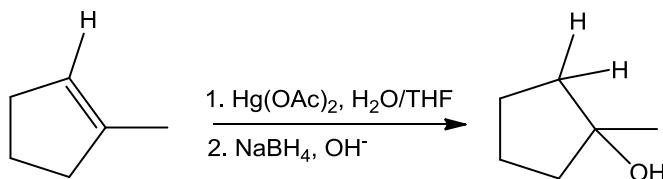


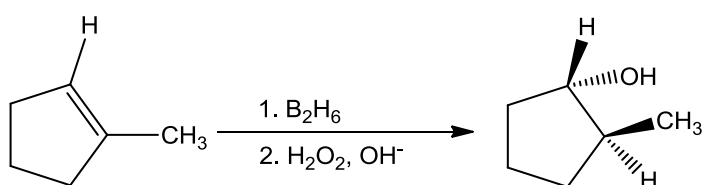
Functional Group Synthesis – CHEM 263

Alcohols

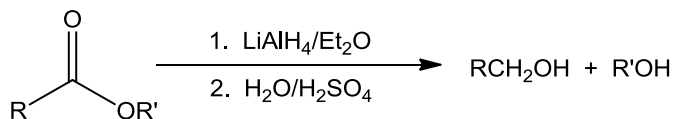
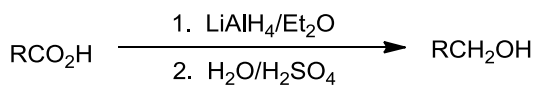
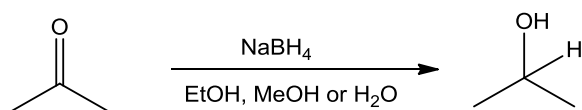
1. Oxymercuration



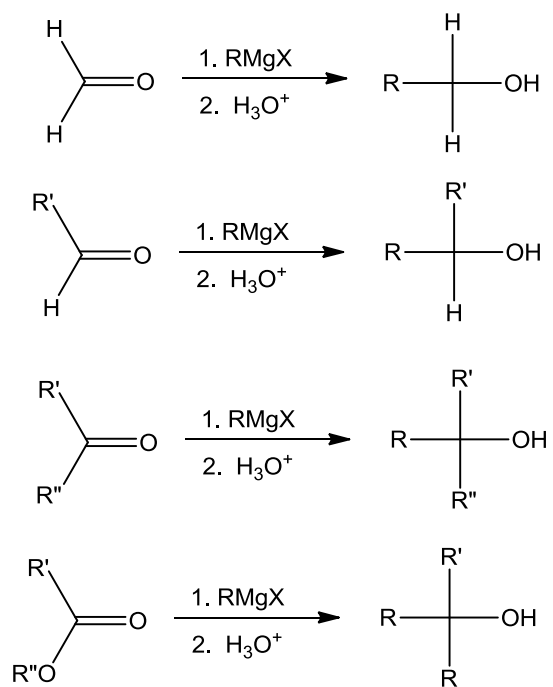
2. Hydroboration



3. Reduction of aldehydes, carboxylic acids, esters, and ketones

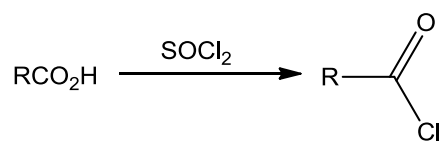


4. From Grignard reagents



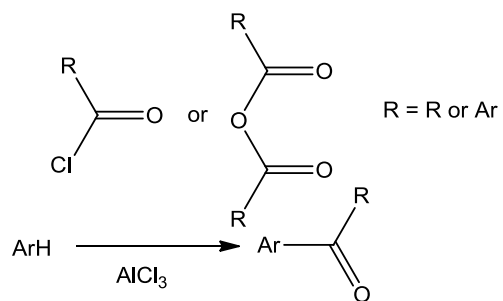
Acyl chlorides

- From carboxylic acids

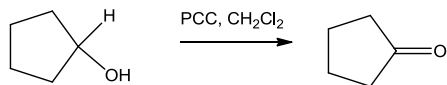
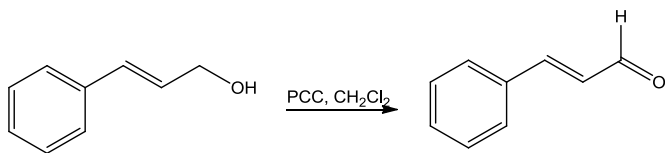


