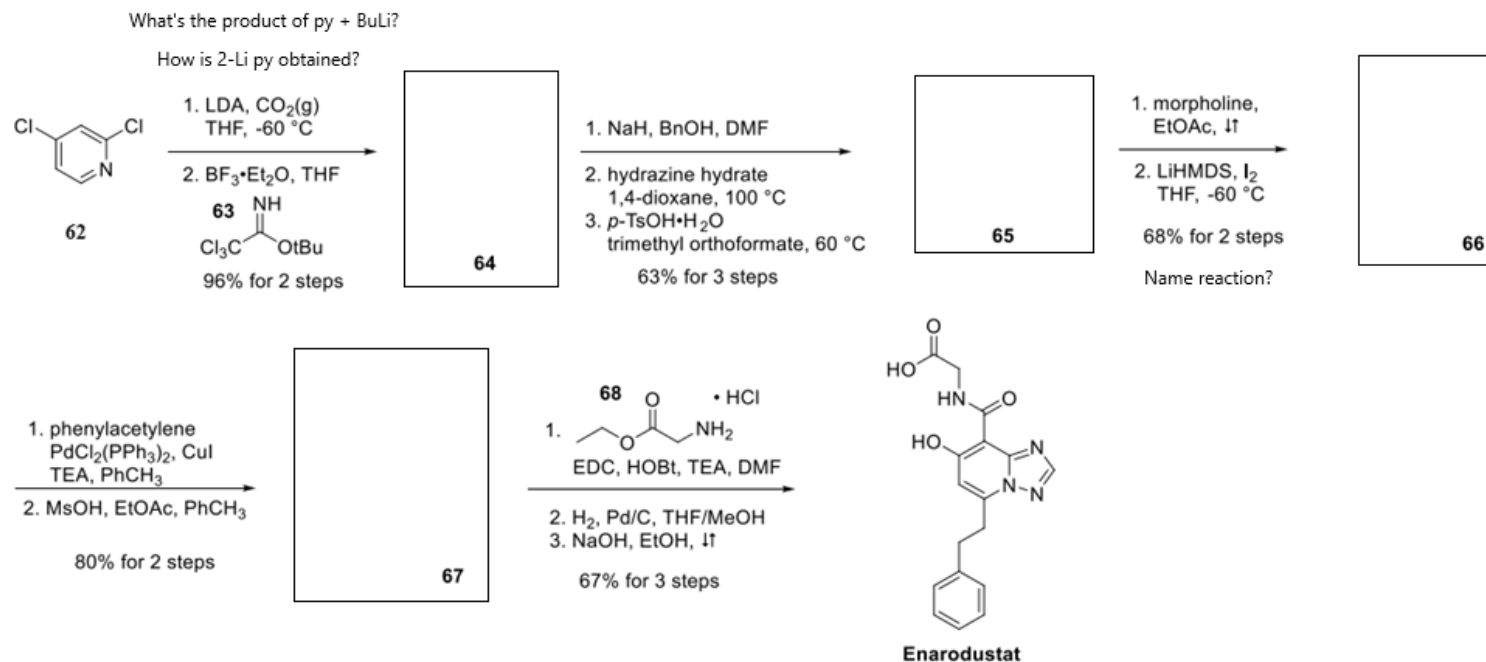


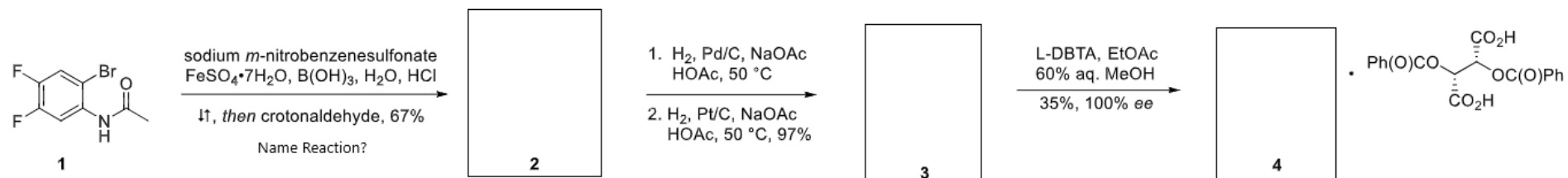
Synthesis of drug molecules

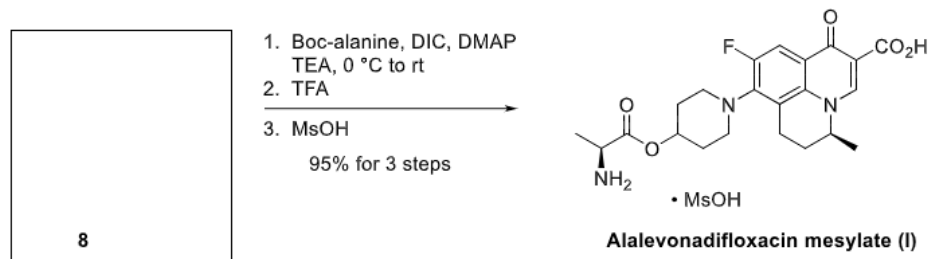
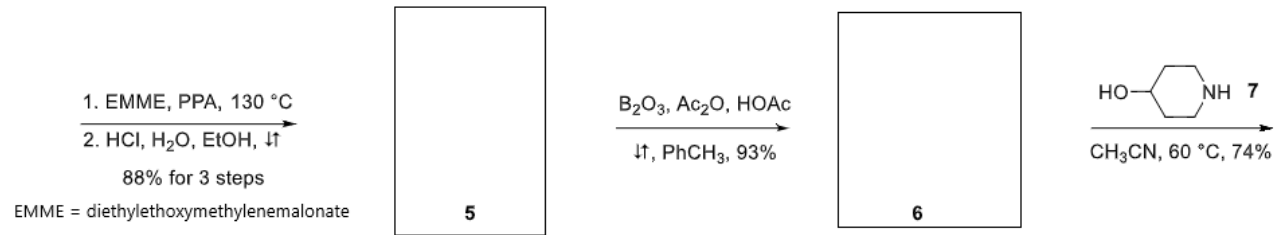
A) Enarodustat (treatment of anemia) by Japan Tobacco, 2020

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B) Alalevonadifloxacin mesylate (antibiotic for skin infection) by Otsuka Pharmaceutical Co., 1996

