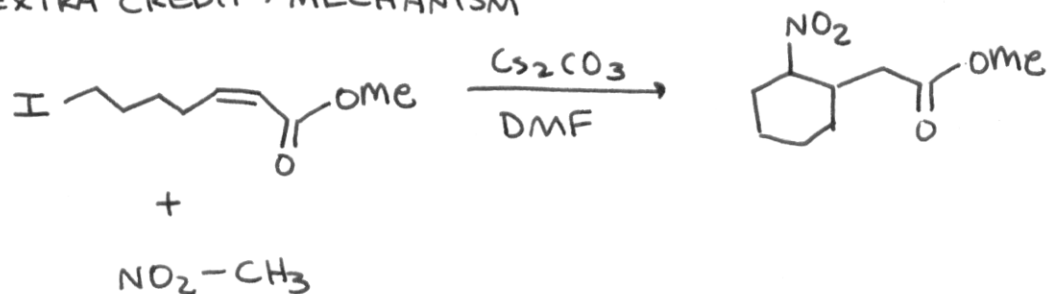


EXTRA CREDIT: MECHANISM

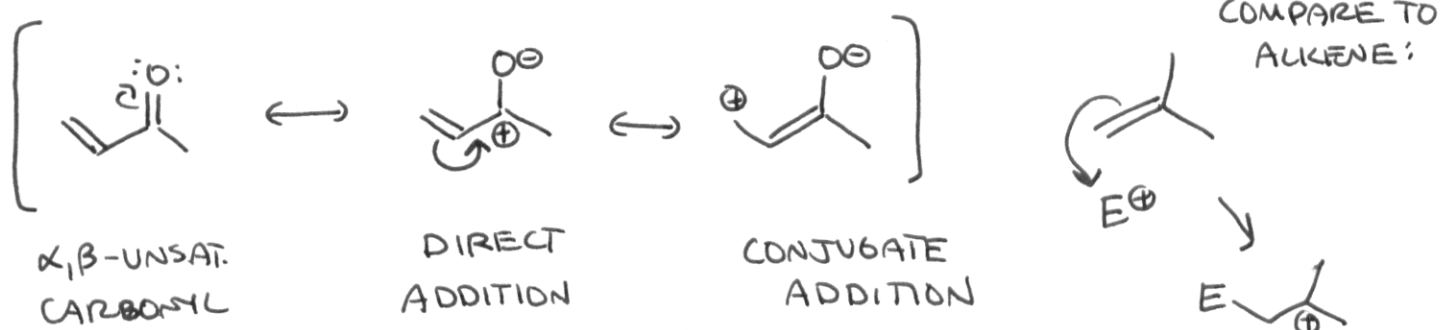
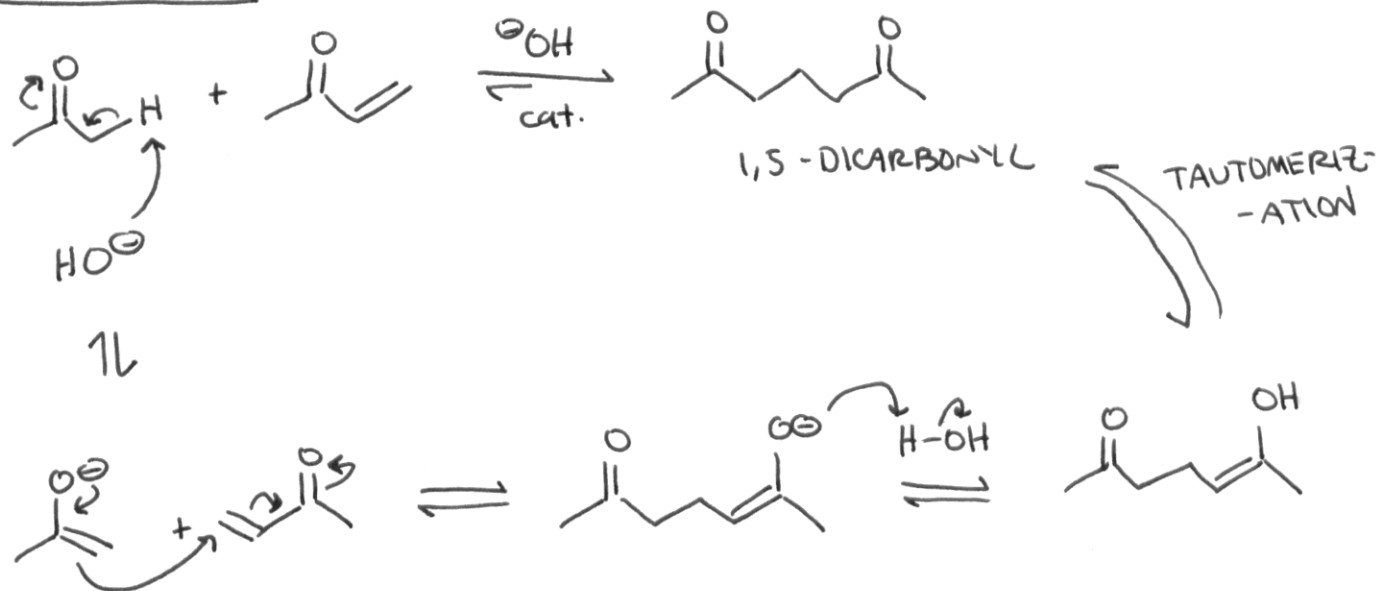


