

Hayashi Laboratory

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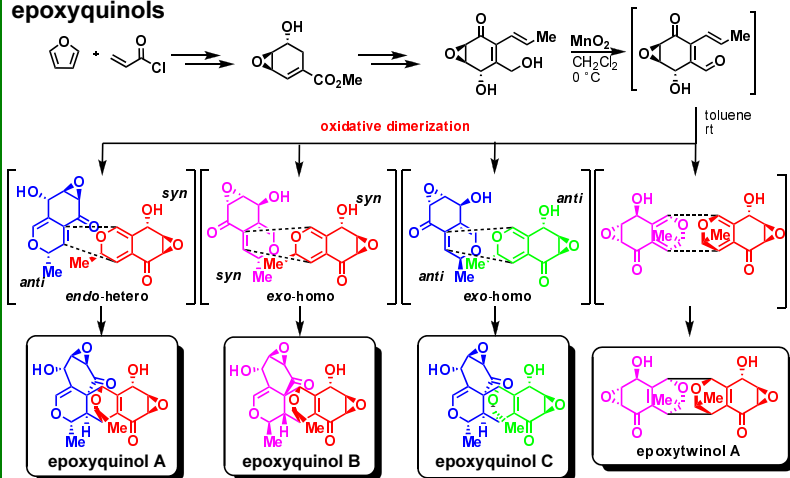
Hayashi Lab. Homepage <http://www.ykbsc.chem.tohoku.ac.jp/>



TOHOKU UNIVERSITY

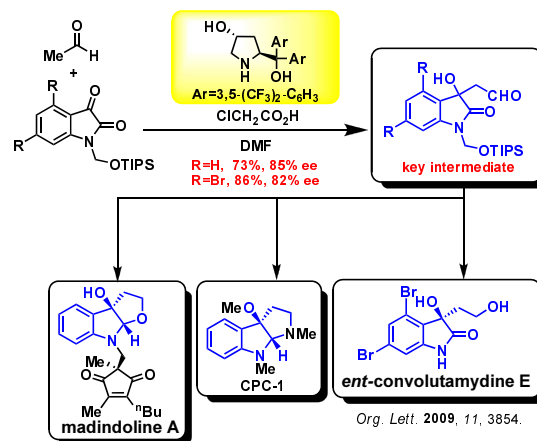
Total Synthesis of Bioactive Compounds

epoxyquinols



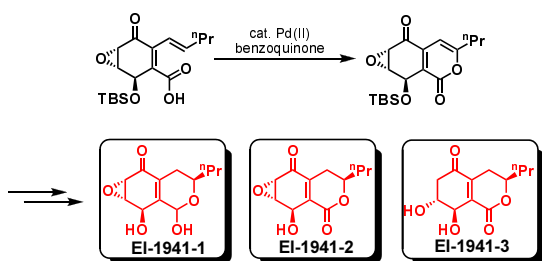
angiogenesis inhibitor
Angew. Chem., Int. Ed., **41**, 3192 (2002); *Tetrahedron Lett.*, **43**, 9155 (2002);
Tetrahedron Lett., **44**, 7205 (2003); *J. Org. Chem.*, **69**, 1548 (2004);
J. Org. Chem., **70**, 79 (2005); *Org. Lett.*, **8**, 1041 (2006).
 Review; *Eur. J. Org. Chem.*, **23**, 3783 (2007).