Aldehydes and ketones

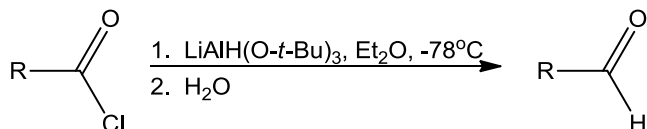
- Friedel – Crafts acylation



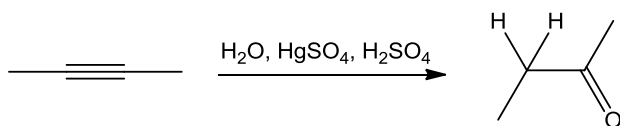
- Oxidation of alcohols



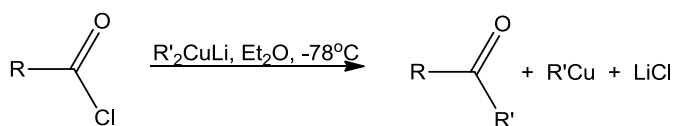
3. Reduction of acyl chlorides



4. From alkynes

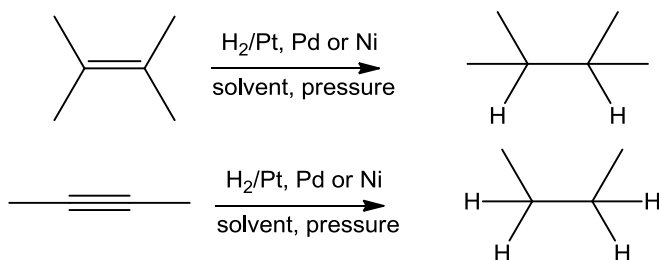


5. From lithium dialkylcuprates

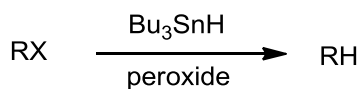


Alkanes

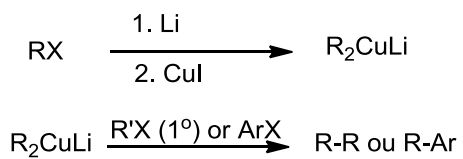
1. Hydrogenation of alkenes and alkynes



2. Reduction of alkyl halides

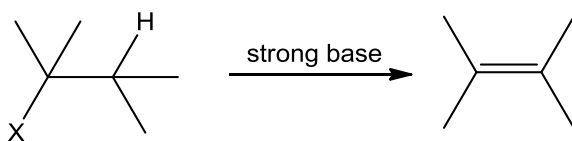


3. Corey - Posner, Whitesides - House synthesis

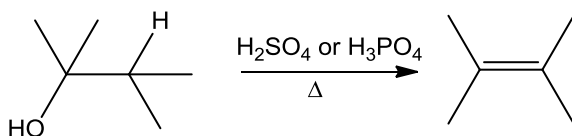


Alkenes

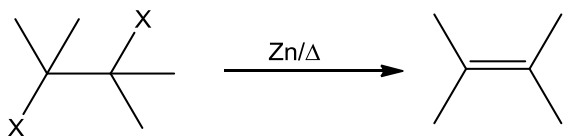
1. Dehydrohalogénéation of alkyl halides



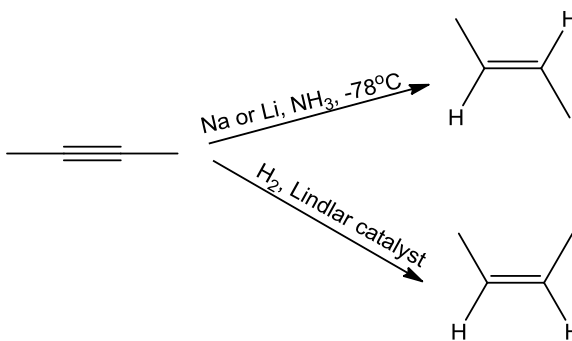
2. Dehydration of alcohols



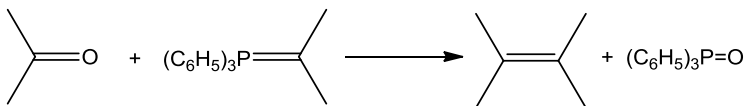
3. Dehalogenation of vicinal dihalides



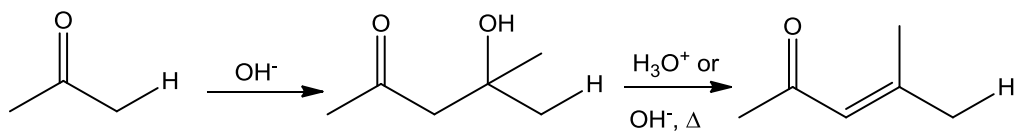
4. Hydrogenation of alkynes



5. Wittig reaction

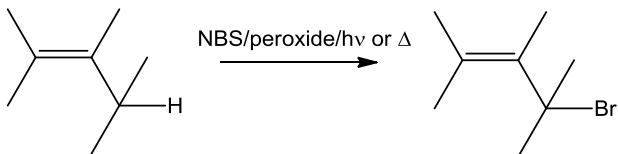
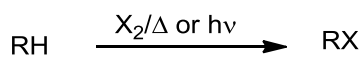


