

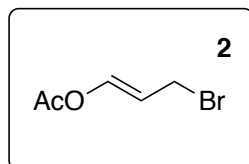
Asymmetric Total Synthesis of Havellockate

H

o) HCO₂H, 23°C
 p) CH₂N₂, 23°C 70% 2 steps

q) **2**, Zn⁰, THF, 0°C
 r) NaOMe, MeOH, 0°C

25% yield over 2 steps
 11:1 dr
 Explain dr and poor yield



s) [Ir(cod)Cl]₂, (EtO)₃SiH
 CHCl₃, 23°C

t) H₂O₂, KF, KHCO₃
 MeOH/THF, 23°C

34% yield over 2 steps

Name of t)?



u) [Cu(MeCN)₄]OTf
 TEMPO, bpy,
 N-methylimidazole
 O₂ (1 atm)

MeCN, 40%

80%
 single diastereomer

Name of u)?



Havellockate