

Organometallics Chemistry

(CHEM-7149)

Online Lectures (OrganoLi)

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OrganoLi & OrganoMg (Grignard)

s-Block metals

Group-I Group-II

H	
Li	Be
Na	Mg
K	Ca
Rb	Sr
Cs	Ba
Fr	Ra

	Li	Mg	C
Electronegativity (Pauling's units)	0.98	1.31	2.52
Atomic radii (Å)	1.52	1.60	
Density (g/cm ³)	0.53	1.74	
Melting Point (°C)	180	650	

Activation of Li

Corroded Li Shots (Core of Li, coat of Li_2O)

LiOH ← $\text{Conc. H}_2\text{SO}_4$

Acidic & Wet Li Metal

MeOH

Wet Li Metal

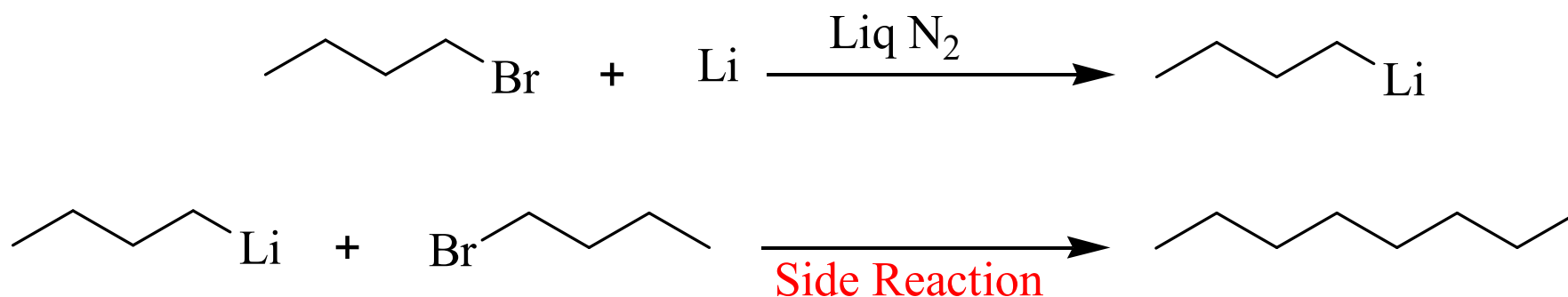
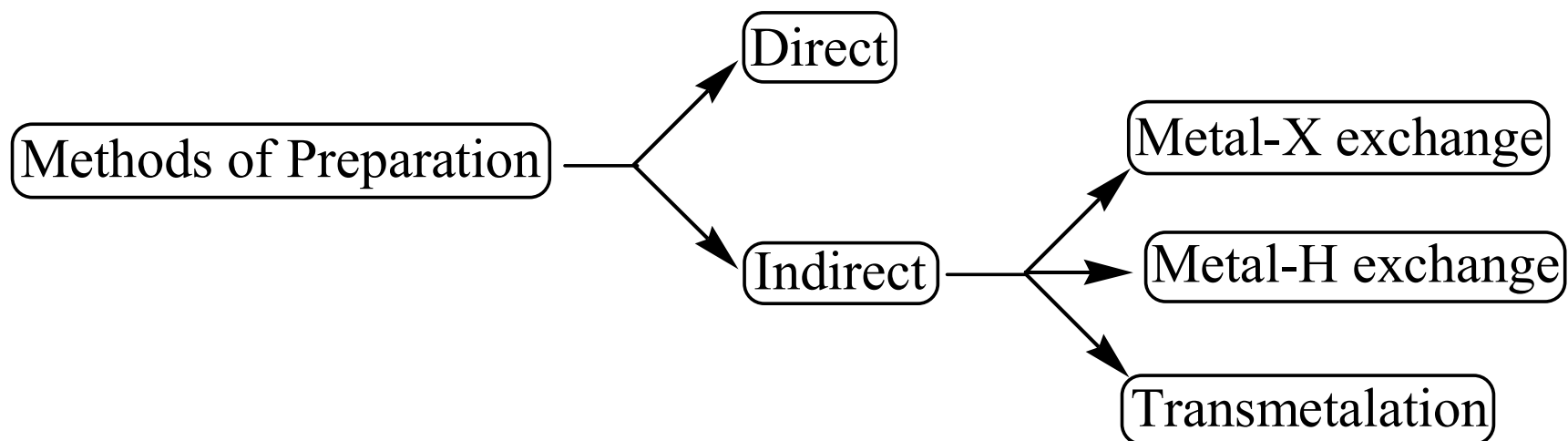
1) Me_2CO
2) Et_2O