AND/OR: WRITE A BETTER ALDOL SONG THAN HOKEY POKEY

③ MICHAEL REACTION

a. GENERAL

- CONJUGATE ADDITION OF AN ENOLATE TO A α,β -UNSATURATED CARBONYL
- FORMS 1,5-DICARBONYL CC(=O)CCC(=O)C

1. MECHANISM

2. THERMODYNAMICS

TRADE C-C π BOND (~60 kcal/mol)
 FOR C-C σ BOND (~80 kcal/mol)

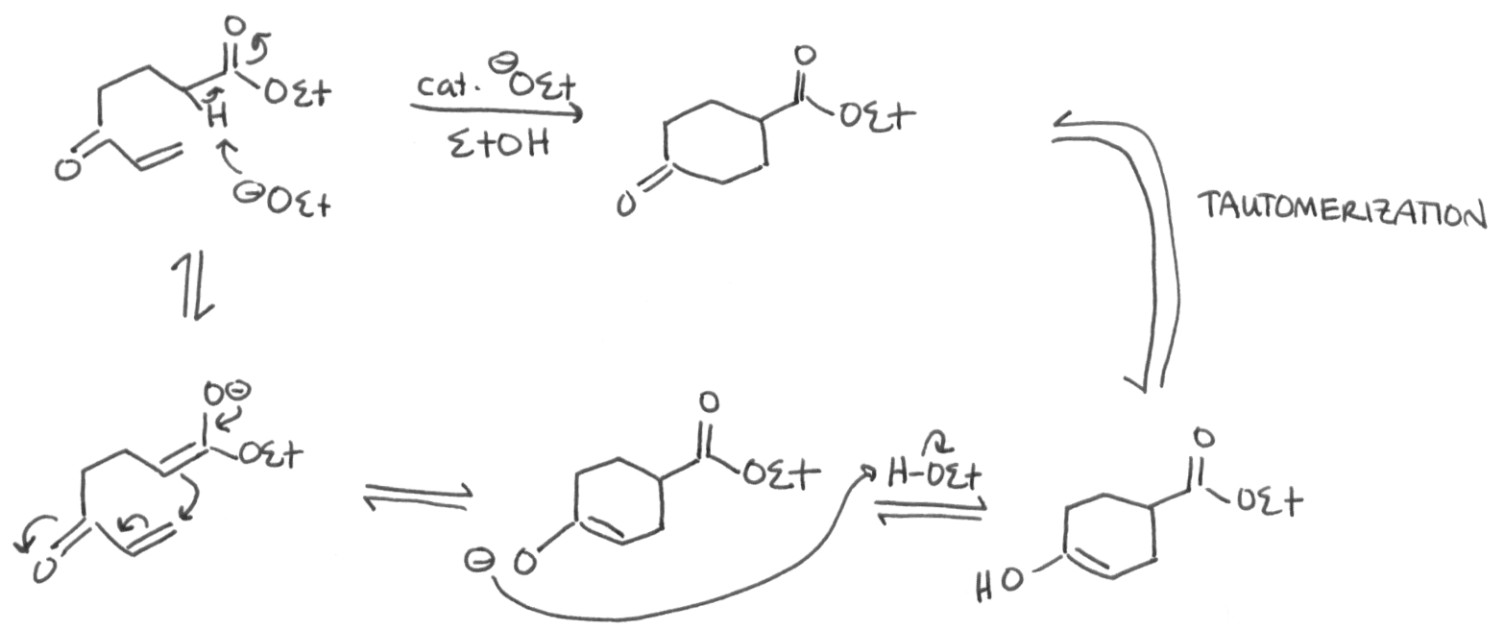
$$\Delta G \approx -20 \text{ kcal/mol}$$

MICHAEL DONOR: ENOLATE OF KETONE, ESTER, 1,3-DICARBONYL

MICHAEL ACCEPTOR: C=C(X) X = H, OR, NR₂



b. EXAMPLE



2. THERMODYNAMICS

TRADE C-C π BOND (~60 kcal/mol)
 FOR C-C σ BOND (~80 kcal/mol)