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



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

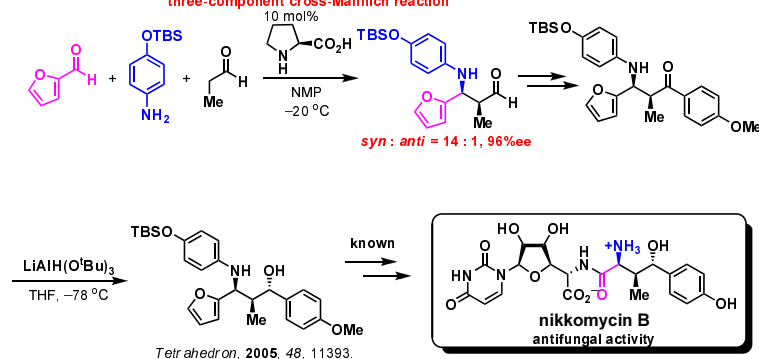
EI-1941-1, EI-1941-2, EI-1941-3



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

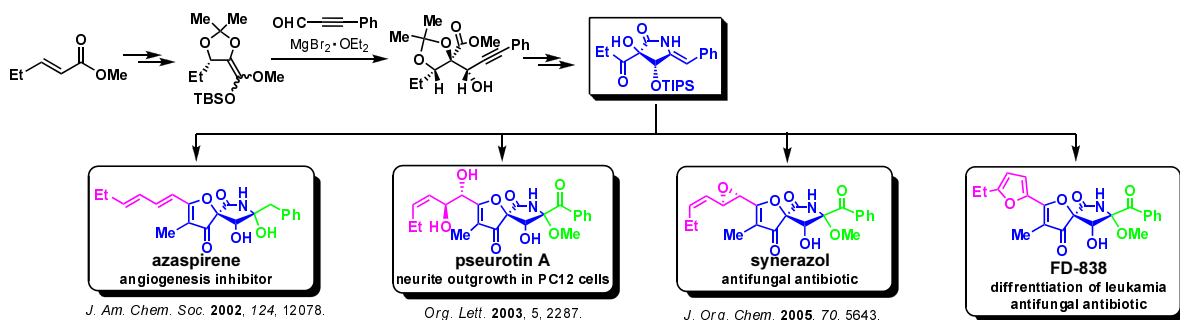
formal total synthesis of nikkomycin B

three-component cross-Mannich reaction



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

azaspirene, pseurotin A, synerazol, FD-838



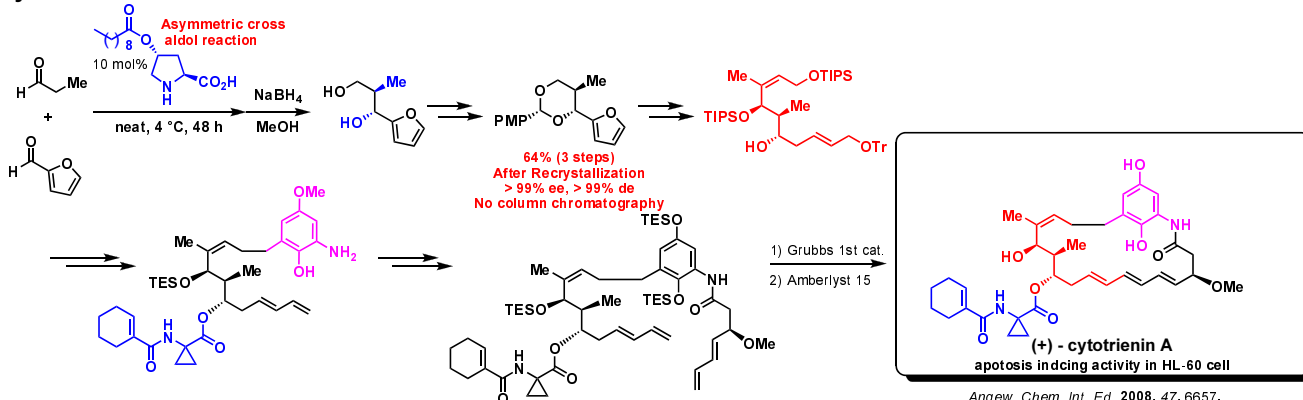
J. Am. Chem. Soc. **2002**, **124**, 12078.

Org. Lett. **2003**, **5**, 2287.