Pure Li

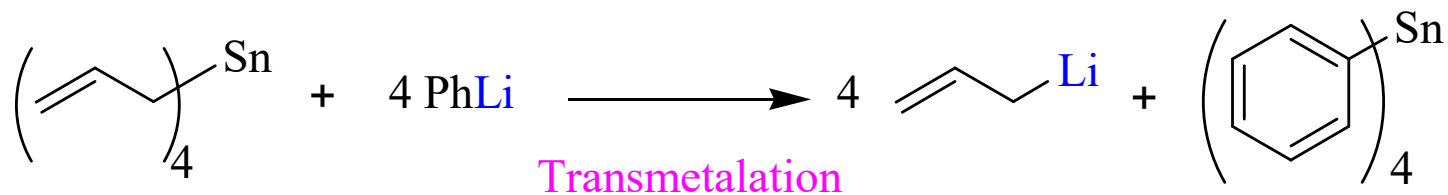
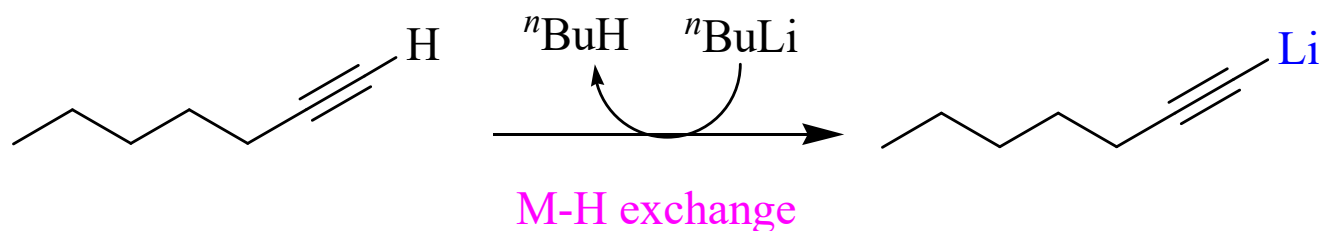
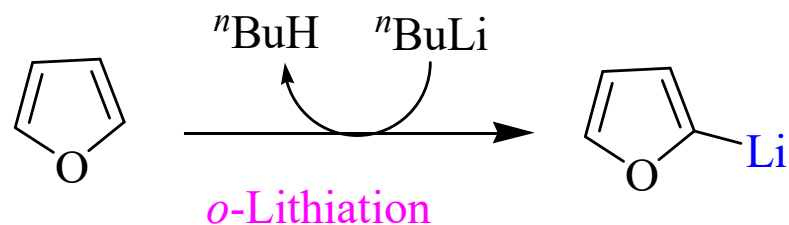
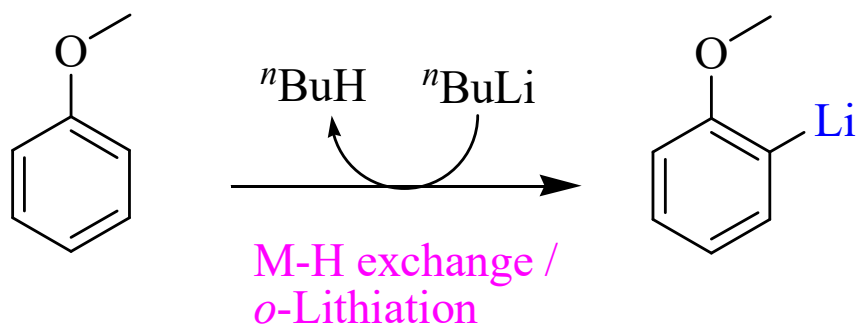
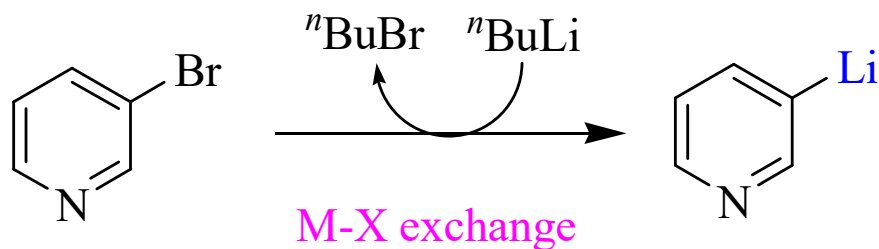
Heat ($200\text{ }^\circ\text{C}$)

