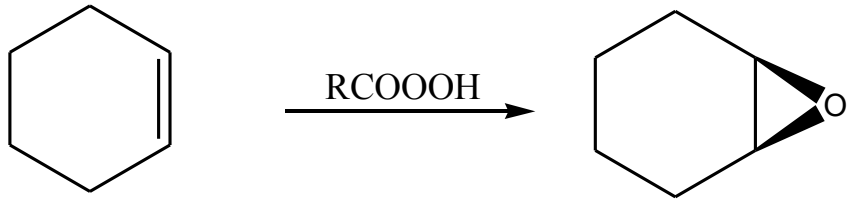
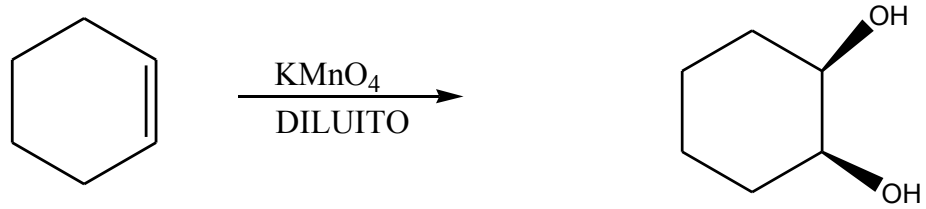
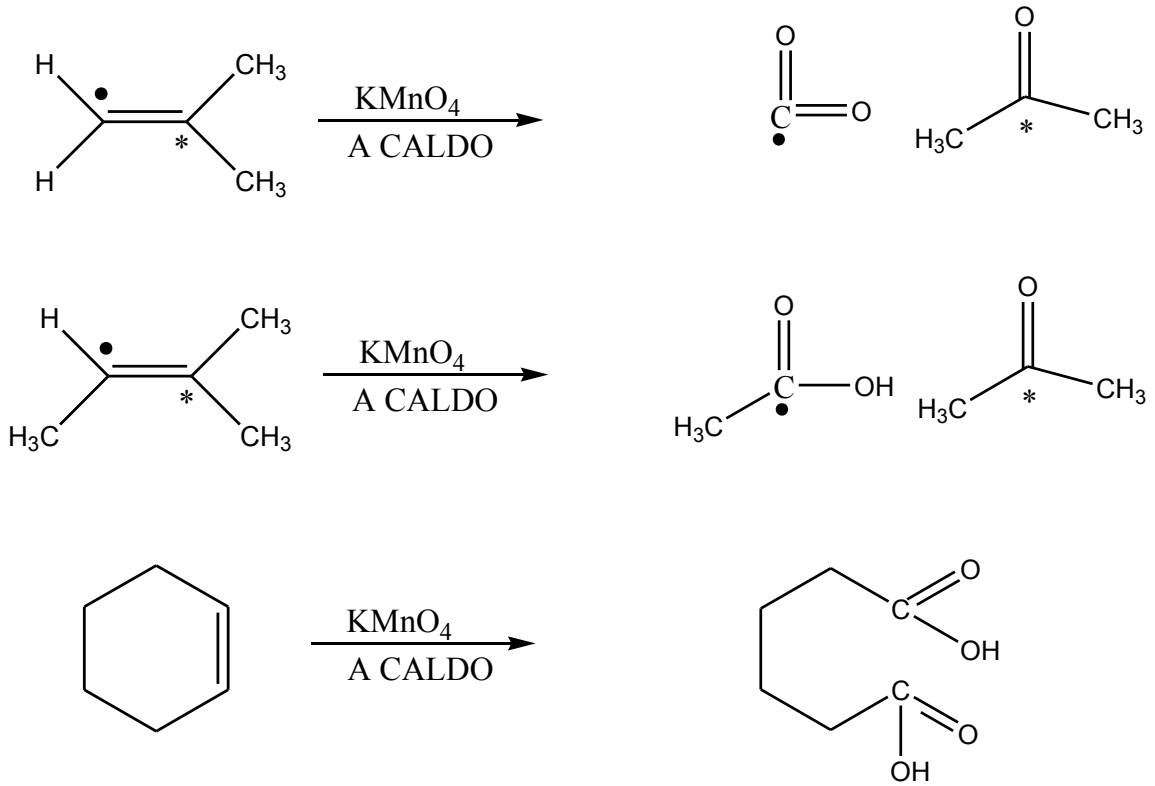
2) OSSIDAZIONI DI ALCHENI:



