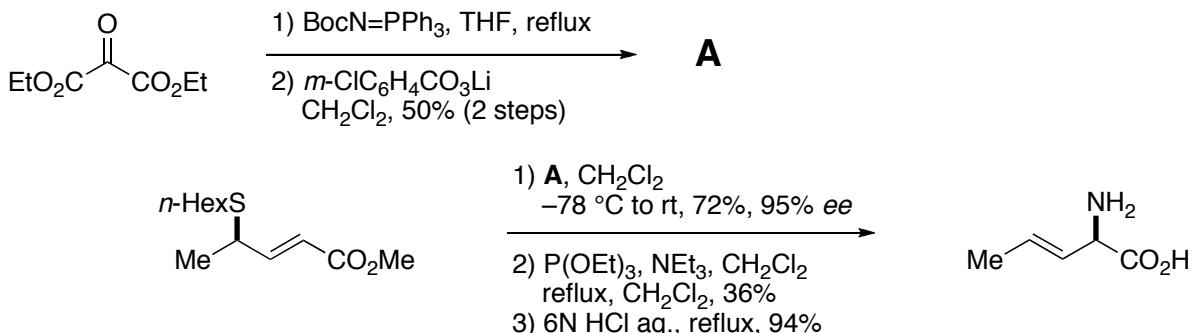


# Fukuyama Group - Group Meeting Problems

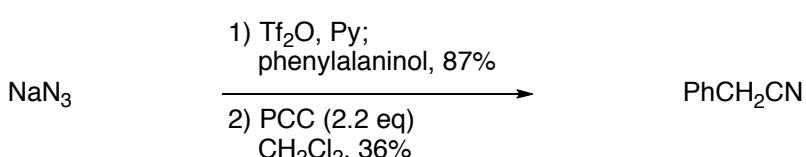
07/04/2006

1



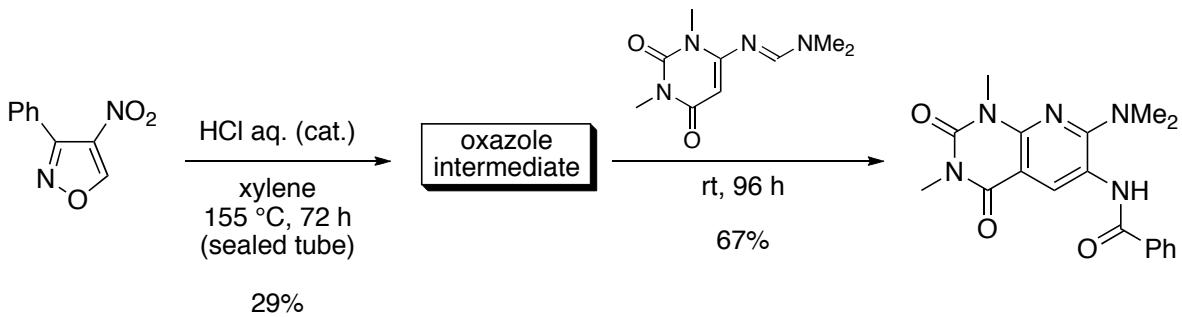
A. Armstrong *et al.*, *J. Org. Chem.*, **71**, 4028. (2006)  
A. Armstrong *et al.*, *Chem. Commun.* 904. (2002)

2



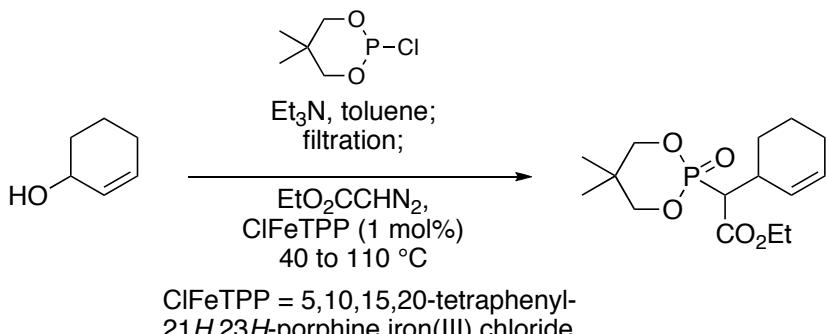
X.-S. Ye *et al.*, *Org. Lett.*, **8**, 1007 (2006)

