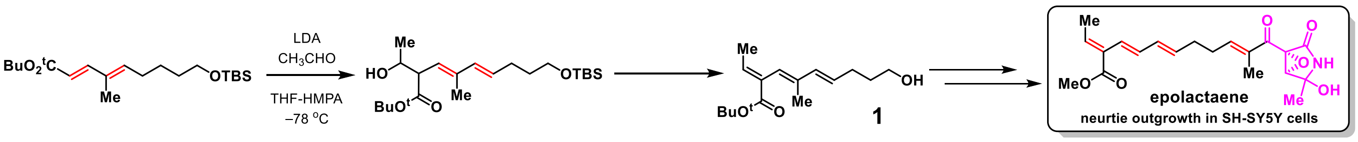
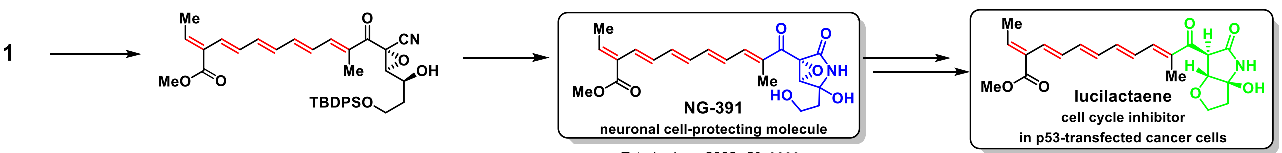
epolactaene, NG-391, lucilactaene

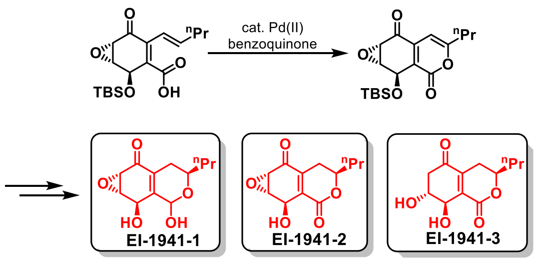


Chem. Lett. **1998**, 313
J. Org. Chem. **2002**, *67*, 9443.



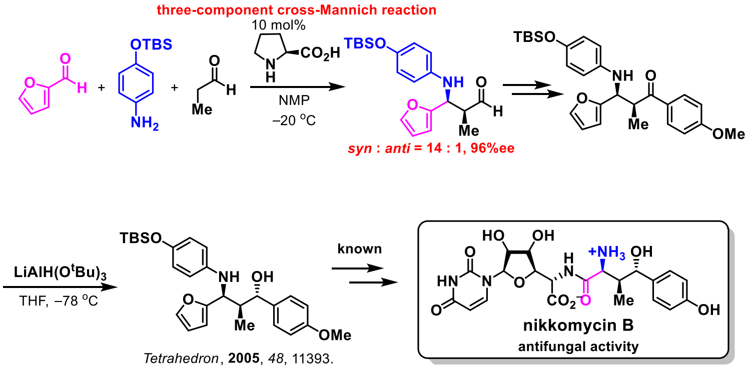
Tetrahedron, **2002**, *58*, 9839.
Angew. Chem. Int. Ed. **2005**, *44*, 3110.

EI-1941-1, EI-1941-2, EI-1941-3



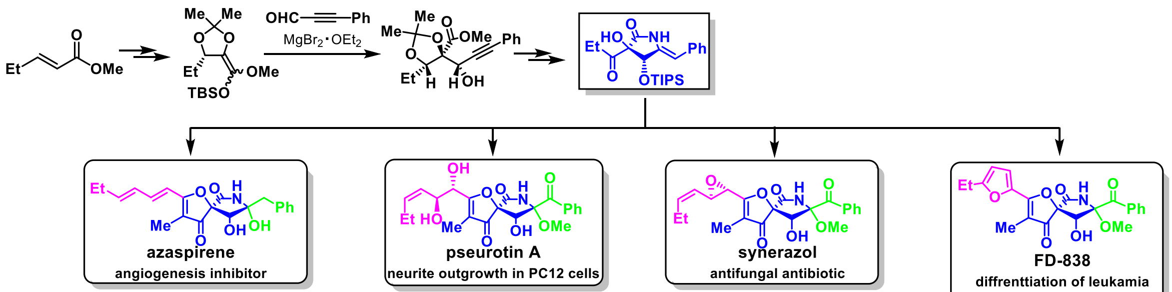
ICE (interleukin 1-β converting enzyme) inhibitor
Org. Lett. **2004**, *6*, 4535.
J. Org. Chem. **2005**, *70*, 9905.

formal total synthesis of nikkomycin B



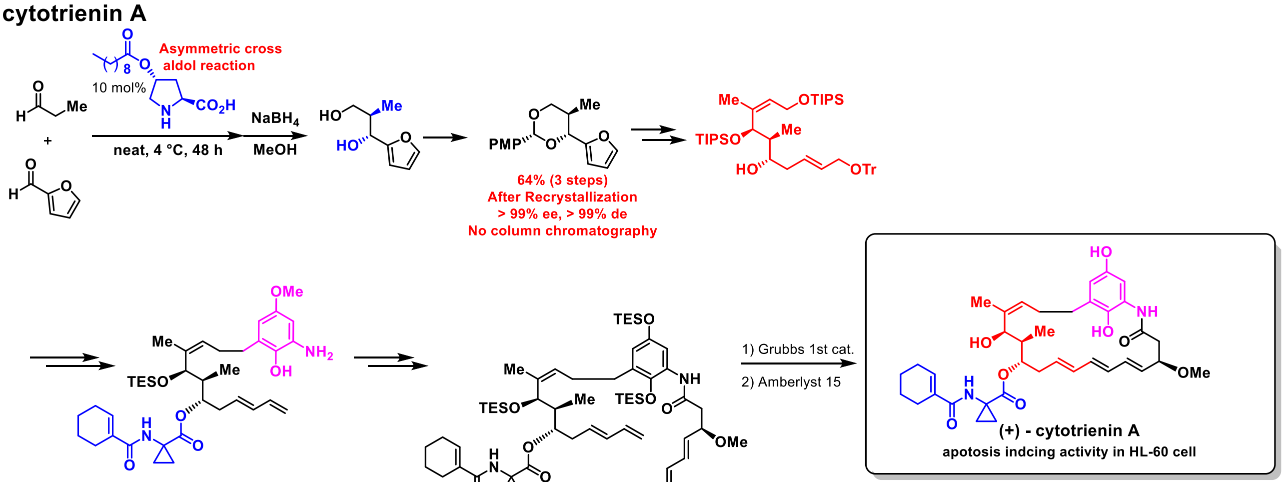
Tetrahedron, **2005**, *48*, 11393.