EPOSSIDO



DIOLO CIS



SI SPEZZA LA CATENA CARBONIOSA A LIVELLO DEL DOPPIO LEGAME

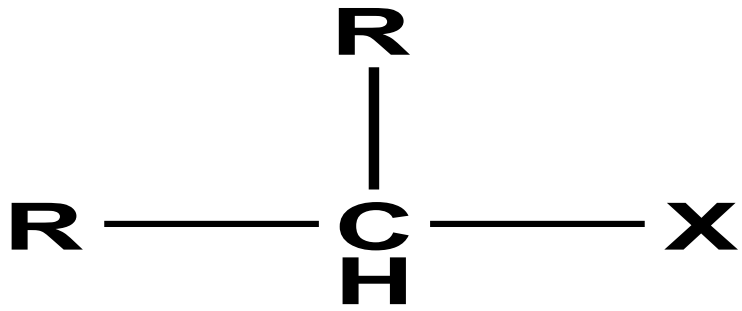
Alogenuri alchilici: reattività

punti da tener presente:

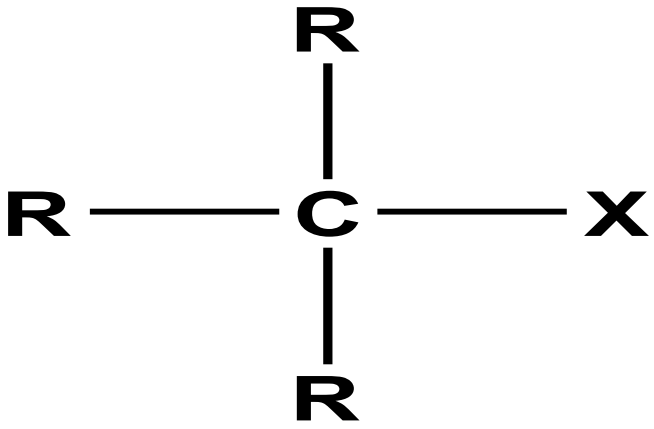
1. **Natura dell'alogenuro (primario, secondario, terziario)**

RCH_2X

primari



secondari



terziari

Alogenuri alchilici: reattività

punti da tener presente:

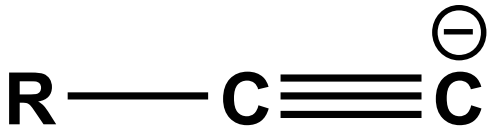
1. **Natura dell'alogenuro (primario, secondario, terziario)**
2. **Forza del nucleofilo/base**

Nucleofili/Basi

Nucleofili e basi deboli: ACQUA E ALCOOL

Nucleofili e basi FORTI: NH_2^-, RO^-, OH^-

Nucleofili FORTI: IODURO, BROMURO, CIANURO (CN^-)



Nucleofilo e base,
Impiegato nell'allungamento
Della catena carboniosa

Alogenuri alchilici: reattività

punti da tener presente:

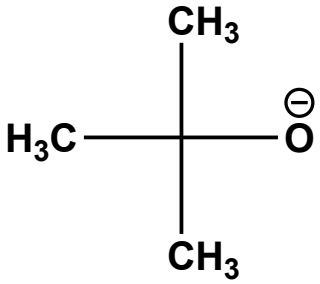
1. **Natura dell'alogenuro (primario, secondario, terziario)**
2. **Forza del nucleofilo/base**
3. **Reazioni:**
   - **a) Sostituzione nucleofila Sn2**
   - **b) Sostituzione nucleofila Sn1**
   - **c) Eliminazione E2**
   - **d) Eliminazione E1**

Alogenuri alchilici

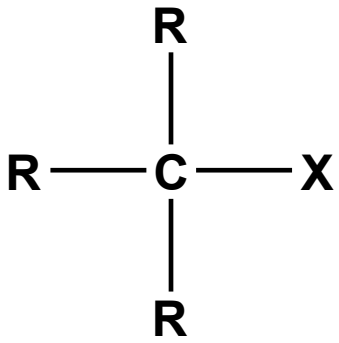
X= Cl, Br, I

RCH_2X
primari

S_N2

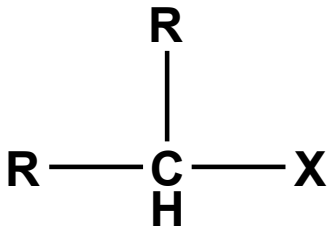


E_2 **ma solo con basi molto forti e ingombranti:**
***t*-butossido**



terziari

S_N1/ E1 **con nucleofili e basi deboli**
S_N1 **con nucleofili forti (cianuro, ioduro)**
E_2 **solo con basi molto forti**



secondari

S_N2 con nucleofili forti

S_N2 / E_2 con basi molto forti

S_N1/ E1 con nucleofili e basi deboli

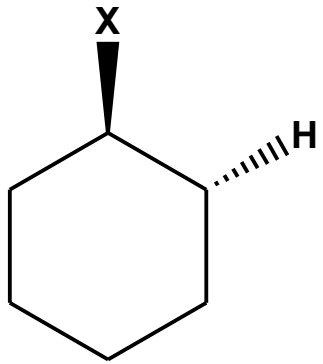
Stereochimica delle sostituzioni ed eliminazioni