3



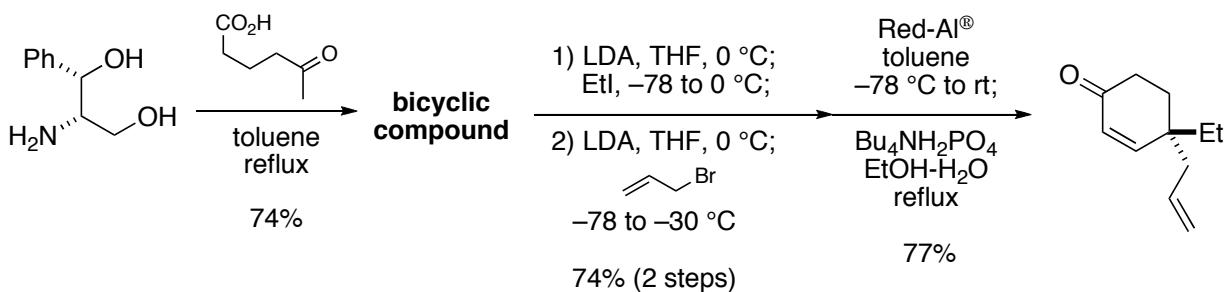
R. Nesi *et al.*, *J. Org. Chem.*, **61**, 7933 (1996)

4



A. K. Mapp *et al.*, *J. Am. Chem. Soc.*, **128**, 4576 (2006)

5

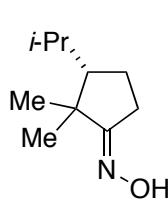


A. I. Meyers *et al.*, *J. Org. Chem.*, **51**, 1541 (1986)

# Fukuyama Group - Group Meeting Problems

07/11/2006

1



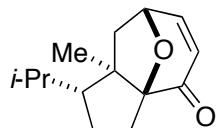
1)  $\text{PCl}_5$ , 2,6-lutidine  
 $\text{Et}_2\text{O}$ , rt  
77%

2) DIBAL  
 $\text{CH}_2\text{Cl}_2$ ,  $-78^\circ\text{C}$   
83%

1)  $\text{Li}^+ \text{C}_6\text{H}_4\text{O}^-$   
 $\text{THF}, -78^\circ\text{C}$   
92%

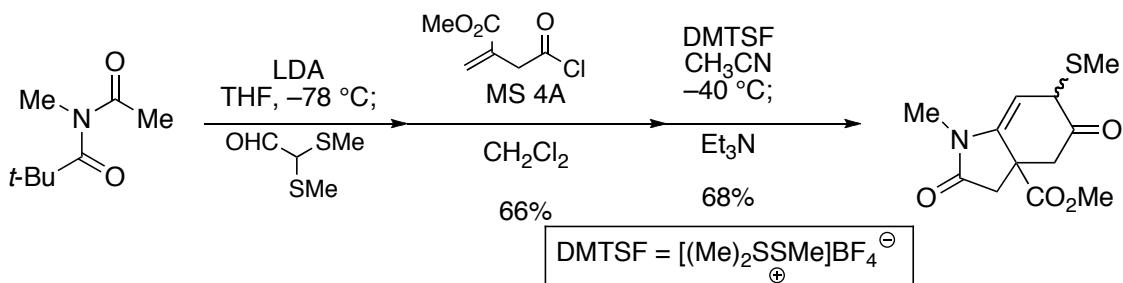
2)  $\text{VO}(\text{acac})_2$ ,  $t\text{-BuOOH}$   
 $\text{CH}_2\text{Cl}_2$   
71%

3)  $\text{Ac}_2\text{O}$ ,  $\text{Et}_3\text{N}$ , rt  
4) benzene, reflux  
80% (2 steps)



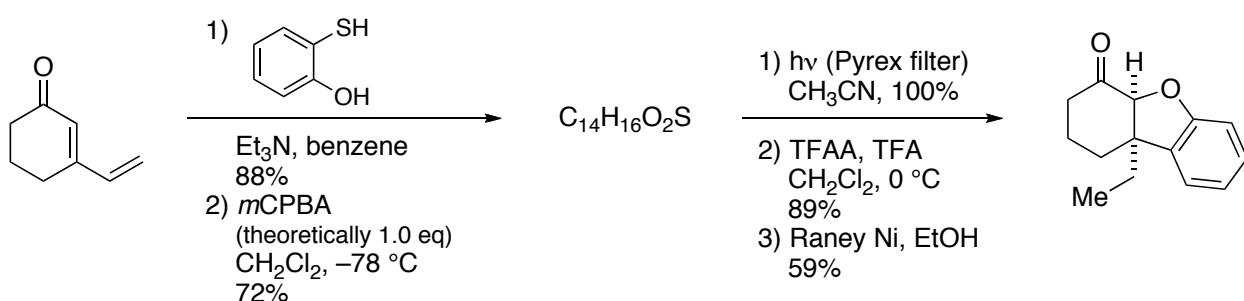
P. Magnus *et al.*, *Tetrahedron Lett.*, **42**, 4947 (2001)