Li Shots

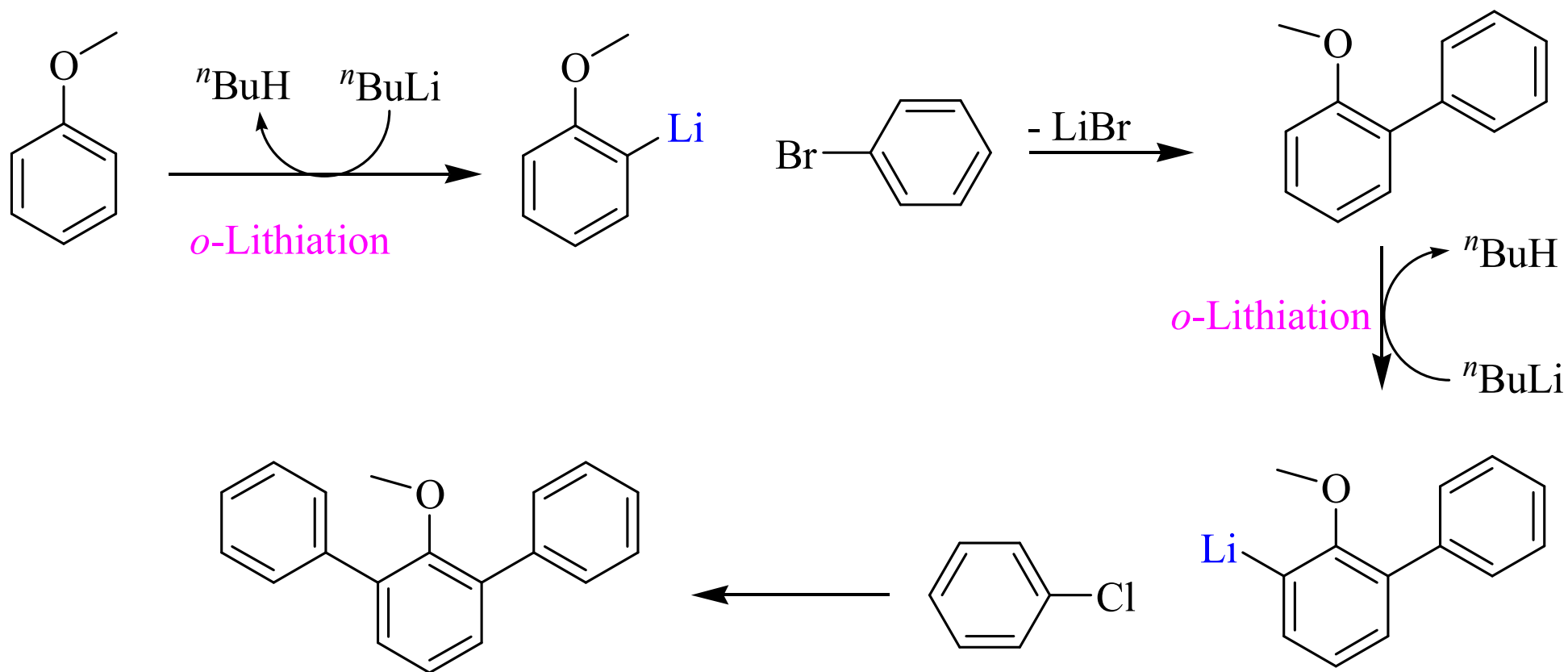
Methods of Preparation of Li



