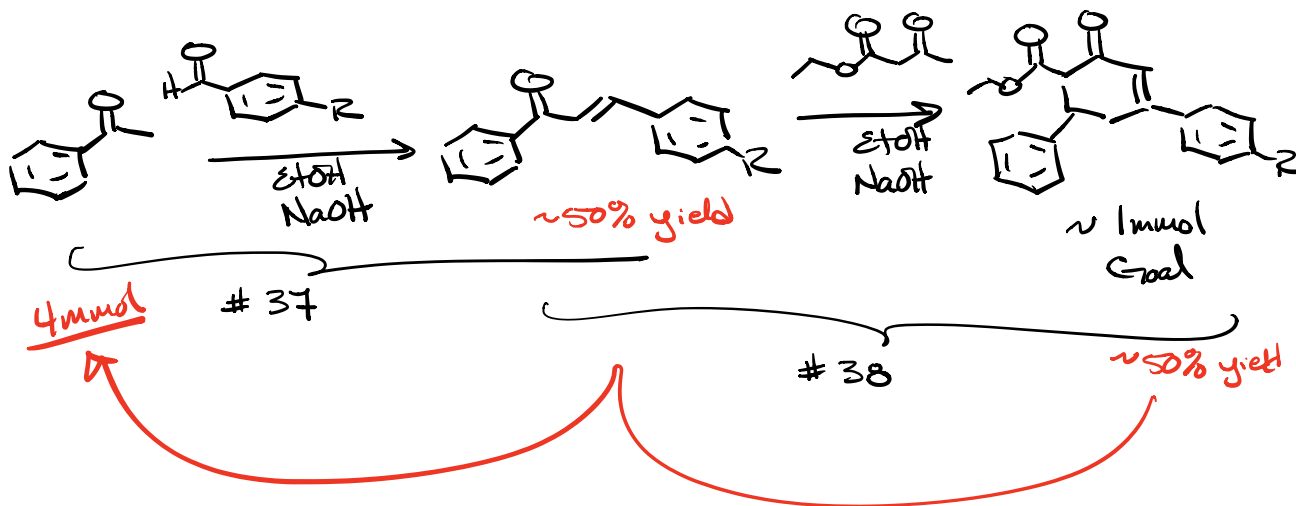


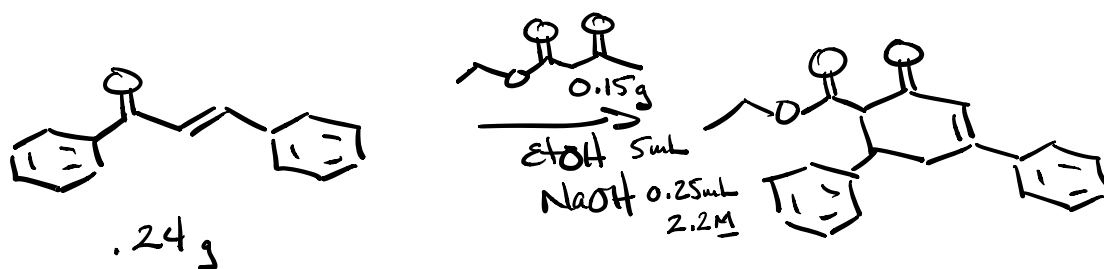
Exp 64



⇒ Last Class we scaled #37 from 1mmol to our required 4mmol

⇒ Today we scale #38 to 2mmol

Experiment 38 scale for 2mmol



⇒ what scale is #38

⇒ scale up to 2mmol

⇒ Chalcone $C_{15}H_{12}O = 208.27 \text{ g/mol}$

⇒ Ethylacetoacetate $C_8H_{10}O_3 = 131.07 \text{ g/mole}$

mmol used

Chalcone

$$0.24 \text{ g} \times \frac{1 \text{ mole}}{208.27 \text{ g}} \times \frac{1000 \text{ mmol}}{1 \text{ mole}} = 1.15 \text{ mmol}$$

Ethylacetoacetate

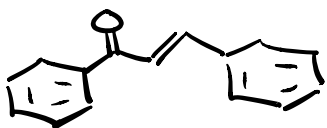
$$0.15 \text{ g} \times \frac{1 \text{ mole}}{131.07 \text{ g}} \times \frac{1000 \text{ mmol}}{1 \text{ mole}} = 1.14 \text{ mmol}$$

$$\text{Scaling factor } R_{\text{rxn}} \times \frac{2 \text{ mmol}}{1.15 \text{ mmol}} = 2 \text{ mmol}$$

↑
scale factor

$$\frac{2.00}{1.15} = 1.74$$

multiply all values by 1.74 to make a 2 mmol R_{rxn} .



$$0.24 \text{ g} \times 1.74 = 0.42 \text{ g}$$



$$0.15 \text{ g} \times 1.74 = 0.26 \text{ g}$$

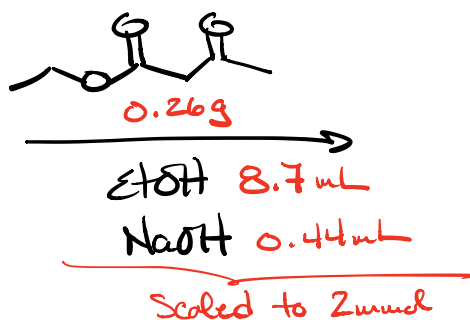
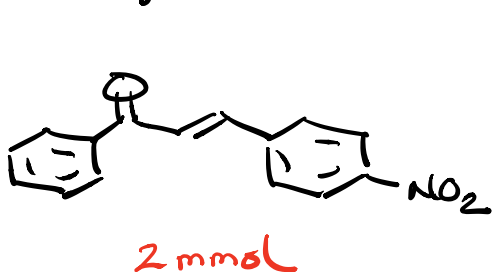
$$\text{EtOH } 5 \text{ mL} \times 1.74 = 8.7 \text{ mL}$$

