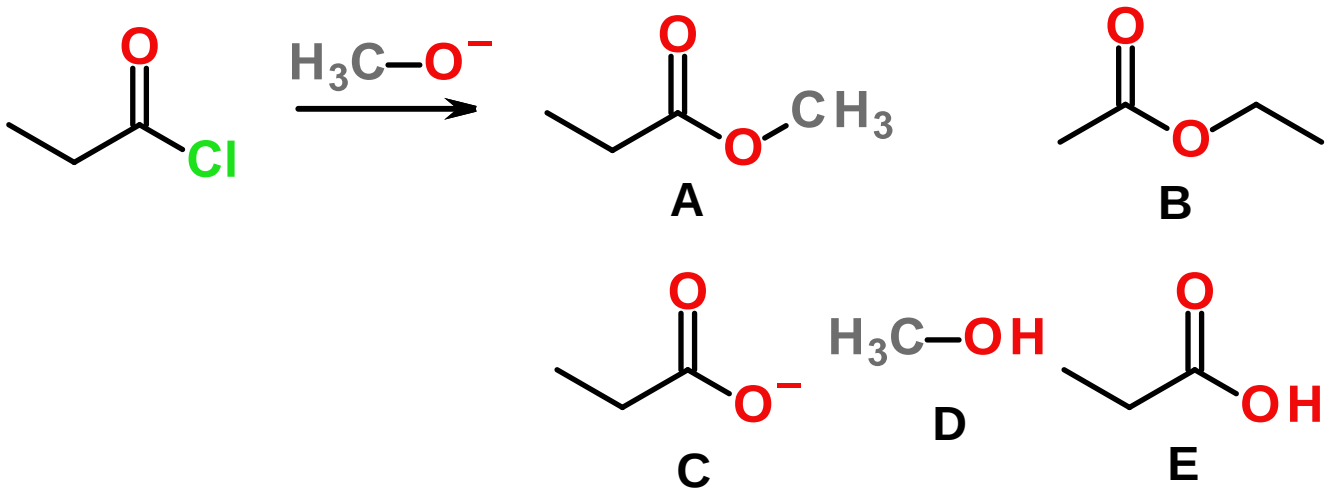
Give the major organic product(s) of the following reaction.

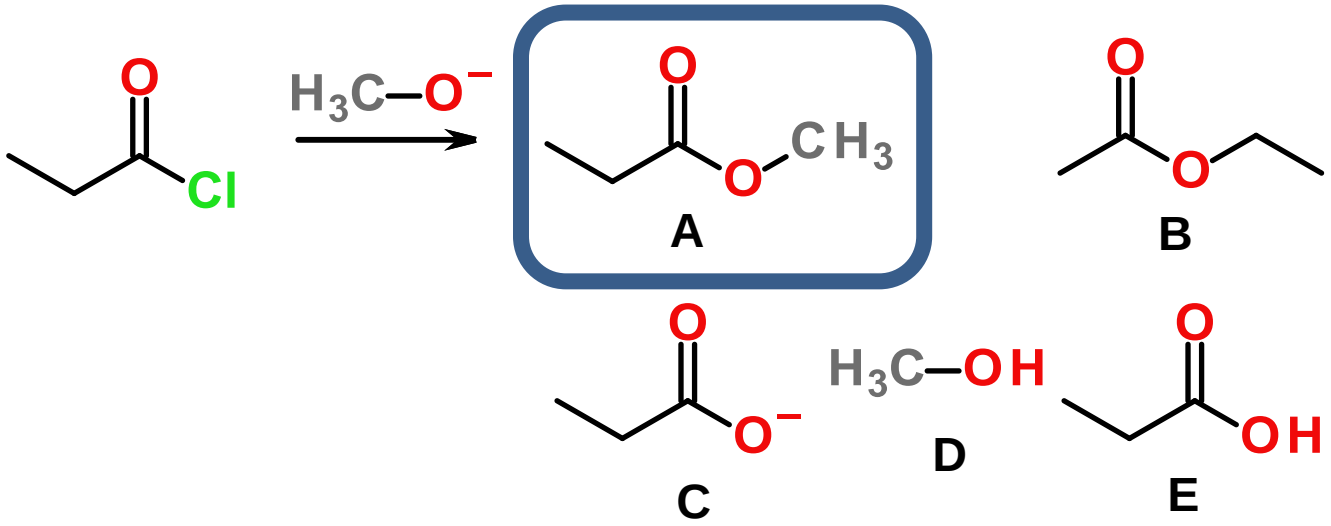
2016-10-10 Q1



F - None of these products are a major product of the reaction that is shown.

Give the major organic product(s) of the following reaction.

2016-10-10 Q1



F - None of these products are a major product of the reaction that is shown.

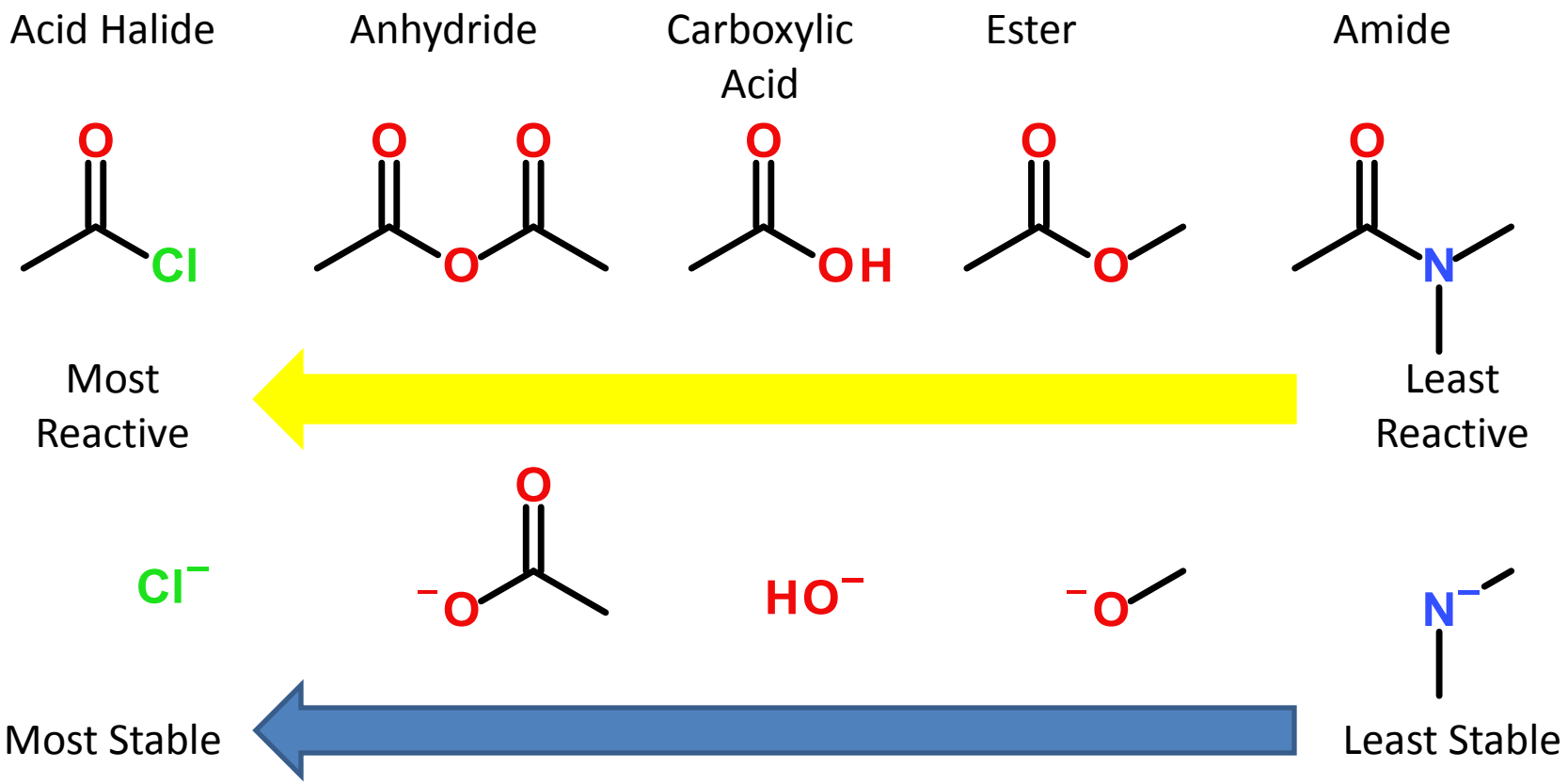
Exam 2

- **Time:**
  - **Tuesday, October 18: 7:00 – 9:00PM OR**
  - **Wednesday, October 19: 7:00 – 9:00PM OR**
  - **Thursday, October 20: 7:00 – 10:00PM**
- **Location – Soc/Anthro Testing Center**
  - Chapters will be covered in this order: Chapter 19, 12
- **Practice Exams are Posted**
  - Ex2-14-98 Practice Exam 2A
  - Ex2-14-98 Practice Exam 2B
- **Deadline for alternate arrangements is Monday, 10/17/2016 at 4:30 PM (i.e., close of business)**
  - **An oral make-up exam will be required for making up the exam for all students not taking the exam on the above dates or having already made prior arrangements**

