Sarlah Group

SOTW: (+)-daphmanidin E

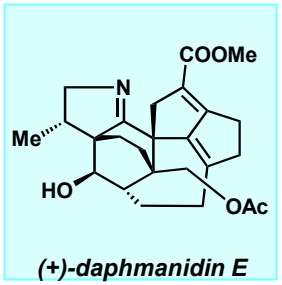
Overview:

- A-type *Daphniphyllum* alkaloid with an "unprecedented fused hexacyclic ring" [1].

- Isolated from *D. teijsmannii* in 2016 by Kobayashi [2].

- Acts as a vasorelaxant for rat aorta [2].

- Carreira's synthesis is the first synthesis of (+)-daphmanidin E [4]



(+)-daphmanidin E

Key References:

Review of *Daphniphyllum* Alkaloids:

[1] *Nat. Prod. Rep.* **2009**, *26*, 936-962.

Isolation and Theorized Biosynthesis:

[2] *J. Nat. Prod.* **2006**, *69*, 418-420.
[3] *PNAS.* **1996**, *93*, 14323-14327.

Synthesis:

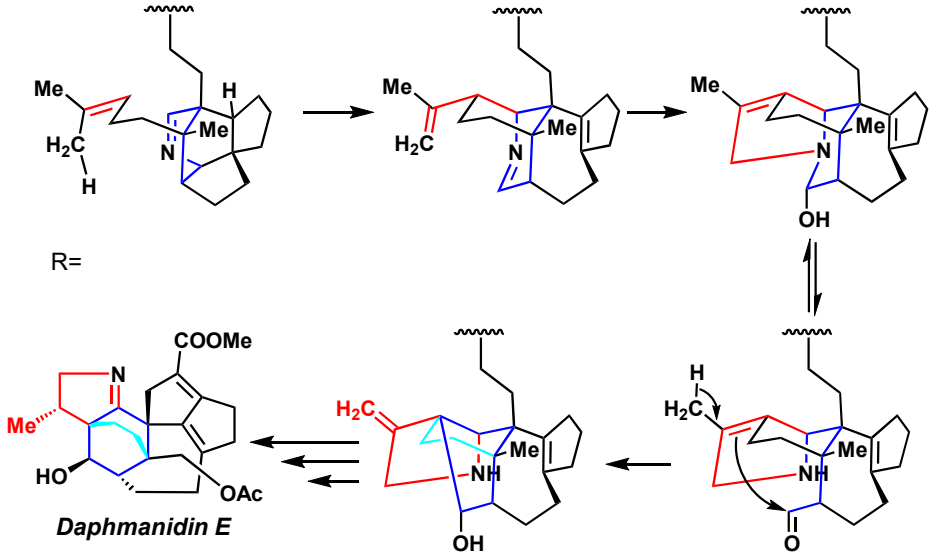
[4] *Angew. Chem. Int. Ed.* **2011**, *50*, 11501-11505.

See also:
"Proto-Daphniphylline," by David G. Dennis

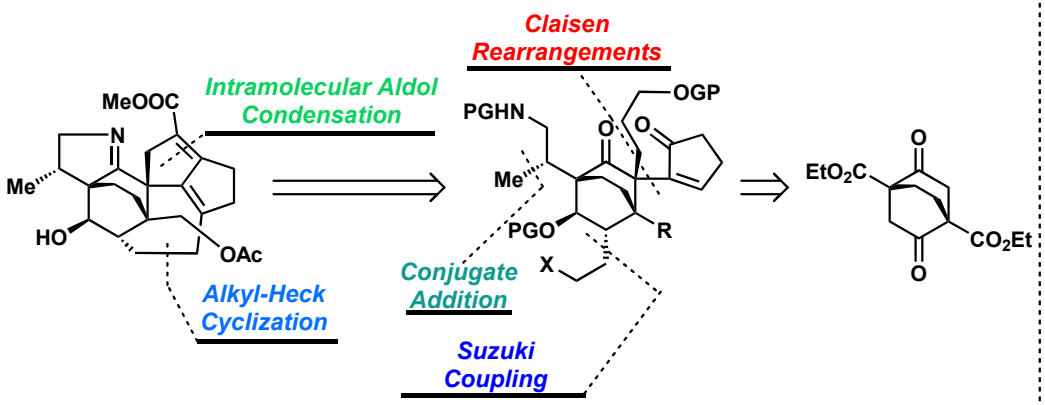
D. teijsmannii

Proposed Biosynthesis:

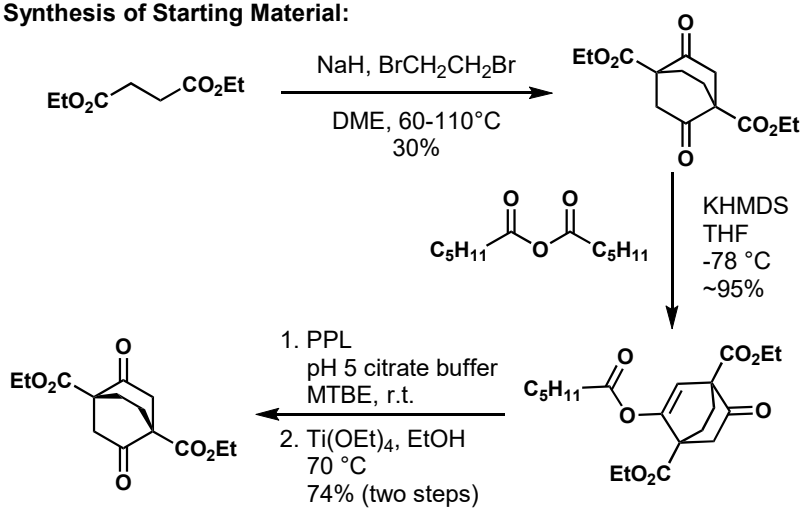
- Kobayashi proposed the following biogensis of (+)-daphmanidin E via a secodaphniphylline-type skeleton, based off work from Heathcock [2], [3].



Strategy:



Synthesis of Starting Material:



Matt Bock, January 04, 2019

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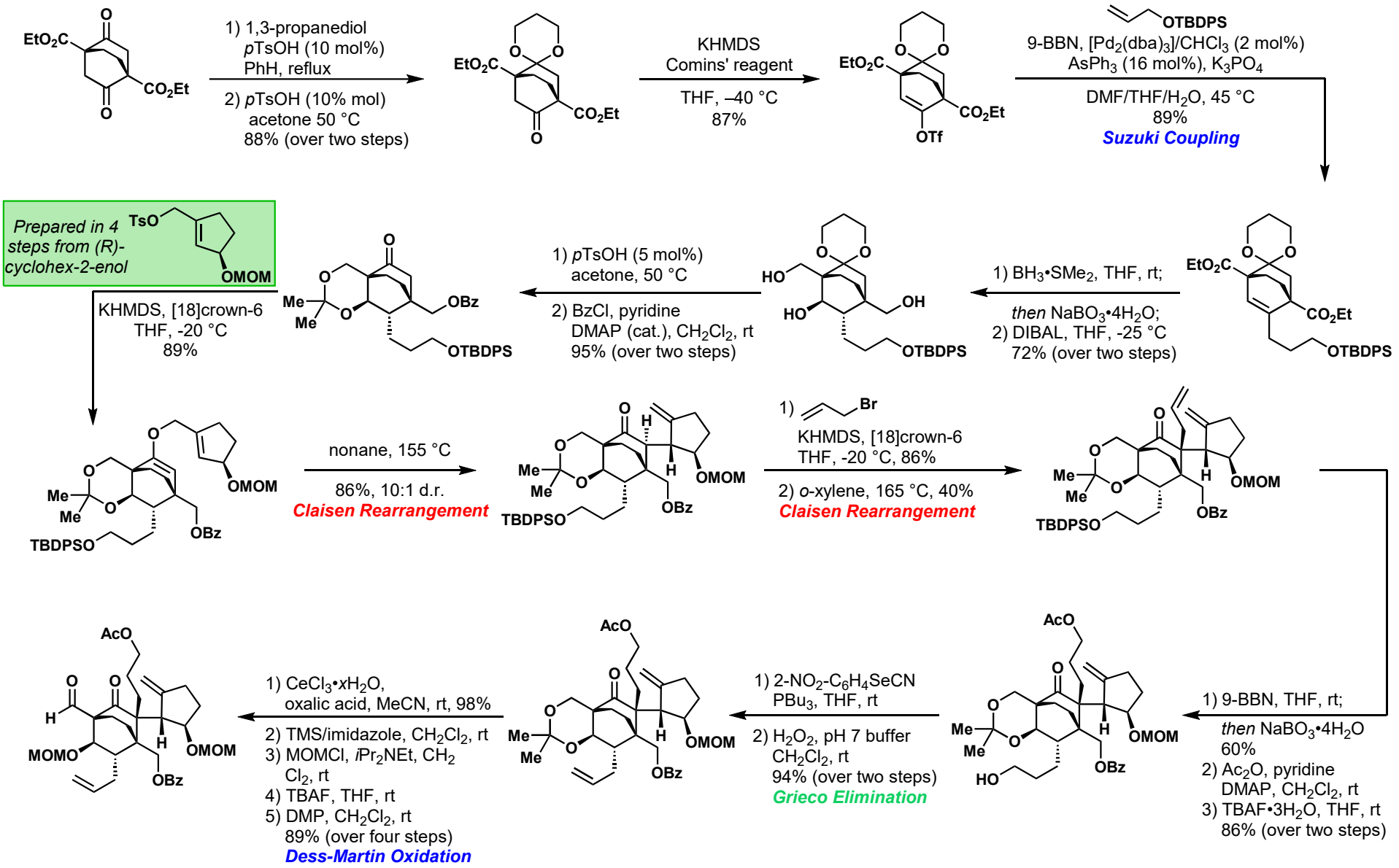