J. Org. Chem. **2005**, **70**, 5643.

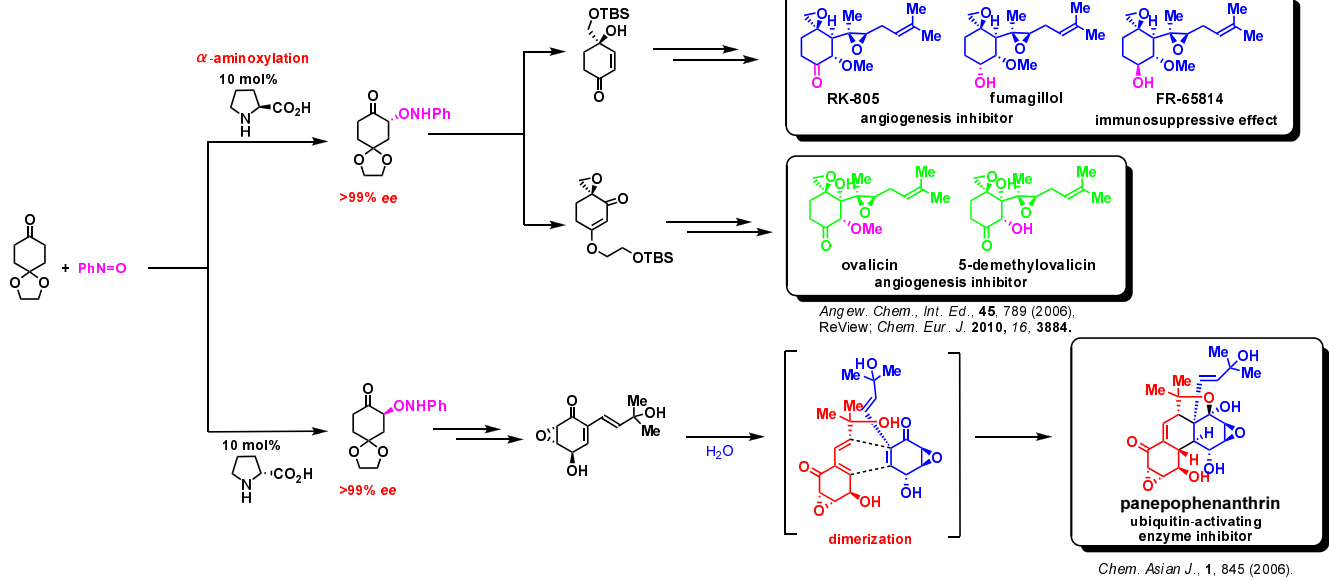
Bioorg. Med. Chem. Lett. **2009**, **19**, 3863.

(+) - cytotrienin A

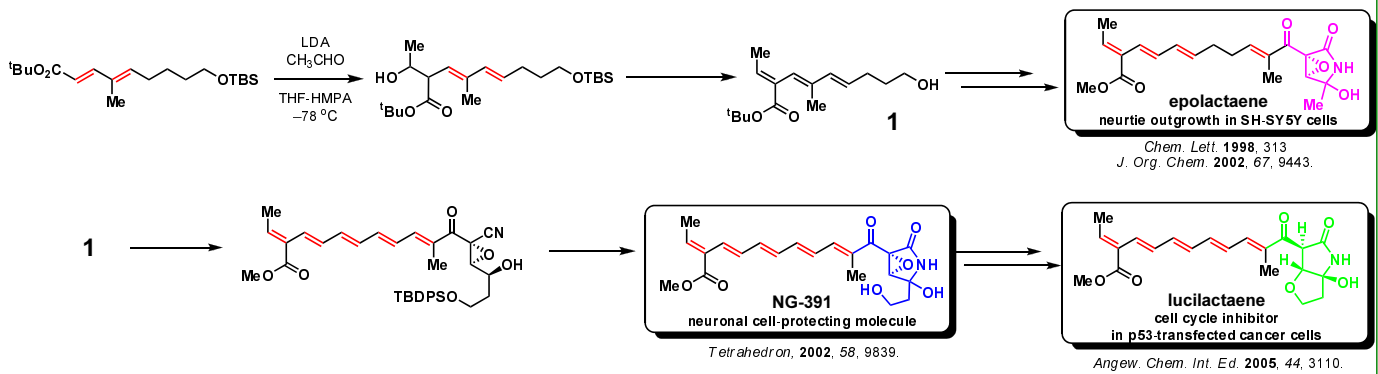


Angew. Chem., Int. Ed. **2008**, **47**, 6657.