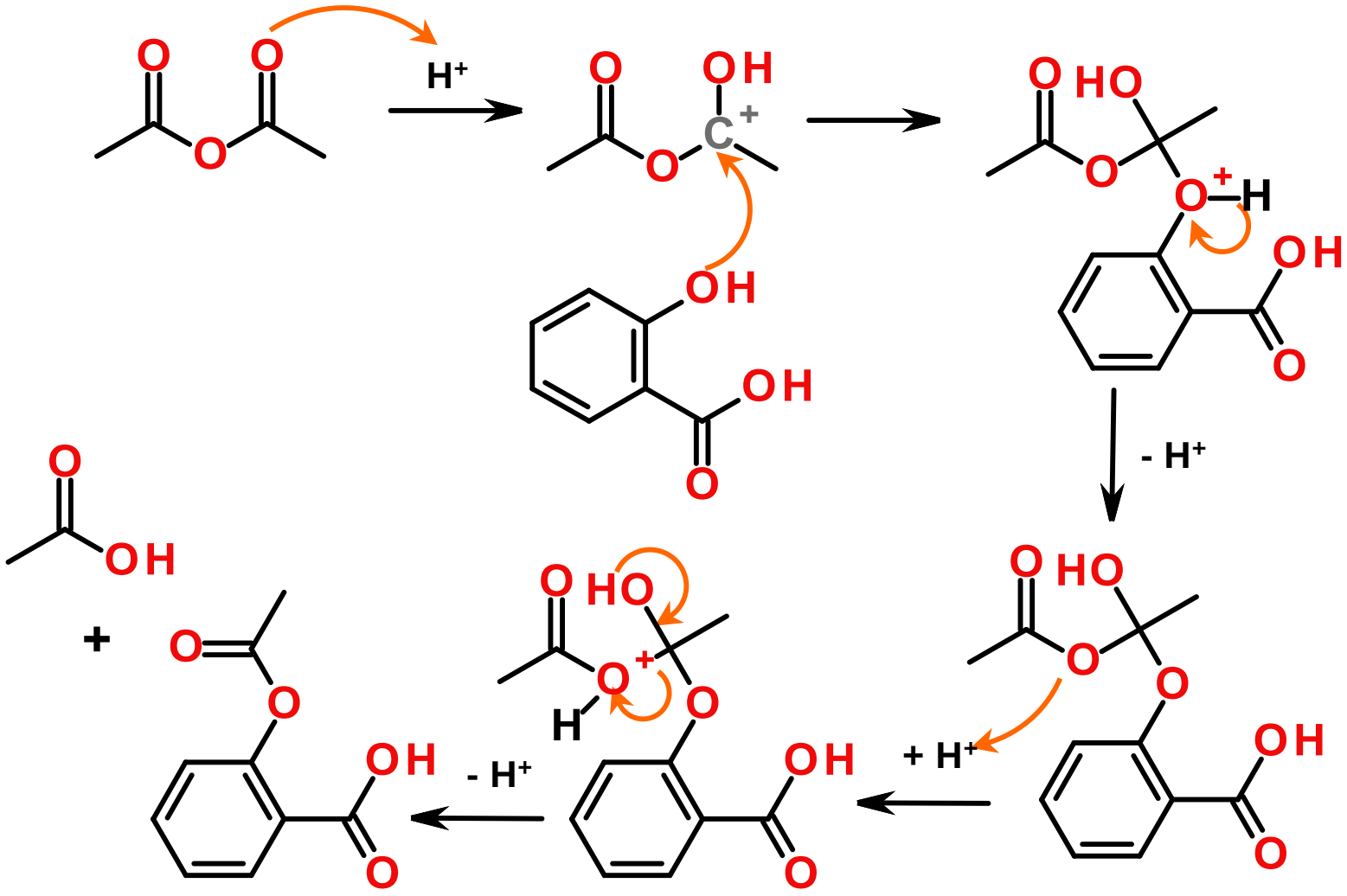
Order of Coverage (Exam 2)

	Homework Assignment	Due Date
13	Ex2-07-B7-12-03A Carbox Acid Rxns	Thursday, October 6, 2016
14	Ex2-07-B7-12-03B Carbox Acid Rxns	Friday, October 7, 2016
15	Ex2-08-B7-12-04A Naming Carbox Acid Derivatives	Saturday, October 8, 2016
16	Ex2-08-B7-12-04B Naming Carbox Acid Derivatives	Sunday, October 9, 2016
17	Ex2-09-B7-12-05A Rxns Acid Chlorides	Monday, October 10, 2016
18	Ex2-09-B7-12-05B Rxns Acid Chlorides	Tuesday, October 11, 2016
19	Ex2-10-B7-12-06A Rxns Esters	Wednesday, October 12, 2016
20	Ex2-10-B7-12-06B Rxns Esters	Thursday, October 13, 2016
21	Ex2-11-B7-12-07A Rxns Amides	Friday, October 14, 2016
22	Ex2-11-B7-12-07B Rxns Amides	Saturday, October 15, 2016
23	Ex2-12-B7-12-08A Step Growth Polymers	Sunday, October 16, 2016
	Exam 2	**October 18, 19, 20**

