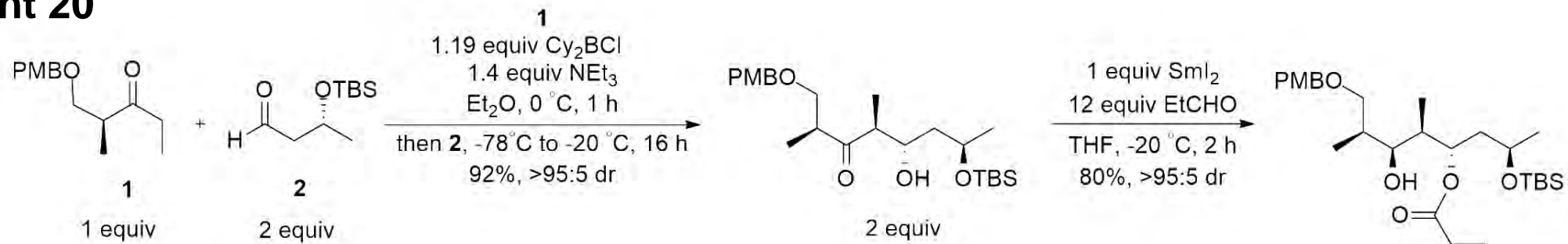
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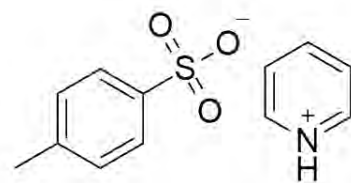
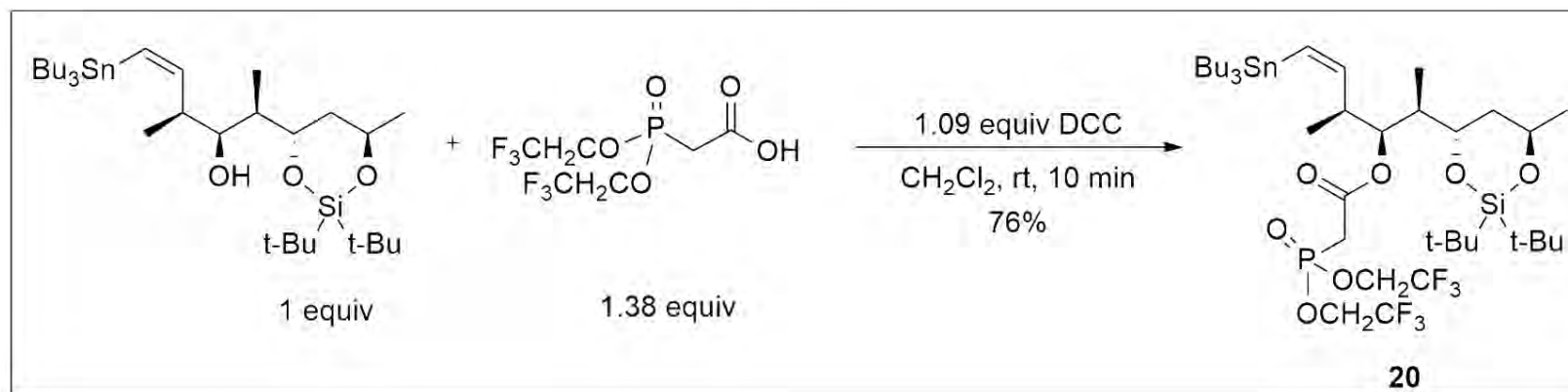
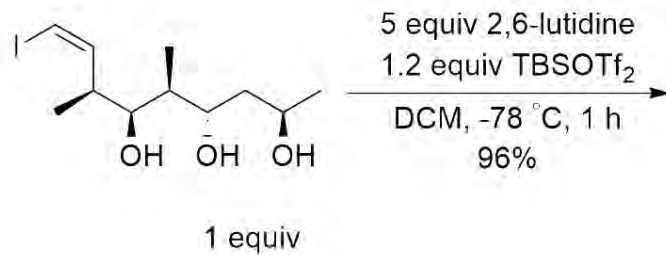
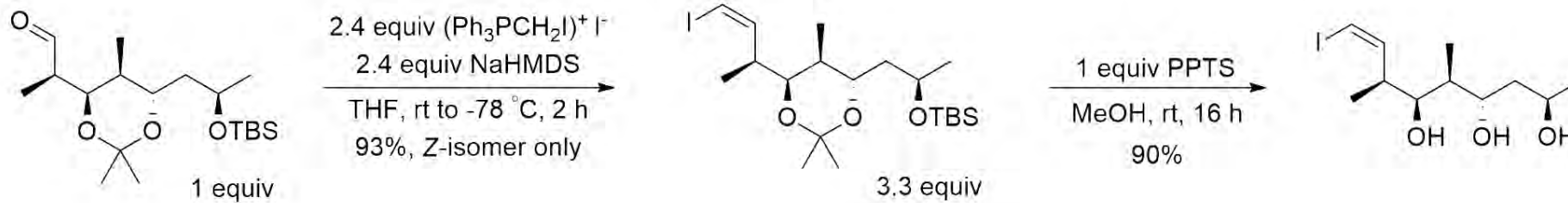


