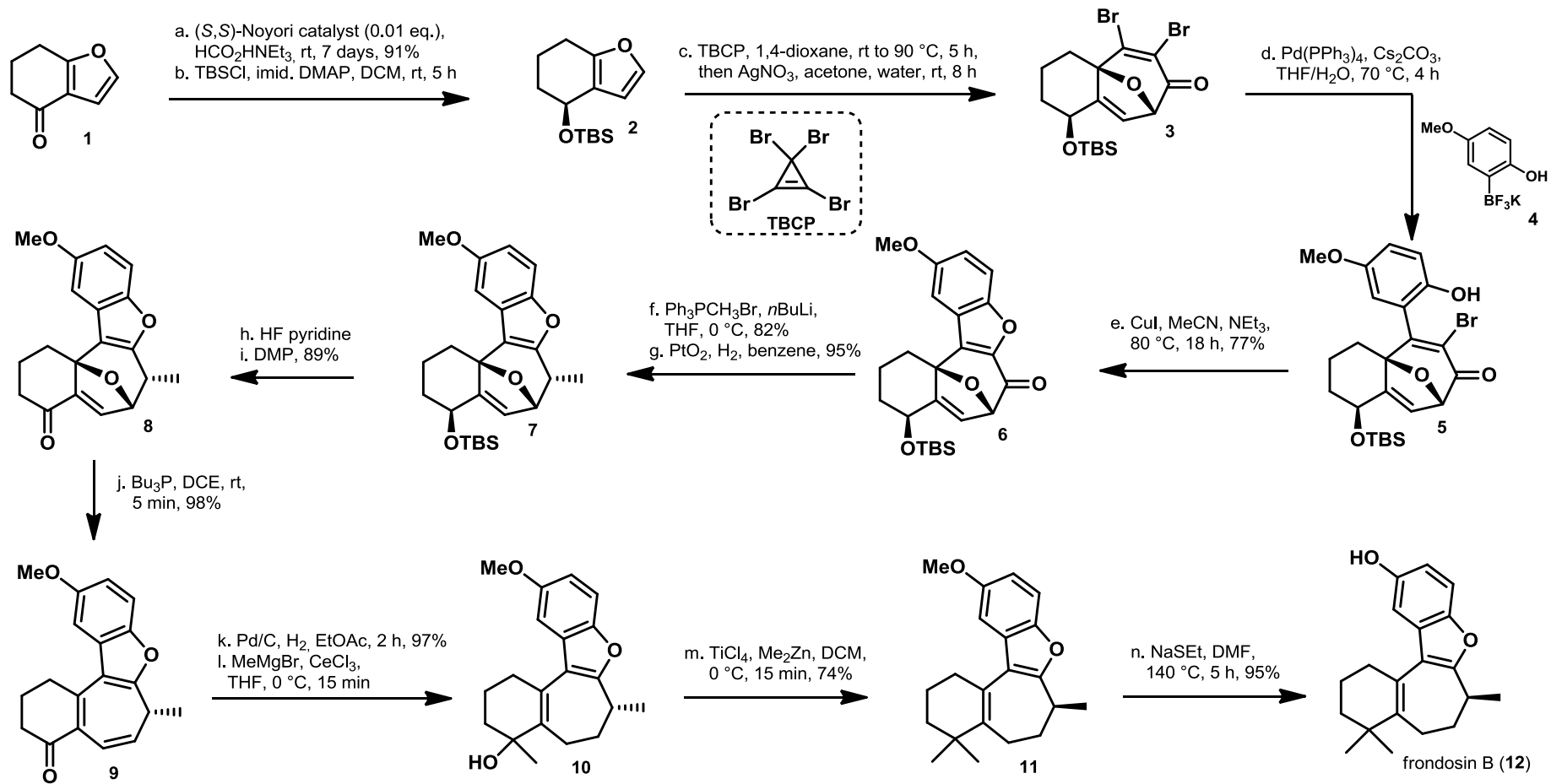


It's 2014.

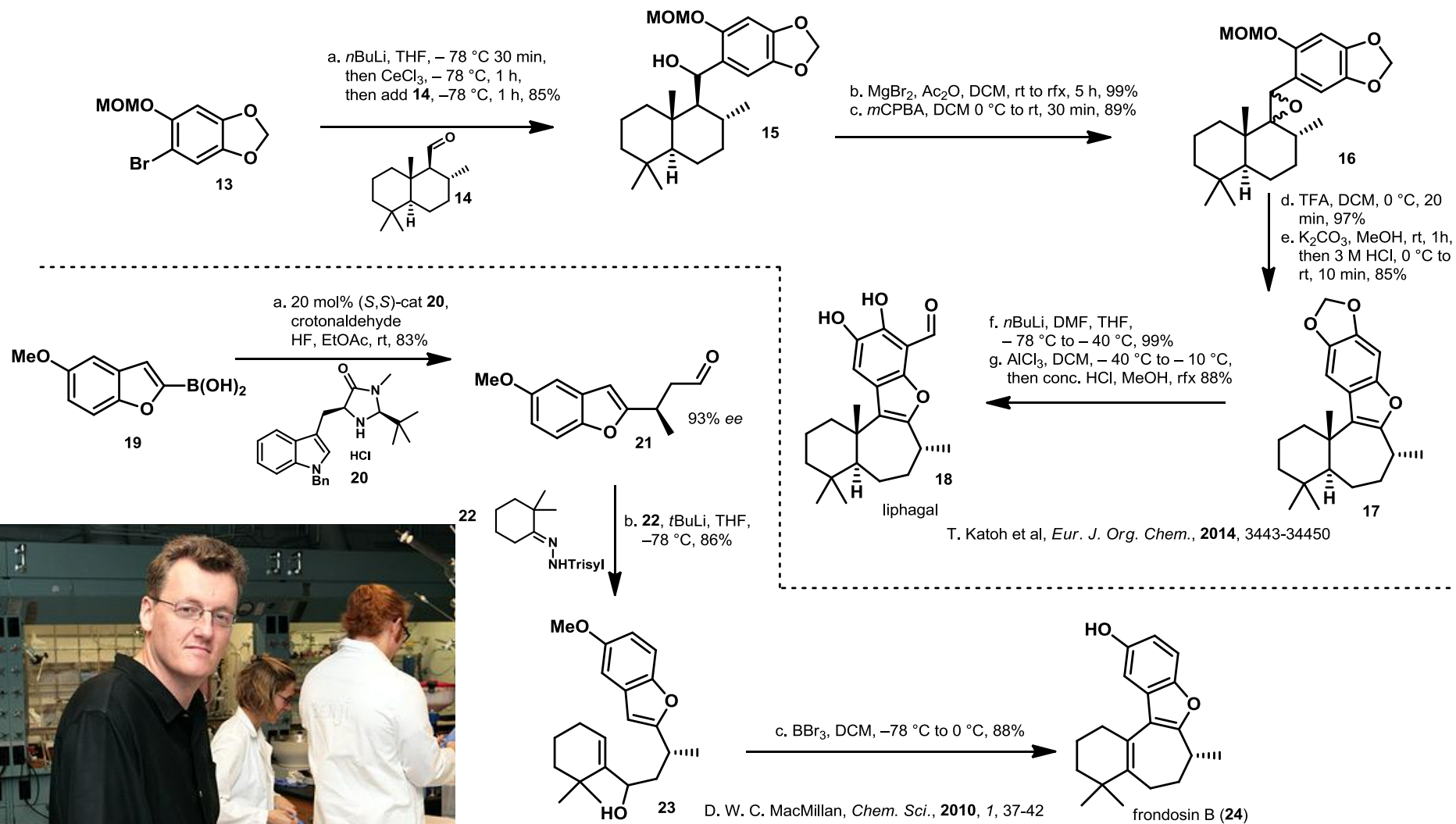
Sebastian Krüger, AK Gaich
Literature Talk

