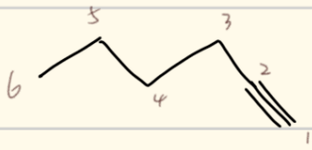
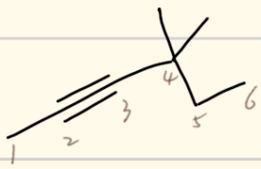
炔烃 (C_nH_{2n-2}) -yne



Hex-1-yne

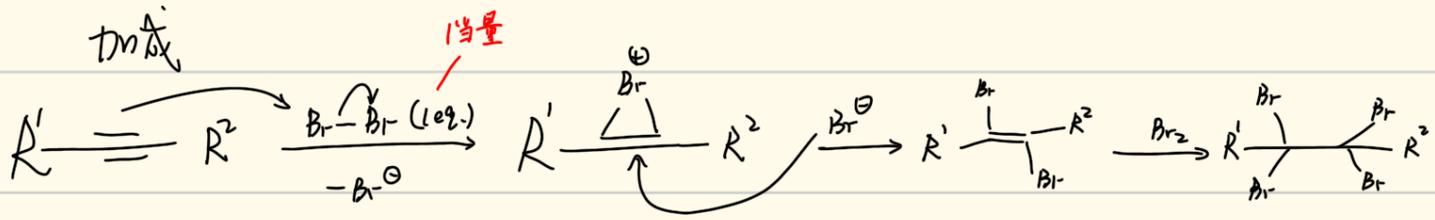


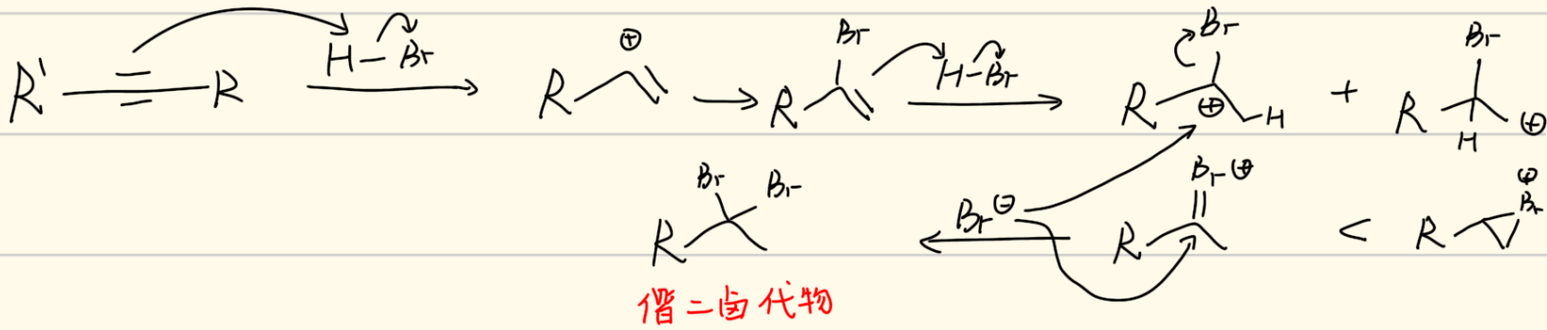
4,4-dimethylhex-2-yne

性质

末端 H 有酸性.