azaspirene, pseurotin A, synerazol, FD-838



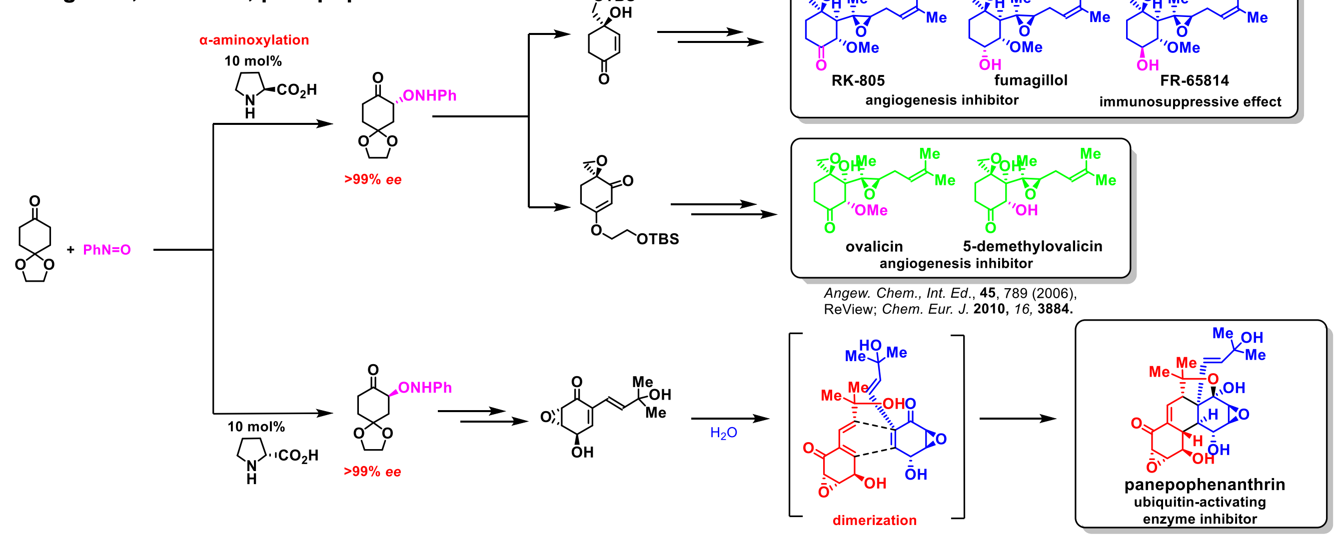
J. Am. Chem. Soc. **2002**, *124*, 12078.
Org. Lett. **2003**, 5, 2287.
J. Org. Chem. **2005**, *70*, 5643.
Bioorg. Med. Chem. Lett. **2009**, *19*, 3863.

(+) - cytotrienin A



Angew. Chem. Int. Ed. **2008**, *47*, 6657.

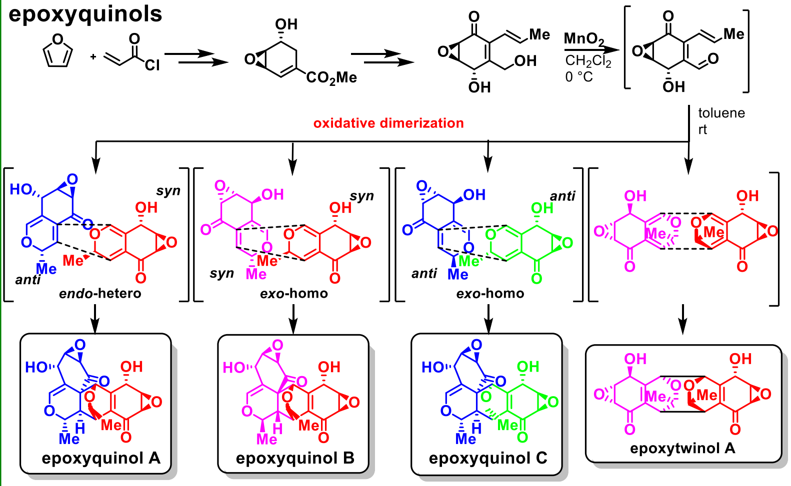
fumagillins, ovalicins, panepophenanthrin



Angew. Chem., Int. Ed., **45**, 789 (2006),
ReView; *Chem. Eur. J.* **2010**, *16*, **3884.**

Chem. Asian J., **1**, 845 (2006).

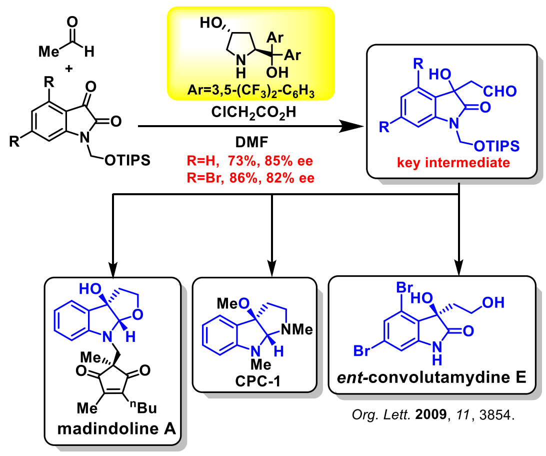
epoxyquinols



angiogenesis inhibitor

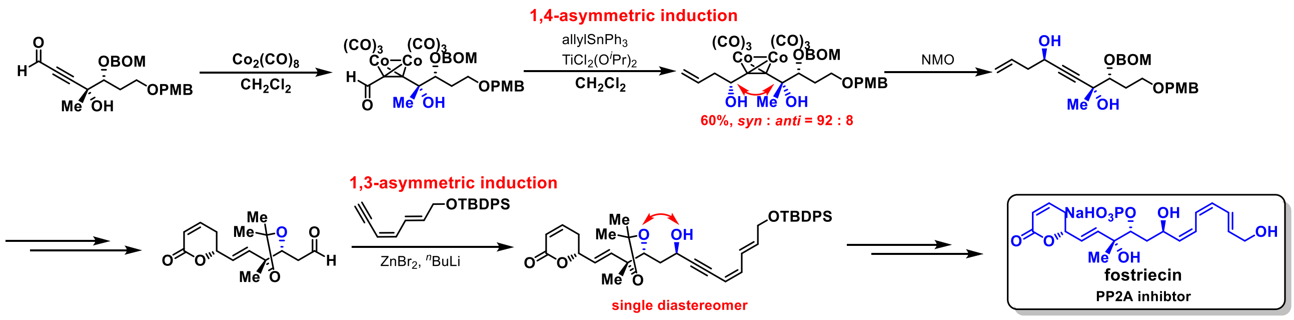
Angew. Chem., Int. Ed., **41**, 3192 (2002); *Tetrahedron Lett.*, **43**, 9155 (2002); *Tetrahedron Lett.*, **44**, 7205 (2003);*J. Org. Chem.*, **69**, 1548 (2004); *J. Org. Chem.*, **70**, 79 (2005) ; *Org. Lett.*, **8**, 1041 (2006). Review*; Eur. J. Org. Chem.*, **23**, 3783 (2007).

CPC-1, *ent*-convolutamydine E, and half segment of madindoline A



Org. Lett. **2009**, *11*, 3854.