Total Synthesis

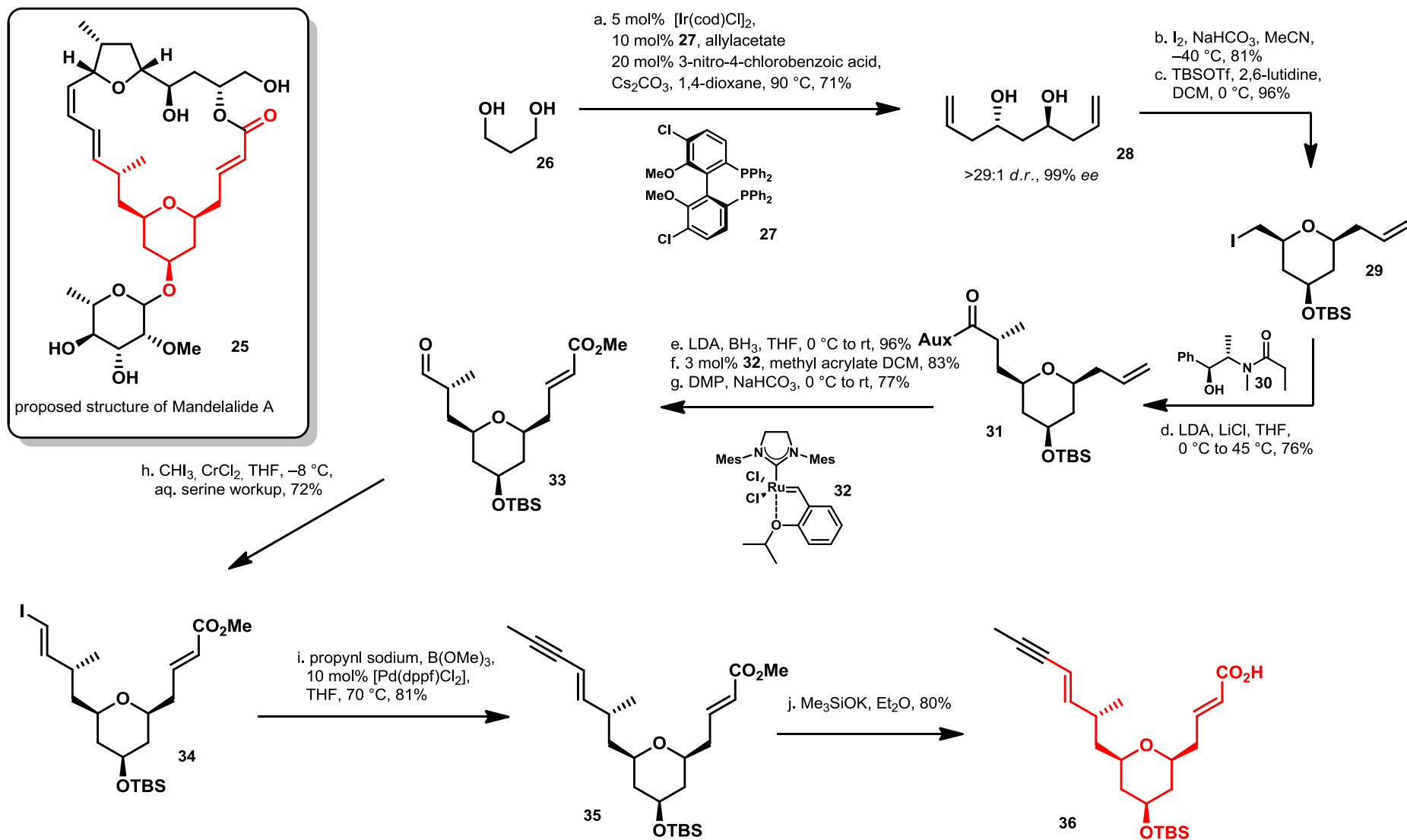
Frondosin B



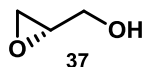
Related



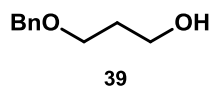
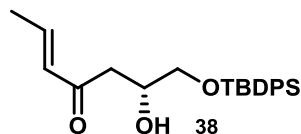
Mandelalide A, part 1



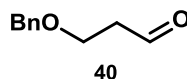
Mandelaide A, part 2



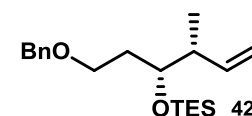
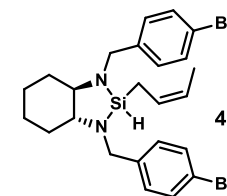
- a. TBDPSCI, imidazole, DCM, 0 °C to rt 94%
 b. 8 mol% [Co₂(CO)₈], CO (1 atm),
N-TMS-morpholine, EtOAc, 74%
 c. (*E*)-prop-1-en-yl lithium, THF, -25 °C,
 acidic quench at -78 °C, 83%



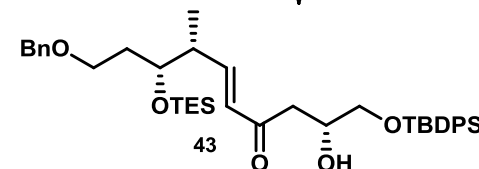
- a. 5 mol% [Cu(MeCN)₄]BF₄, 5 mol% 2,2'-bipyridine,
 5 mol% TEMPO, 10 mol% *N*-Methylimidazole,
 MeCN, air, 94%