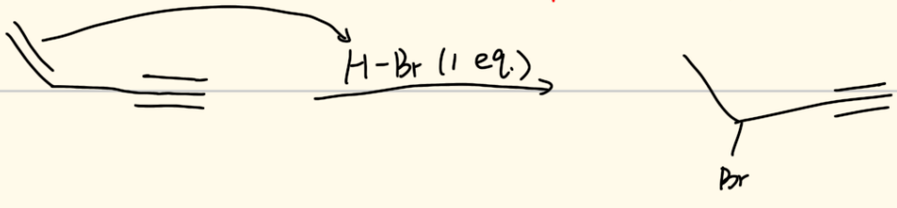
① 亲电加成



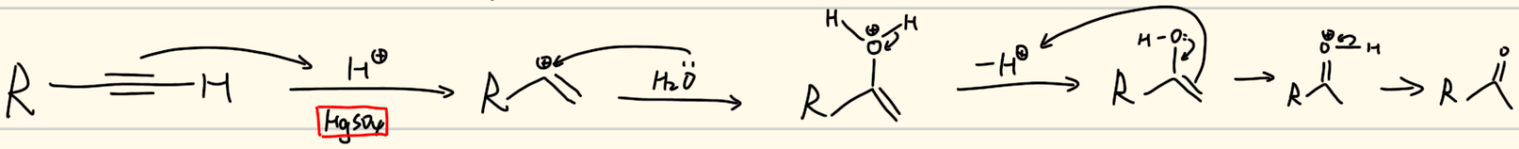


同时存在 双键与叁键时. 有催化剂 时 叁键 比双键 易加成

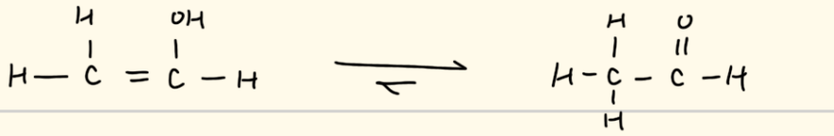
无催化剂时 { 双键 sp^2 → s成分少, 束缚力弱, 易反应
三键 sp



⑫ 炔水合（酸催化）



+ tautomerism 互变异构

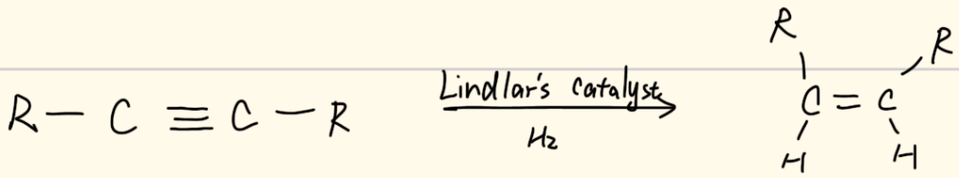


1%　　99%　更稳定

⑬

lindlar's catalyst
(钯-碳酸钙-醋酸铅)

H_2 顺式加成（Z型）　三键 → 双键



⑭ 末端炔烃弱酸性

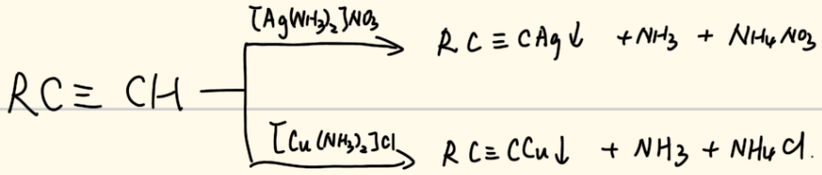
$$2R-C\equiv CH + 2Na \longrightarrow 2RC\equiv CNa + H_2$$

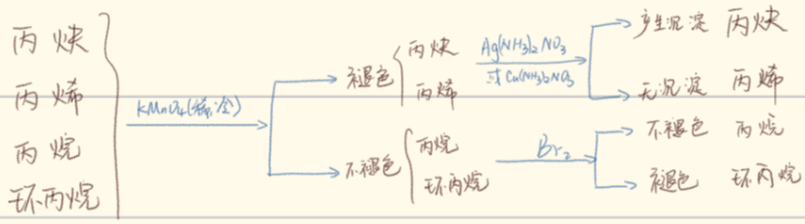
酸性　$H_2O > ROH > HC\equiv CH > NH_3 > RH$

$$\underset{sp}{HC\equiv C-H} > \underset{sp^2}{H_2C=CH-H} > \underset{sp^3}{H_3C-CH_2-H}$$