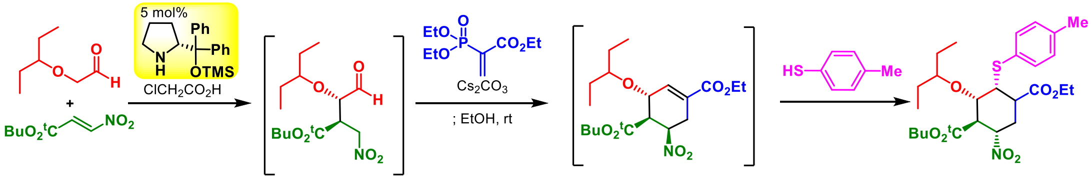
formal total synthesis of fostriecin



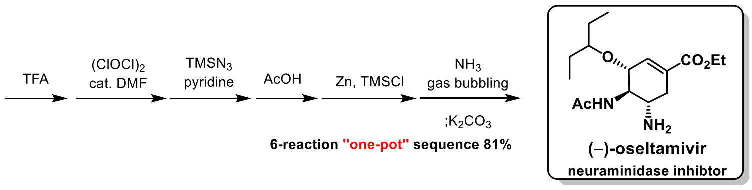
Org. Lett. **2008**, *10*, 1405.
Chem. Eur. J. **2010**, *16*, 10150.

(–)- oseltamivir (Tamiflu®)

1st and 2nd generation



5-reaction "one-pot" sequence : 74%

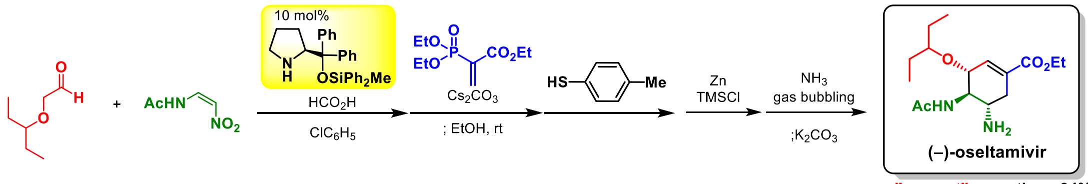


6-reaction "one-pot" sequence 81%

Total yield : 60%

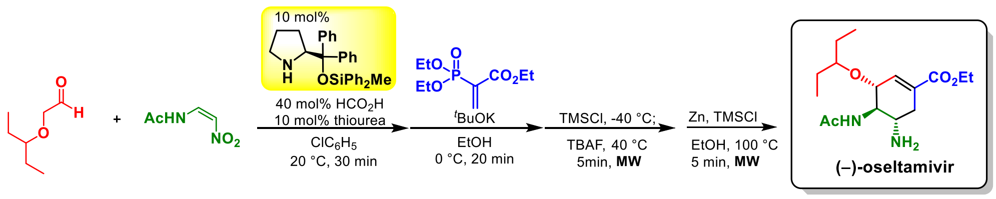
Angew. Chem. Int. Ed. **2009**, *48*, 1304.
Chem. Eur. J. **2010**, *16*, 12616.
Eur. J. Org. Chem. **2011**, 6020.

3rd generation



"one-pot" operation : 34%
Chem. Eur. J. **2013**, *19*, 17789.

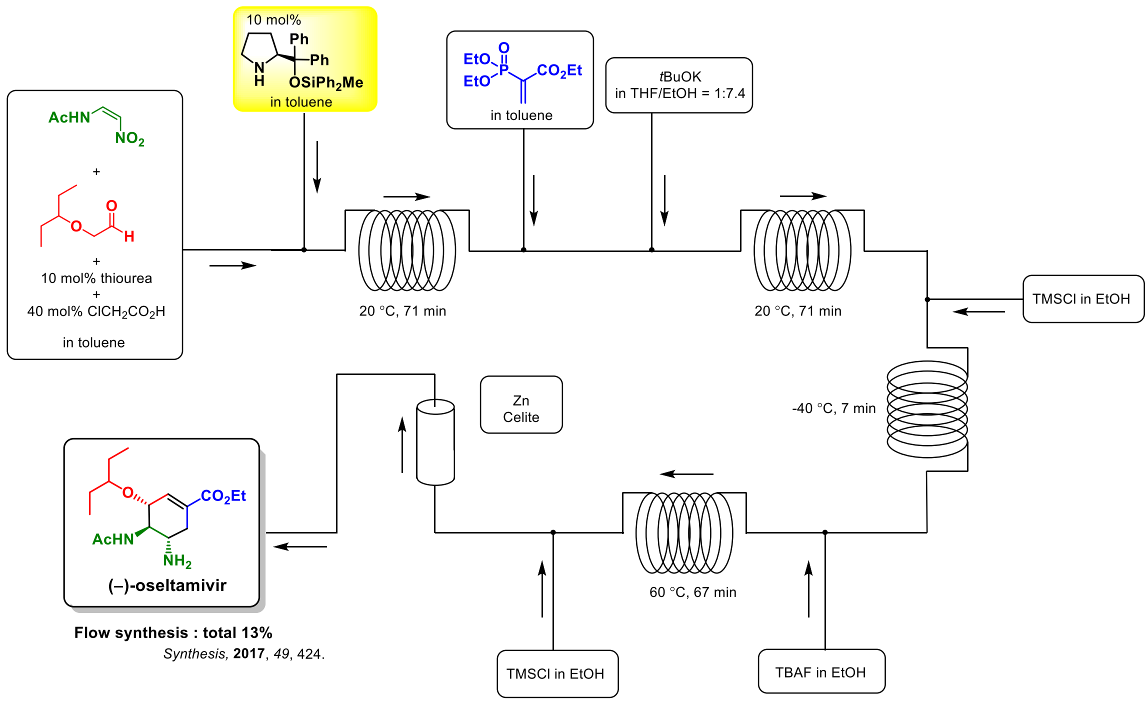
4th generation : Time economical synthesis



Total time 60 min

"one-pot" operation : 15%
Org. Lett. **2016**, *18*, 3426.

5th generation : Flow synthesis

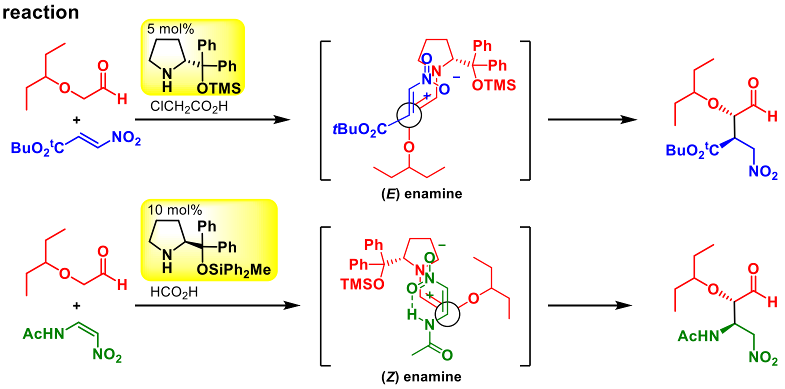


Flow synthesis : total 13%
Synthesis, **2017**, *49*, 424.

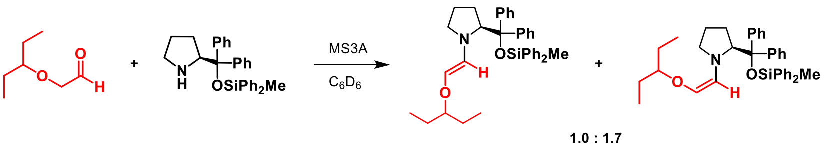
Computational study on *E/Z*-alkoxyenamines

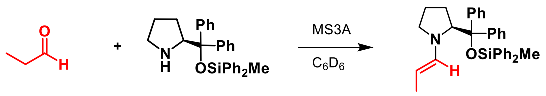
Bull. Chem. Soc. Jpn. **2016**, *89*, 455.