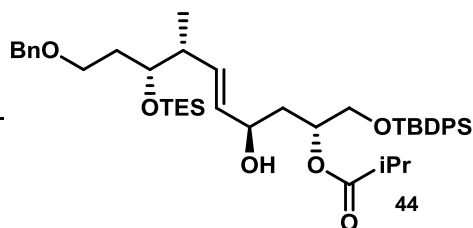
- b. (*R,R*)-41, 5 mol% Sc(OTf)₃, DCM,
 -78 °C to 0 °C, 82%
 c. TESCI, NEt₃, DMAP, DCM, 0 °C to rt, 90 %



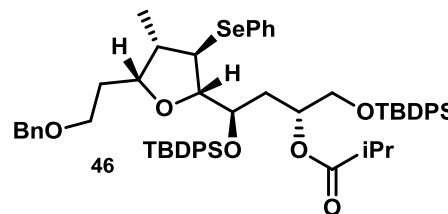
- d. 8 mol% 50,
 38, DCM, reflux,
 79 %



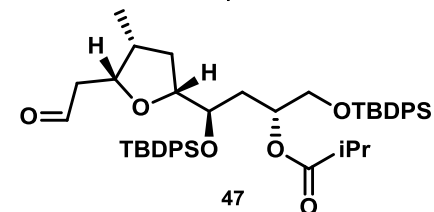
- f. TBDPSCI, imidazole, DCM, 0 °C to rt, 87%
 g. 30 mol% CSA, DCM/MeOH, 0 °C, 97%



- e. *i*PrCHO, 35 mol% Sml₂,
 THF, -50 °C, 78%

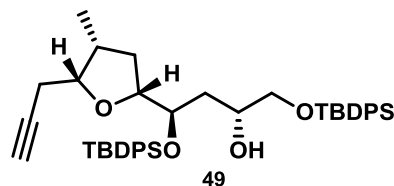
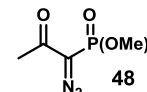


- i. Bu₃SnH, AIBN, toluene,
 80 °C, 93%
 j. Pd(OH)₂/C, H₂ (1 atm),
 EtOH/EtOAc, 88%

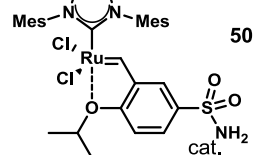
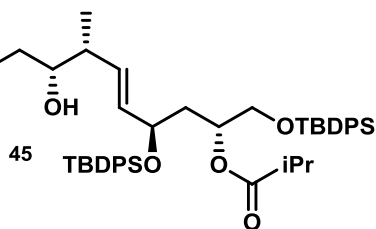


- k. DMP, DCM, 0 °C to rt, 91%

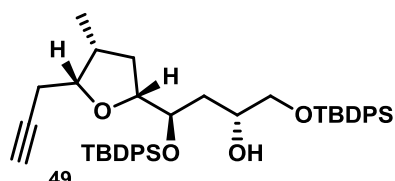
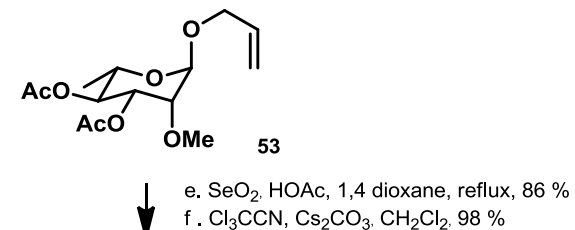
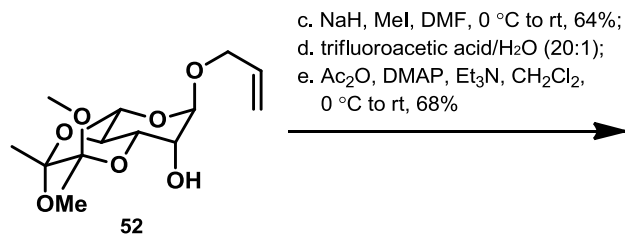
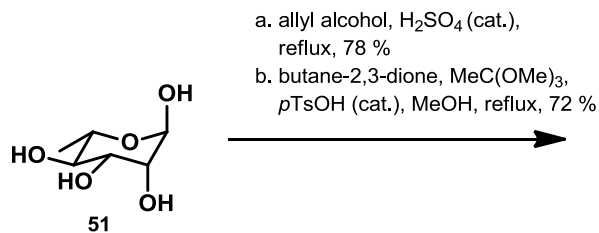
- l. 48, NaOMe, THF, -78 °C,
 then 47, -78 °C to -50 °C, 93%
 m. DIBAL-H, toluene, -78 °C, 97%



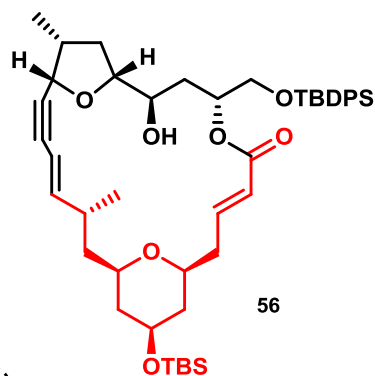
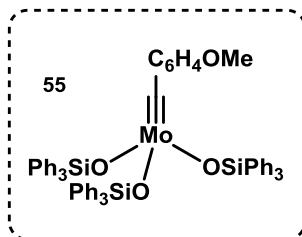
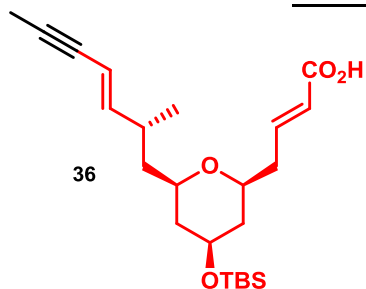
- h. *N*-(phenylselenyl)phtalimide, TFA,
 12 mol% Ph₃P=S, DCM,
 -40 °C to -20 °C, 83%