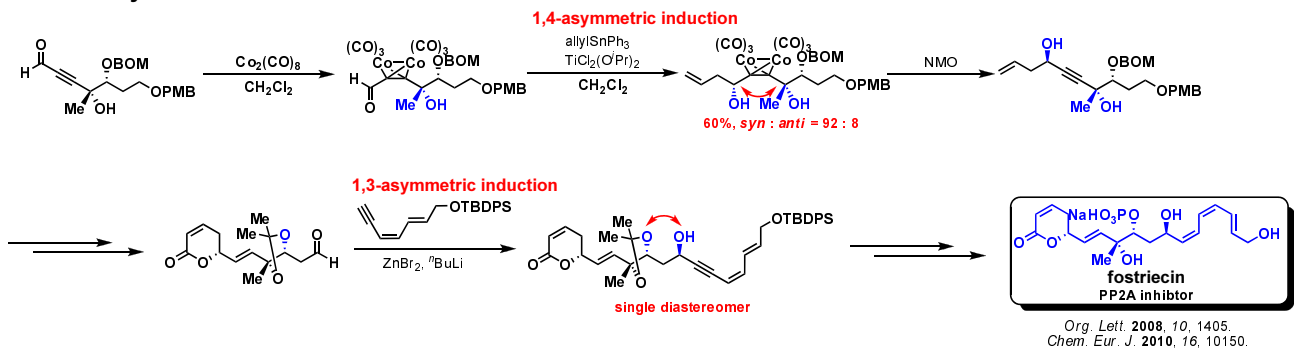
fumagillins, ovalicins, panepophenanthrin



epolactaene, NG-391, lucilactaene

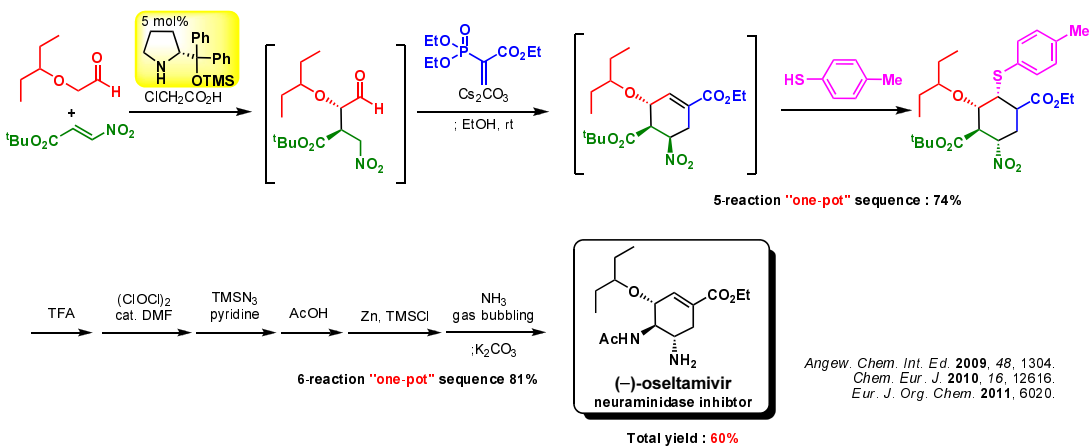


formal total synthesis of fostriecin



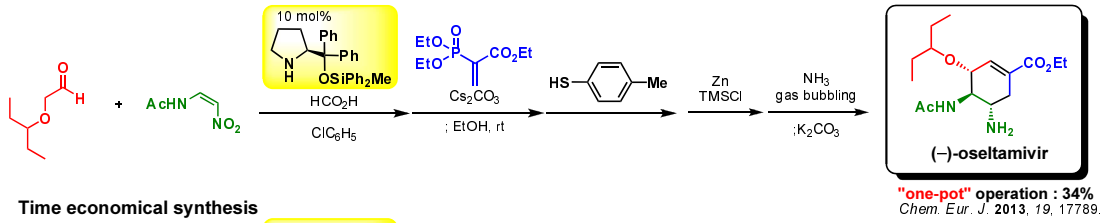
(-)- oseltamivir (Tamiflu®)

1st and 2nd generation

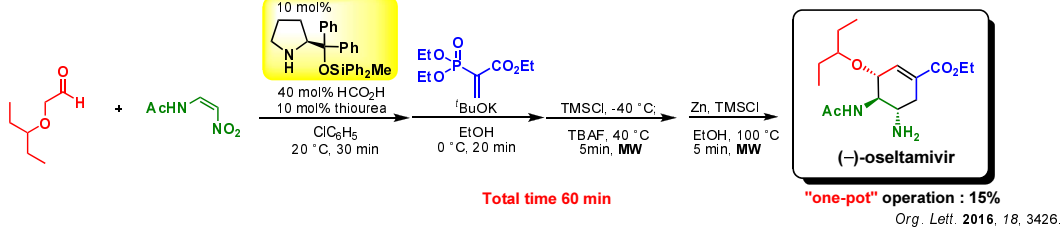


(-)- oseltamivir (Tamiflu®)

