

Chemistry 2302

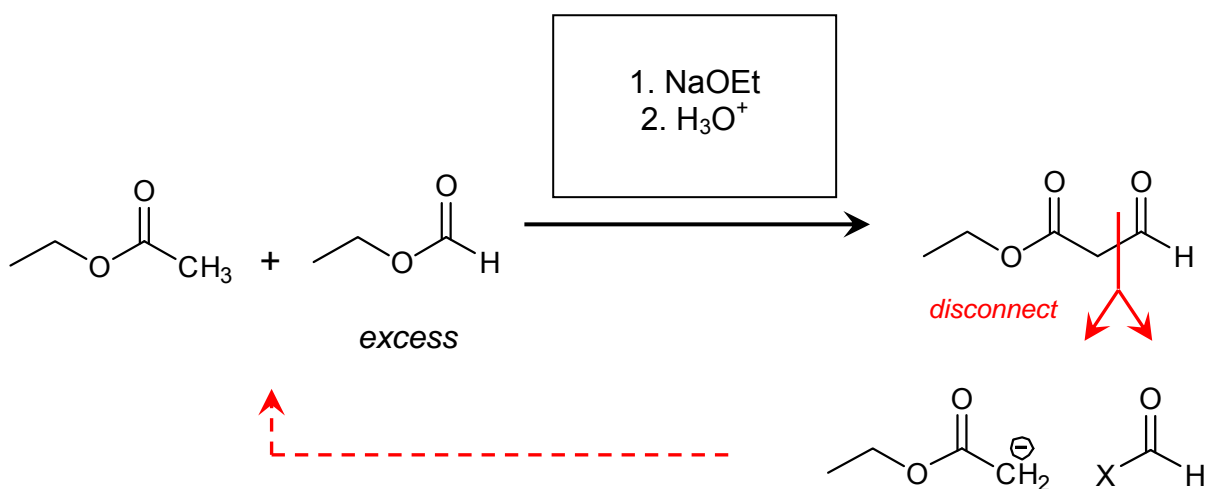
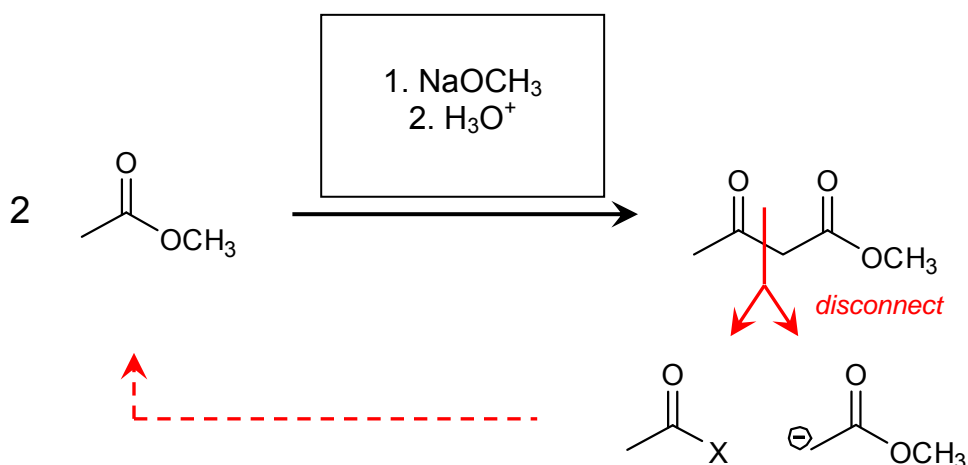
In-Class Exercise Solutions Planning Claisen Reactions

For each of the products below:

- Draw the carbonyl-containing starting material or materials that would be needed to make the product; and
- Give the appropriate reaction conditions.