Carboxylic Acid Derivatives



Reactions of Anhydrides

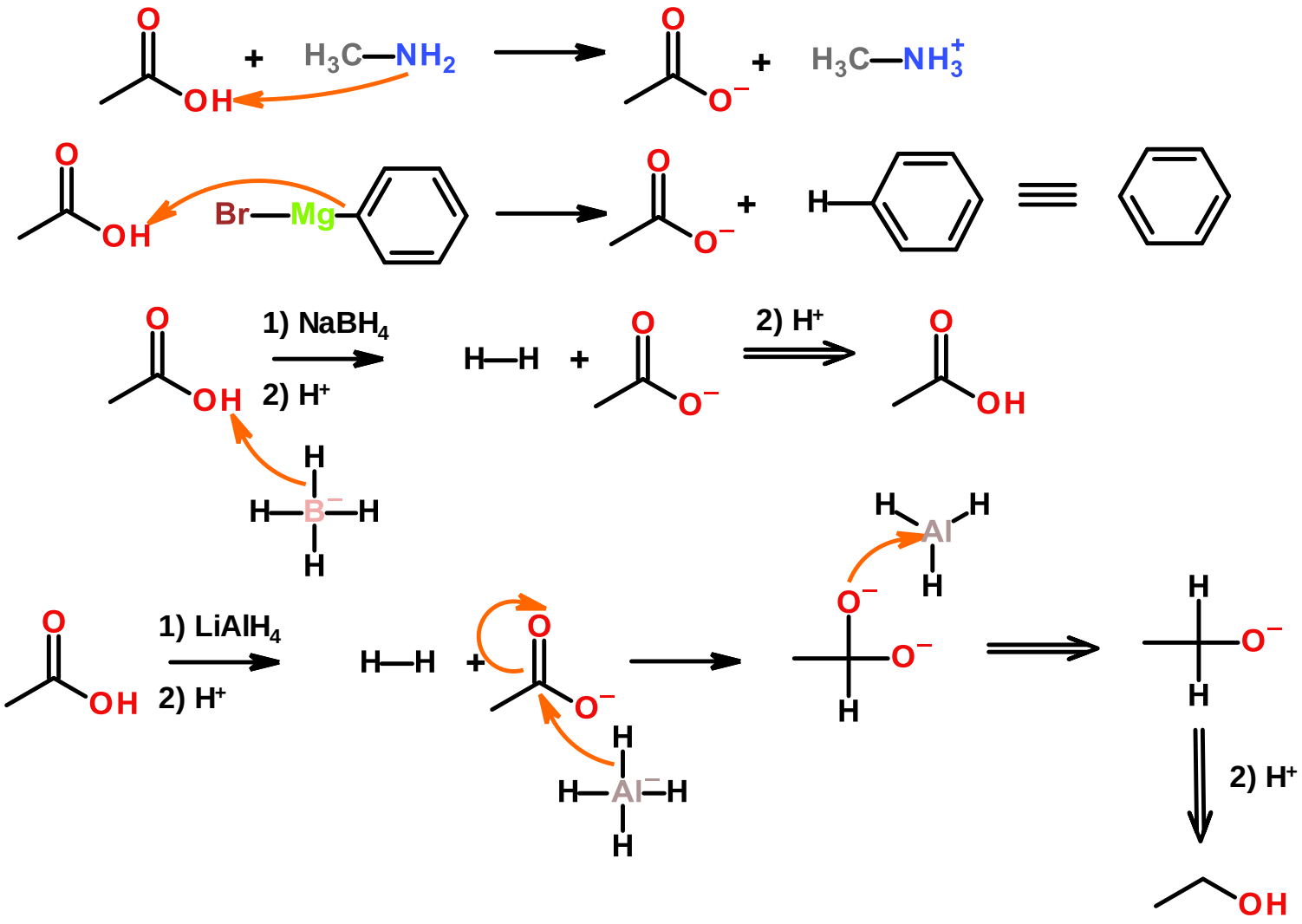


Reactions of Carboxylic Acids

- Acid/Base
  - Amines, no heat
  - RMgBr
  - $NaBH_4$
- Addition of Nucleophiles
  - $LiAlH_4$ (Reduction to alcohols)
- Conversion into other carboxylic acids
  - Acid Chlorides ($SOCl_2$ or PCl_3, heat)
  - Esters
    - Acid-catalyzed, heat
  - Amides
    - Base-catalyzed
    - Acid-catalyzed

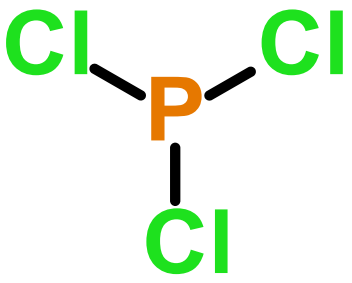
Review:
Do we need to cover this again?

Review of Carboxylic Acid Rxns Covered to Date

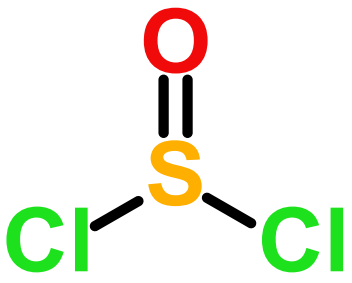


Carboxylic Acids to Acid Chlorides

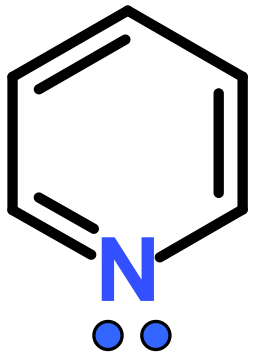
- PCl_3 or $SOCl_2$
  - Heat is required
  - Pyridine acts as an organic base



