**Experiment 23: Aldols**

One of the most important carbon-carbon bond forming reactions is the formation of an aldol by reacting an enolate nucleophile with a carbonyl. Aldol reactions include simple addition, condensation, and crossed aldol varieties.

### Preparations

**Read:** Exp 23: Aldol Reaction, p326.
- Enolate formation in your lecture text.
- Aldol Reactions in your lecture text,

**Do:** Produce Scheme and Calculate Quantities
- Identify the Objective of each Experiment
- List Materials w/ Properties
- Organize Procedures

### Intended Learning Outcomes

- Identify the carbonyl $\alpha$ and $\beta$ carbons and hydrogens.
- Show with arrows how a negative charge can be formed and stabilized on an alpha $\alpha$.
- Show with arrows how an $\alpha$ carbon can be made a nucleophile.
- Show with arrows the formation of an enolate ion.
- Predict the thermodynamically and kinetically favored enolate for an asymmetrically substituted ketone.
- Predict the product of a simple aldol addition.
- Show with arrows the acidic and basic mechanisms for an aldol addition.
- Describe two factors that can control selectivity in a crossed aldol reaction.
- Identify the electrophilic and nucleophilic carbons that will bond in a crossed aldol reaction.
- Predict the product of a crossed aldol addition.
- Recognize a condensation reaction.
- Predict the produce of a crossed aldol condensation reaction.

### Report

Prepare a report for this experiment according to this experiments report description for the parts we accomplished. Include the questions with answers for this experiment, except any your instructor tells you to omit.