19.13
Reactions of Carboxylic Acids: A Review and a Preview

Reactions of Carboxylic Acids

Reactions already discussed

Acidity (Sections 19.4-19.9)

Reduction with $LiAlH_4$ (Section 15.3)

Esterification (Section 15.8)

Reaction with Thionyl Chloride (Section 12.7)

Reactions of Carboxylic Acids

New reactions in this chapter

α-Halogenation

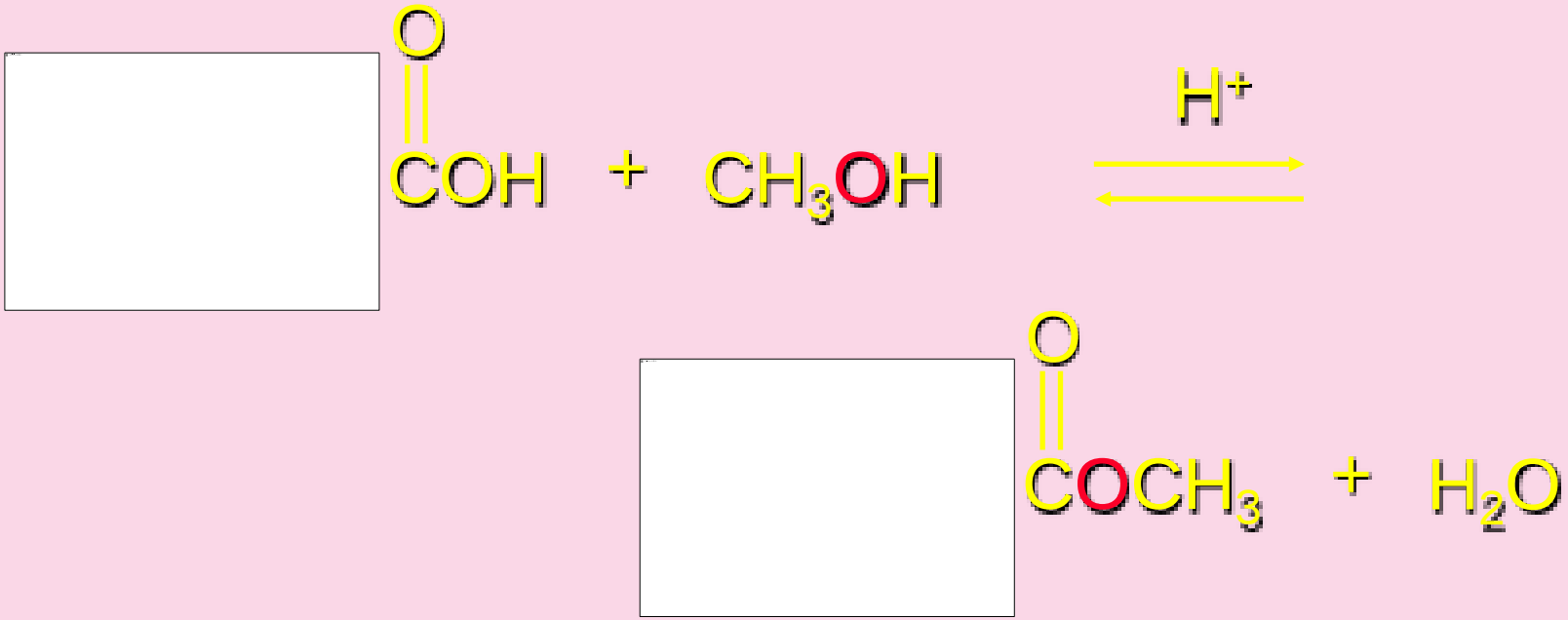
Decarboxylation

But first we revisit acid-catalyzed esterification to examine its mechanism.

19.14
Mechanism of Acid-Catalyzed Esterification

Acid-catalyzed Esterification

(also called Fischer esterification)



Important fact: the oxygen of the alcohol is incorporated into the ester as shown.

Mechanism of Fischer Esterification

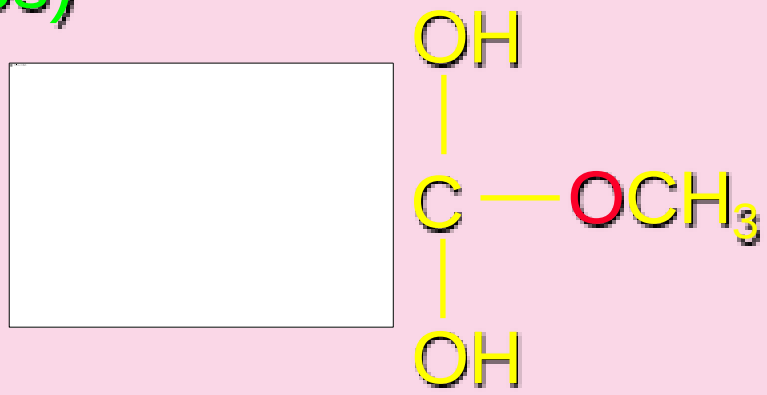
The mechanism involves two stages:

1) formation of tetrahedral intermediate (3 steps)
2) dissociation of tetrahedral intermediate (3 steps)

Mechanism of Fischer Esterification

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1) formation of tetrahedral intermediate (3 steps)
2) dissociation of tetrahedral intermediate (3 steps)



tetrahedral intermediate in esterification of benzoic acid with methanol

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