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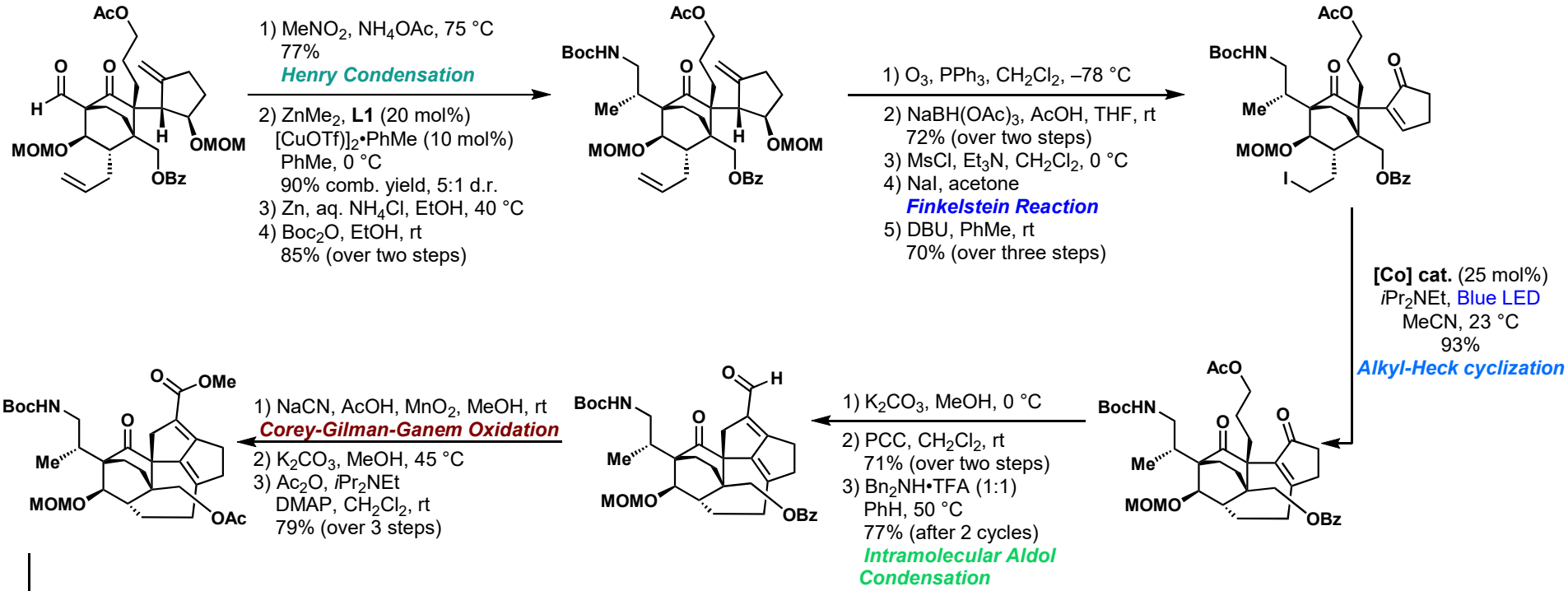

See *Angew. Chem. Int. Ed.* **2011**, *50*, 11125-11128