PCl_3

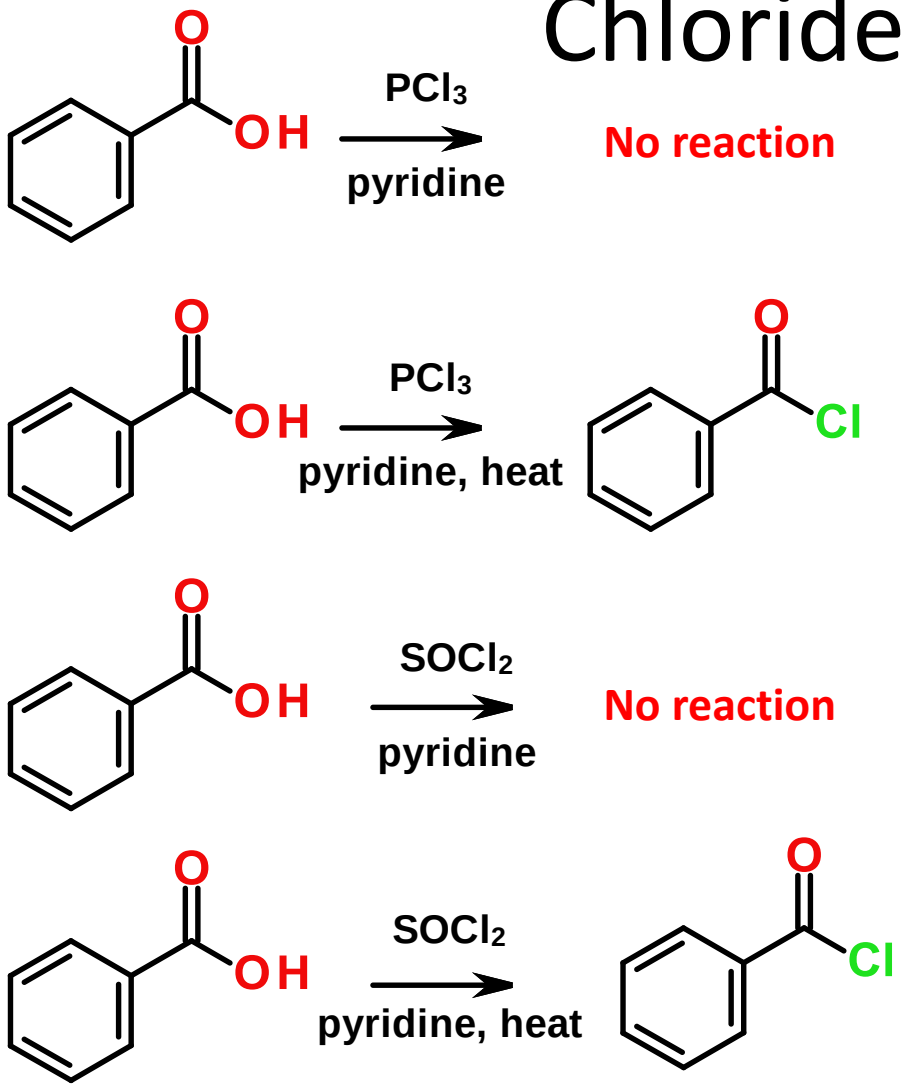


$SOCl_2$

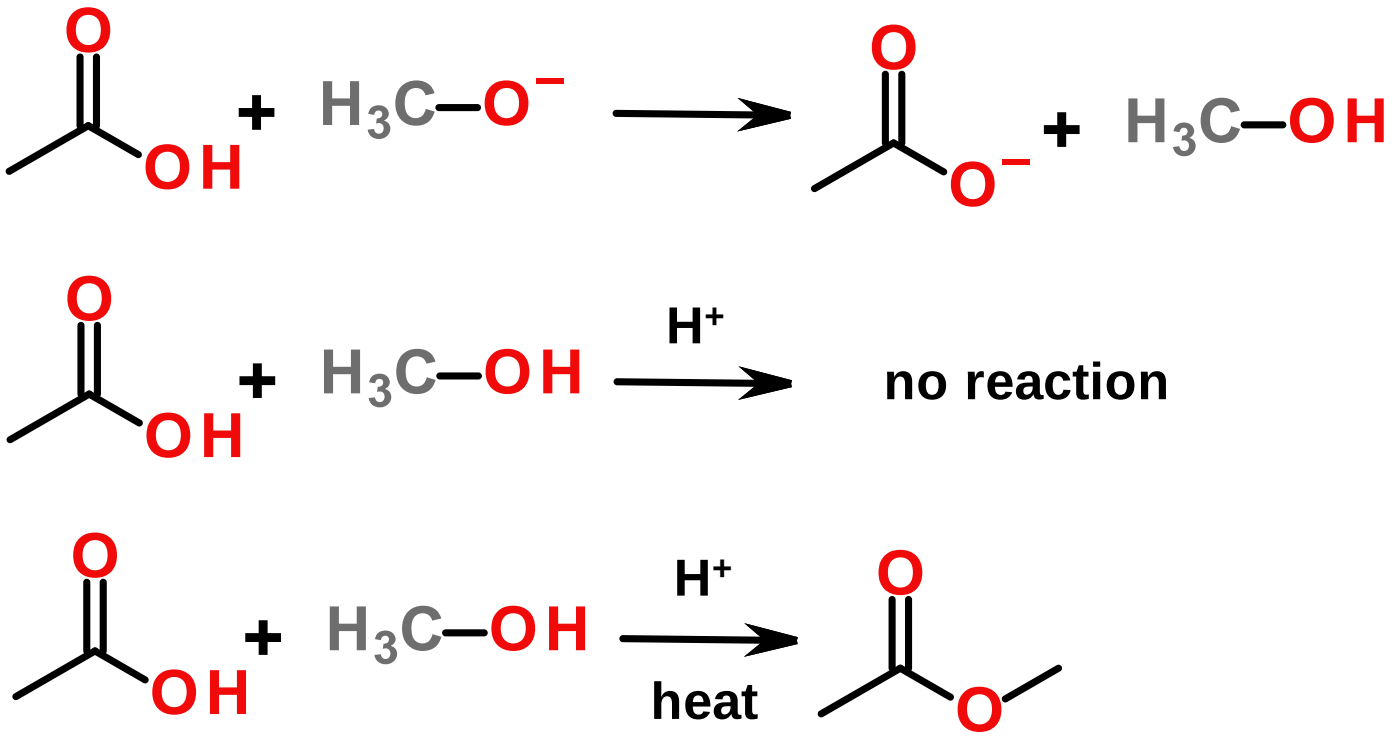


pyridine

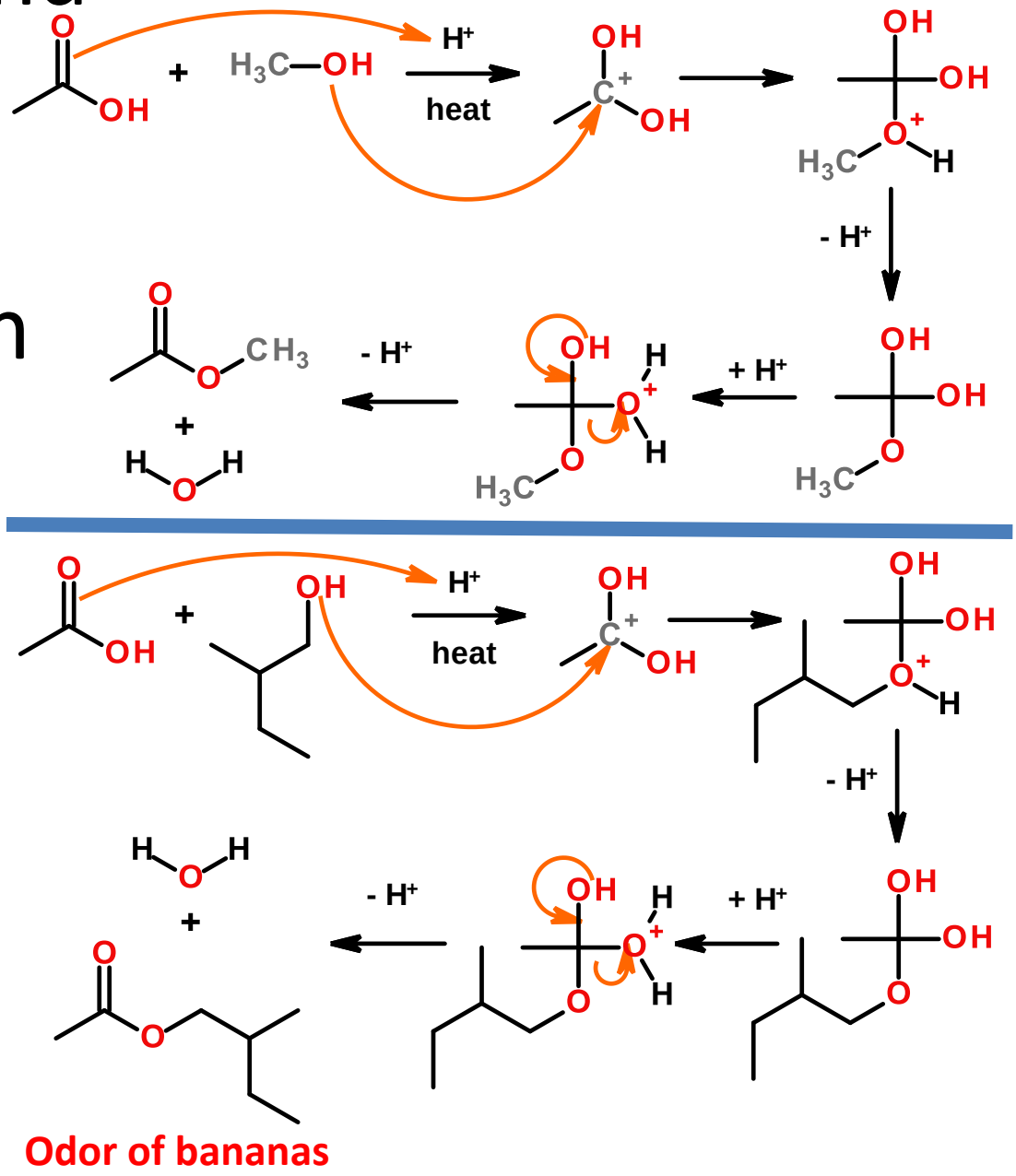
Examples: Carboxylic Acids to Acid Chlorides