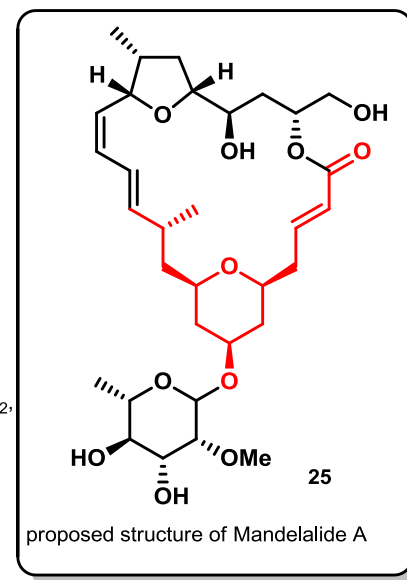
Mandelalide, part 3



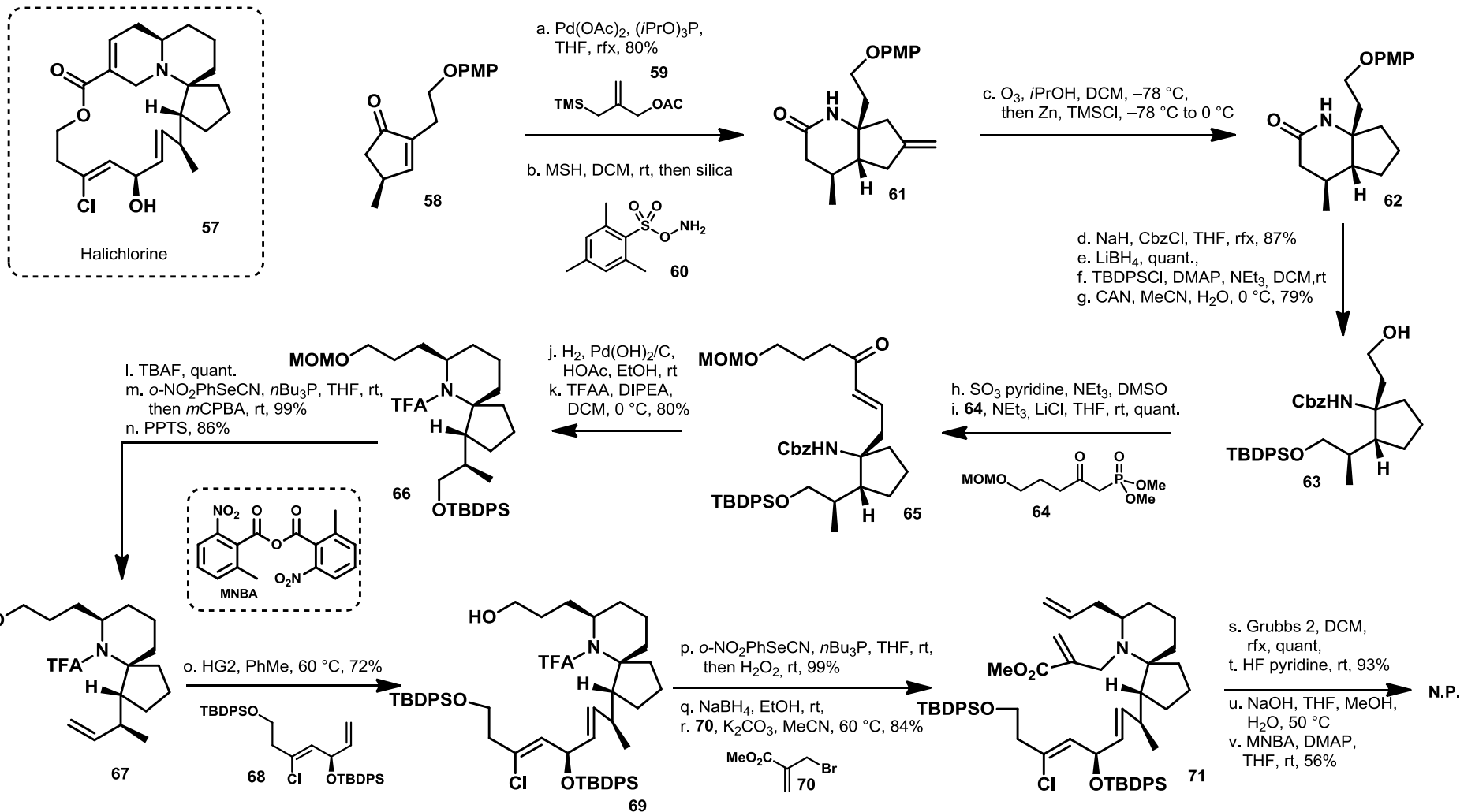
- a. DCC, DMAP, CH₂Cl₂, 64%
 b. DBU (25 mol%), MeCN, 50 °C, 91%
 c. **55** (10 mol %), molsieves, toluene, 72 %



- d. Zn(Cu/Ag), THF/MeOH/H₂O (1:1:1), 45 °C, 88%;
 e. pTsOH·H₂O (cat.), CH₂Cl₂/MeOH (2:1), 90%;
 f. **54**, TESOTf (30 mol%), CH₂Cl₂, molsieves, - 50 °C, 89 %;
 g. K₂CO₃, MeOH, 0 °C, 80 %;
 h. HF-pyridine, pyridine, THF, 0 °C to rt, 80 %