2

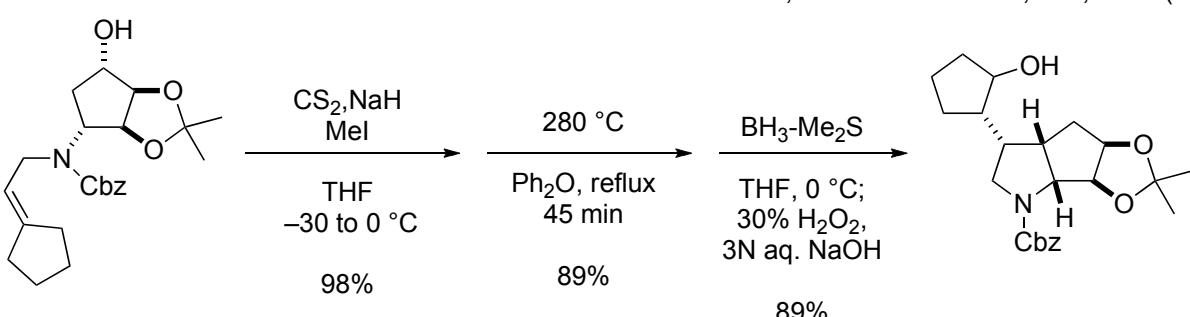


A. Padwa *et al.*, *J. Org. Chem.*, **67**, 3412 (2002)

3

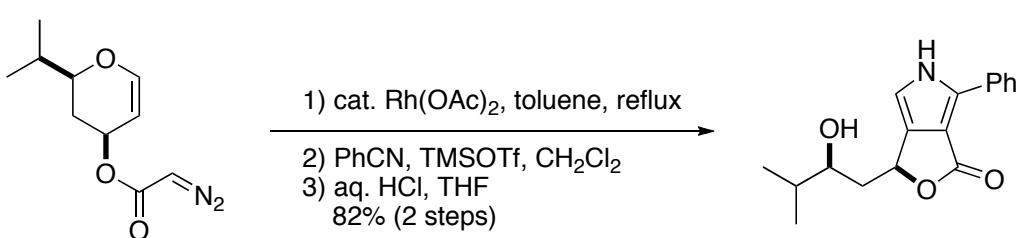


4



J. D. Winkler *et al.*, *J. Am. Chem. Soc.*, **128**, 9040 (2006)

5

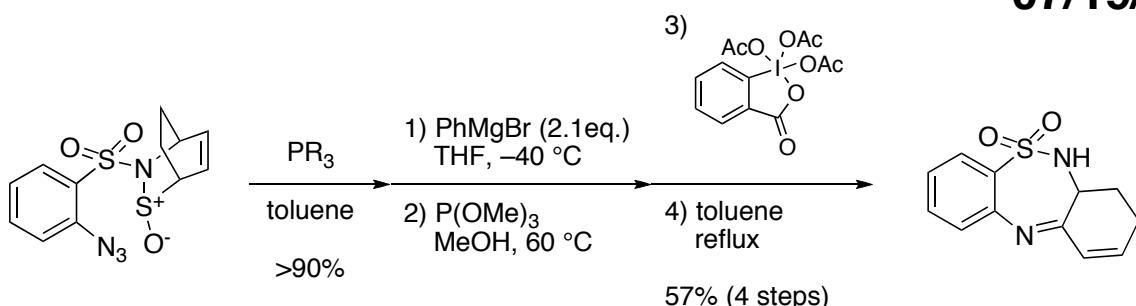


B. L. Pagenkopf *et al.*, *Org. Lett.*, **5**, 5099 (2003)

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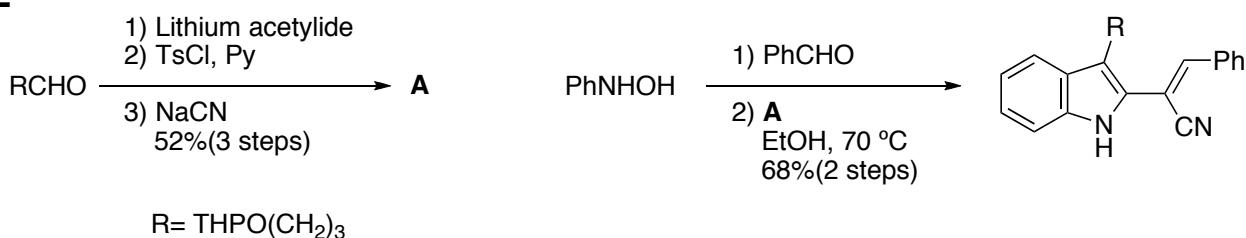
07/19/2006

1