Stereoselectivity in Michael reaction



experimental study on generation of *E*- and *Z*- alkoxyenamine





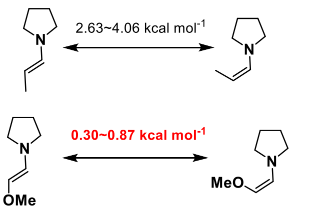
A mechanistic study identified the origin of streoselectivity in the Michael reaction.

It revealed that *E*-enamine selectively reacts with trans-nitroalkene while *Z*-enamine reacts with cis-nitroalkene.

In this case, an equilibrium exists between *E*- and *Z*- alkoxyenamine under acidic condition.

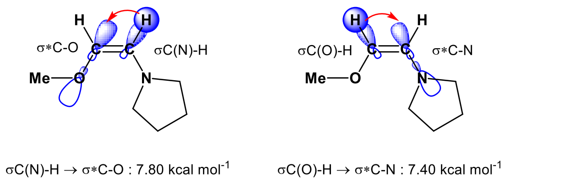
DFT calculation with NBO analysis

Calculated enthalpy differences between the E- and Z- isomers



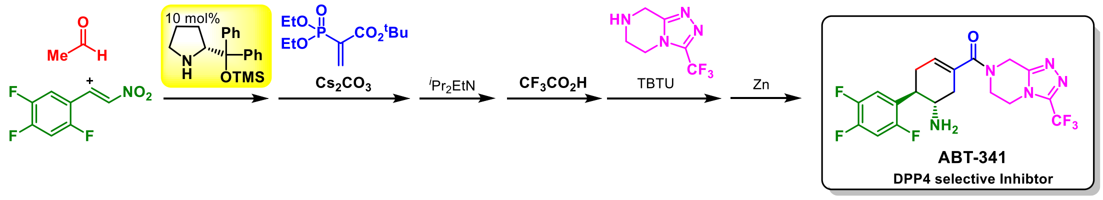
Total electronic energy difference between *E*- and *Z*- isomers was calculated to be relatively small.

The orbital interactions in (Z)-alkoxyamine : antiperiplanar stabilization



The antiperiplannar interactions are likely to be most contributing for stabilizing the Z-alkoxyenamine.

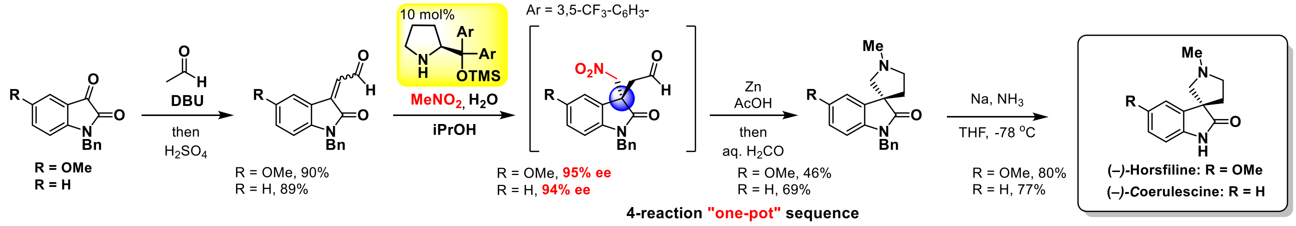
ABT-341



6-reaction "one-pot" sequence : 61%

Angew. Chem. Int. Ed. **2011**, *50*. 2824.

(–)-horsfiline and (–)-coerulescine

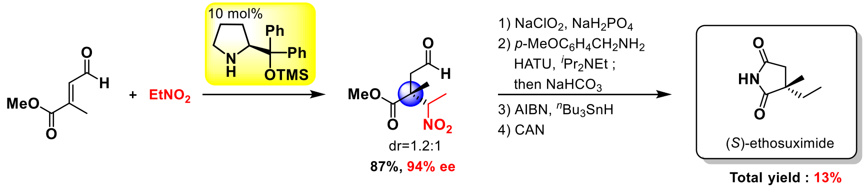


Three "one-pot" operations

Total yield
(–)-Horsfiline : 33%
(–)-Coerulescine : 46%

Chem. Eur. J. **2014**, *20*, 13583.

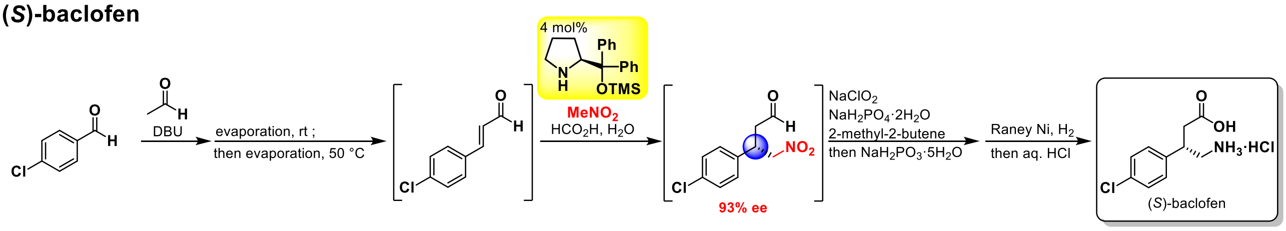
(*S*)-ethosuximide



Total yield : 13%

Chem. Eur. J. **2014**, *20*, 12072.

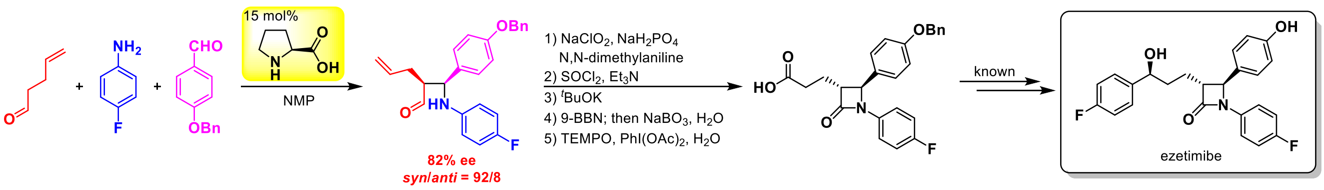
(*S*)-baclofen



4-reaction "one-pot" sequence : 31%

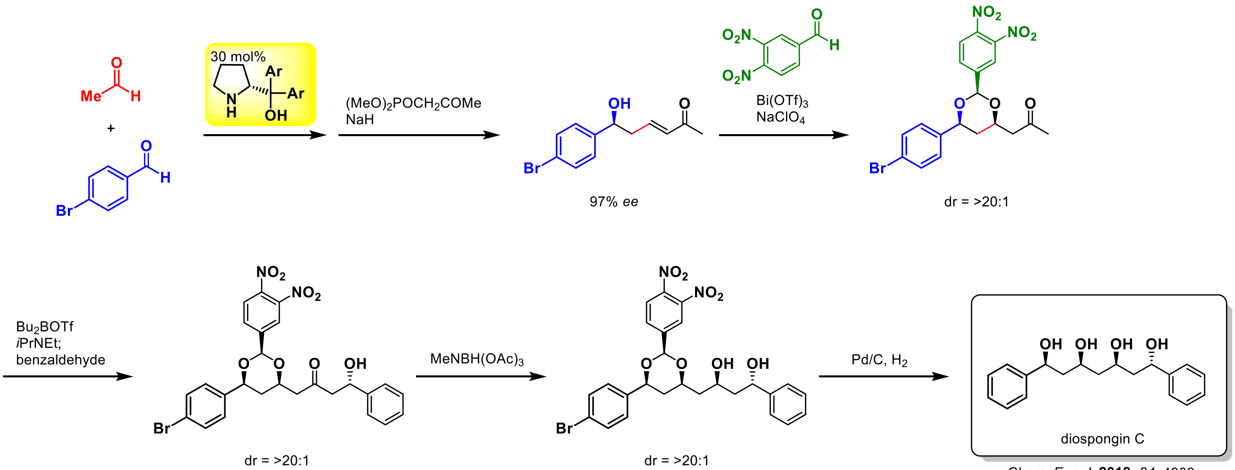
Org. Lett. **2016**, *18*, 4.