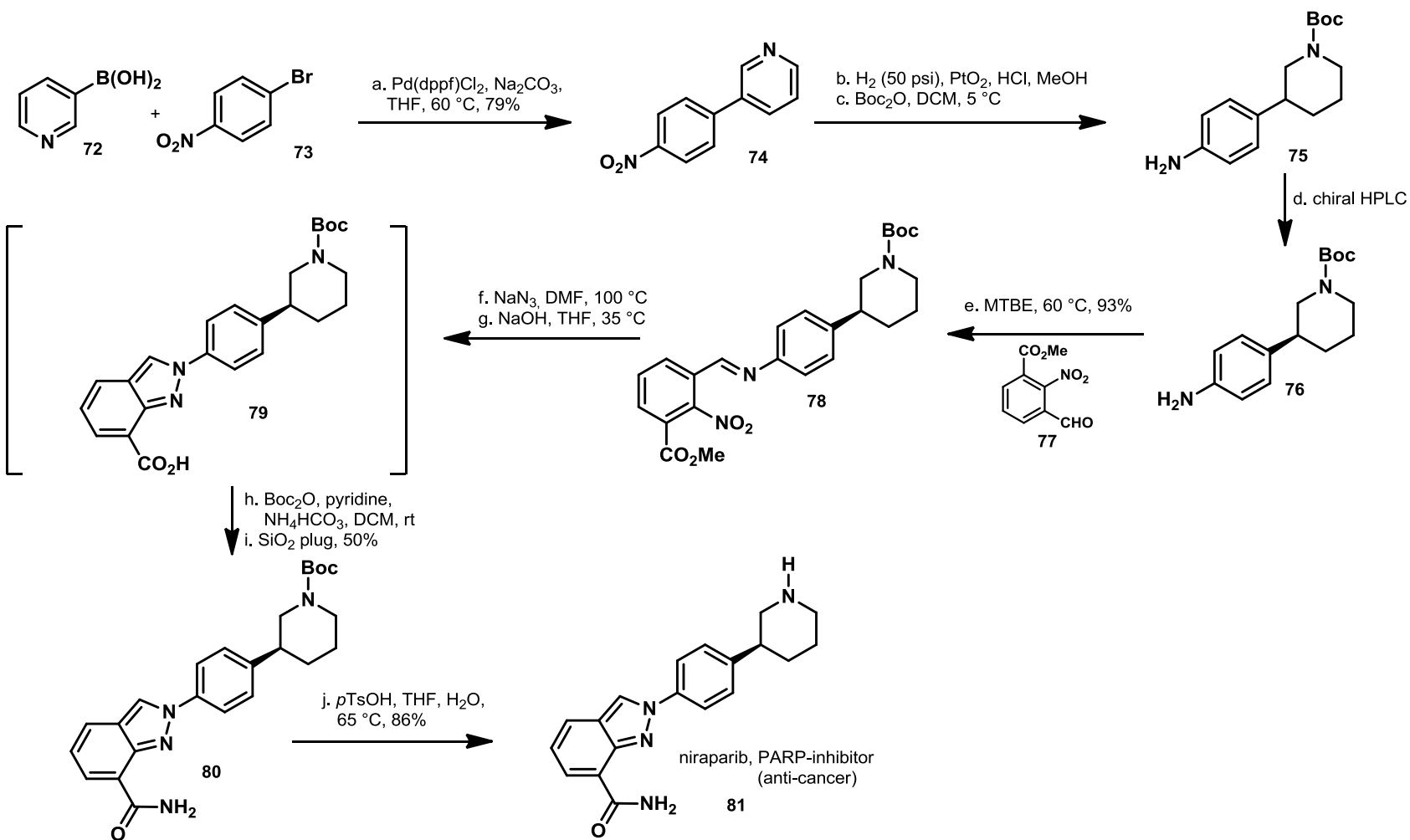


Halichlorine

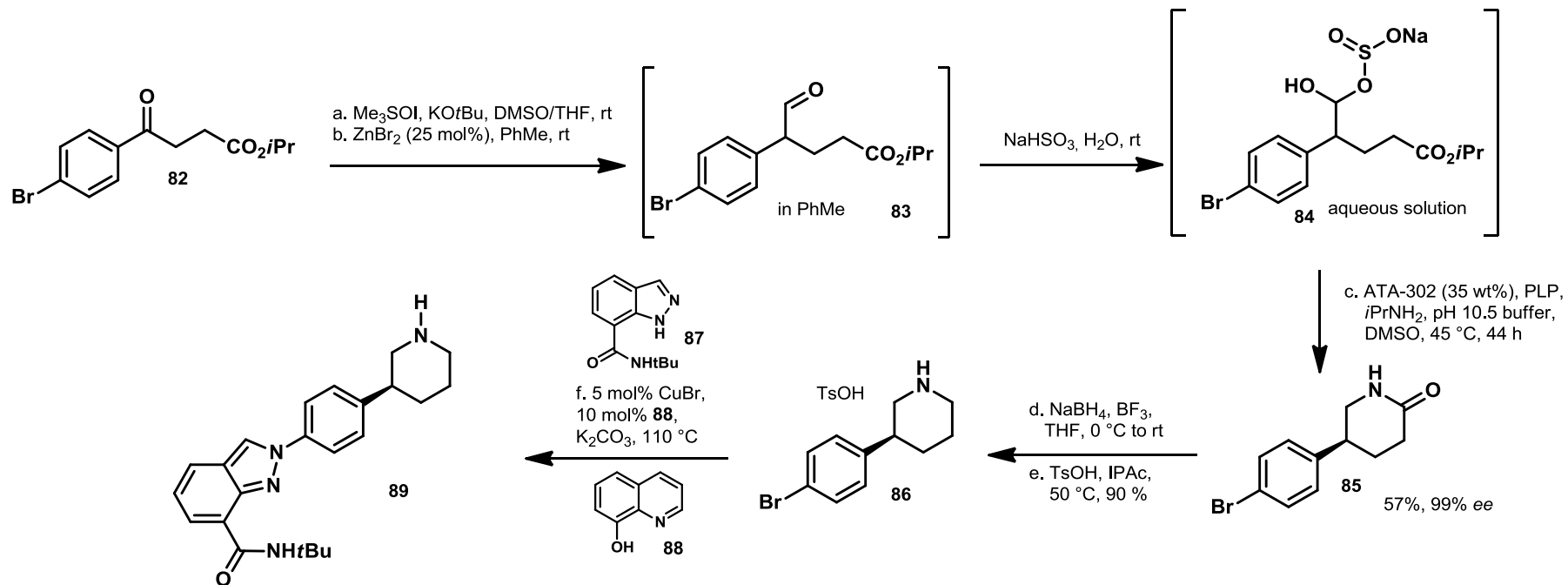


Med. Chem.

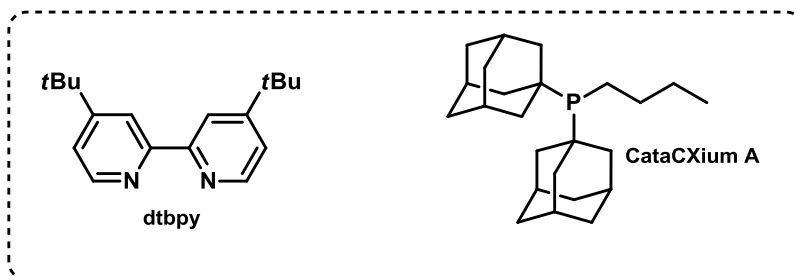
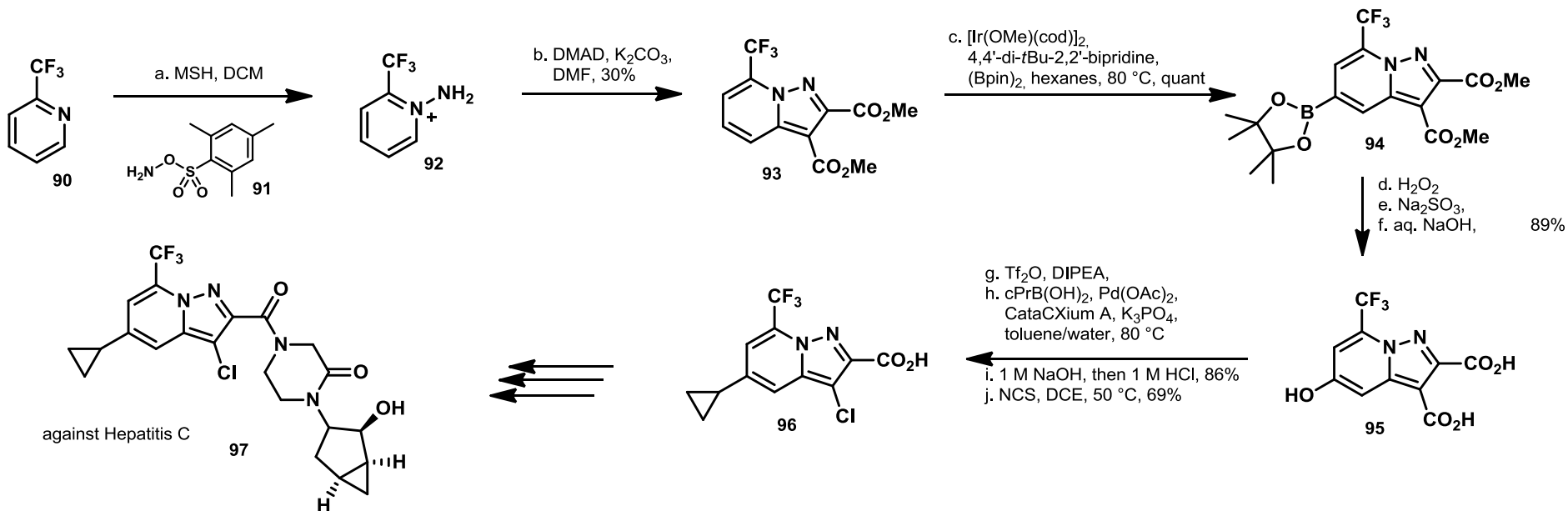
Med-Chem 1