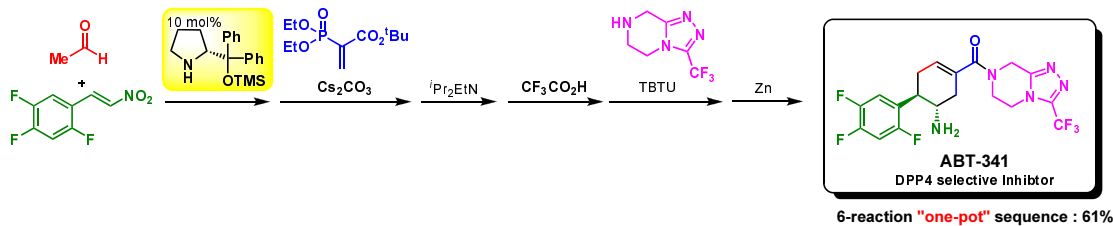
3rd generation



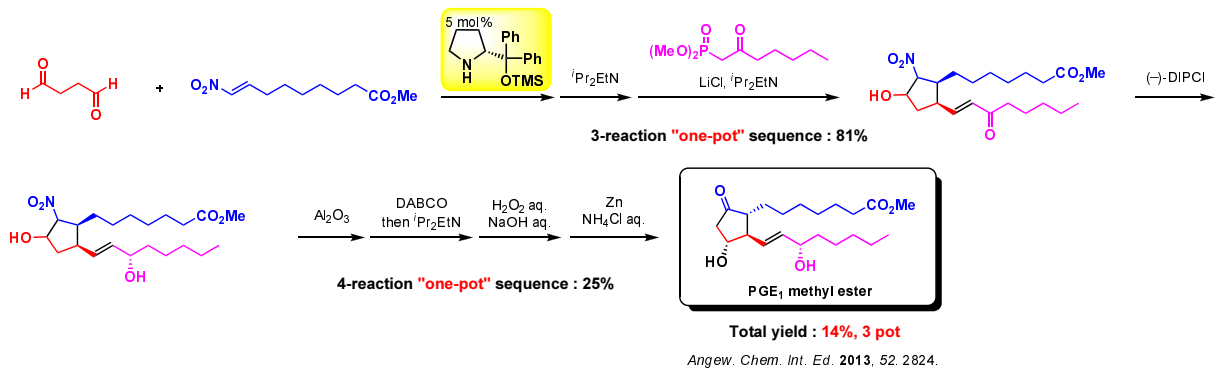
Time economical synthesis



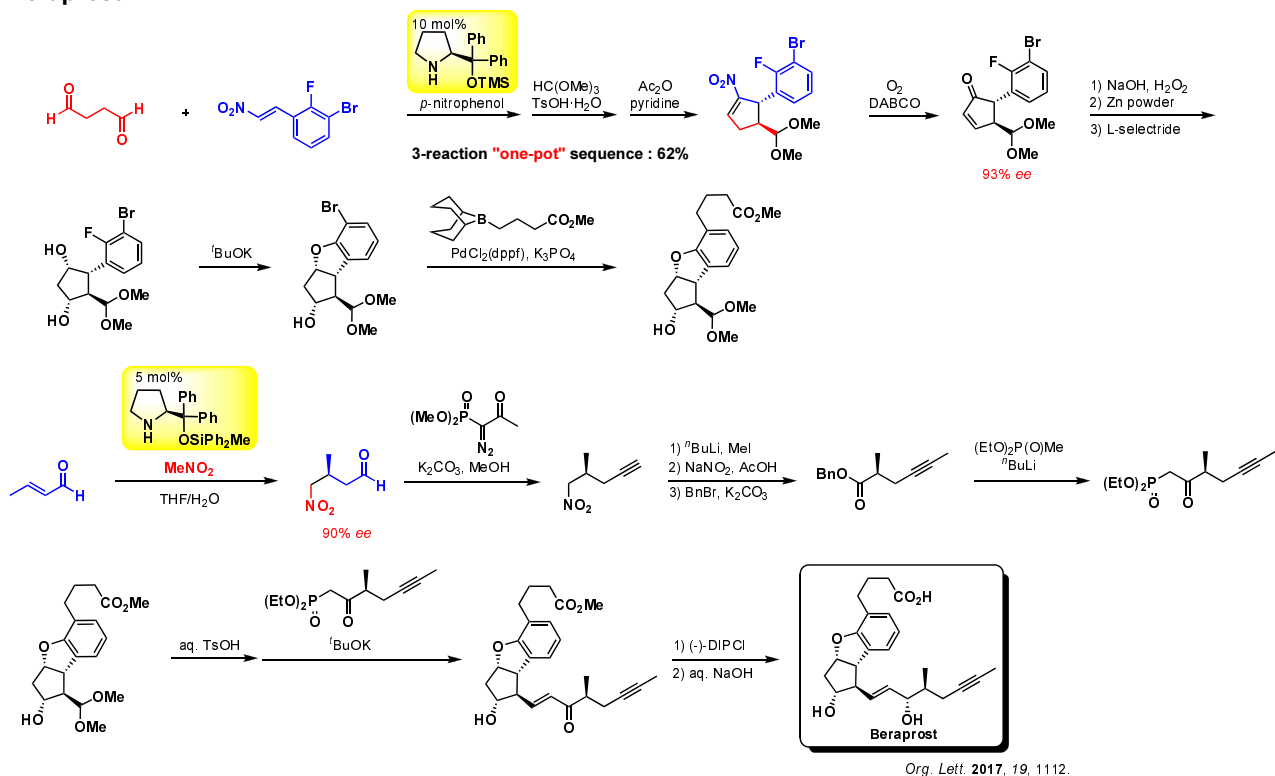
ABT-341



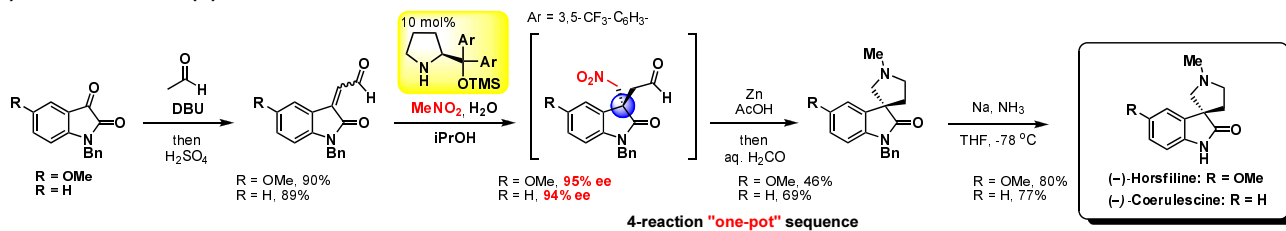