S_N2 INVERSIONE DI CONFIGURAZIONE

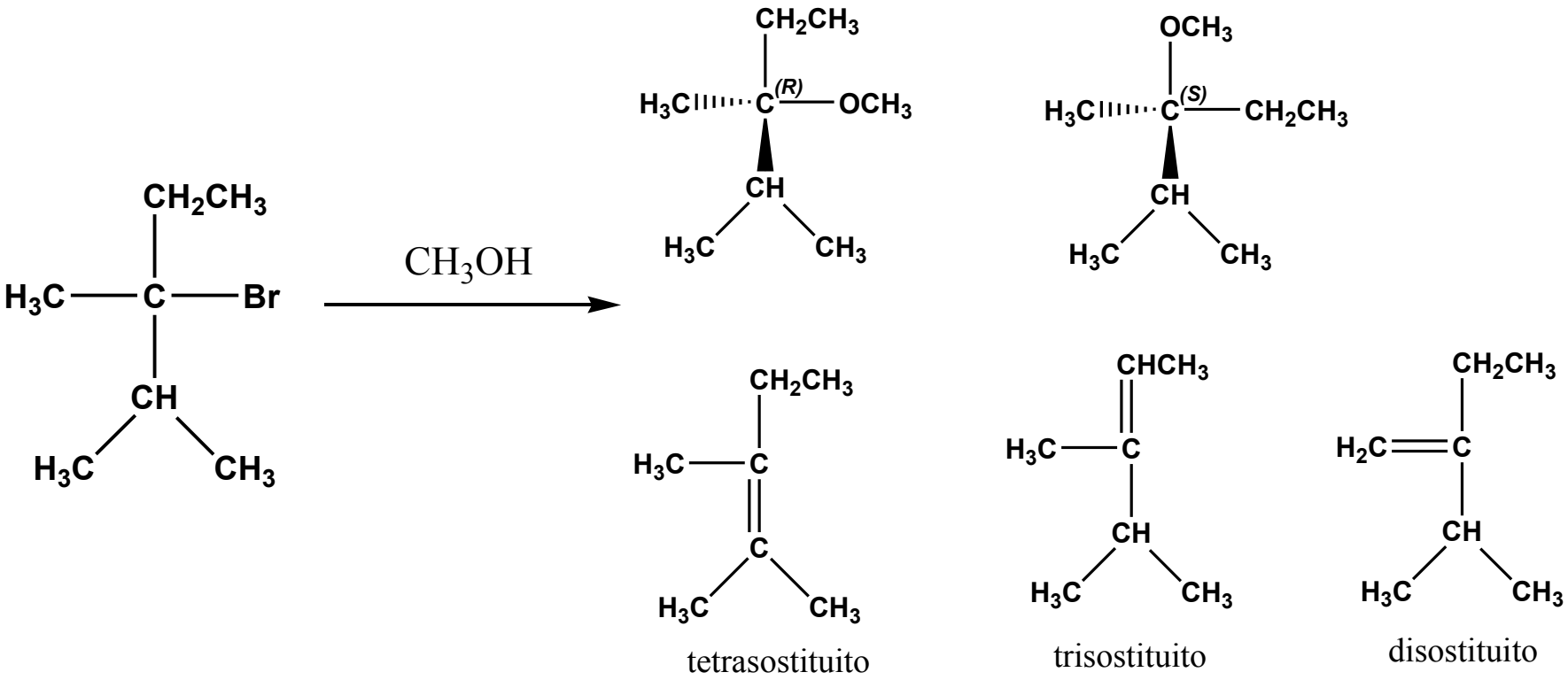
S_N1 FORMAZIONE DI UN RACEMO

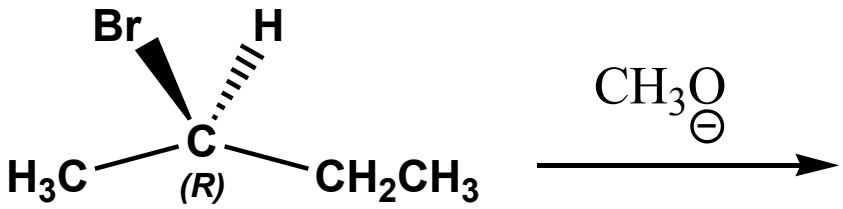
E_1

E_2 DISPOSIZIONE ANTIPERIPLANARE del protone in β e del gruppo uscente

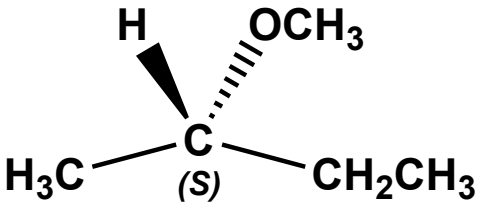


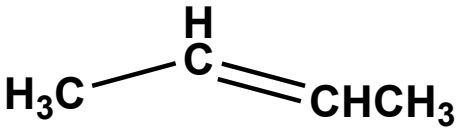
Si forma L'ALCHENE Più stabile, Cioè Quello più SOSTITUITO


CH2CH3
H3C
C
Br
CH
H3C
CH3
CH3OH
CH2CH3
H3C
(R)
C
OCH3
CH
H3C
CH3
OCH3
H3C
(S)
C
CH2CH3
CH
H3C
CH3
CH2CH3
H3C
C
C
H3C
CH3
tetrasostituito
CHCH3
H3C
C
CH
H3C
CH3
trisostituito
CH2CH3
H2C
C
CH
H3C
CH3
disostituito
QUANTITA' IN ORDINE DECRESCENTE