Med-Chem 2

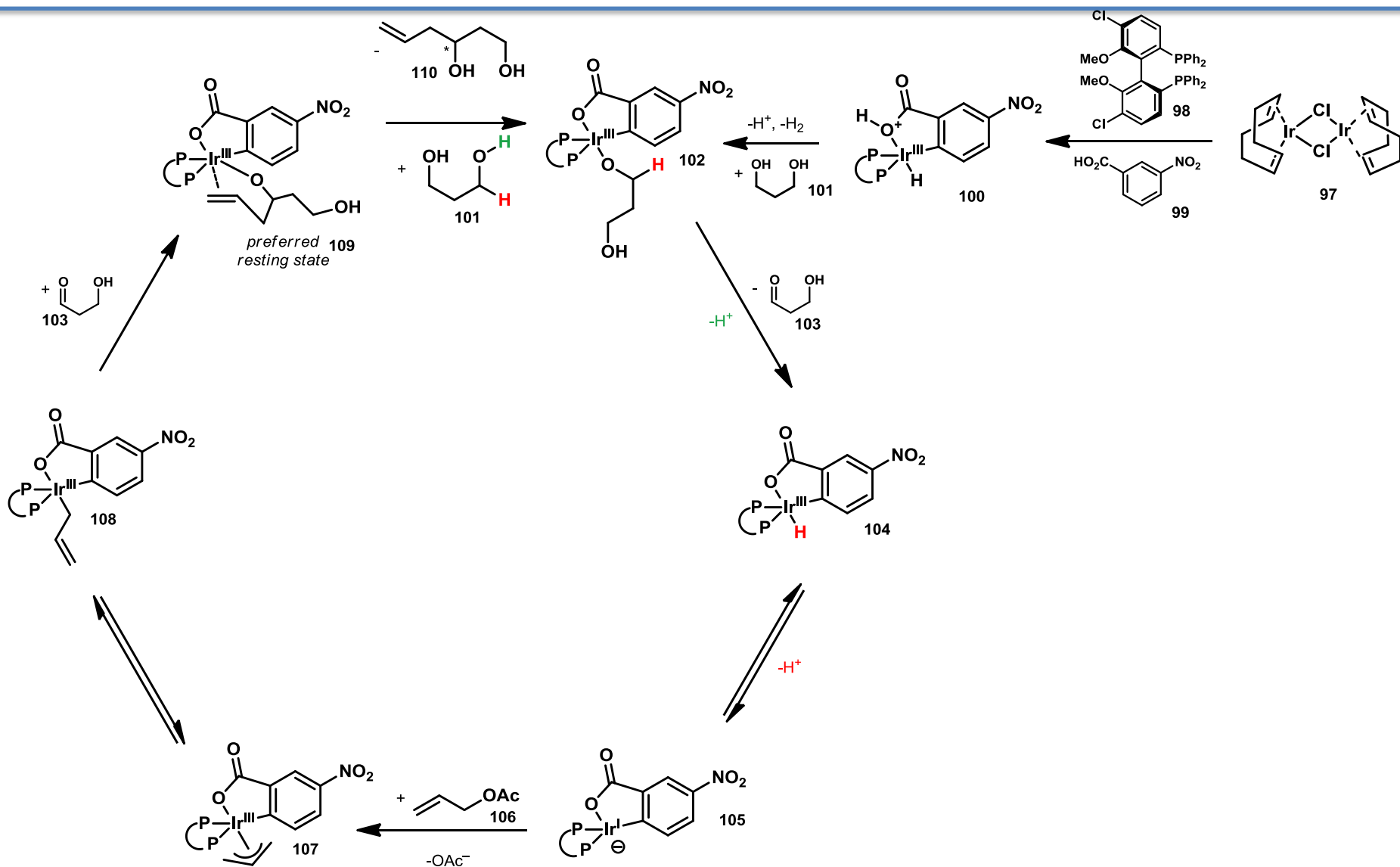


Med-Chem 2

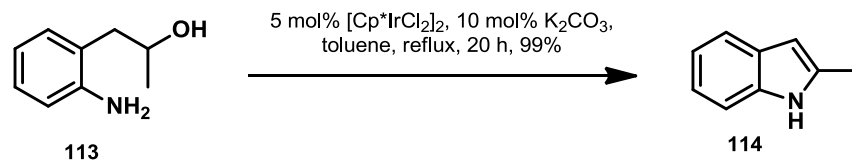
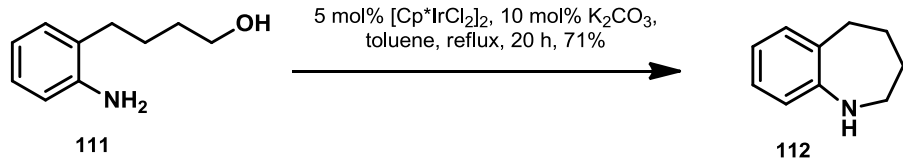