formal total synthesis of ezetimibe



Chem. Lett. **2016**, *45*, 32.

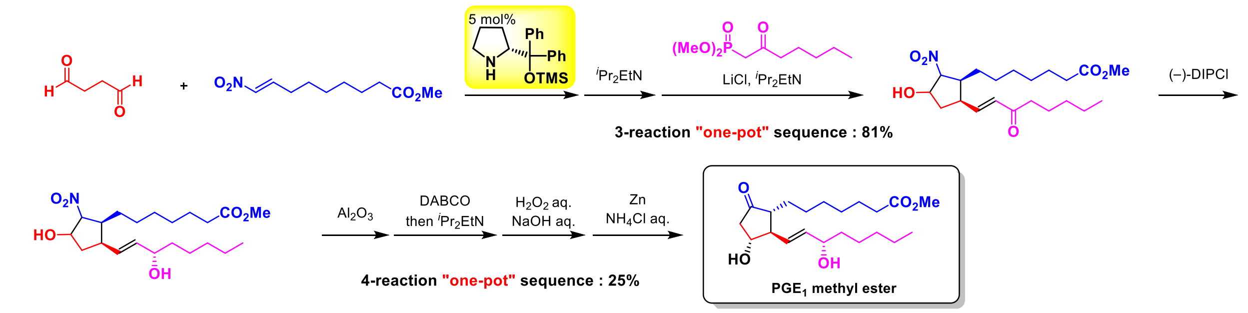
diospongin C



Chem. Eur. J. **2018**, *24*, 4909.

Prostaglandin derivatives

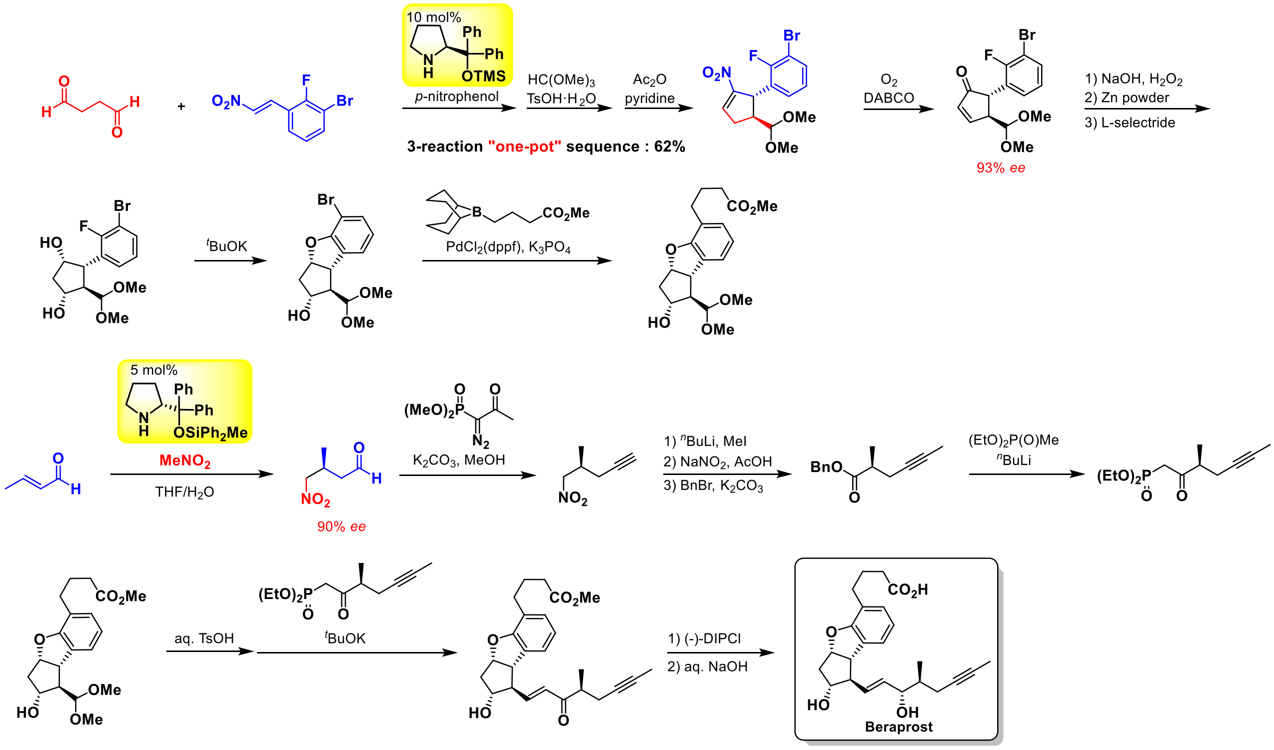
prostaglandin E_1 methyl ester



Total yield : 14%, 3 pot

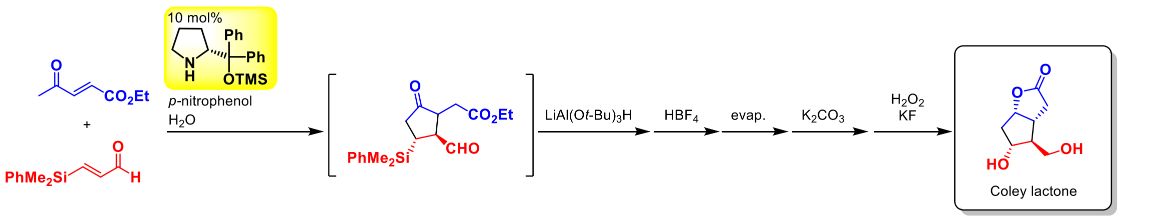
Angew. Chem. Int. Ed. **2013**, *52*. 3450.

beraprost



Org. Lett. **2017**, *19*, 1112.