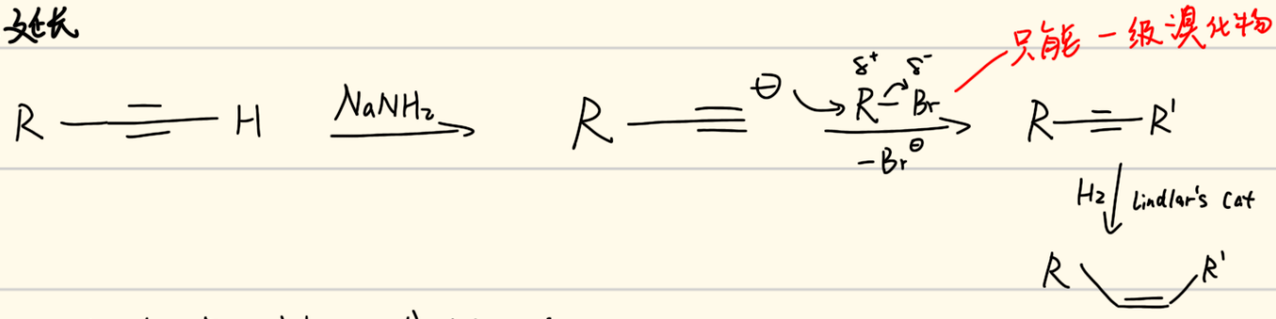
s成分越多　负离子越稳定，酸性越强

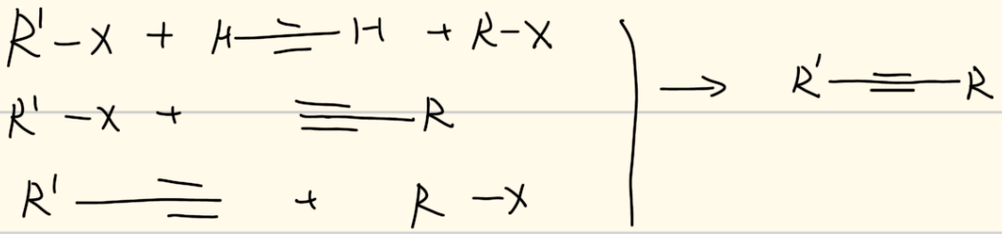
鉴别

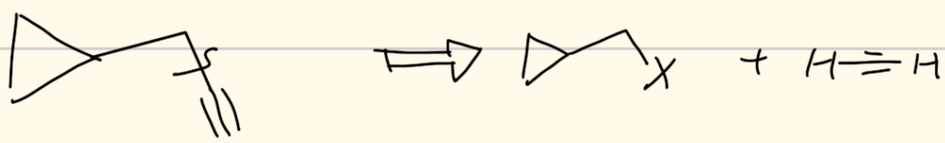

RC≡CH
[Ag(NH3)2]NO3
RC≡CAg↓ +NH3 + NH4NO3
[Cu(NH3)2]Cl
RC≡CCu↓ + NH3 + NH4Cl

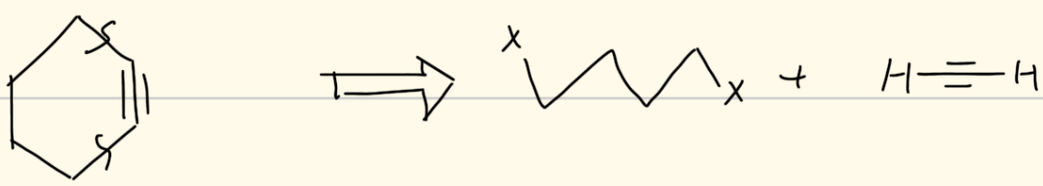

丙炔
丙烯
丙烷
环丙烷
KMnO4(稀,冷)
褪色
不褪色
丙炔
丙烯
丙烷
环丙烷
Ag(NH3)2NO3
或Cu(NH3)2NO3
产生沉淀 丙炔
无沉淀 丙烯
Br2
不褪色 丙烷
褪色 环丙烷