prostaglandin E₁ methyl ester



Beraprost



(-)-horsfiline and (-)-coerulescine

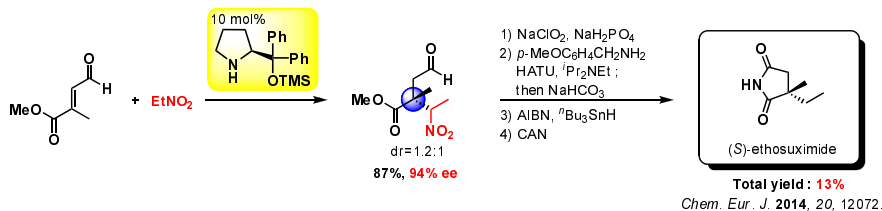


Three "one-pot" operations

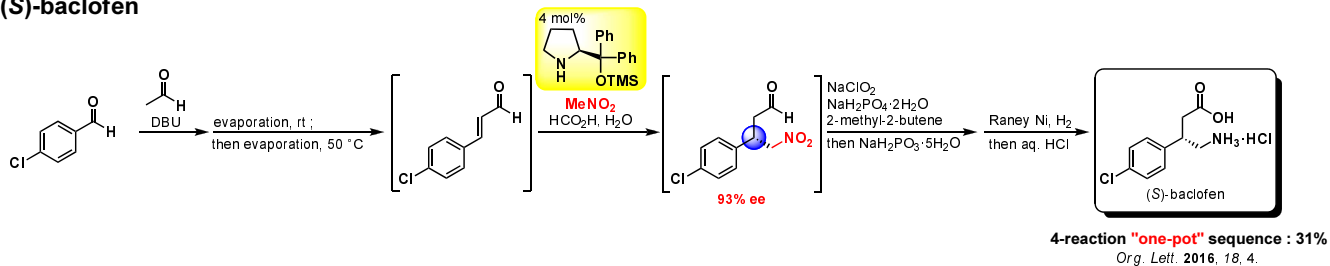
Total yield
(-)-Horsfiline : 33%
(-)-Coerulescine : 46%