Corey lactone



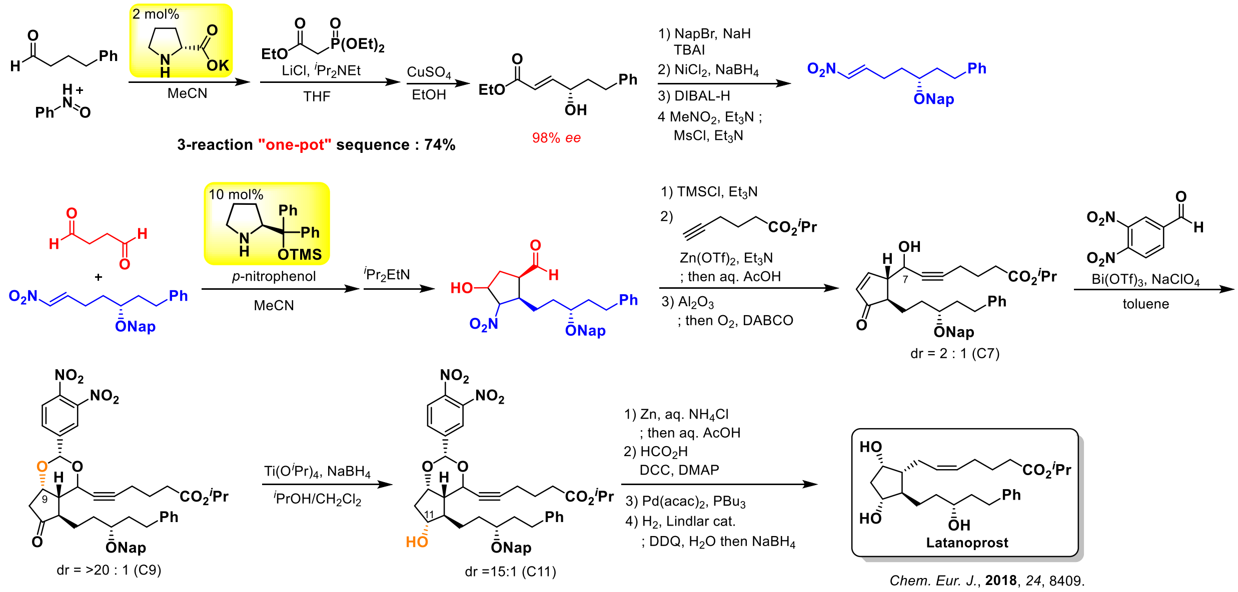
7-reactions "one-pot" sequence
Total yield: 50%
Total reaction time: 152 min
One purification

Chem. Sci., **2020**, *11*, 1205.

Prostaglandin derivatives

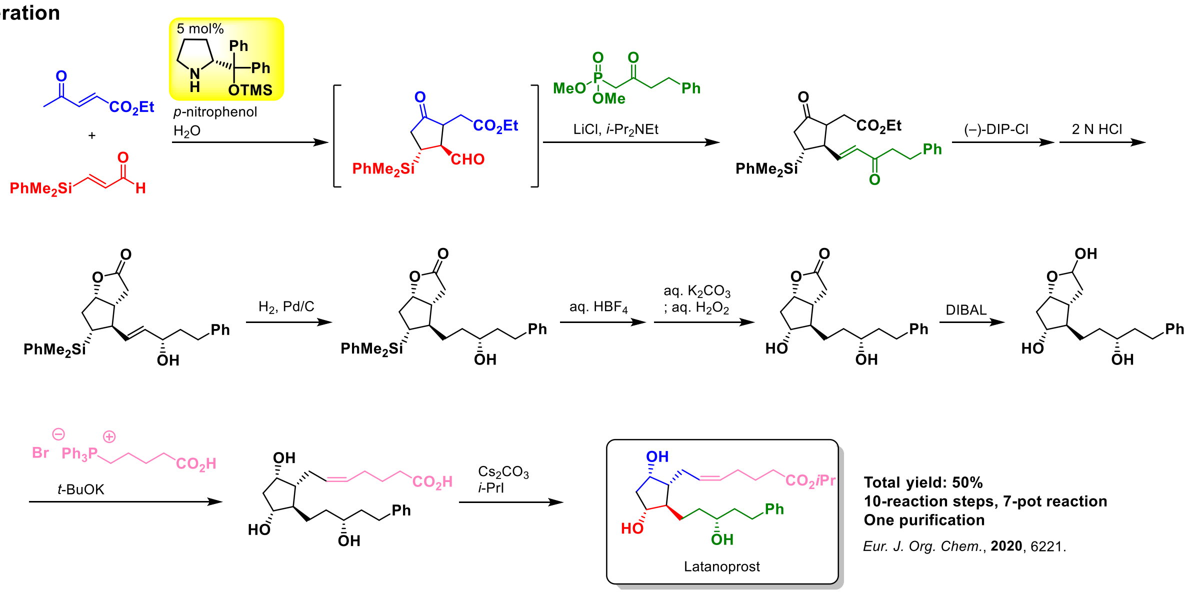
latanoprost

1st generation



Chem. Eur. J., **2018**, *24*, 8409.

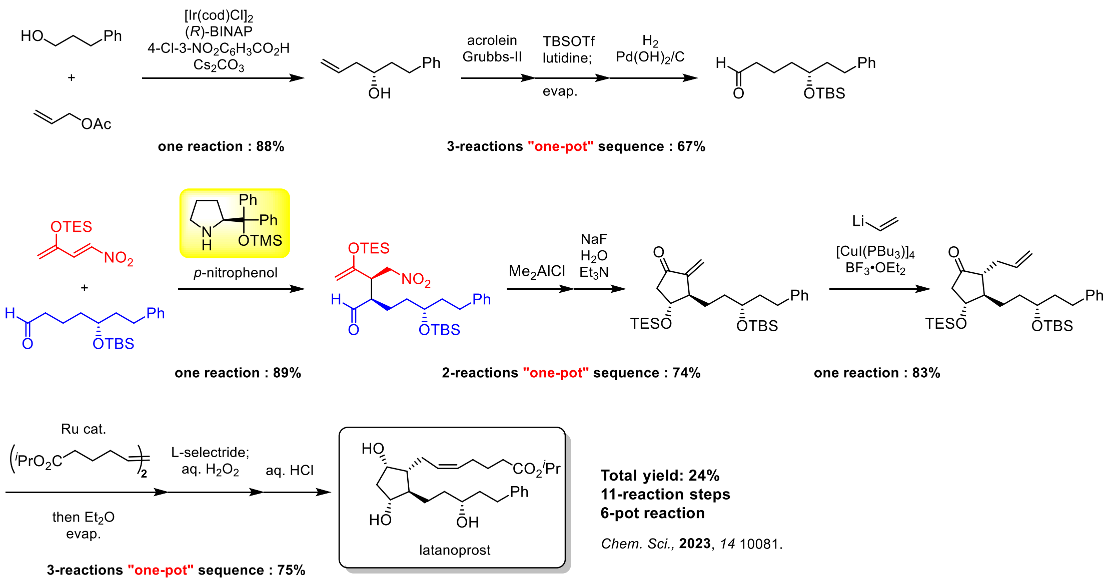
2nd generation



Total yield: 50%
10-reaction steps, 7-pot reaction
One purification

Eur. J. Org. Chem., **2020**, 6221.