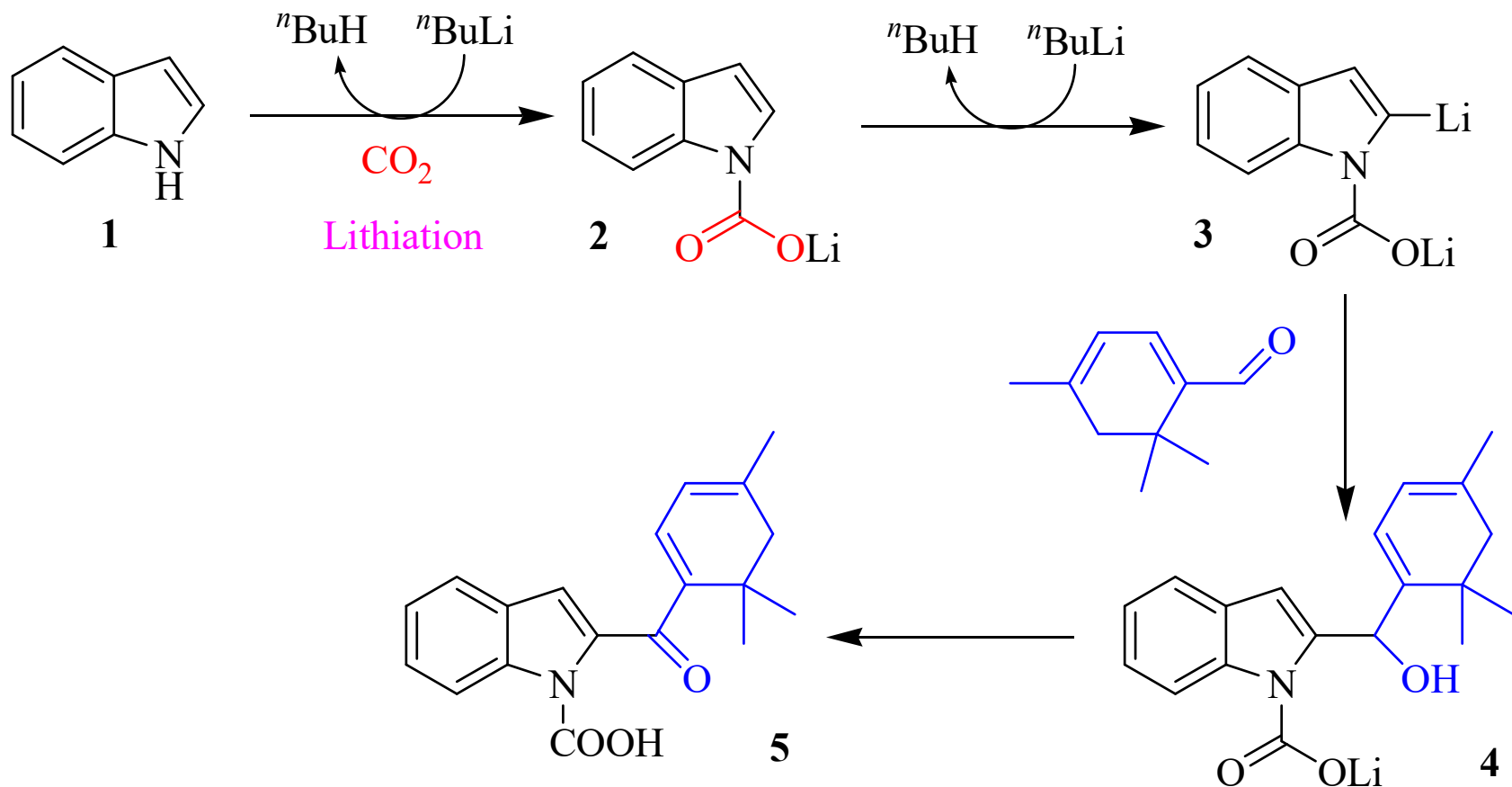
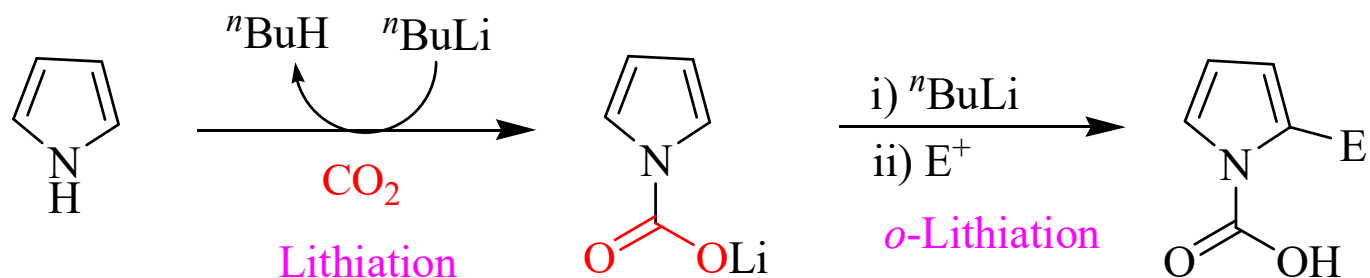
Indirect Methods of Preparation