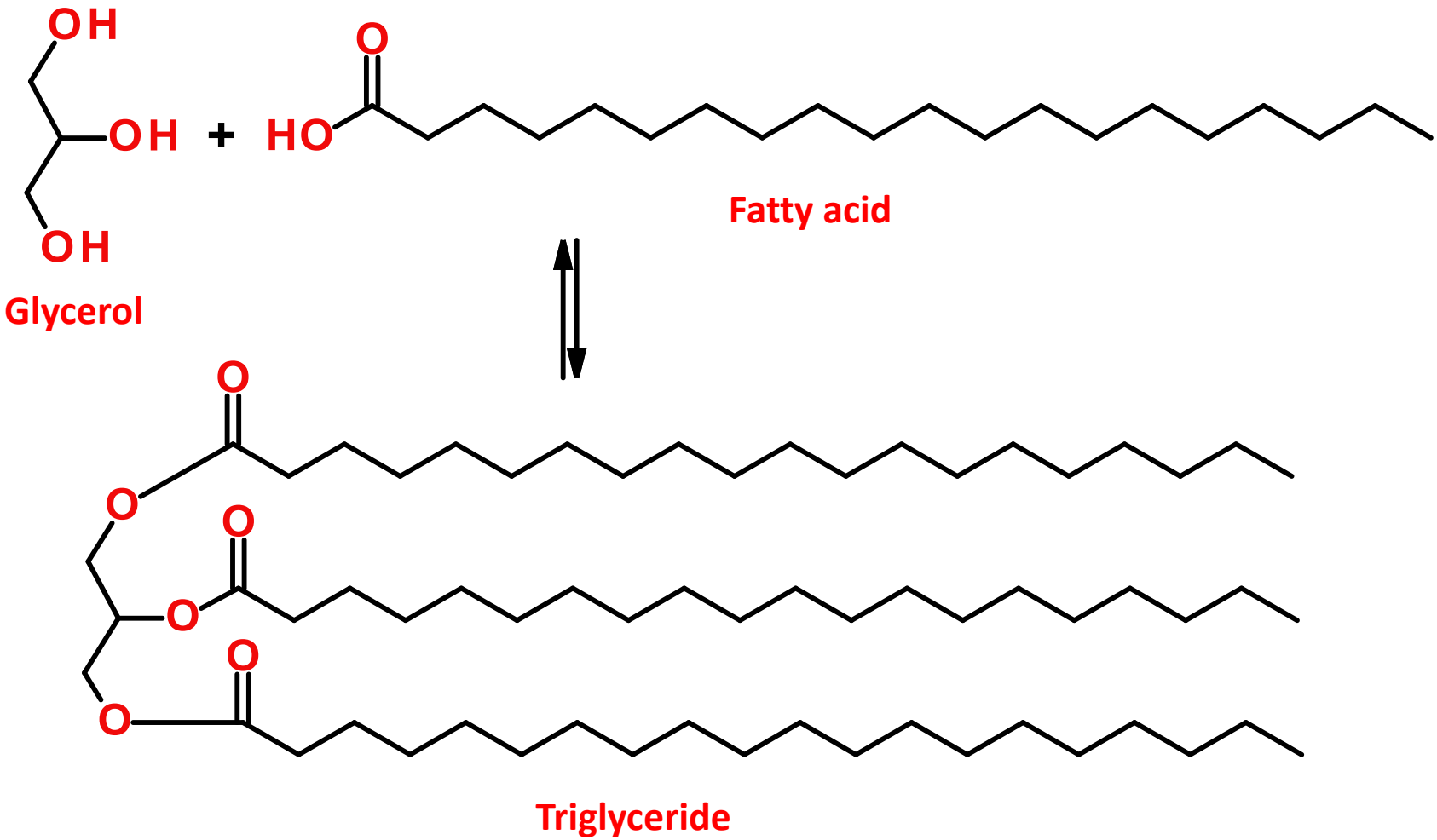
Carboxylic Acids to Esters



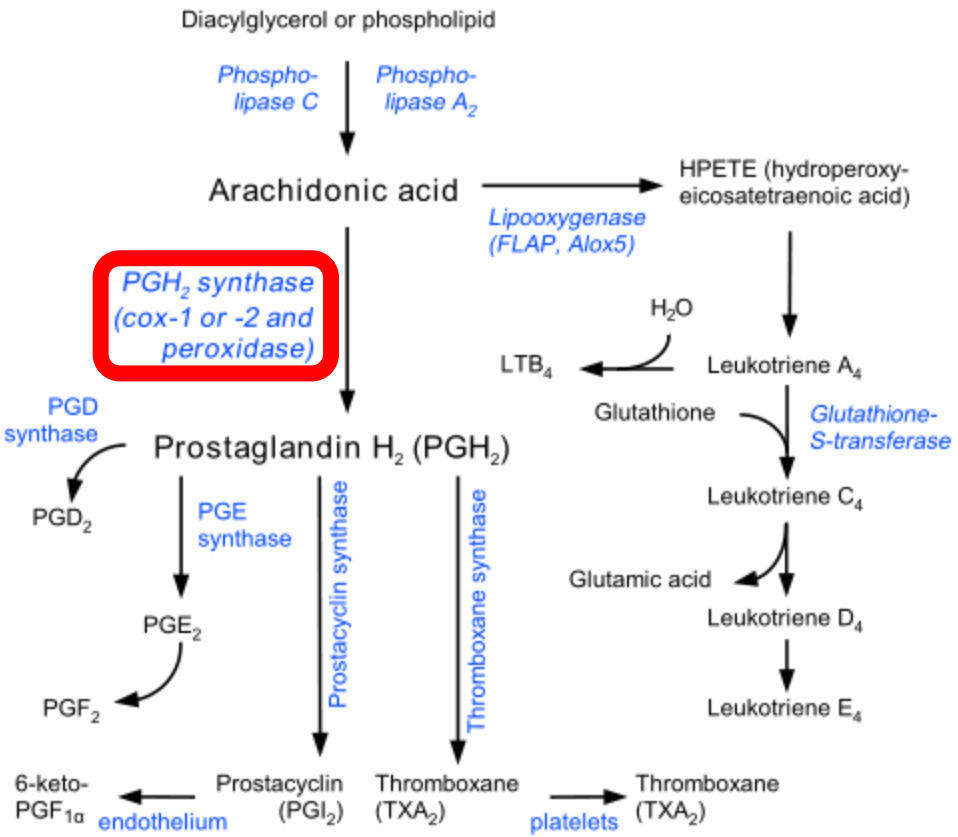
Mechanism and Examples of Fischer Esterification

