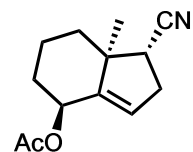


# Total Synthesis of Solanoeclepin A

(Stimulates early hatching of potato cyst nematodes)

Denksport 15.02.2017

Michael Richter



1. *m*CPBA, DCM  
 2. Me<sub>3</sub>Al, Al(OTf)<sub>3</sub>, DCM  
 3. DBU, DCM  
 4. CH<sub>2</sub>=CHMgBr, CeCl<sub>3</sub>, THF

**A**

5. TBHP, Ti(OiPr)<sub>4</sub>, MS4Å  
 6. TMSOTf, 2,6-lutidine, DCM, then HF•Py

**B**

7. DIBAL-H, THF,  
 8. TBSOTf, 2,6-lutidine, DCM  
 9. *m*CPBA, DCM

**C**

10. LDA, then TBSCl, HMPA, THF  
 11. DIBAL-H, DCM,  
 12. (OEt)<sub>2</sub>P(O)CH<sub>2</sub>CO<sub>2</sub>Et, NaH, THF

**D**

13. DIBAL-H, THF  
 14. **1**, Et<sub>2</sub>Zn, CH<sub>2</sub>I<sub>2</sub>, DCM  
 15. NaH, BnBr, TBAI, DMF

**E**

16. TBAF, THF  
 17. *o*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>SeCN, Bu<sub>3</sub>P, THF  
 18. H<sub>2</sub>O<sub>2</sub>, THF

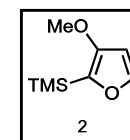
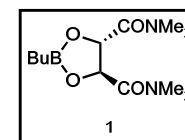
19. HF•Py, THF  
 20. TBSCl, im, DMF  
 21. DMP, DCM  
 22. HF•Py, THF

**F**

23. BOMCl, DIPEA, TBAI  
 24. *t*BuOCH(NMe<sub>2</sub>)<sub>2</sub>, DMF  
 25. Tf<sub>2</sub>O, 2,6-(*t*Bu)<sub>2</sub>Py, DCM

26. **2**, *t*BuLi, THF  
 27. PPTS, DMF, H<sub>2</sub>O  
 28. TMSCl, im, DMF

**G**



**G**

29. **3**, Bu<sub>3</sub>SnF, PdCl<sub>2</sub>[P(*o*-tol)<sub>3</sub>]<sub>2</sub>, DMF  
 30. Me<sub>2</sub>AlCl, Et<sub>2</sub>O

31. CH<sub>3</sub>CO<sub>2</sub>H, H<sub>2</sub>O  
 32. DMP, DCM

**I**

33. SeO<sub>2</sub>, 1,4-dioxane, H<sub>2</sub>O  
 34. Cu(OAc)<sub>2</sub>, MeOH

35. MeI, Ag<sub>2</sub>O, DMF  
 36. DIBAL-H, toluene  
 37. IBX, DCM/DMSO

**J**

38. TMSCl, im, DMF  
 39. OsO<sub>4</sub>, pyr, *t*-BuOH  
 40. NaIO<sub>4</sub>, MeCN

41. TMSCl, im, DMF  
 42. H<sub>2</sub>, Pd(OH)<sub>2</sub>  
 43. CH<sub>3</sub>CO<sub>2</sub>H

**K**

44. TMSCl, im, DMF  
 45. DMP, DCM

46. NaClO<sub>2</sub>, NaH<sub>2</sub>PO<sub>4</sub>,  
 2-methyl-2-butene, *t*-BuOH  
 47. 3M HCl, CH<sub>3</sub>CO<sub>2</sub>H, H<sub>2</sub>O