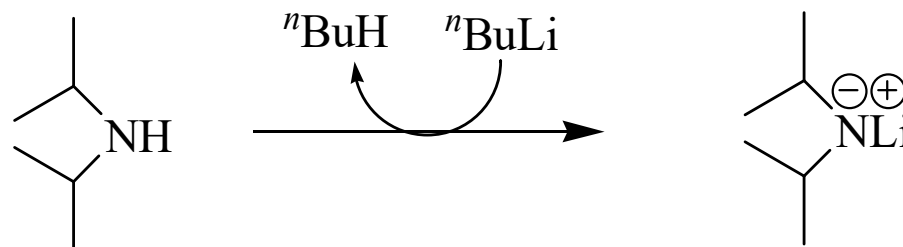
Synthetic Applications



Synthetic Applications

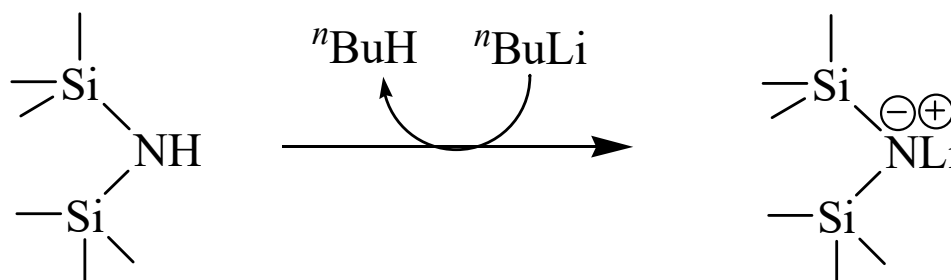


Synthetic Applications



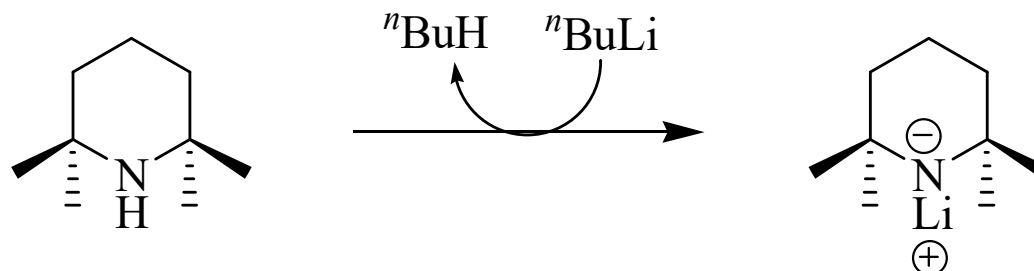
Di-*iso*-propylamine

Lithium di-*iso*-propylamide (LDA)



Hexamethyldisilylamine (HMDS)

