Synthesis Challenge #73

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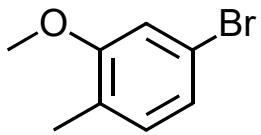


A

1-4

B

5-7

C

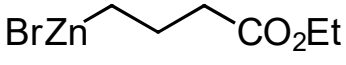
8-9

D

1) **I** (1.5 equiv), $Pd(OAc)_2$ (2.0 mol %), SPhos (4.0 mol %), THF, 50 °C, 8 h
2) AgOAc (1.0 equiv), I_2 (1.0 equiv), HOAc, 12 h, rt
3) LDA (1.5 equiv, 1.0 M in THF), HCOOMe (3.0 equiv), −78 °C → rt, 5 h
4) 3-penten-2-one (1.5 equiv), $Cu(OTf)_2$ (0.2 equiv), THF, 50 °C

5) $NaBH_4$ (0.8 equiv), $CeCl_3 \cdot 7H_2O$ (1.2 equiv), MeOH, 0 °C, 2 h
6) NaOH (10 equiv), MeOH/H_2O (v/v = 1:1), 70 °C, 12 h
7) EDCI (1.2 equiv), DMAP (0.2 equiv), CH_2Cl_2, 0 °C → rt, 12 h

8)DIBAL-H (2.0 equiv), CH_2Cl_2, −78 °C
9) PPTS (0.1 equiv), MeOH, 50 °C, 7 h



I

10-11

E

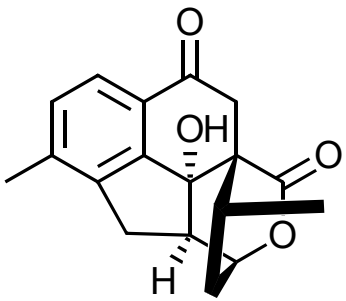
10) $Pd(OAc)_2$ (2.0 mol %), Ph_3P (4.0 mol %), CO (1 atm), K_2CO_3 (2.0 equiv), PhMe, 90 °C, 18 h
11) $BF_3{\cdot}OEt_2$ (1.2 equiv), *m*-CPBA (1.5 equiv), CH_2Cl_2, 0 °C, 1 h, then Et_3N (3.0 equiv), 0 °C → rt, 5 min

12-14

F

12) TfOH (10.0 equiv), Et_3SiH (10.0 equiv), CH_2Cl_2, rt, 40 h
13) DDQ (2.0 equiv), 1:1 CH_2Cl_2/H_2O
14) PCC (4.0 equiv), NaOAc (5.0 equiv), PhH, 70 °C, 12 h,

15-17



15) BCl_3 (5.0 equiv), TBAI (4.0 equiv), CH_2Cl_2, −78 → −40 °C, 4 h
16) Tf_2O (1.2 equiv), pyr. (1.5 equiv), CH_2Cl_2, 0 °C, 1 h
17) $Pd(OAc)_2$ (10 mol %), dppp (10 mol %), Et_3SiH (2.5 equiv), DMF, 60 °C, 8 h

dppp = 1,3-bis-(diphenylphosphino)-propane