⑤ $NaNH_2$ 延长


NaNH2
只能一级溴化物
-Br⊖
H2
Lindlar's cat

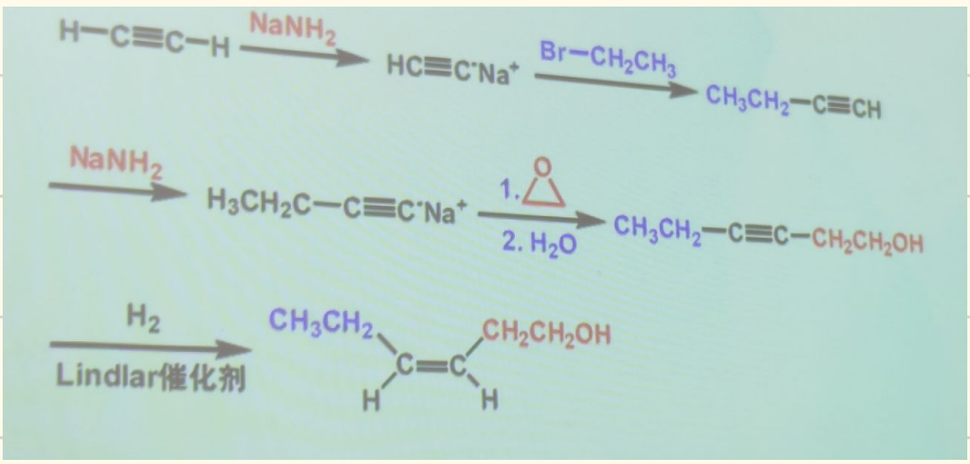






R'—X
(R': 1°烷基) SN2
R—C≡C—R' + X⁻
高级炔烃
R—C≡C⁻Na⁺
炔基负离子
亲核试剂
(1) O
(2) H2O
SN2
R—C≡C—CH2CHR'
OH
β-炔基醇
(1) R'—C(=O)—R''(H)
(2) H2O
亲核加成
R—C≡C—C(OH)(R')—R''(H)
α-炔基醇（炔丙型醇）