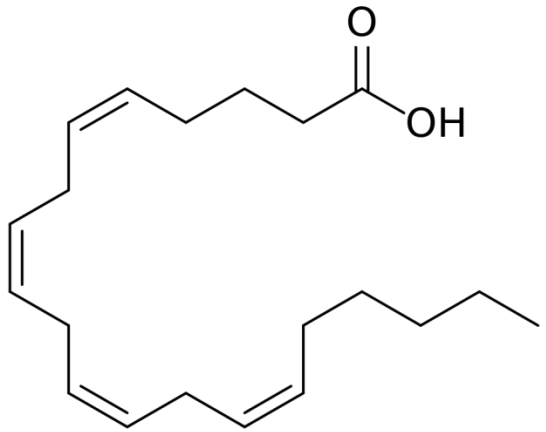


Biological Example #1

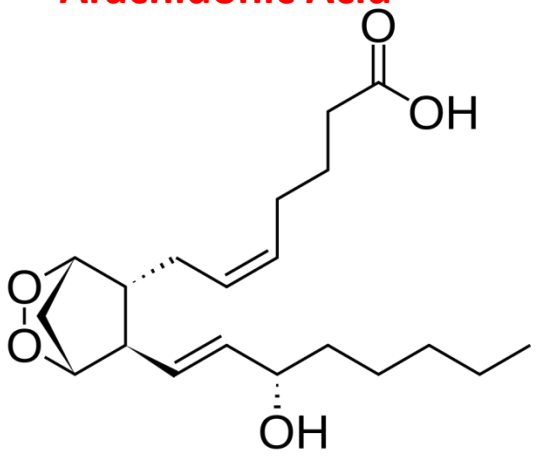


Biological Example #2





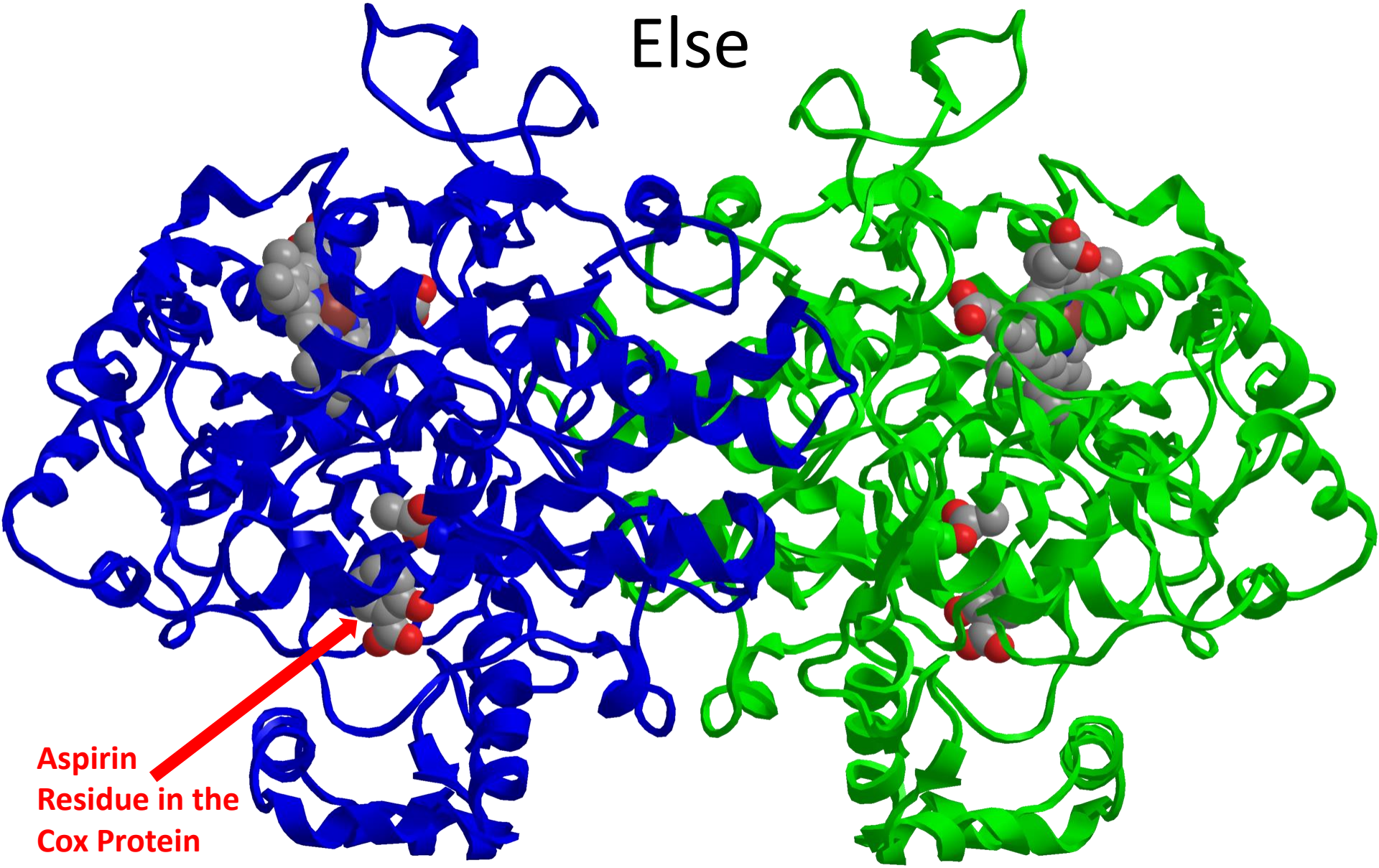
Arachidonic Acid



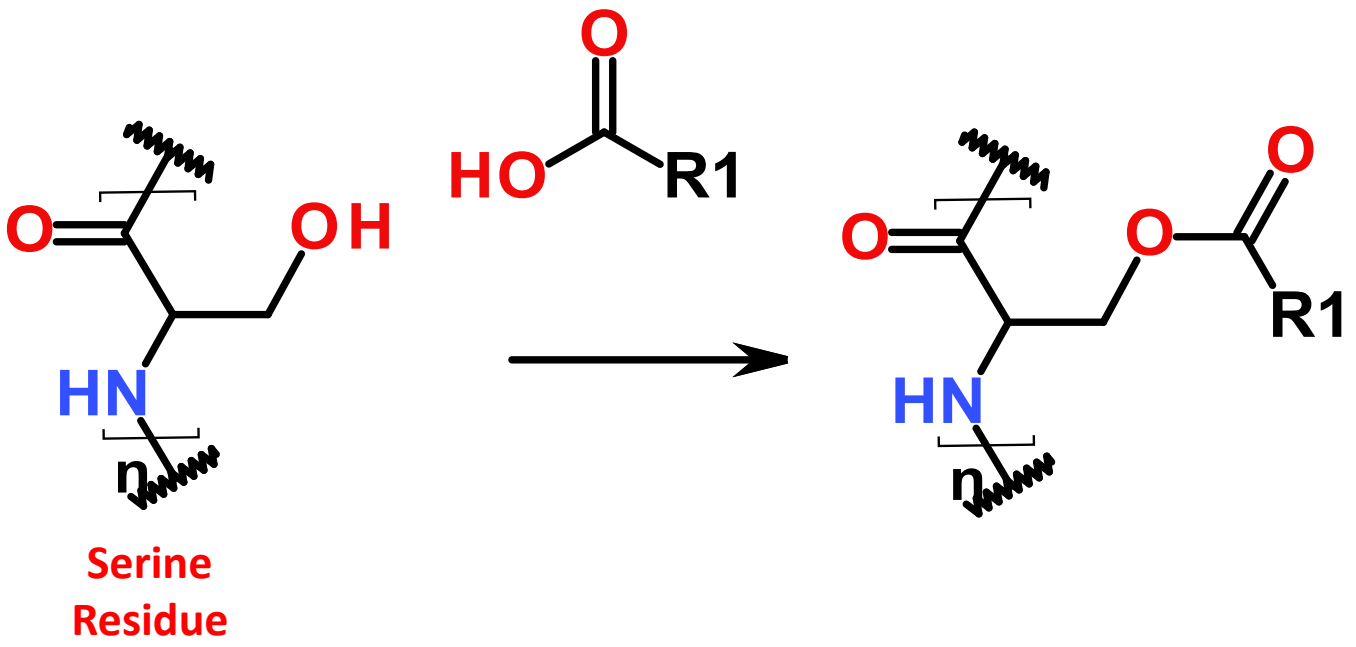
Prostaglandin H_2

Responsible for pain and/or inflammation

Serine Residue Reacts with Something Else

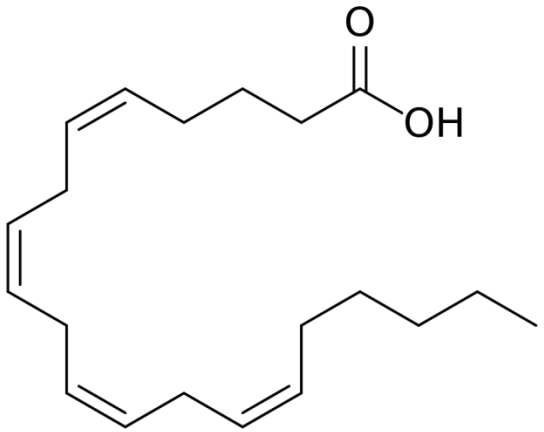


Serine Residue Reacts with Something Else



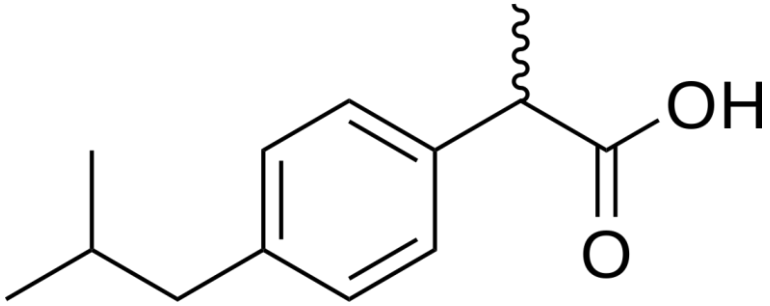
Serine Residue

Identity of Carboxylic Acid

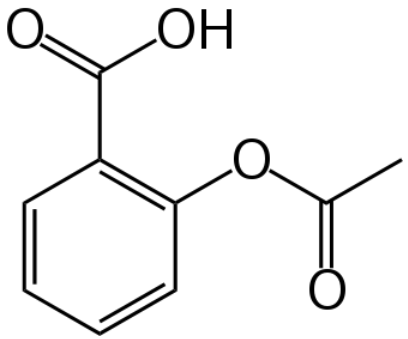


Arachidonic Acid

Pain



Ibuprofen

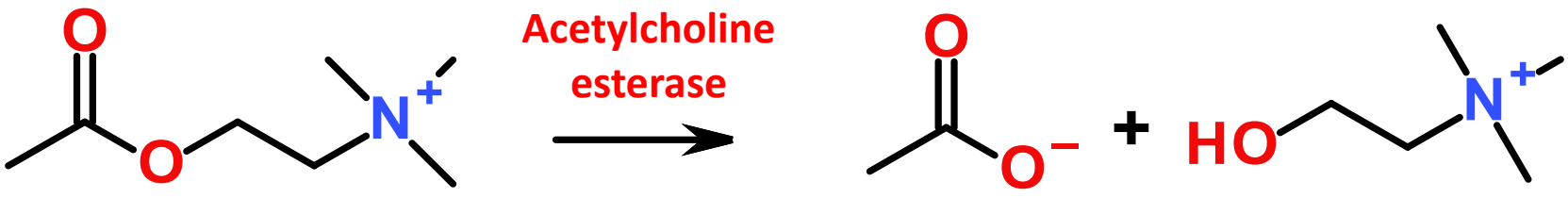


Aspirin

Many other NSAIDs

Pain Relief

Biological Example #3



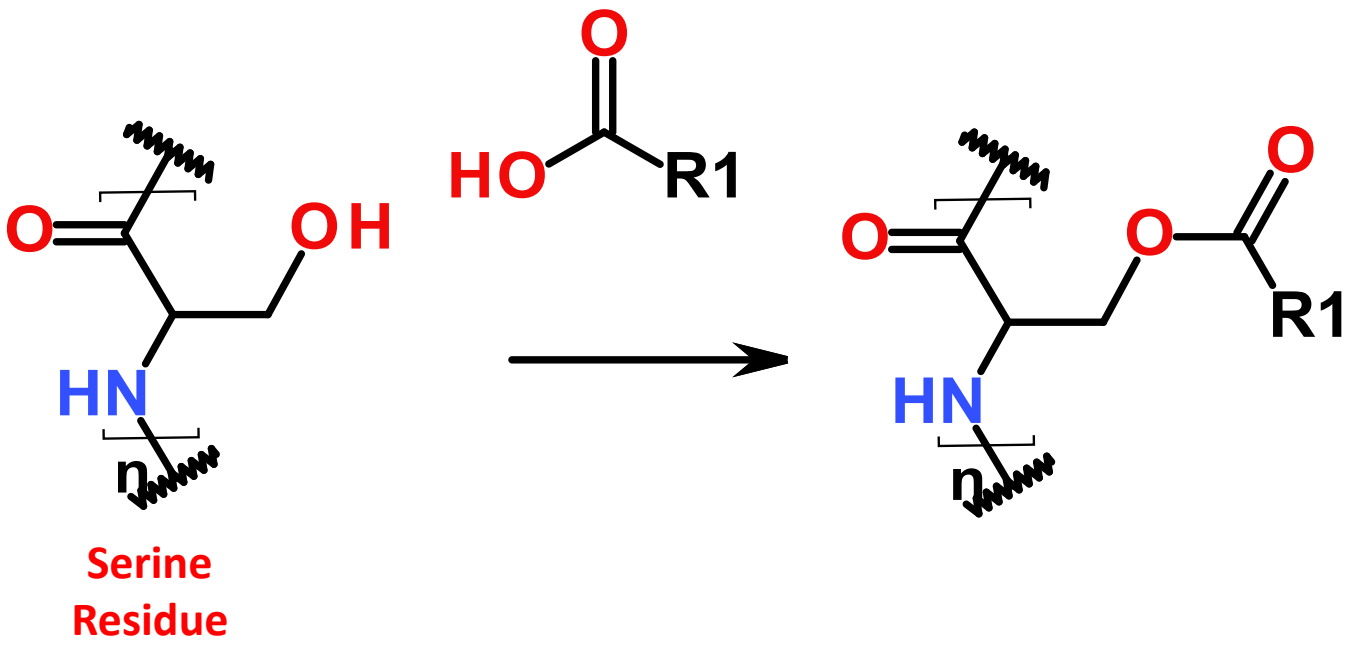
Acetylcholine

Carries nerve impulses from
one neuron to the next neuron

Does not go from
