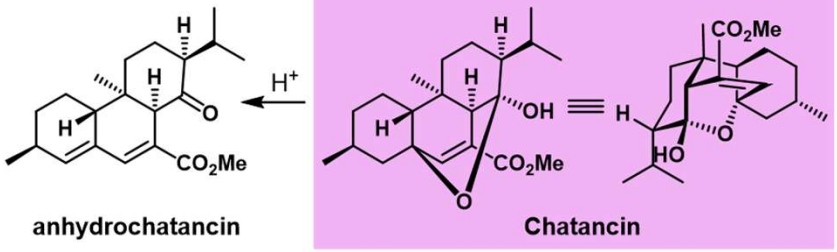
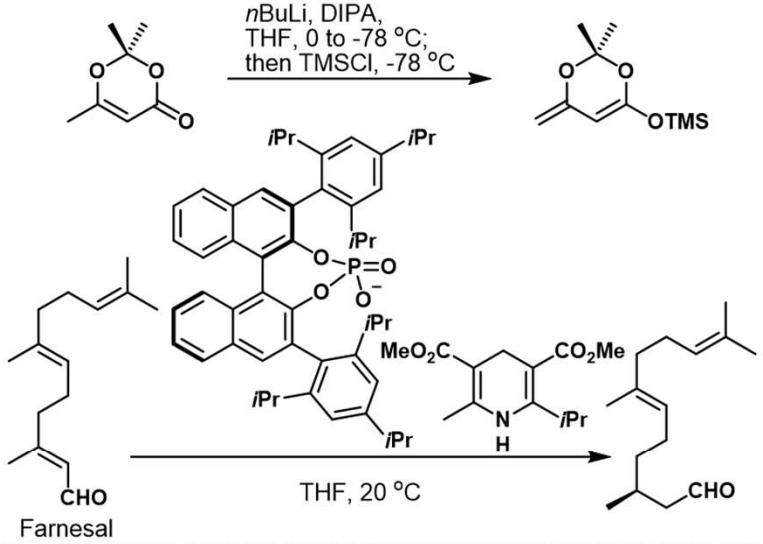
SOTW: *Chatancin*



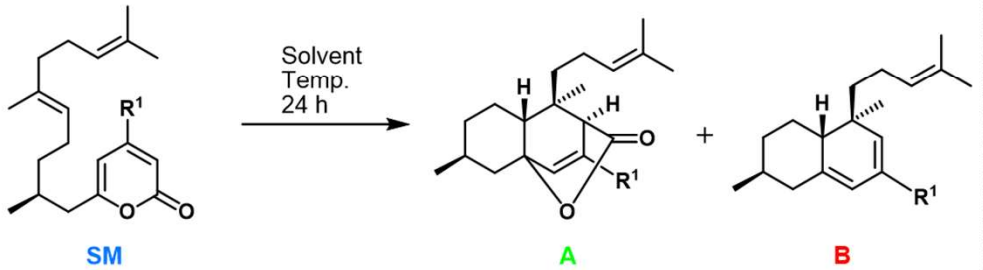
Previous syntheses:
- Grossinger (1998): 33 steps, 0.7% overall yield (racemic)
- Deslongchamps (2003): 23 steps to anhydrochatancin, 1.2% overall yield (enantioselective)
  - utilized a transannular Diels-Alder approach
  - 1.9% yield over 15 steps to TADA precursor

- isolated by Sato and co-worker from *Sarcophyton* species of marine corals off the coast of Okinawa, Japan
- Platelet-activating factor (PAF) is a small-molecule phospholid mediator of numerous biological processes, including platelet aggregation, smooth muscle contraction and hypotension
  - altered levels of PAF have been implicated in numerous diseases, including respiratory and cardiovascular diseases
- inhibits PAF induced platelet aggregation (IC_{50} = 2.2 μM) and PAF receptor binding (IC_{50} = 0.32 μM) without effecting platelet aggregation induced by arachidonic acid, ADP, or collagen
- two *cis*-decalin motifs locked into place with a hemiketal bridge is crucial for biological effects

Synthesis of starting materials:



Maimone's cycloaddition optimization:



R^1	Solvent	Temp. (°C)	Ratio (SM : A : B)
OH	toluene	165	1 : 0 : 0
OTf	toluene	100	1 : 0 : 0.15
CO_2Me	heptane	100	1 : 0.9 : 0.02
CO_2Me	$PhCF_3$	100	1 : 1.4 : 0.07
CO_2Me	MeCN	100	1 : 2.4 : 0.4
CO_2Me	DMF	100	1 : 3.1 : 0.7

References:
T. J. Maimone, *Angew. Chem. Int. Ed.* **2015**, *54*, 1223
P. Deslongchamps, *J. Org. Chem.* **2003**, *68*, 6847
E. M. Carreira, *J. Org. Chem.* **2003**, *68*, 9274
B. List, *Angew. Chem. Int. Ed.* **2006**, *45*, 4193

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