叶酸合成



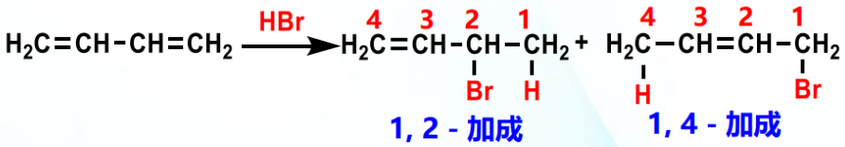
烯分类：

累积二烯：（连烯） $H_2C=C=CH_2$ 不共轭（中间碳P轨道上）

共轭二烯： 支

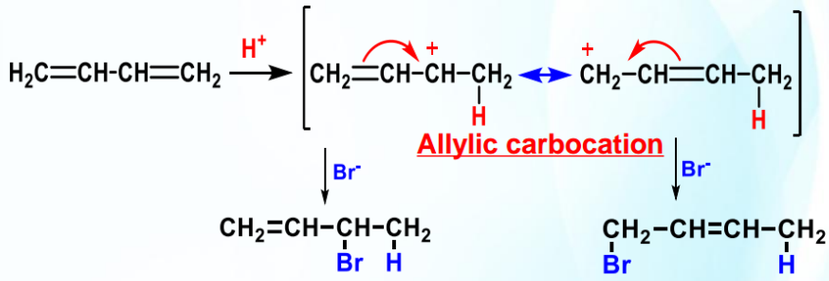
隔离二烯： 不共

Electrophilic Additions of conjugated Dienes



	1, 2 - 加成	1, 4 - 加成
- 80°C	80%	20%
40°C	20%	80%

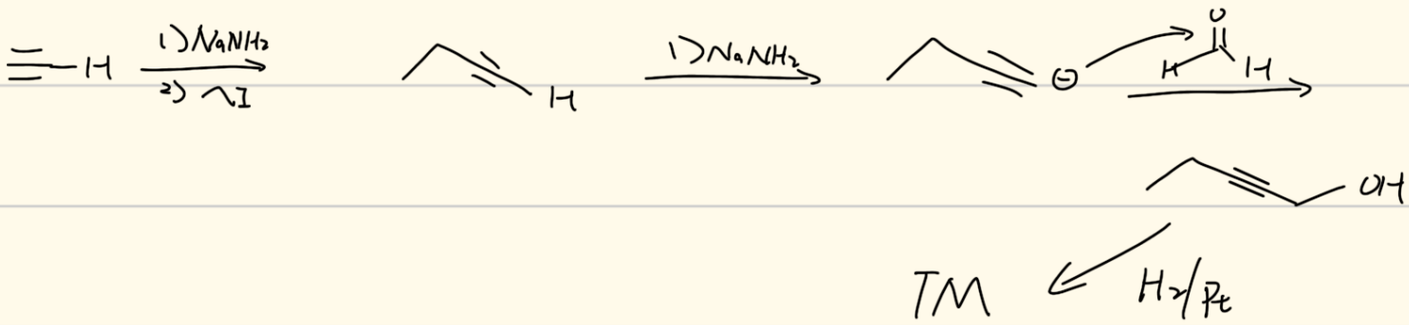
高温有利于1,4-加成，低温有利于1,2-加成。



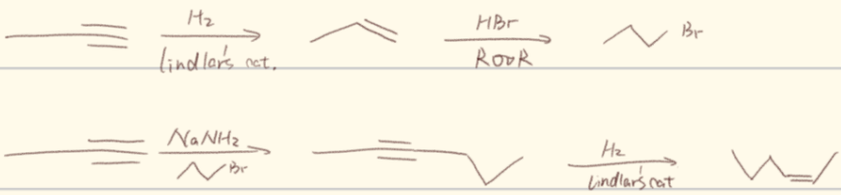
合成路线设计

延长碳链 ：炔

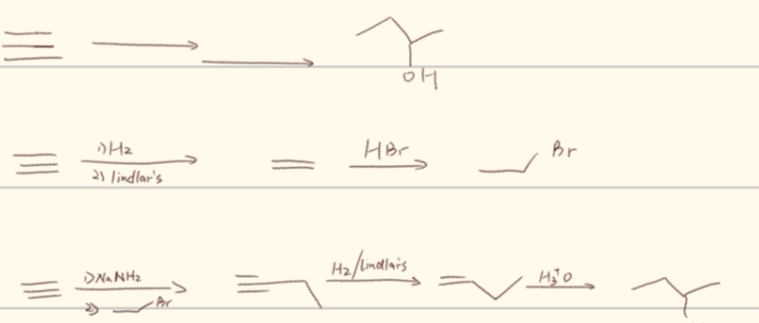
合成 



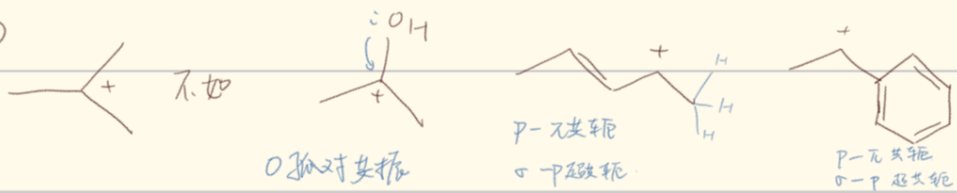
1)

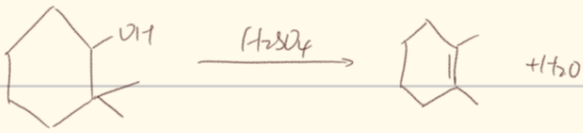


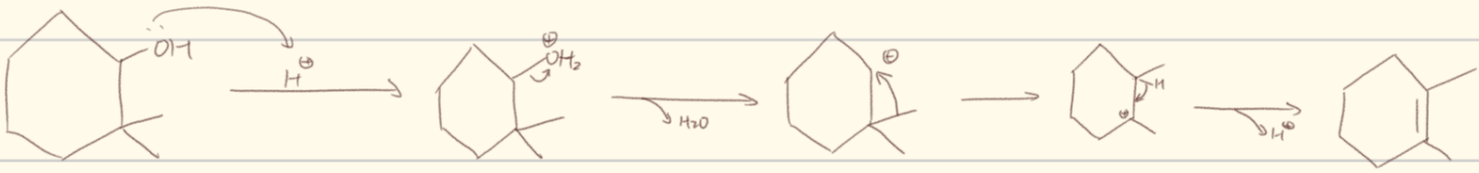
2)

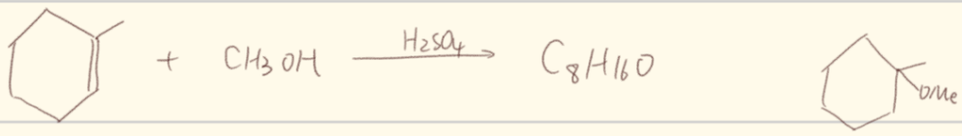


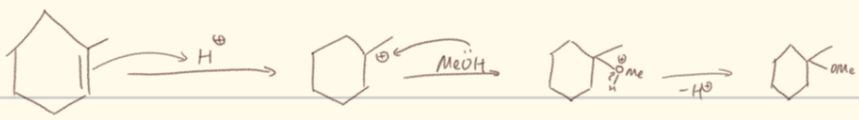
3)




OH
H_2SO_4
$+H_2O$


OH
H
OH_2
H_2O
H
H


+ CH_3OH
H_2SO_4
$C_8H_{16}O$
OMe


H
MeOH
OMe
H
$-H^{\oplus}$
OMe