

MOP	Reagent	Substrate
① From alkyl halide (By Reduction)	$+H_2$ Reducing agent	alkyl halide
② Wurtz rxn	$Na / dry\ ether$	alkyl halide
③ Frenkel rxn	R_2Zn	alkyl halide
④ Corey House Synthesis	Li, CuX, R_1X	alkyl halide
⑤ From unsaturated Hydrocarbon (Hydrogenation)	$Pt\ or\ Pd$ at $25^\circ C$	alkene / alkyne
⑥ From Oxygen Containing Compound	$Red P + HI$	alcohol, aldehyde, ketone, carboxylic acid
⑦ From Carbonyl Compound		
(a) Clemmensen Red.	$Zn-Hg / H^+$	aldehyde / ketone
(b) Wolf Kishner.	NH_2-NH_2 / OH^-	aldehyde / ketone
⑧ Kolbe electrolysis	$Na\ salt\ of\ mono-carboxylic\ acid$	
⑨ Decarboxylation	$NaOH / CaO / NaHCO_3$	Carboxylic acid
⑩ Grignard reagent	$R^+Mg^+X^-$	alkyl halide and other groups
⑪ Bartholomew Synthesis	electric arc	Carbon
⑫ From Carbide.	CH_4	Carbide