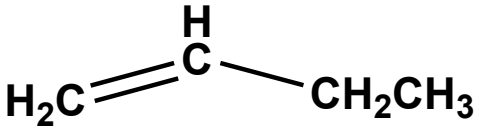


$CH_3O^{\ominus}$

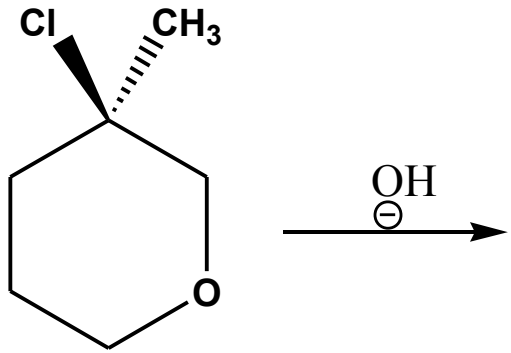


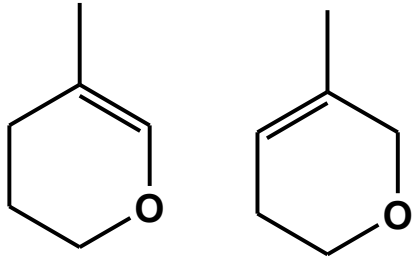


DISOSTITUITO



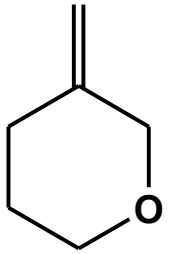
MONOSOSTITUITO

