Reactions of Alkynes

Product	Type of Reaction (name)	Reaction Conditions	Regiochemistry	Stereochemistry
vinyl halide section 8.4	Electrophilic Addition	HX (1 equivalent), anhydrous	Markovnikov	trans-addition of H-X
1,1-dihaloalkane (gem-dihalide) section 8.4	Electrophilic Addition	HX (excess), anhydrous	Markovnikov	
1,2-Dihaloalkene section 8.4	Electrophilic Addition	X_2 (1 equivalent), anhydrous		trans addition of X-X
1,1,2,2-tetrahalo-alkane section 8.4	Electrophilic Addition	X_2 (excess), anhydrous		
ketones	Hydration of Internal Alkynes Oxymercuration Hydroboration	 $HgSO_4$, H_3O^+ 1. BH_3 2. H_2O_2, NaOH	 Markovnikov Anti-Markovnikov	
methyl ketones section 8.5	Hydration of Terminal Alkynes Oxymercuration	 $HgSO_4$, H_3O^+	 Markovnikov	
aldehydes section 8.5	Hydration of Terminal Alkynes Hydroboration	 1. hindered borane 2. H_2O_2, NaOH	 Anti-Markovnikov	
alkanes section 8.6	Hydrogenation (Reduction)	H_2, Pd/C or H_2, PtO_2		
alkenes section 8.6	Hydrogenation (Reduction) Dissolving Metal Reduction	H_2, Lindlar Catalysts Li in liq. NH_3		syn addition of H_2 to give cis-alkene anti addition of 2 H's to give trans-alkene
carboxylic acids section 8.7	Oxidative Cleavage	1. O_3 2. Zn (ozonolysis) $KMnO_4$		
alkynes section 8.8-8.9	Alkylation of terminal alkynes	$NaNH_2$, THF, primary alkylbromide or alkyliodide		product is an internal alkyne

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