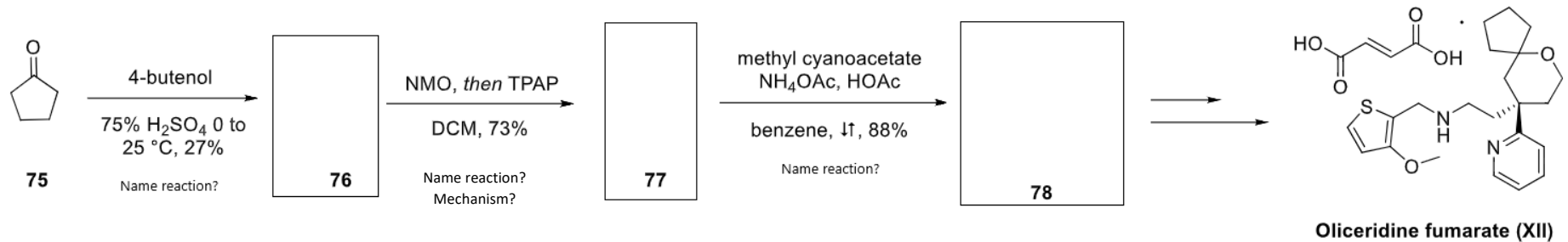




C) Oliceridine fumarate

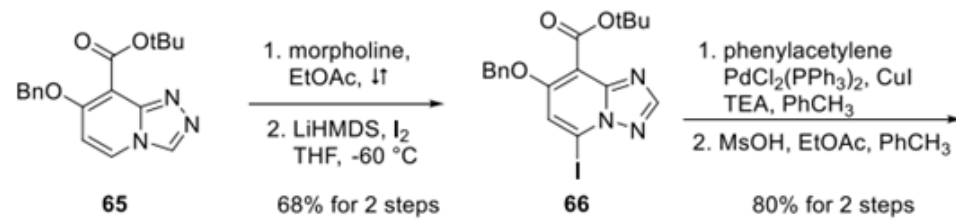
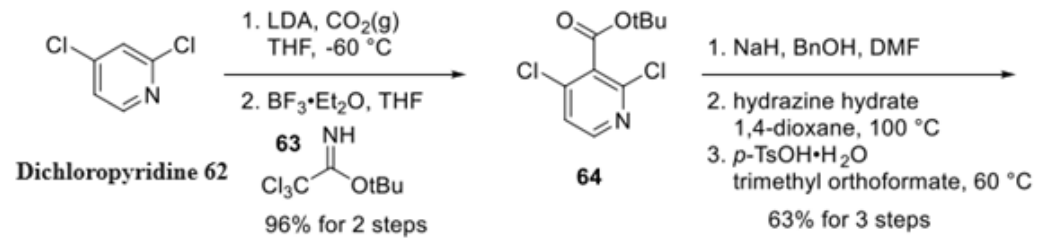
(opioid agonist)

by Trevena , 2020

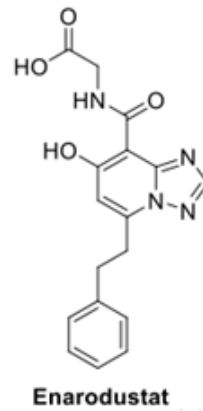
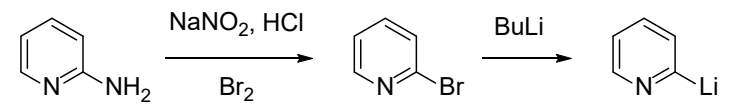
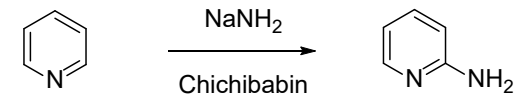
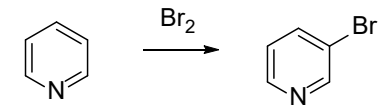
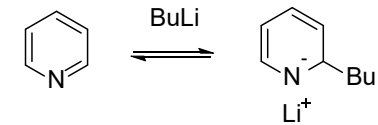
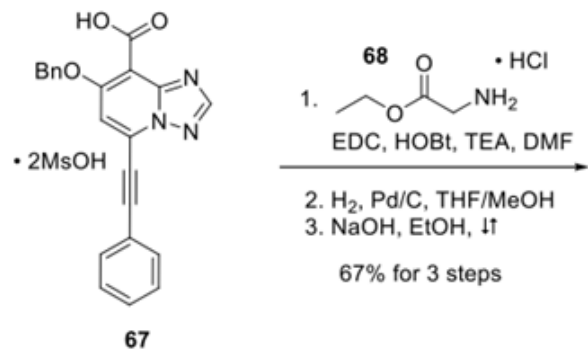