Fragment 19

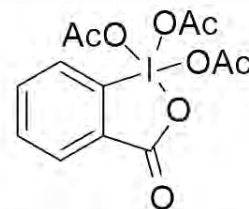


Fragment 20

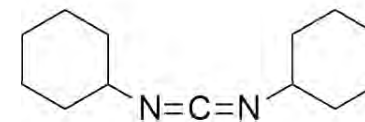




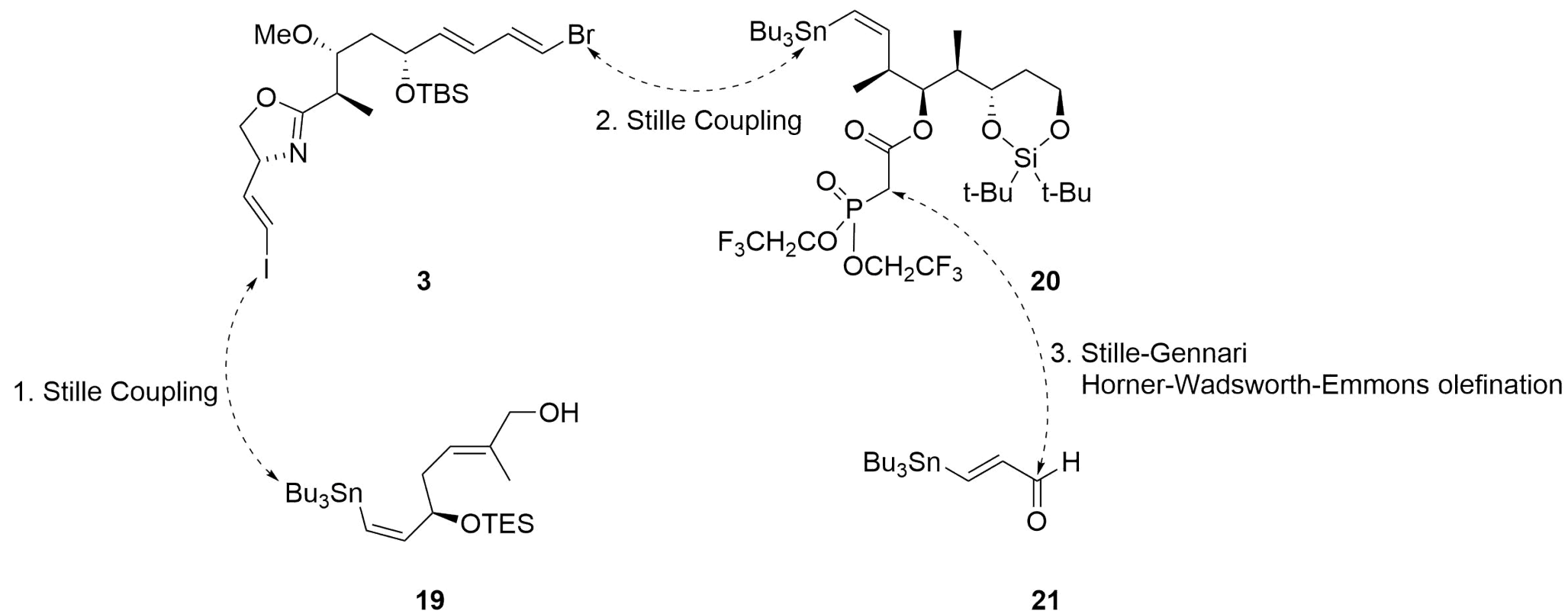
PPTS

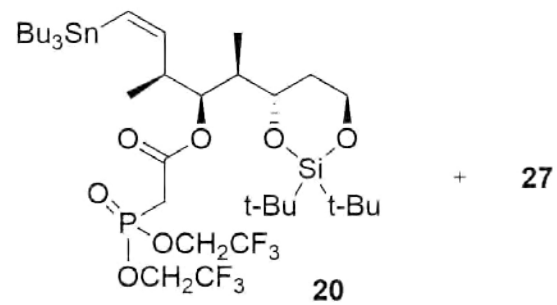


Dess-Martin periodinane



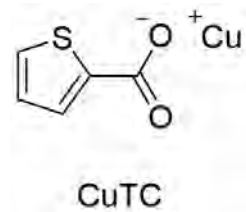
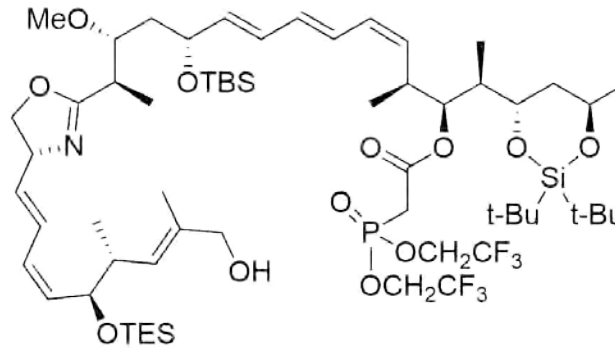
DCC