lr

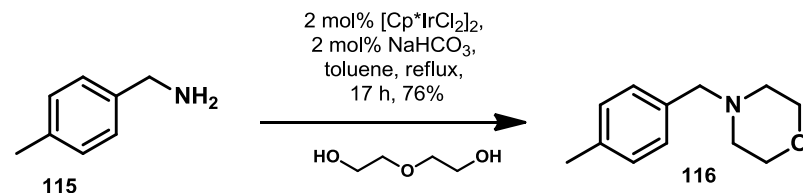
Krische Transferhydrogenation Mechanism



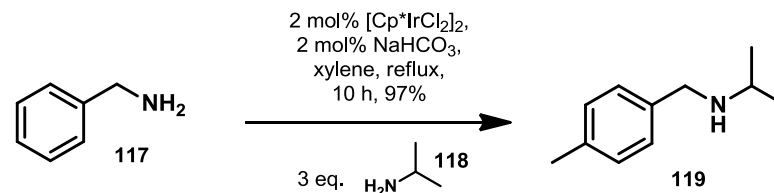
Transferhydrogenation examples



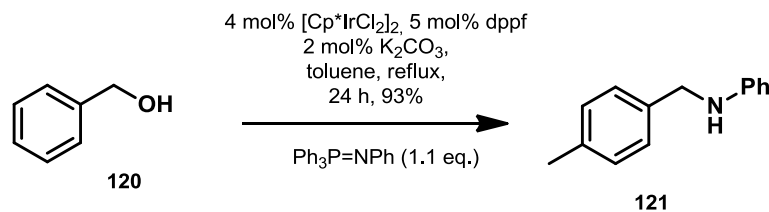
K. Fujita, K. Yamamoto, R. Yamaguchi, *OL*, **2002**, 4, 2691-2694



K. Fujita, T. Fuji, R. Yamaguchi, *OL*, **2004**, 6, 3525-3528

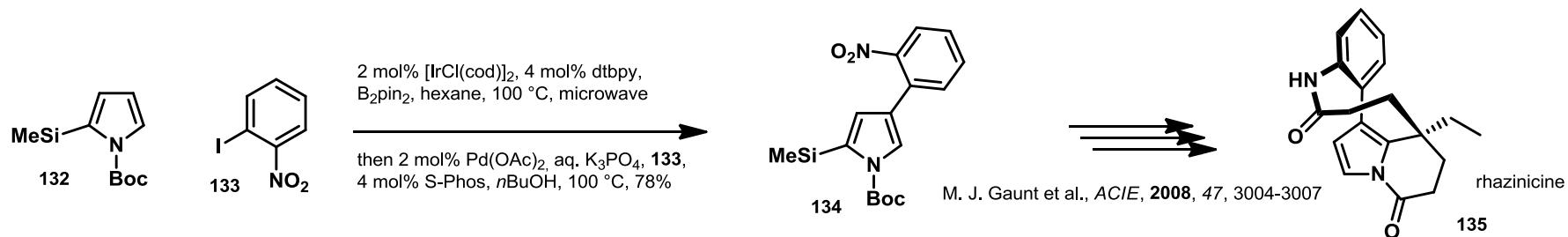
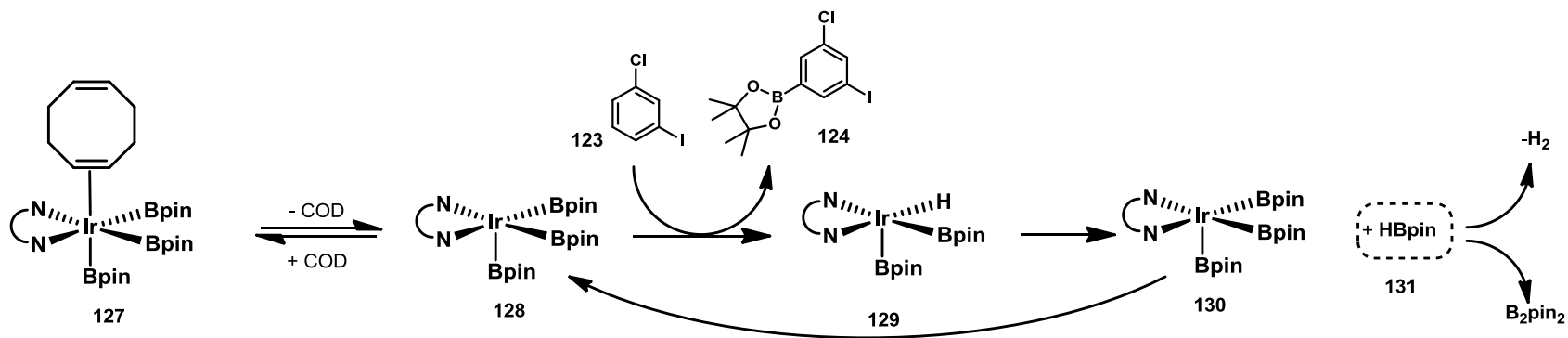
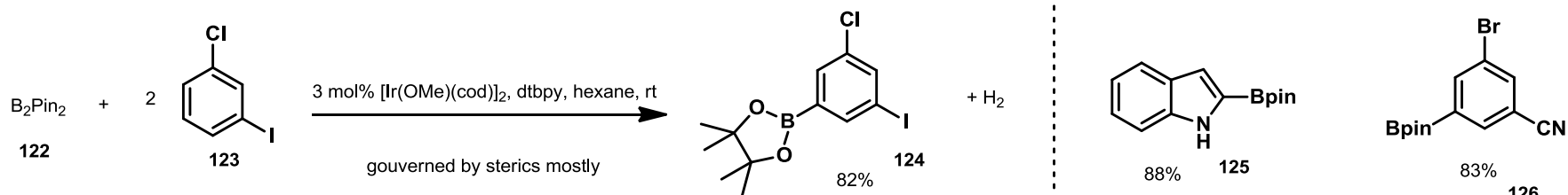


O. Saidi, A. J. Blacker, M. Farah, S. P. Mardsen, J. M. J. Williams, *ACIE*, **2009**, 48, 7375



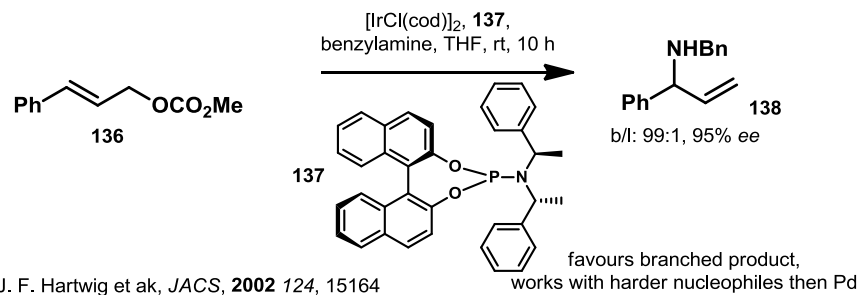
G. Cami-Kobeci, J. M. J. Williams, *Chem. Commun.*, **2004**, 1072-1073

