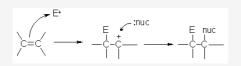
Cheatography

Addition Reactions Cheat Sheet by pokemonsz via cheatography.com/44231/cs/13221/

Reactants & Solvents / Catalysts

Br2 (X2)	Halogenation
H2 & Pd/ Pt	Hydrogenation -> alkane
H2SO4, H2O	Acid-catalyzed hydration to form alcohol
HBr (HCI, HI)	Hydrohalogenation -> haloalkane
Peroxides (ROOR)	Form anti-Markovnikov
BH3, H2O2, NaOH	Hydroboration-oxidation; anti-Mark. for specific regiochemistry
Hg(OAc)2, H2O	Mark. with no rearrangement

Basic Reaction



- 1. PI electrons attack electrophile
- 2. Carbocation formation
- 3. Nucleophilic attack

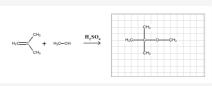
Catalytic Hydrogenation (Reduction)

Addition of H2 across double bond in presence of metal catalyst (ex. Pt)

syn addition

Dihydroxylation

Acid-Catalyzed hydration



- Electrophilic addition

- Creates an ether or alcohol (in water)

Hydroboration-oxidation

$$\begin{array}{c} H_3C\\ H_3C\\ H_3C\\ H_3C\\ \end{array} \xrightarrow{ \begin{array}{c} \mathsf{B}H_3\\ \mathsf{THF}\\ \end{array}} H_3C \xrightarrow{ \begin{array}{c} \mathsf{H}\\ \mathsf{H}\\ \mathsf{C}H_3\\ \end{array}} \begin{array}{c} H_2C\\ \mathsf{H}\\ \mathsf{H}_2\\ \end{array} \xrightarrow{ \begin{array}{c} \mathsf{H}\\ \mathsf{C}\\ \mathsf{H}\\ \mathsf{O}H\\ \end{array}} \begin{array}{c} H_3C\\ \mathsf{C}\\ \mathsf{H}_3\\ \end{array} \xrightarrow{ \begin{array}{c} \mathsf{H}\\ \mathsf{C}\\ \mathsf{H}\\ \mathsf{C}\\ \mathsf{H}_3\\ \end{array}} \begin{array}{c} H_3C\\ \mathsf{OH}\\ \mathsf{C}\\ \mathsf{H}_3\\ \end{array} \xrightarrow{ \begin{array}{c} \mathsf{H}\\ \mathsf{C}\\ \mathsf{C}\\ \mathsf{H}_3\\ \end{array}} \begin{array}{c} H_3C\\ \mathsf{OH}\\ \mathsf{C}\\ \mathsf{H}_3\\ \end{array}$$

- Anti-Markovnikov product

- 2-step, syn addition

HBr + Peroxides

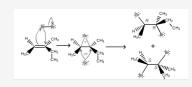
anti markovnikov addition

Oxymercuration-Demurcuration (Hydration)

Markov. Product without rearrangement. (No carbocation)

- If in water, Alcohol forms
- If in methanol, ether forms
- anti arrangement

Halogenation



- Halogens added to the carbons of double bond anti addition



By pokemonsz

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