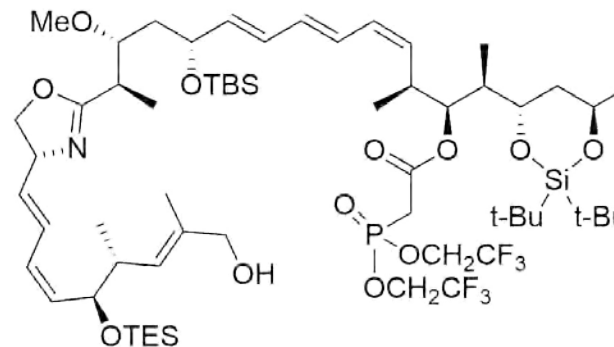
+ **27**

21.2 mol% Pd(PPh₃)₄
2.1 equiv CuTC
5.1 equiv [Ph₂PO₂][NBu₄]
DMF, 0 °C, 2 h
88 %



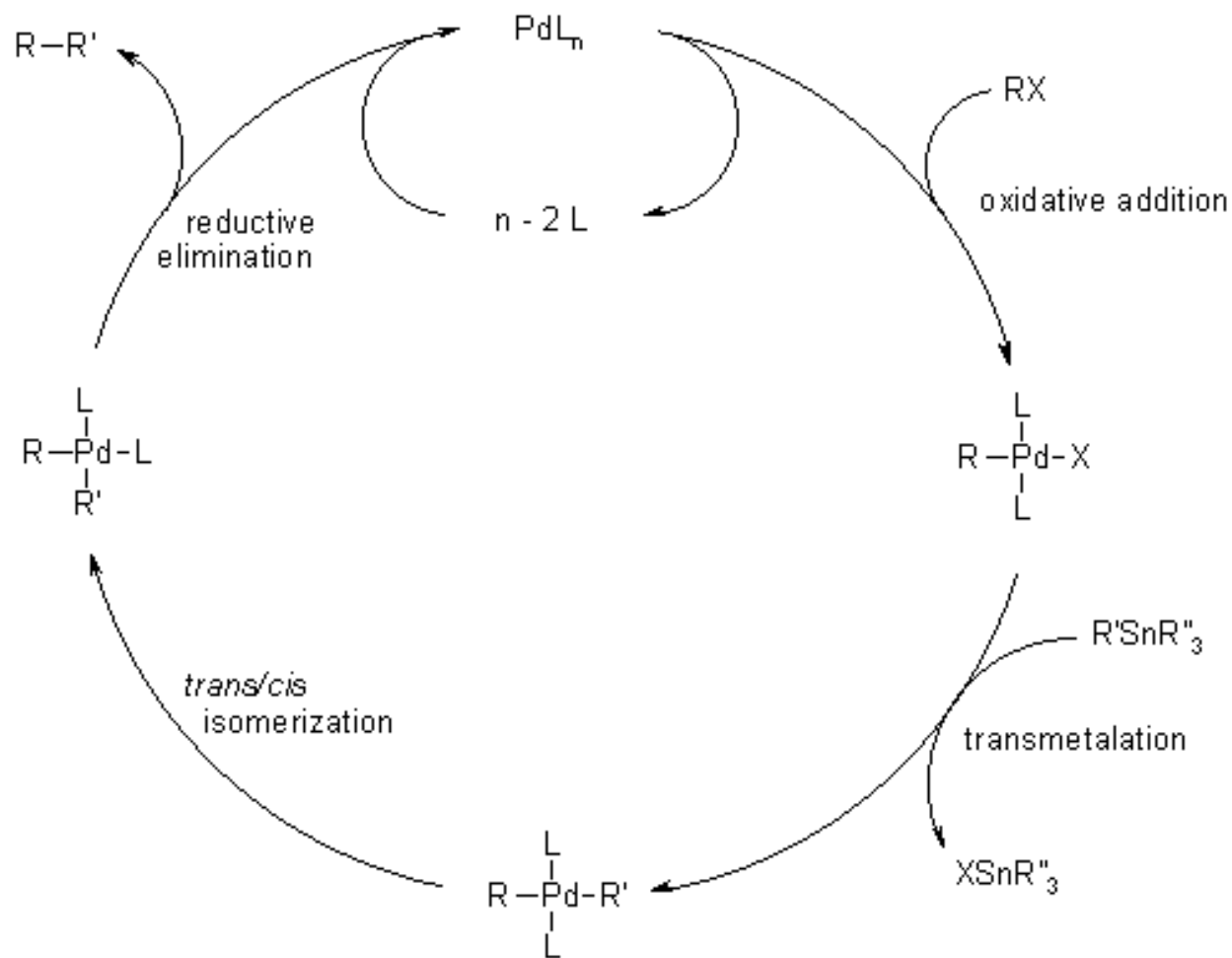
3 + 19 + 20
equiv: 1: 1: 1.6

25 mol% Pd(PPh₃)₄
2 equiv CuTC
2 equiv [Ph₂PO₂][NBu₄]
DMF, 0 °C, 2 h
80 %





Stille Cross Coupling



Stille- Gennari HWE