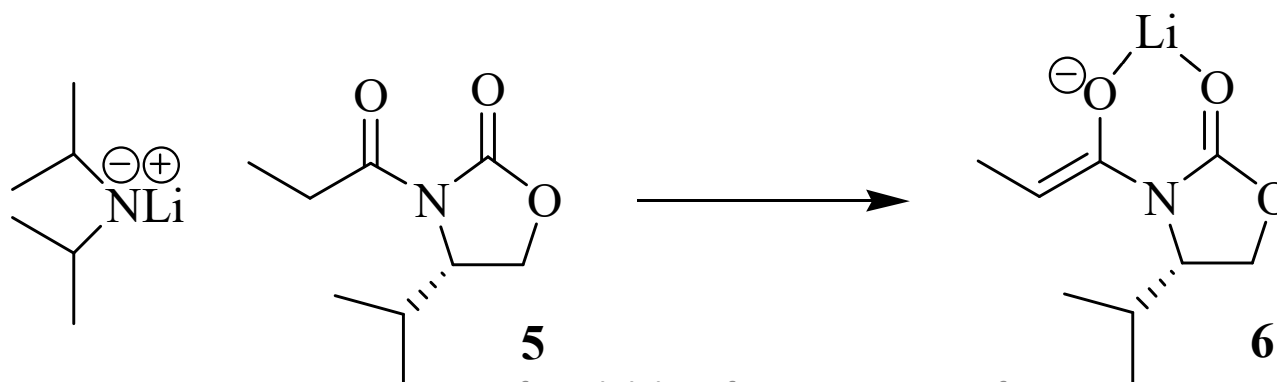
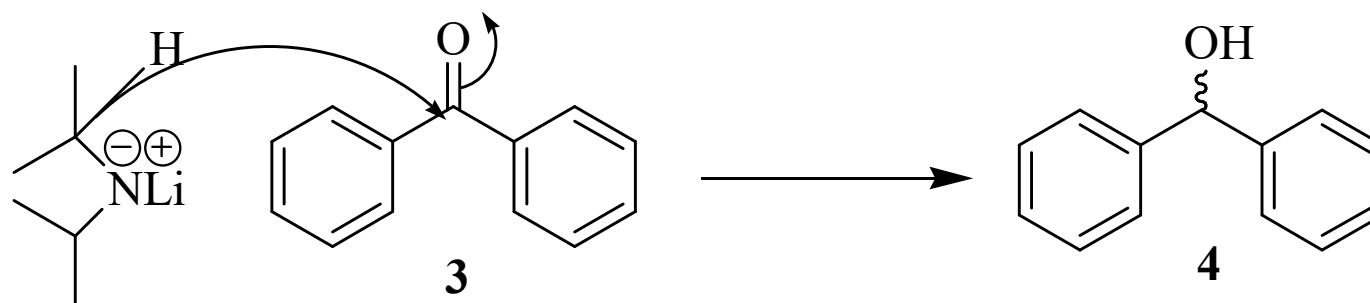
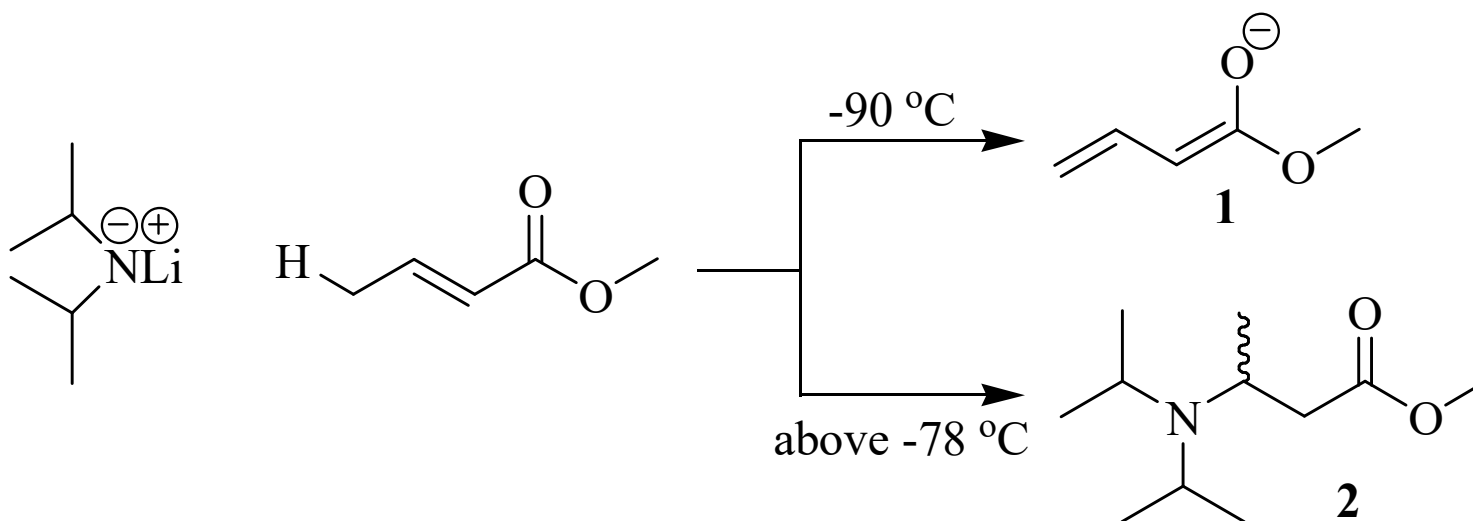
Lithium hexamethyldisilazide (LHMDS)