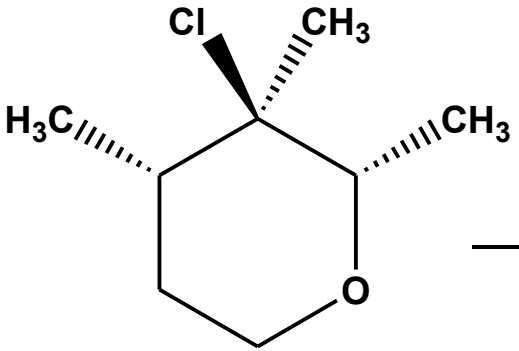


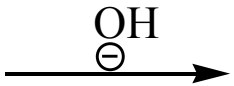


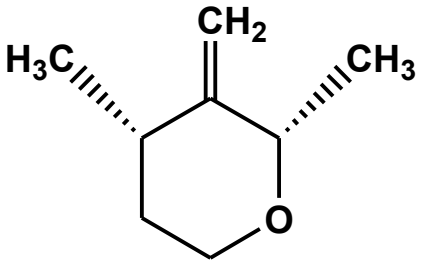
DISOSTITUITI

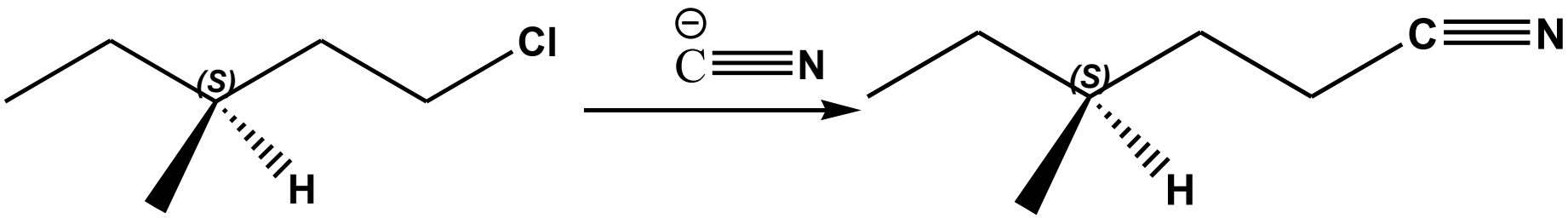
MONOSOSTITUITO

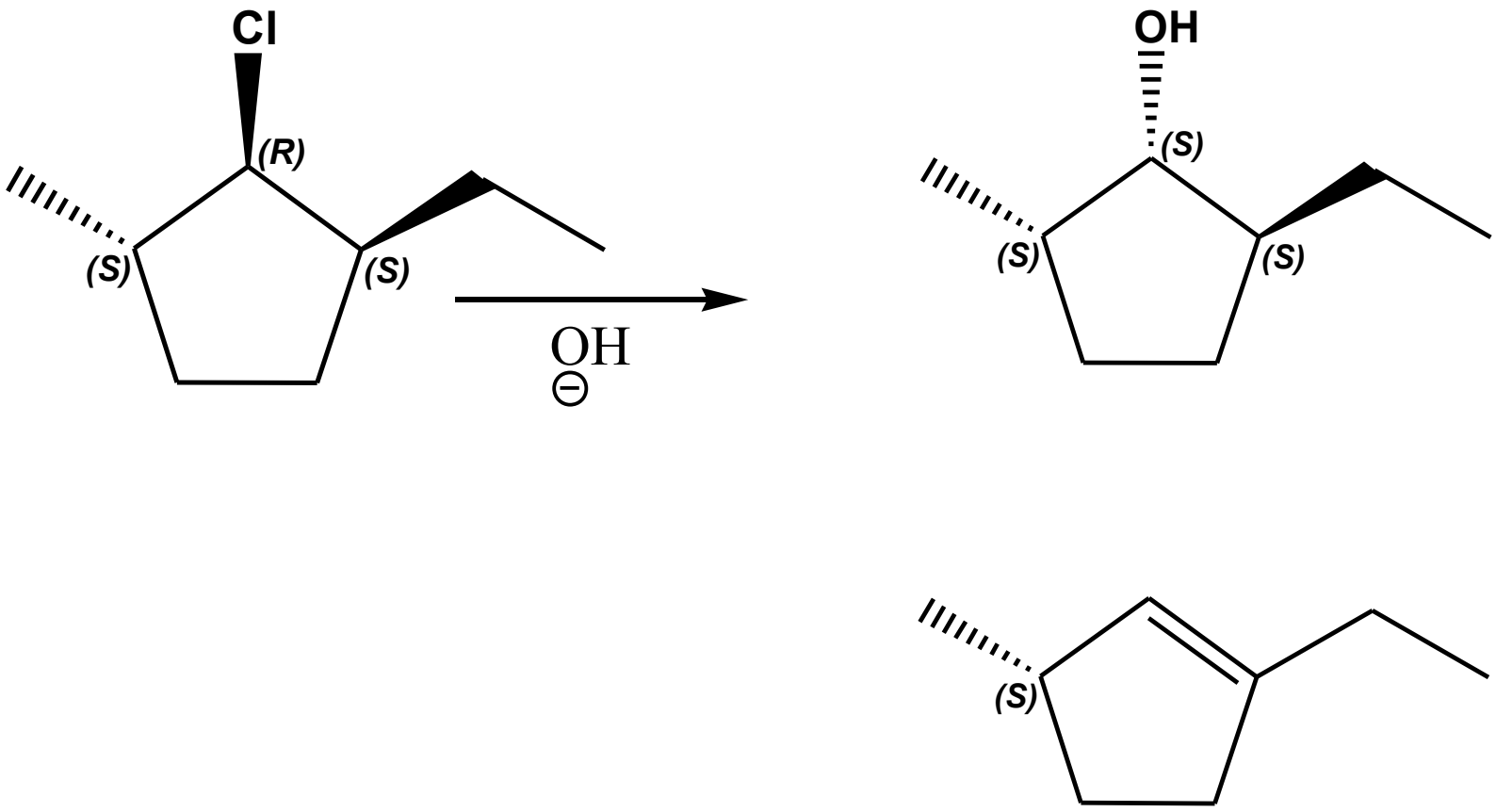