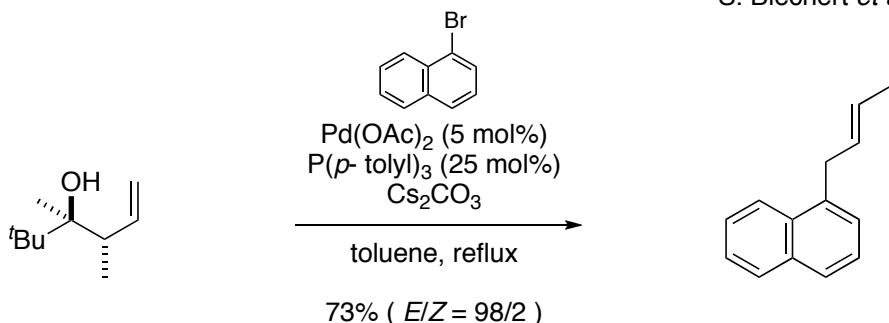
K. Hemming *et al.*, *Tetrahedron Lett.*, **41**, 10107 (2000)

2



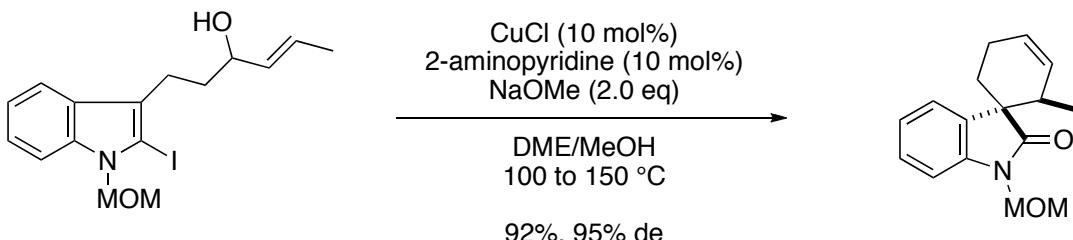
S. Blechert *et al.*, *Synlett*, 717 (1994)

3



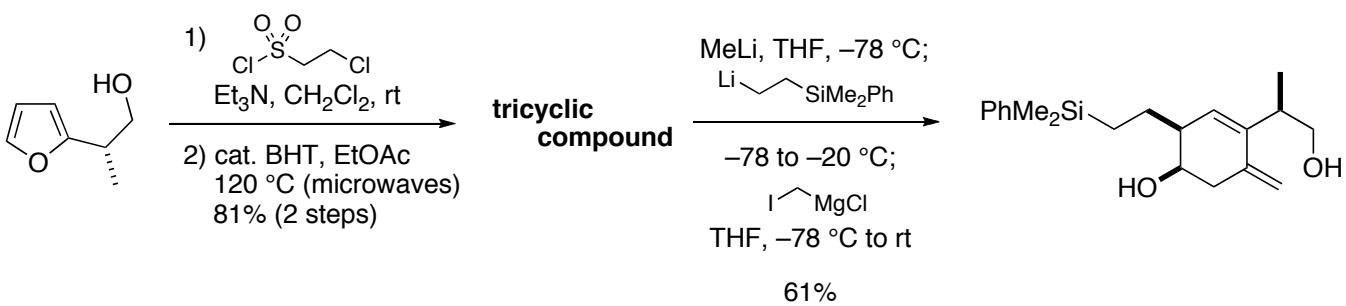
K. Oshima *et al.*, *J. Am. Chem. Soc.*, **128**, 2210 (2006)

4



S. Kobayashi *et al.*, *Angew. Chem. Int. Ed.*, **45**, 2274 (2006)

5



P. Metz *et al.*, *Angew. Chem. Int. Ed.*, **43**, 5991 (2004)