Solutions

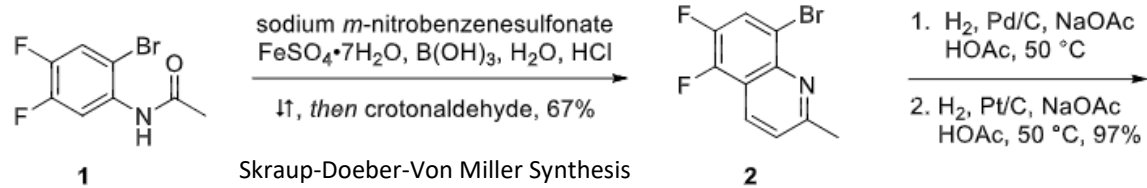
A) Enarodustat



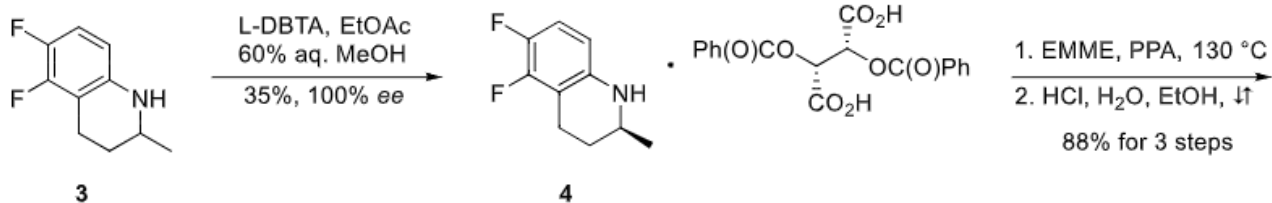
Dimroth rearrangement



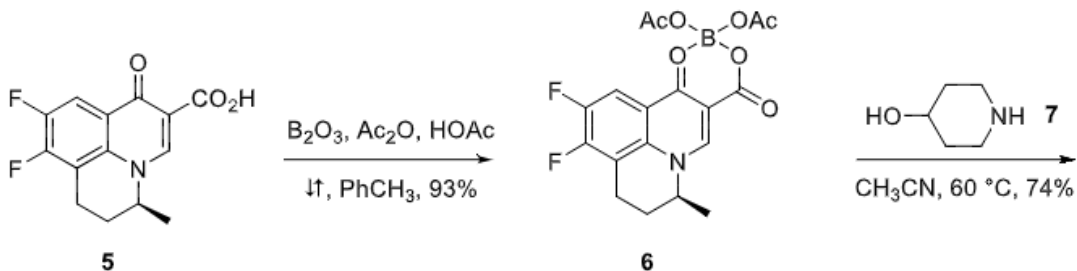
B) Alalevonadifloxacin mesylate



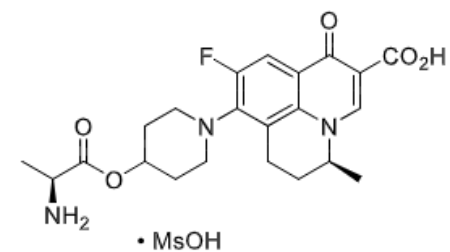
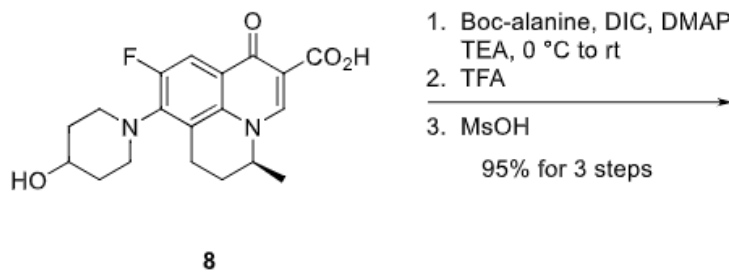
1. H_2 , Pd/C, NaOAc
 HOAc, 50 °C
 2. H_2 , Pt/C, NaOAc
 HOAc, 50 °C, 97%



1. EMME, PPA, 130 °C
 2. HCl, H_2O , EtOH, \downarrow
 88% for 3 steps



HO- **7**
 CH_3CN , 60 °C, 74%



Alalevonadifloxacin mesylate (I)

C) Oliceridine fumarate