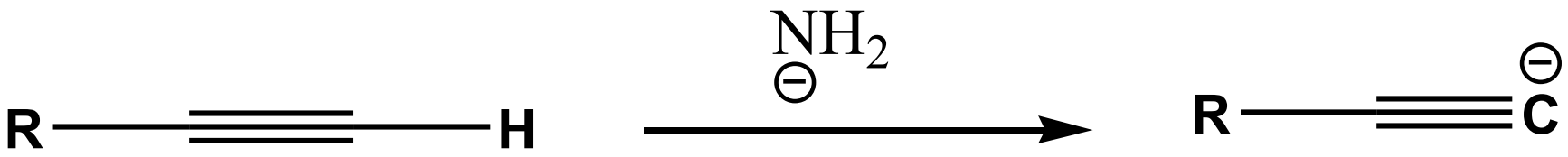


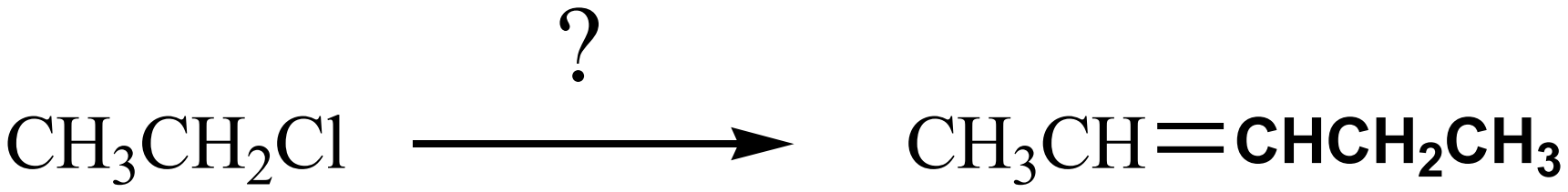


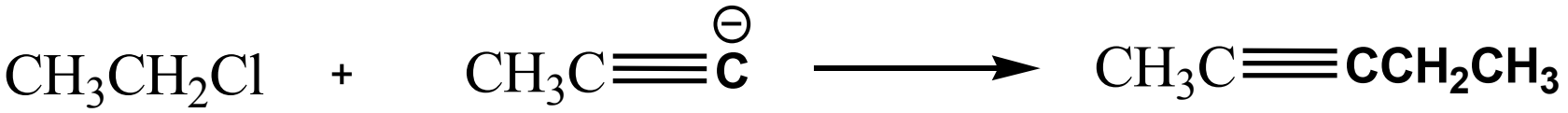

Cl
(S)
H
⊖
C
N
(S)
H
C
N

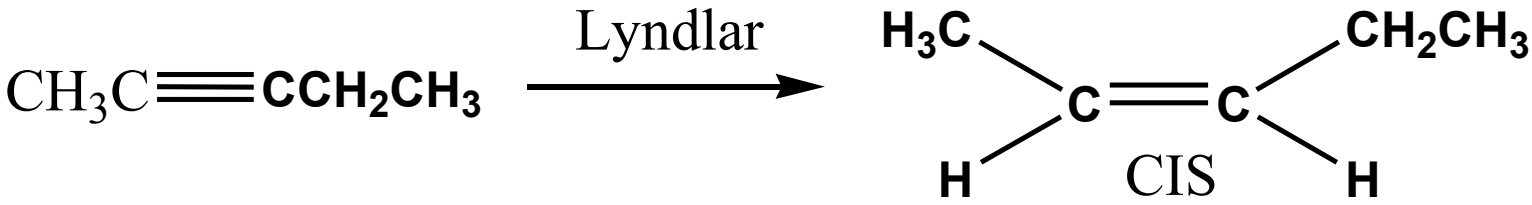

Cl
(R)
(S)
(S)
OH
⊖
OH
(S)
(S)
(S)
(S)