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

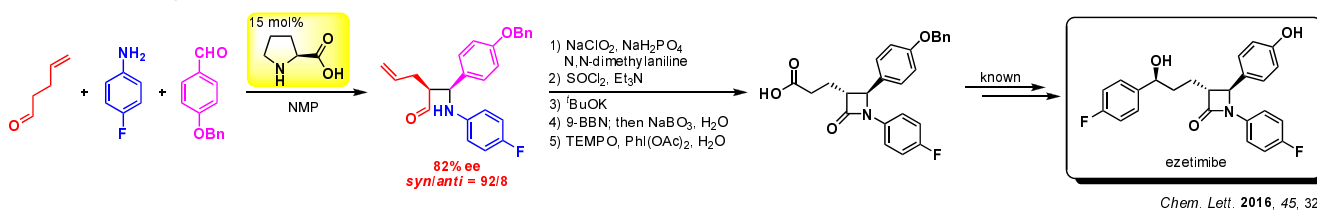
(S)-ethosuximide



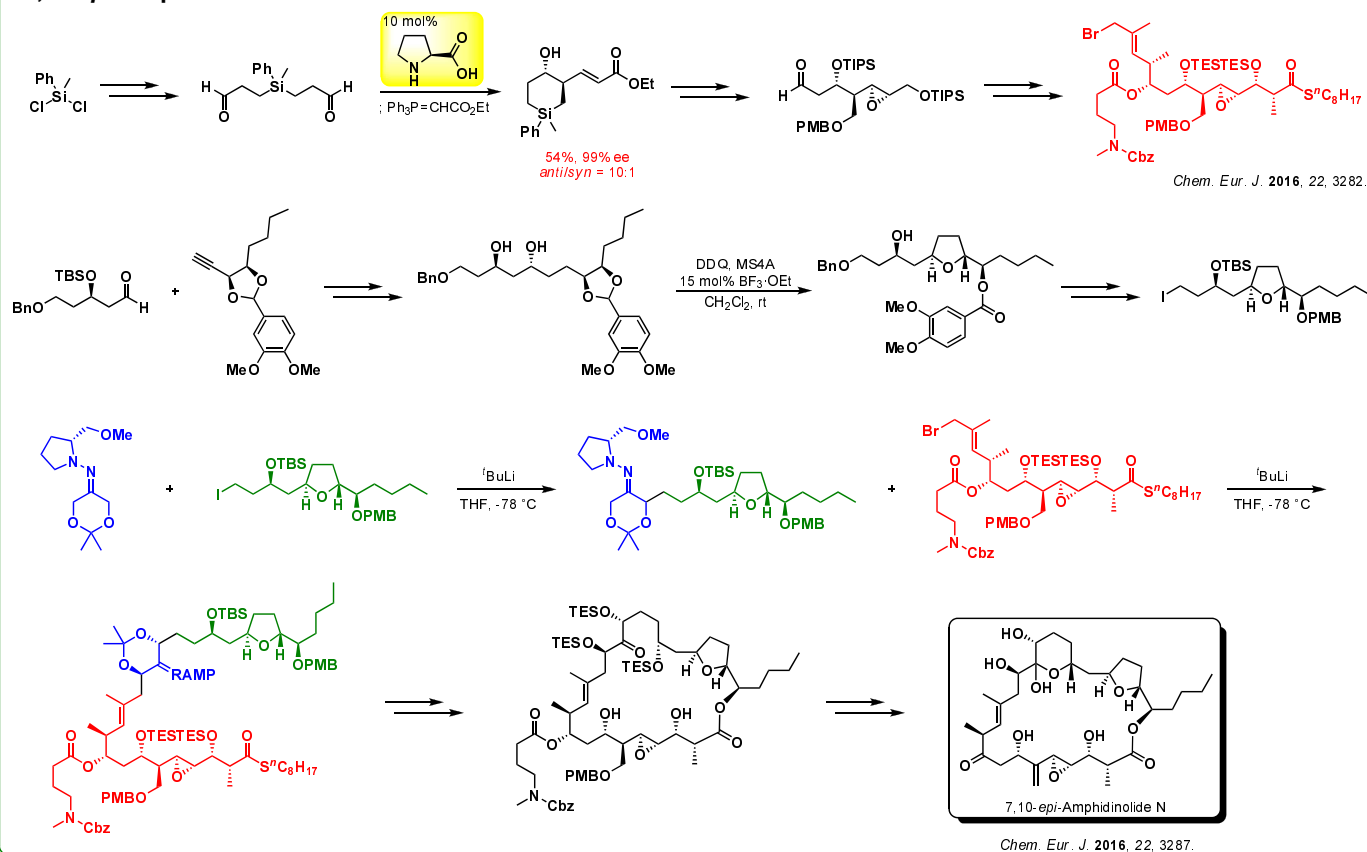