$$\text{NaOH } 0.25 \text{ mL} \times 1.74 = 0.44 \text{ mL}$$

$$\text{work up } 2 \text{ mL DI} \times 1.74 = 3.5 \text{ mL}$$

$$\text{Total Volume} = 13.3 \text{ mL} \Rightarrow 25 \text{ mL RB}$$

Assigned the Nitro derivative



$$0.002 \text{ mol} \times \frac{253.26 \text{ g}}{1 \text{ mole}} = 0.51 \text{ g}$$

$$C_{15}H_{11}NO_3 = 253.26 \text{ g/mol}$$

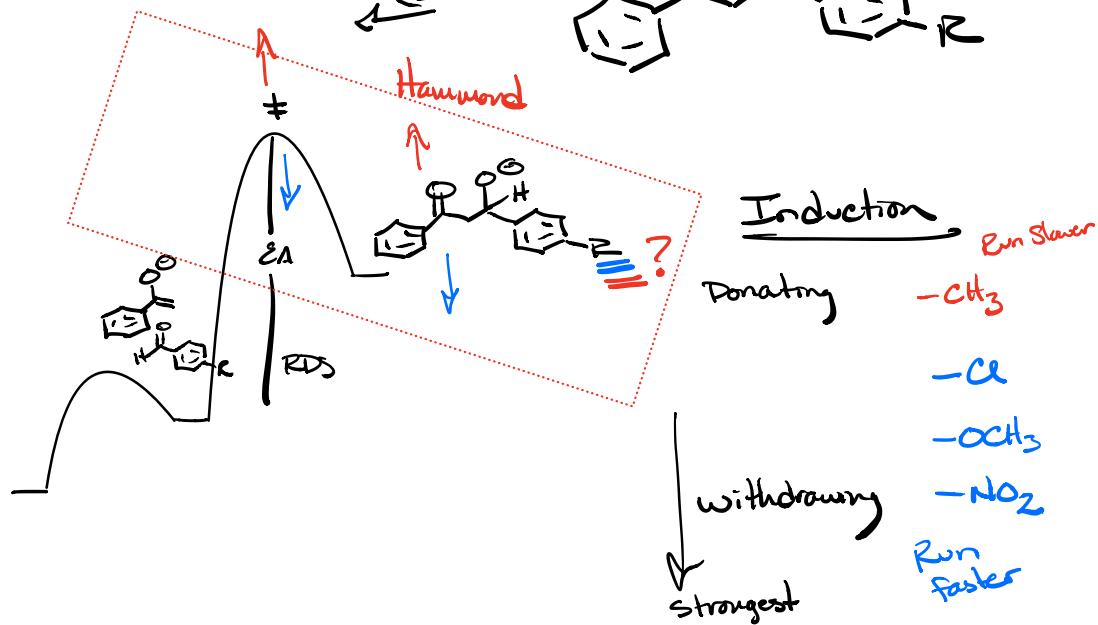
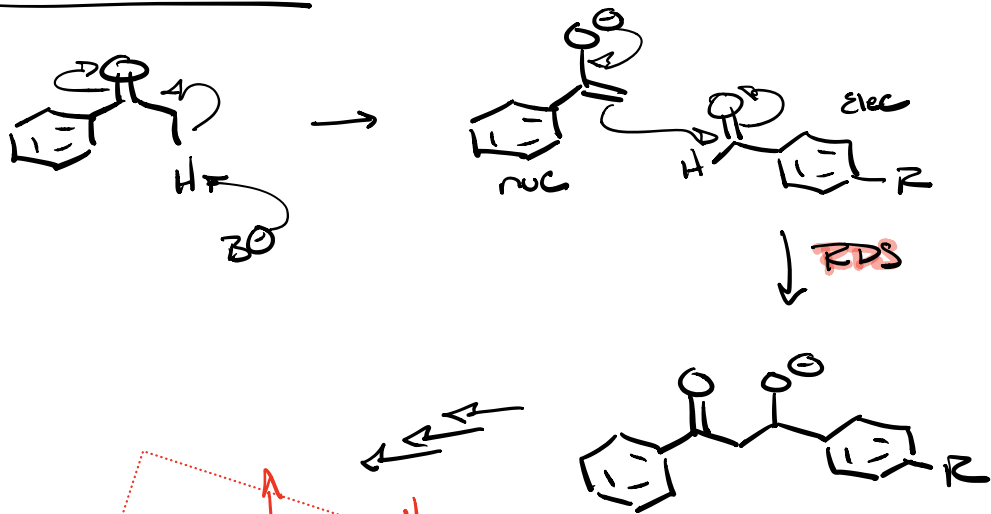
Reaction \approx 0.22M in concentration

$$\text{Rate} = k [\text{Chalcone}] [\text{Ethylacetate}]$$

Substituents

- OCH₃ methoxy ^{3.5}
- Cl chloro ^{2.7}
- NO₂ Nitro
- CH₃ methyl

Reaction 37



⇒ Nitro too activating ⇒ need to slow it down

ways to slow Rxn down

① Temp ⇒ 0°C or -20°C

② Decrease conc. of Reactants ⇒ more Solvent

③ Decrease conc. of NaOH 12M → 2.2M

④ Decrease volume of NaOH 0.44ml → 1 drop