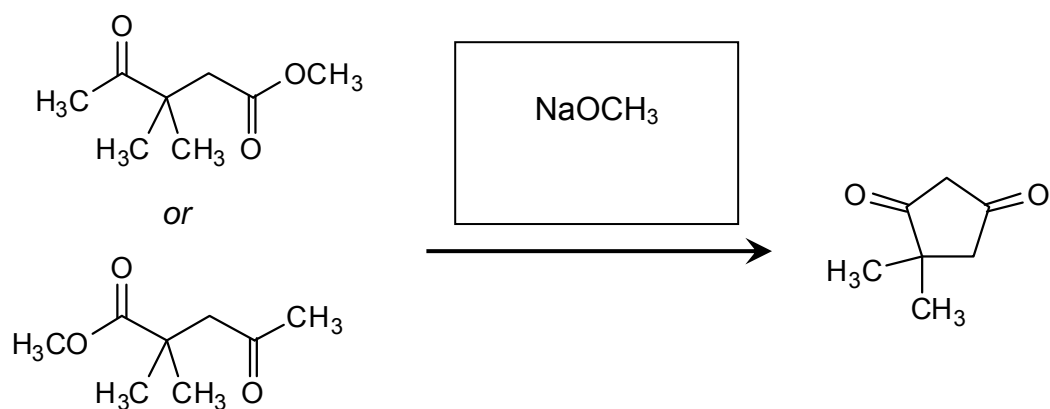
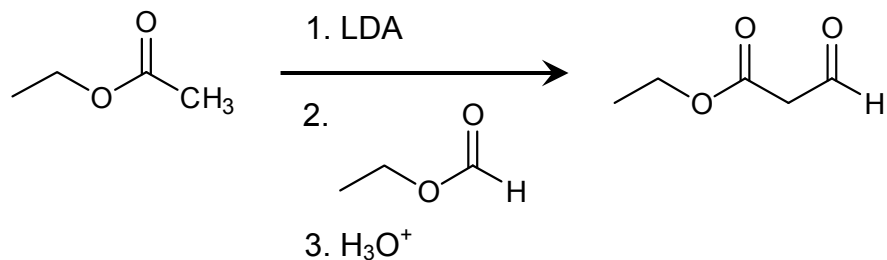
Starting materials:

Reaction conditions:

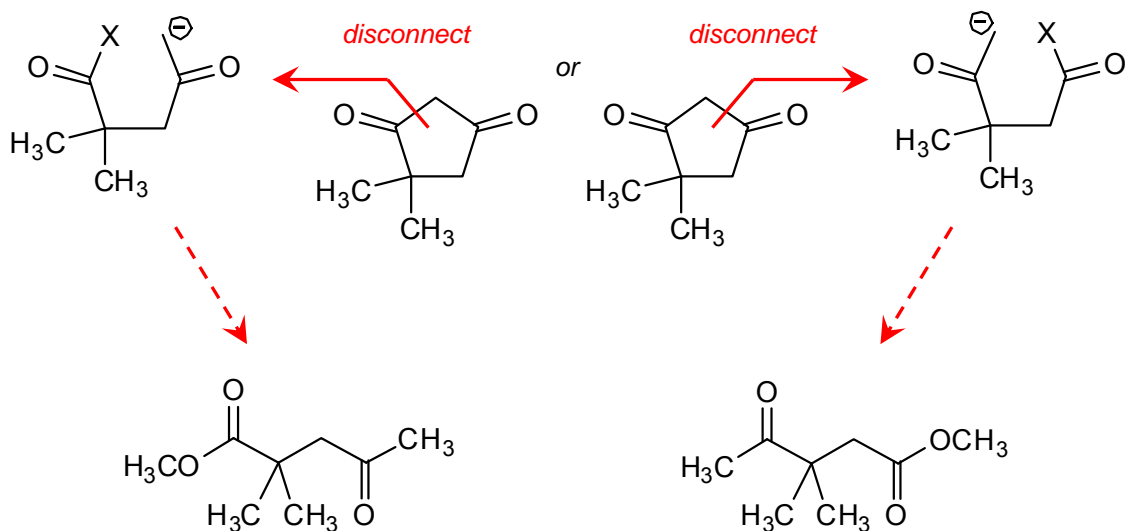


This works out well, because the aldehyde doesn't have enolizable protons. So all we need to do to make this mixed Claisen work is to use an excess on the non-enolizable component, and we can do the whole thing in one mixture.

If we had wanted to, however, we could have done the reaction as a directed Claisen, in which the enolate we want reacts with the electrophile we want, in the way that we want it:



This last one is an intramolecular crossed-Claisen condensation. We could in principle disconnect in one of two places:



Either of these answers is fine. They both work because the ketone is more acidic than the ester, so it deprotonates selectively; and then the enolate attacks the ester on the other side.