3rd generation

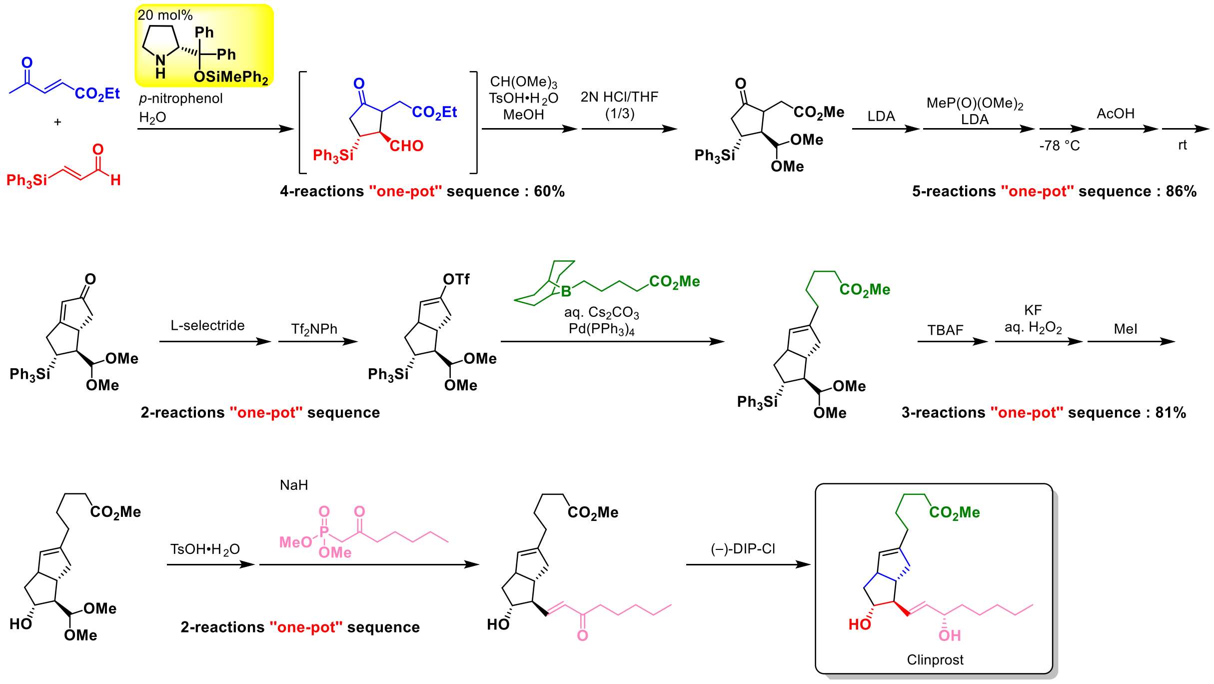


Total yield: 24%
11-reaction steps
6-pot reaction

Chem. Sci., **2023**, *14* 10081.

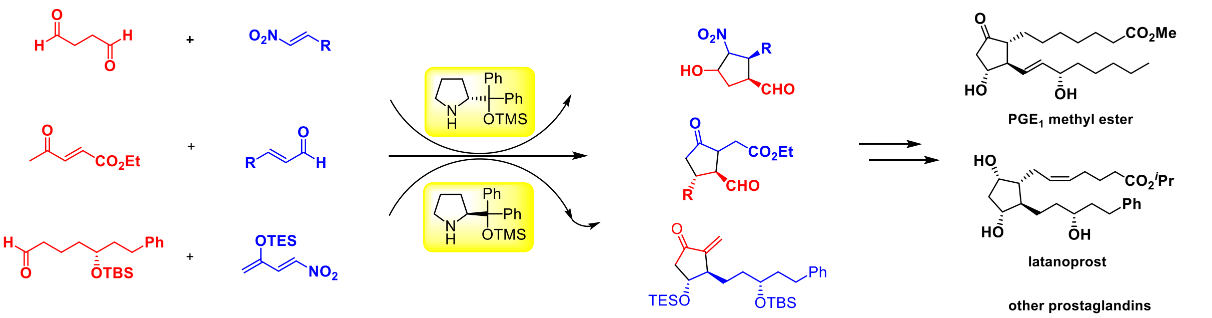
Prostaglandin derivatives

clinprost



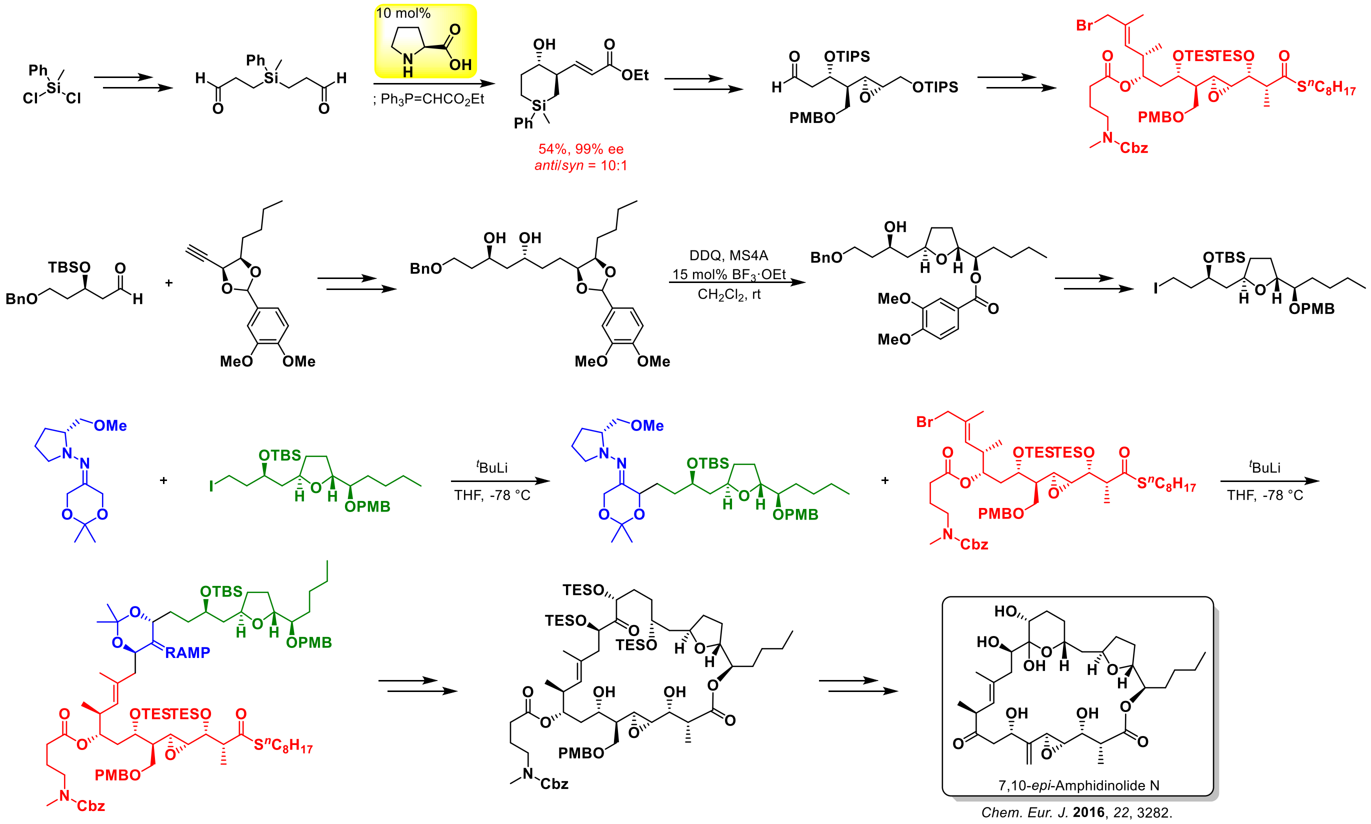
Org. Lett., **2020**, *22*, 9365.