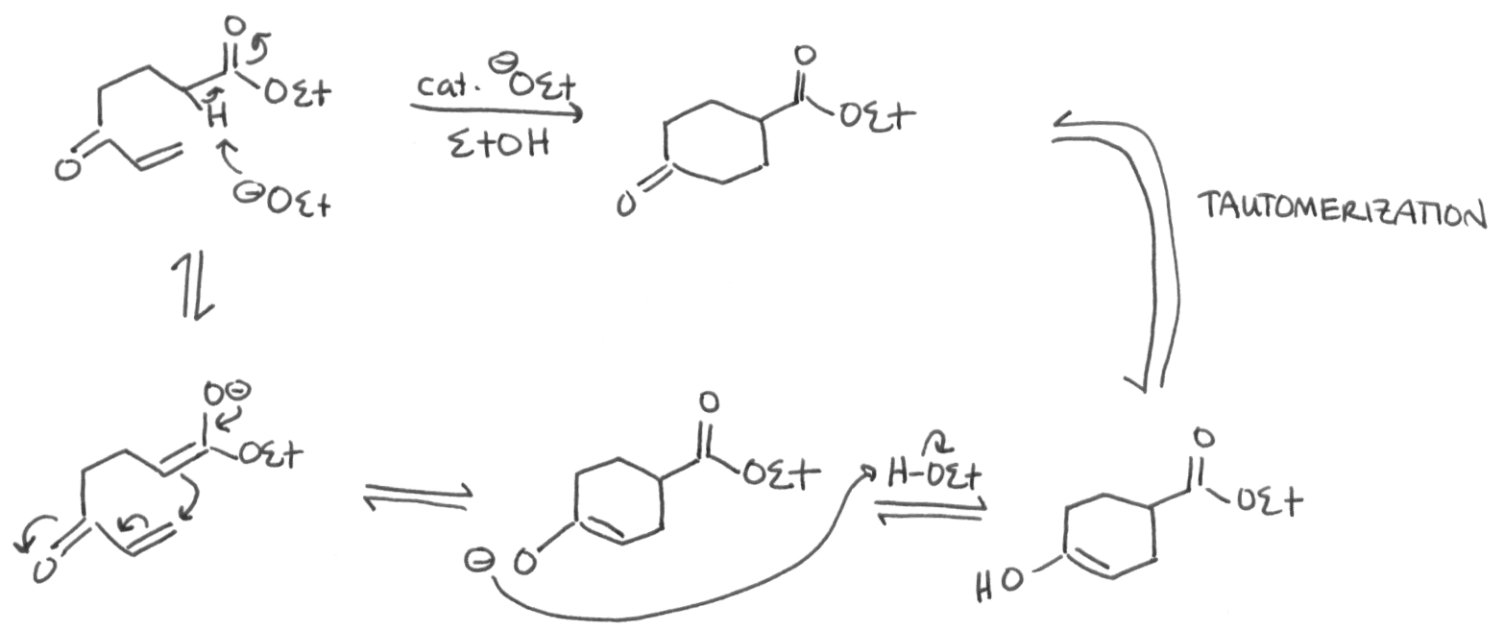
$$\Delta G \approx -20 \text{ kcal/mol}$$

MICHAEL DONOR: ENOLATE OF KETONE, ESTER, 1,3-DICARBONYL

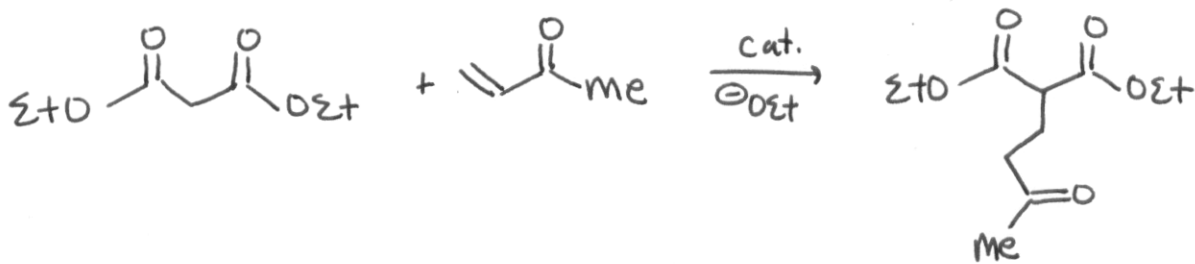
MICHAEL ACCEPTOR: C=C(X) X = H, OR, NR₂



b. EXAMPLE



EXAMPLE:



4. ROBINSON ANNULATION - MAKE 6-MEMBERED RINGS WITH α,β -UNSAT. KETONE

- a. MICHAEL ADDITION
- b. ALDOL
- c. DEHYDRATION