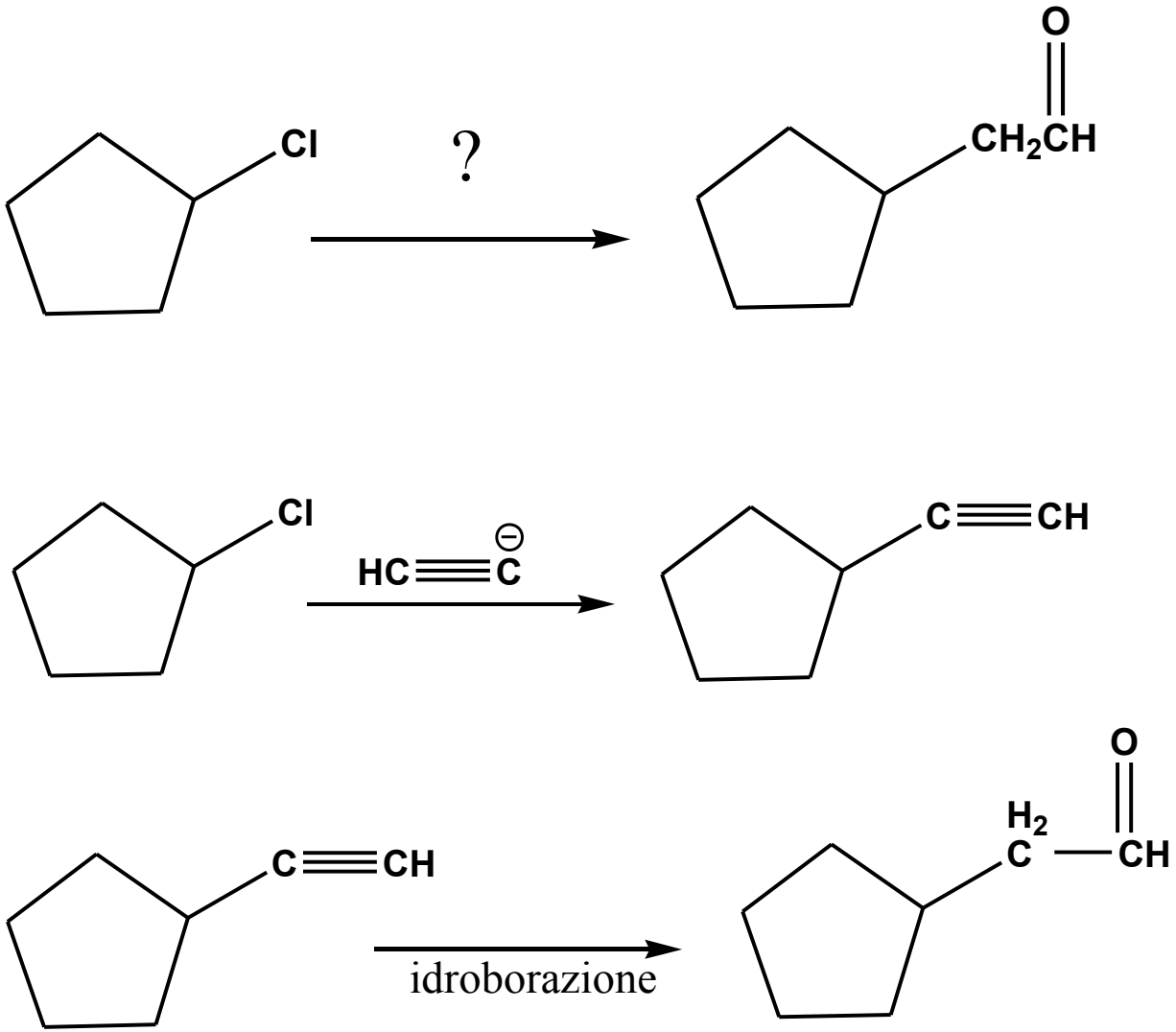
Sintesi multistep
con ioni acetiluro




?
CH3CH2Cl
CH3CH=CHCH2CH3

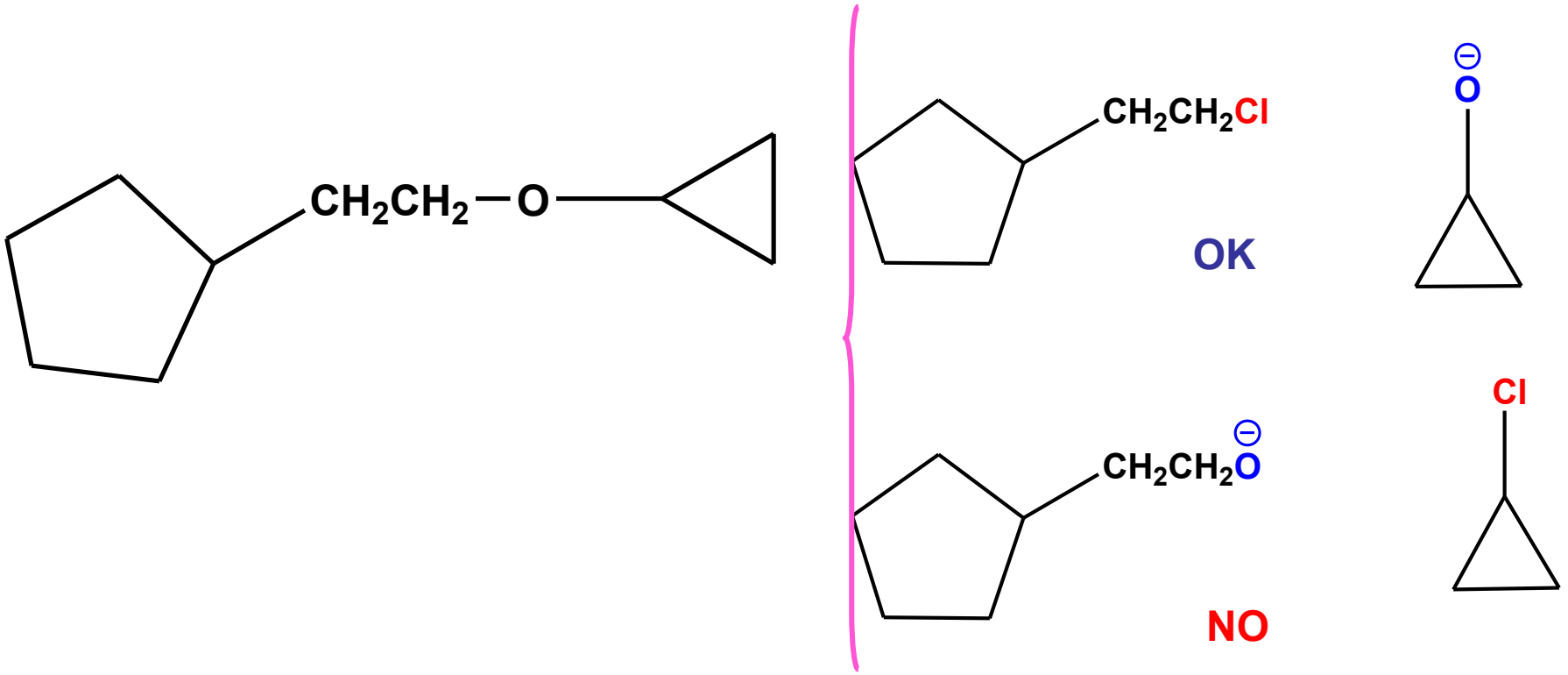

CH3CH2Cl
+
CH3C≡C⊖
CH3C≡CCH2CH3