6. Aldol condensation

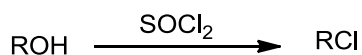


Alkyl halides

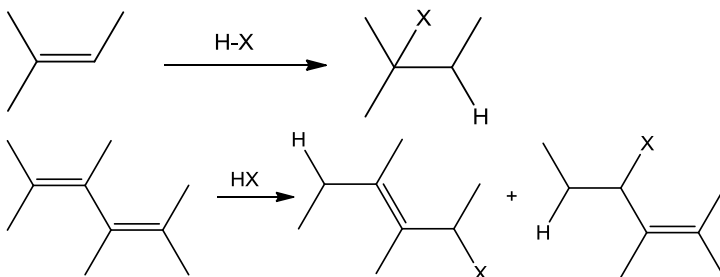
1. Halogenation of alkanes



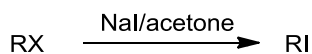
2. From alcohols



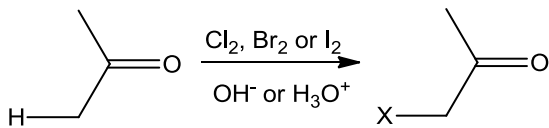
3. From alkenes



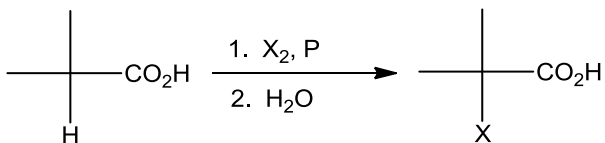
4. Finkelstein reaction



5. Halogenation of aldehydes and ketones

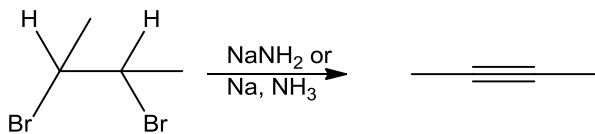


6. Hell-Volhard-Zelinski reaction



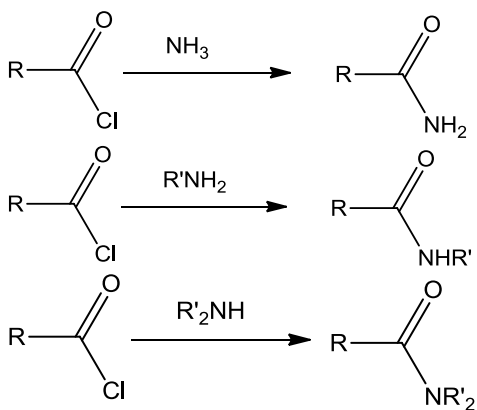
Alkynes

1. From vicinal dihalides

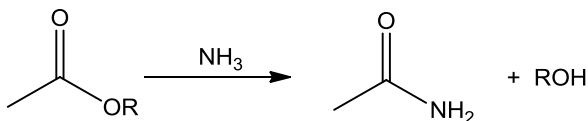


Amides

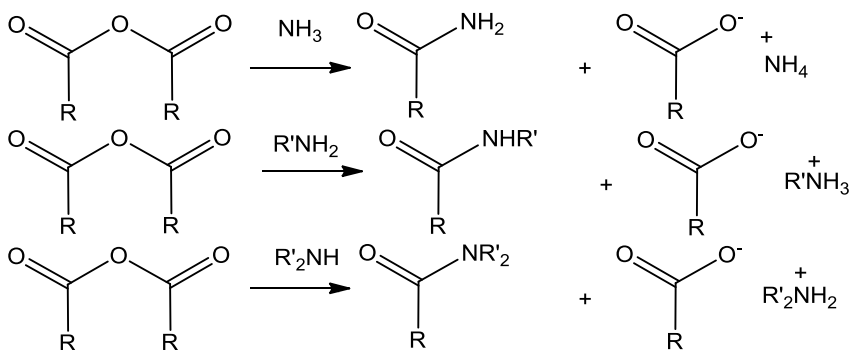
1. Ammonolyse des chlorures d'acyle



2. Ammonolyse des esters

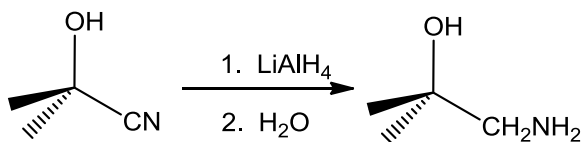


3. Ammonolyse des anhydrides

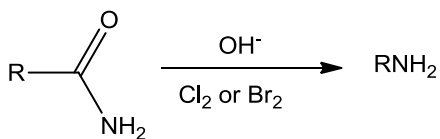


Amines

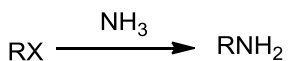
1. Reduction of nitriles



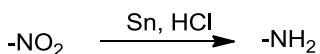
2. Hofmann degradation



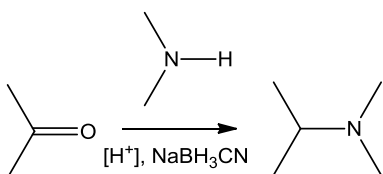
3. Alkylation of ammonia and amines



4. Reduction of $-\text{NO}_2$

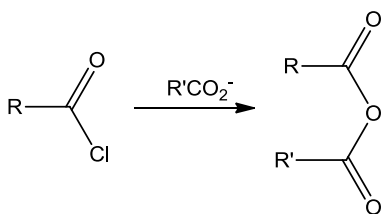


5. Reductive amination