one neuron to the next neuron

Nerve signaling requires that the signal goes one way only

Serine Residue Reacts with Something Else

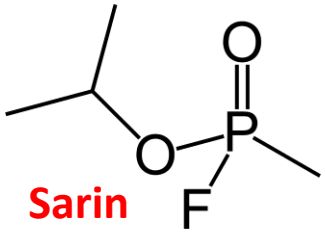


Serine Residue

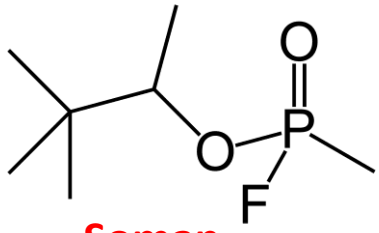
Identity of Ester Relative to Nerve Agents

G-series

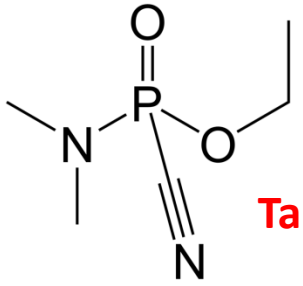
1936-1949



Sarin



Soman

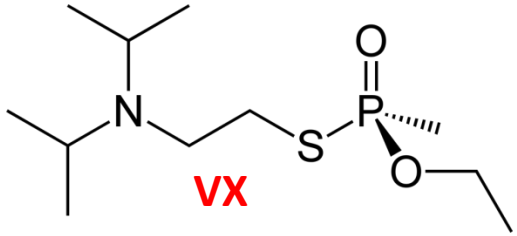


Tabun

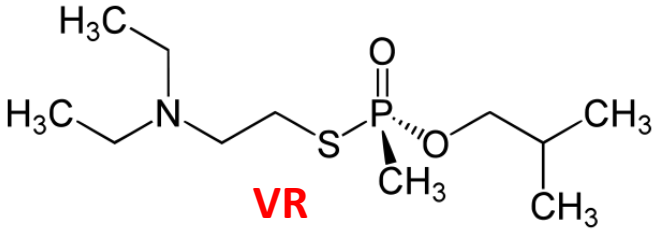
V-series

1950's

persistent

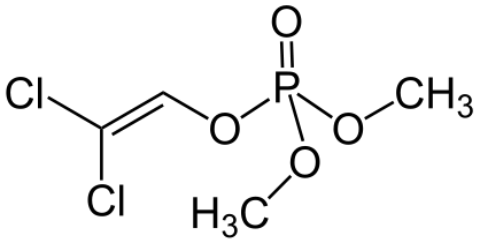


VX

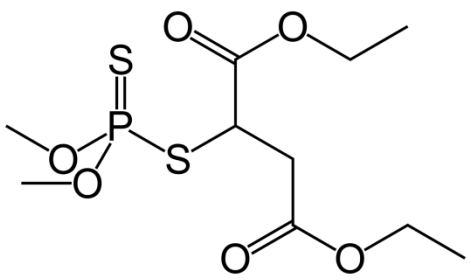


VR

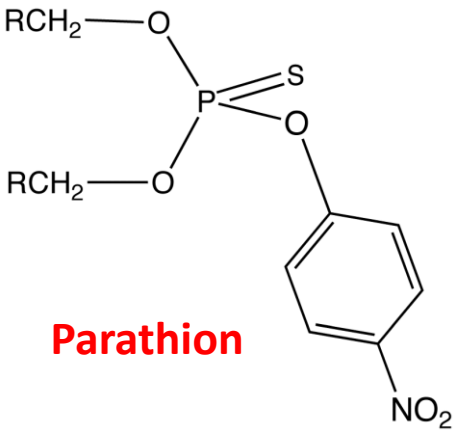
Insecticides



Dichlorvos



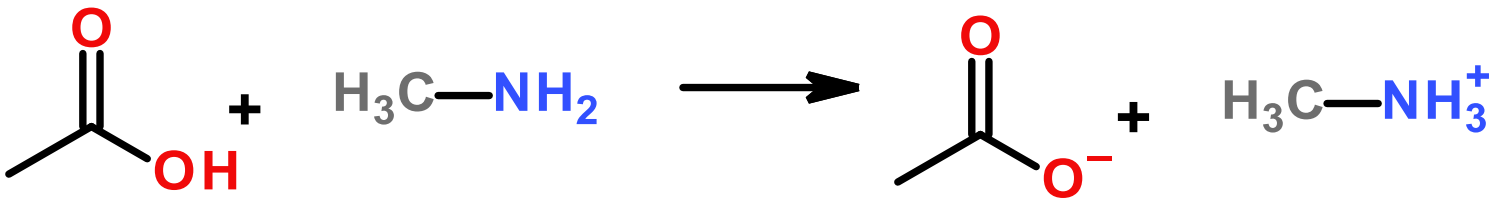
Malathion

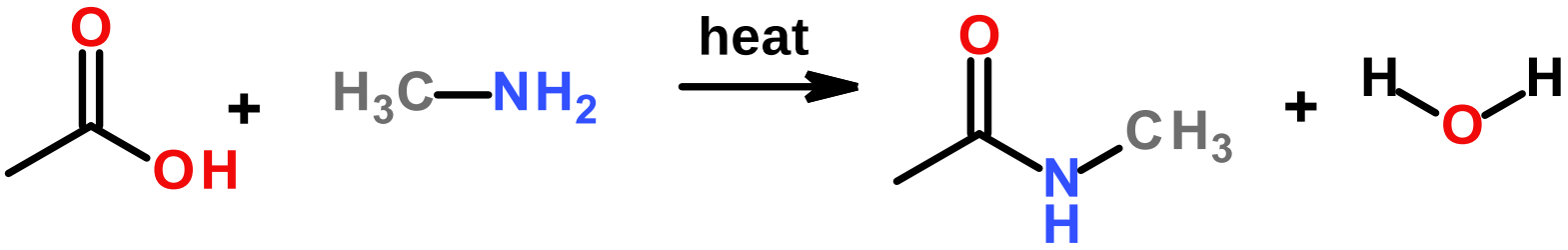


Parathion

Carboxylic Acids to Amides

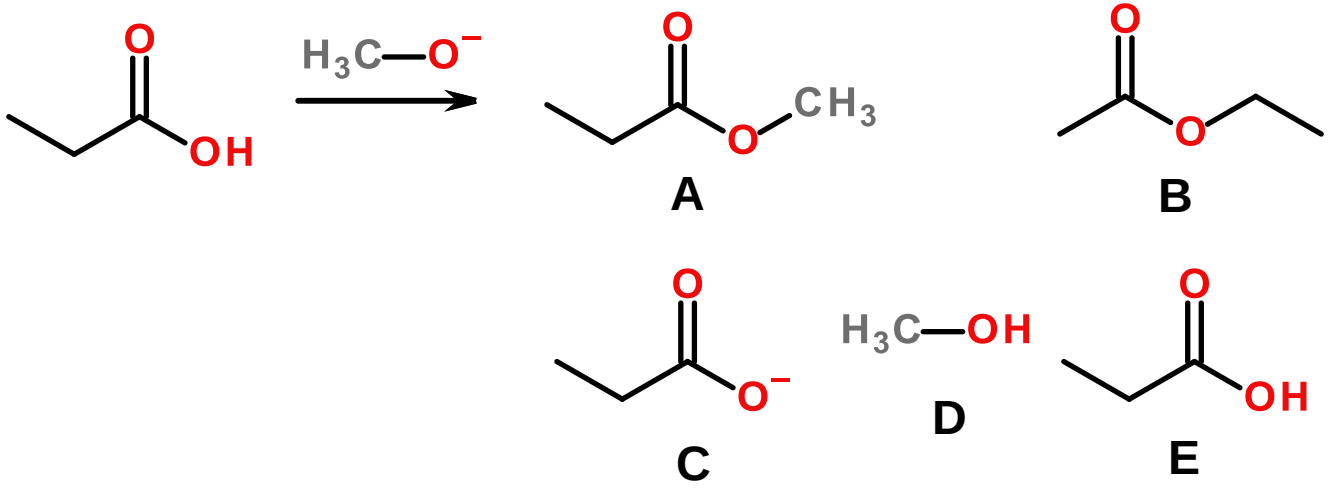
- Amine, heat (required)
  - NH required





Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

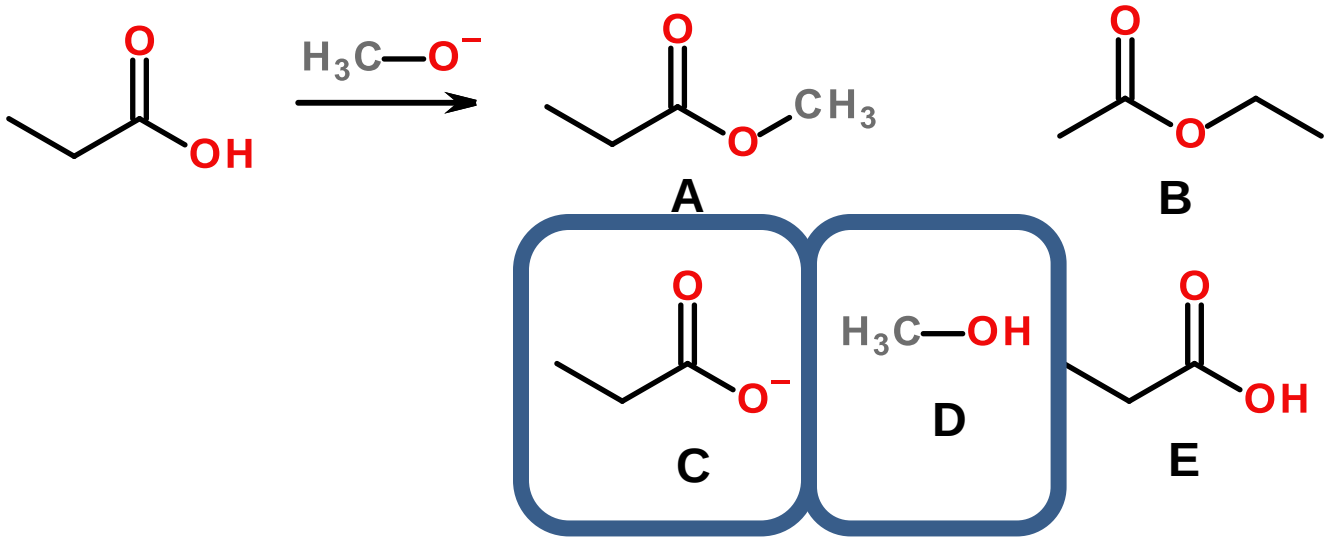
2016-10-10 Q2



F - None of these products are a major product of the reaction that is shown.

Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

2016-10-10 Q2



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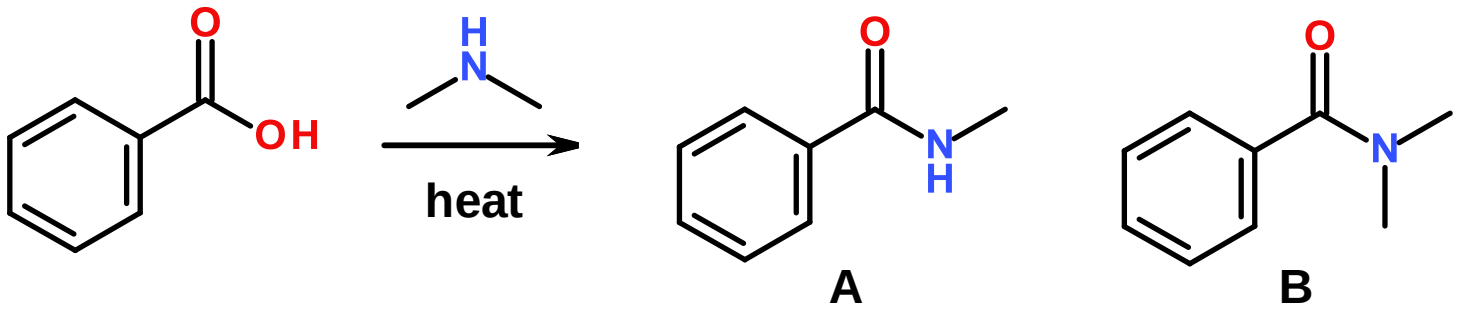
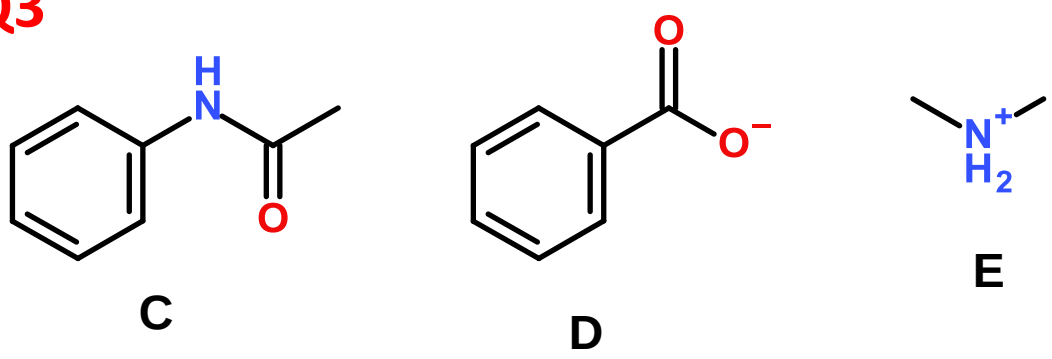
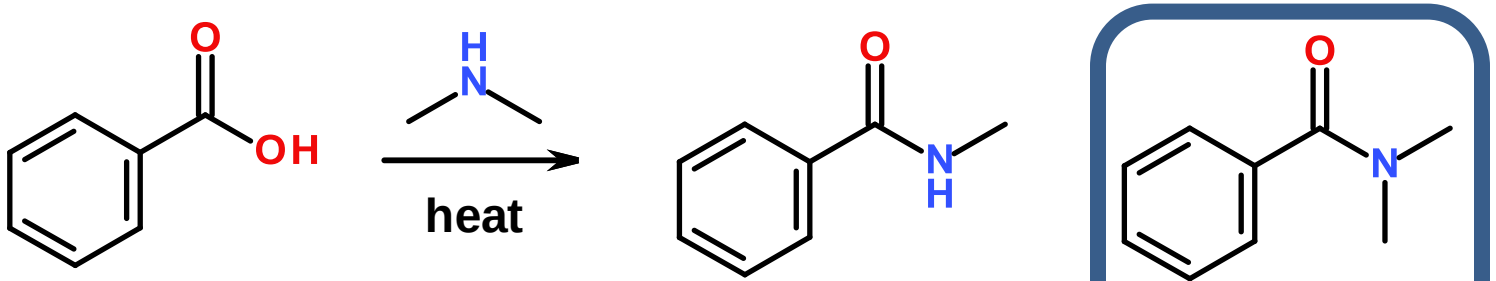


2016-10-10 Q3

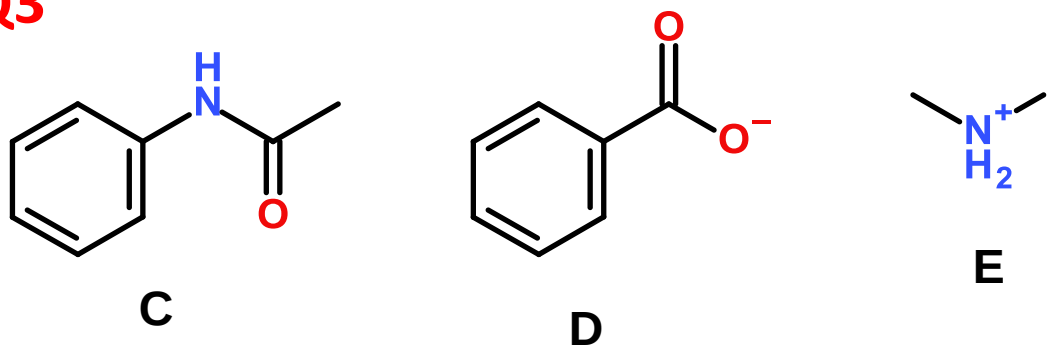


F - None of these products are a major product of the reaction that is shown.

Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)



2016-10-10 Q3



F - None of these products are a major product of the reaction that is shown.