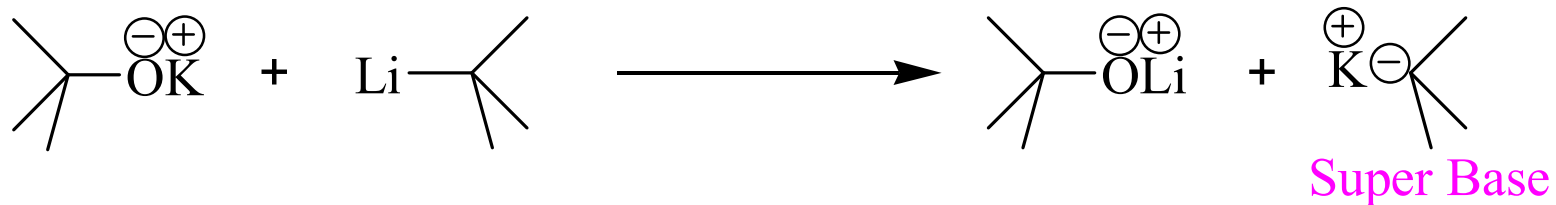
Tetramethylazirane (TMA)

Lithium tetramethylazirane (LiTMA)

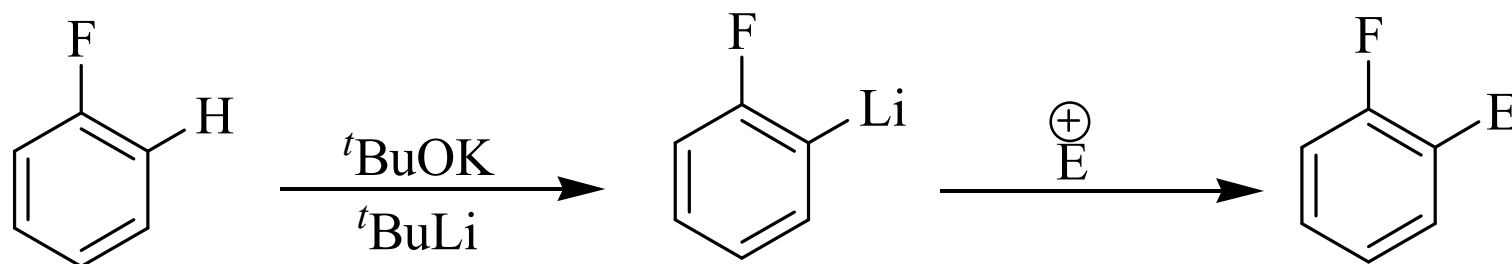
Synthetic Applications of LDA



Super Base



Deprotonates a proton with pK_a 35-40



Tetrahedron, **46** (1990), 5633