review article



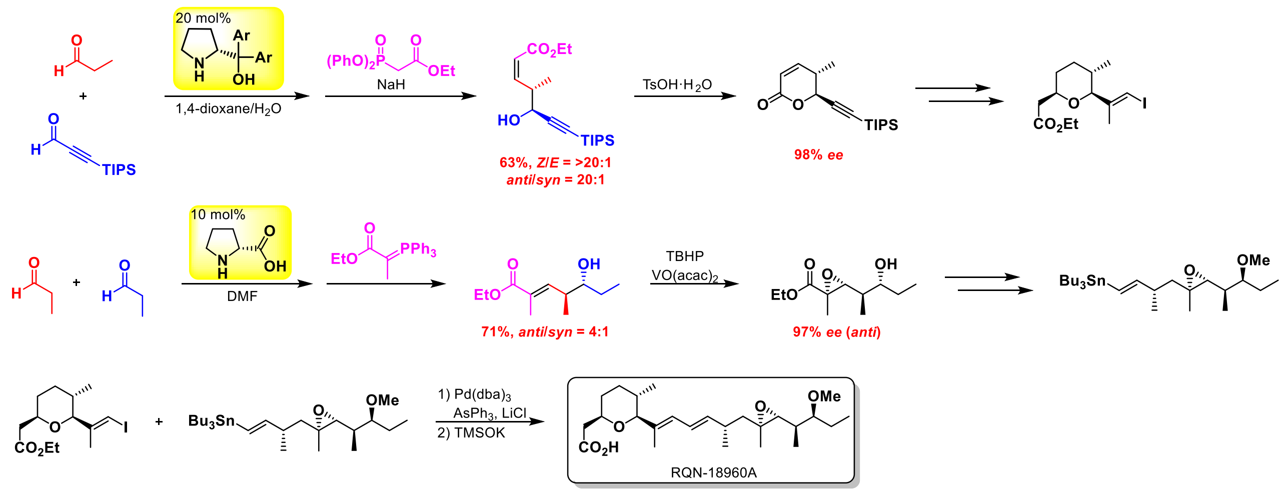
Bull. Chem. Soc. Japan, **2024**, *97*, 4.

7,10-*epi*-amphidinolide N



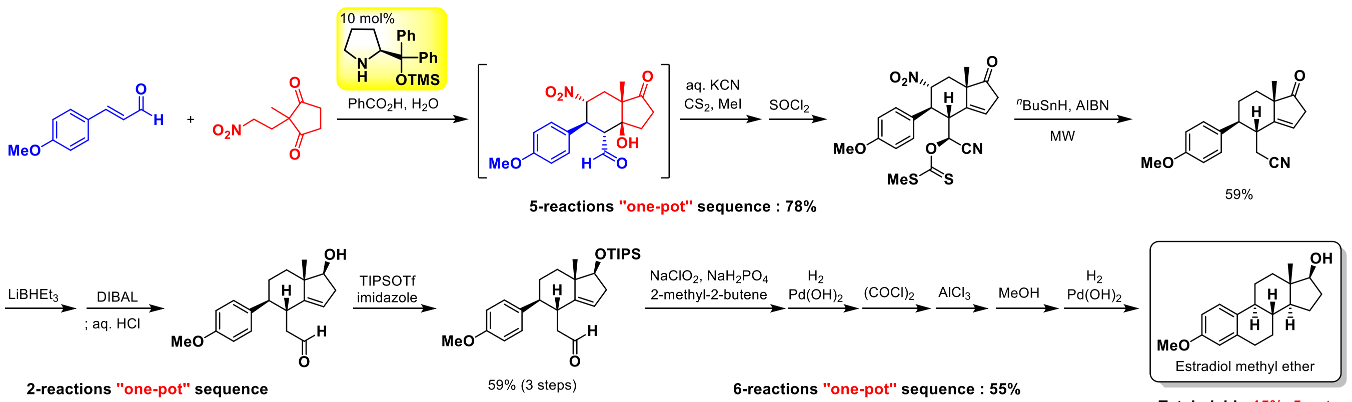
Chem. Eur. J. **2016**, *22*, 3282.
Chem. Eur. J. **2016**, *22*, 3287.

RQN-18690A



Org. Lett. **2016**, *18*, 3382.

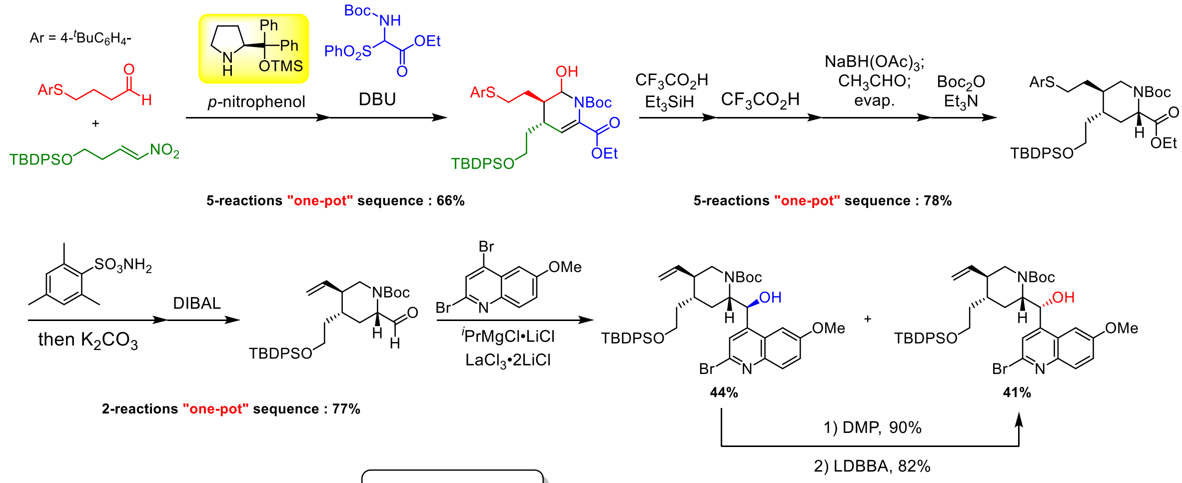
estradiol methyl ether

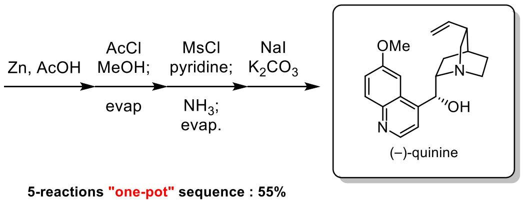


Total yield : 15%, 5 pot

Angew. Chem. Int. Ed. **2017**, *56*, 11812.
Eur. J. Org. Chem. **2018**, *41*, 5629.

(–)-quinine





Total yield: 14%
18-reaction steps
5-pot reaction

Nat. Commun. **2022**, *13*, 7503.
Asian J. Org. Chem. ***2023***, *12*, *e202300256.*