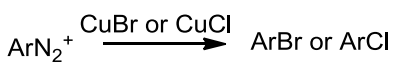
Anhydrides

1. From acyl chlorides

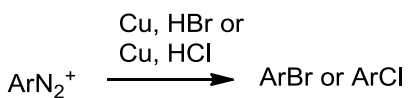


Aryl halides

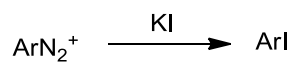
1. Sandmeyer reaction



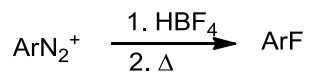
2. Gattermann reaction



3. Synthesis of iodides

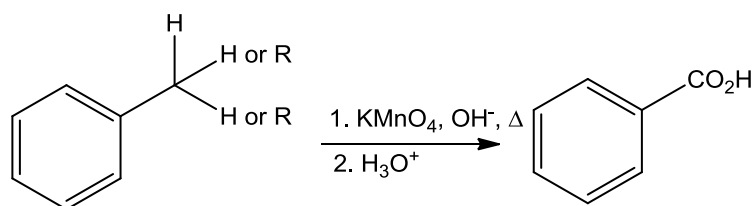


4. Synthesis of fluorides

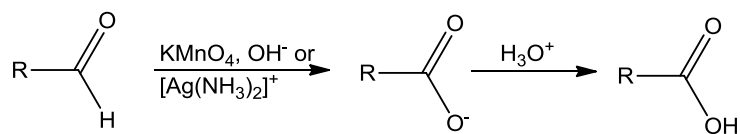


Carboxylic acids

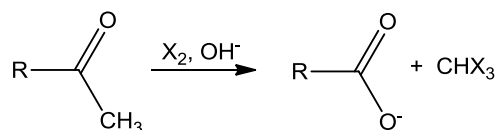
1. Oxidation of arenes



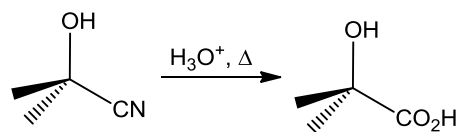
2. Oxidation of aldehydes



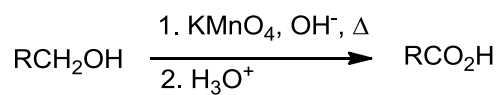
3. Haloform reaction



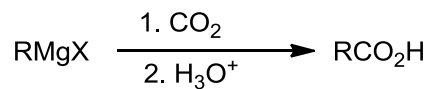
4. Hydrolysis of nitriles



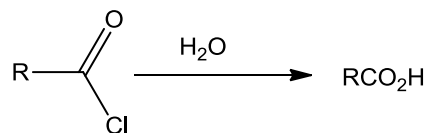
5. Oxidation of primary alcohols



6. From Grignard reagents

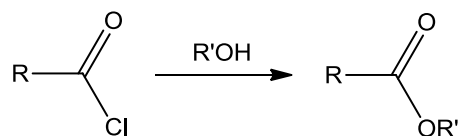


7. Hydrolysis of derivatives of carboxylic acids

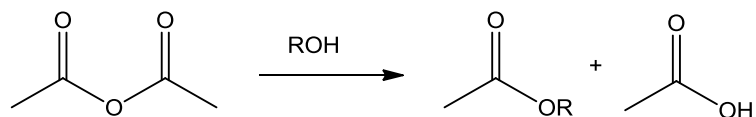


Esters

- From acyl halides

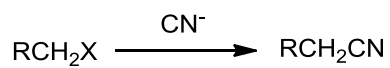


- From anhydrides

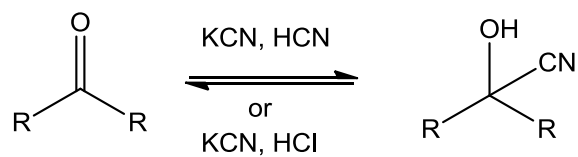


Nitriles

- From primary alkyl halides



- From aldehydes and ketones



- From diazonium salts