Other Iridium examples

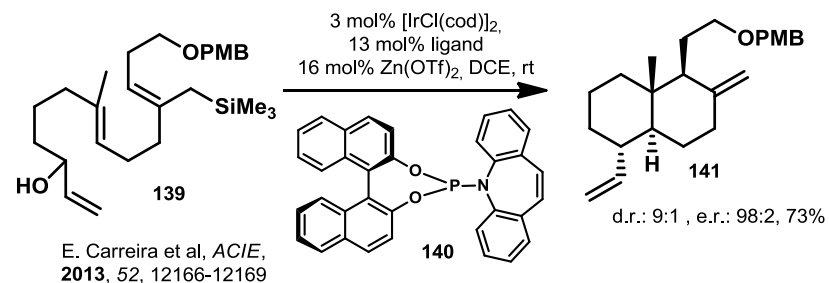


Other Iridium examples

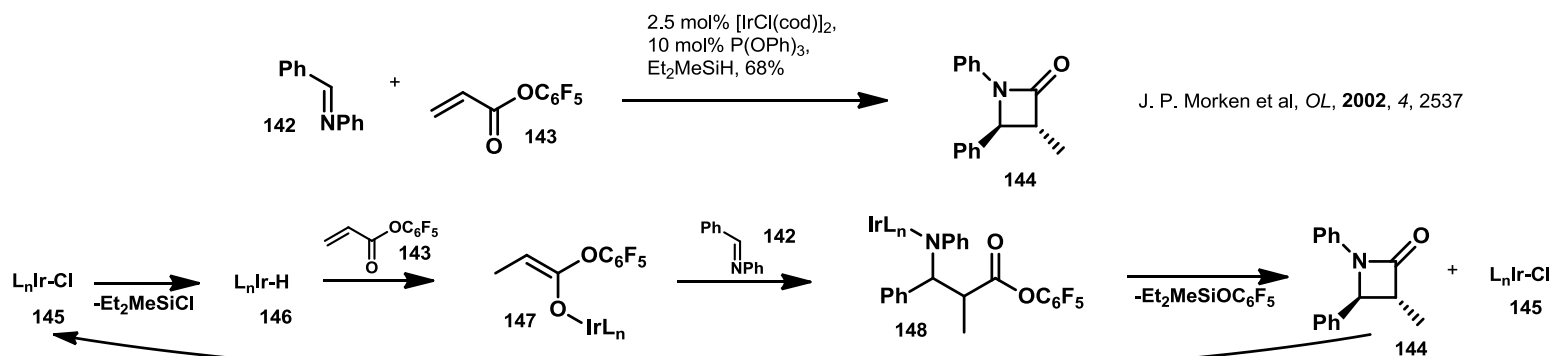
allylic substitution



J. F. Hartwig et al, *JACS*, **2002**, 124, 15164

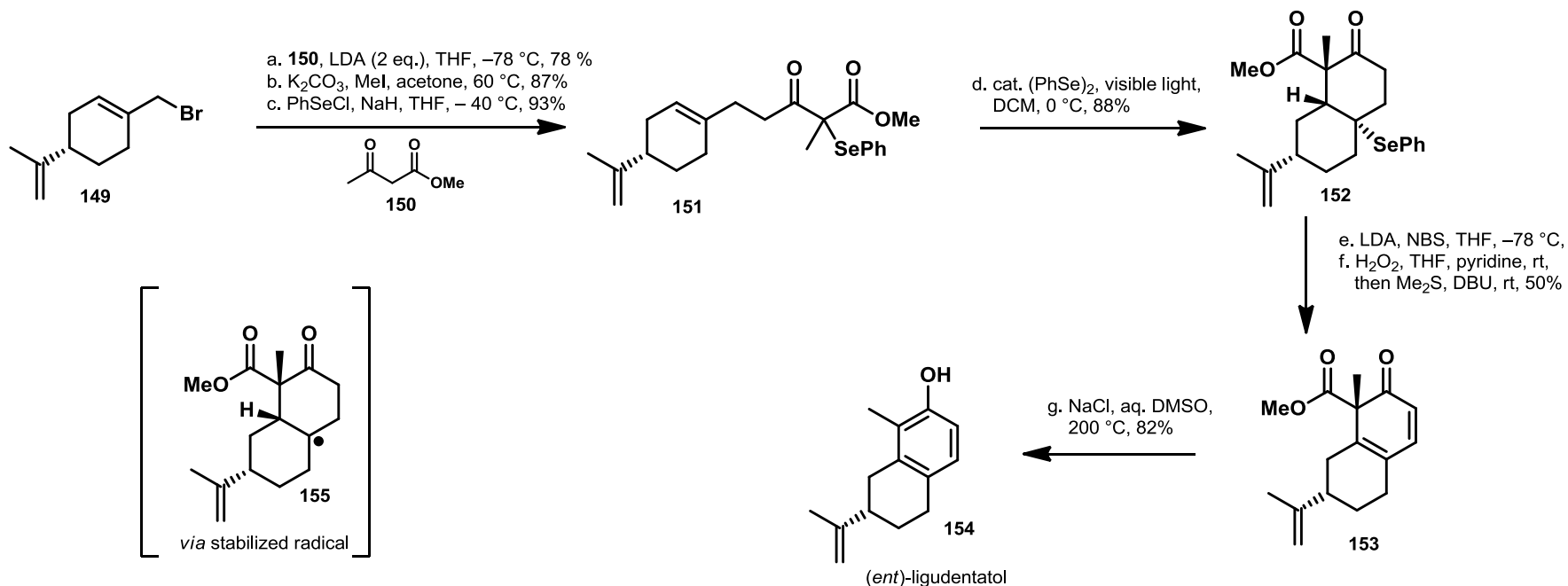


E. Carreira et al, *ACIE*, **2013**, 52, 12166-12169

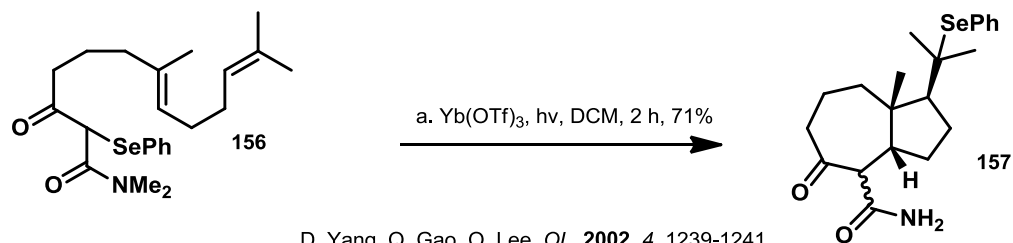


Atom Transfer Cascades

Ligudentatol



T. Yoshimitsu et al, *Chem. Asian J.*, **2014**, 9, 1506-1510



D. Yang, Q. Gao, O. Lee, *OL*, **2002**, 4, 1239-1241