(S)-baclofen



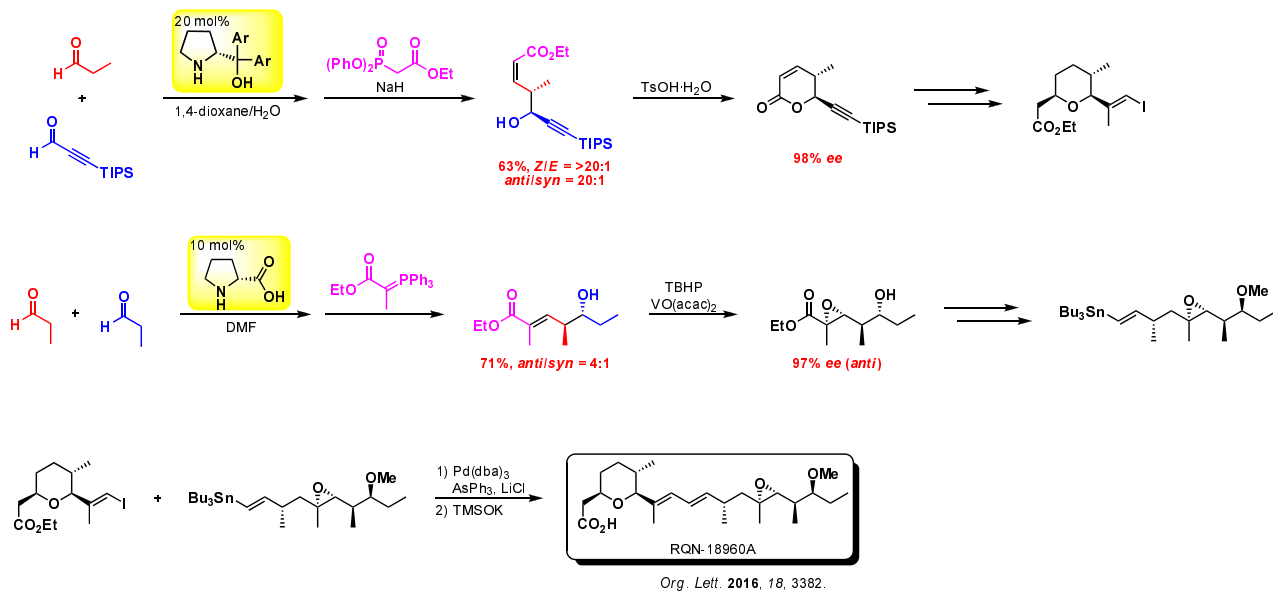
formal total synthesis of ezetimibe



7,10-*epi*-Amphidinolide N



RQN-18690A



Estradiol methyl ether