CH3C≡CCH2CH3
Lyndlar
H3C
CH2CH3
C
C
H
H
CIS

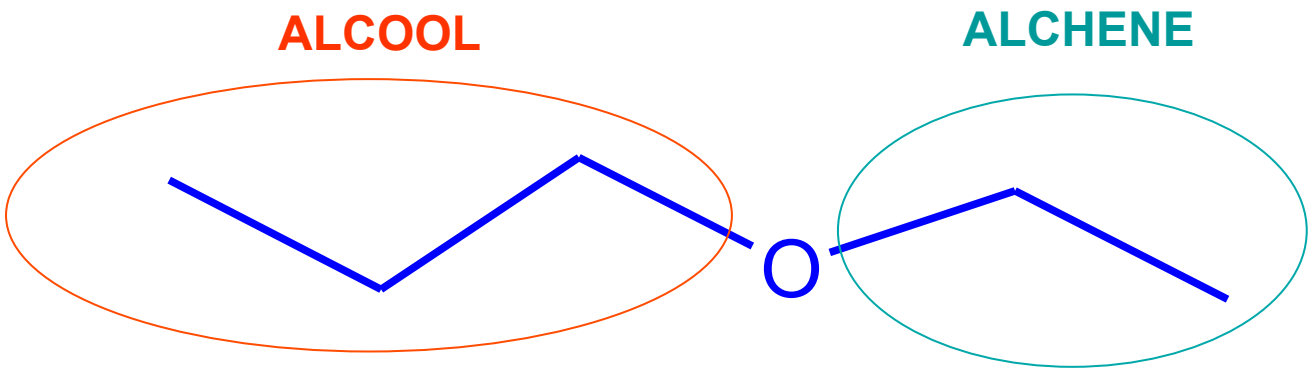

Cl
?
O
CH2CH
Cl
HC≡C⊖
C≡CH
C≡CH
idroborazione
O
H2
C
CH

Sintesi di Williamson per eteri (S_N2)

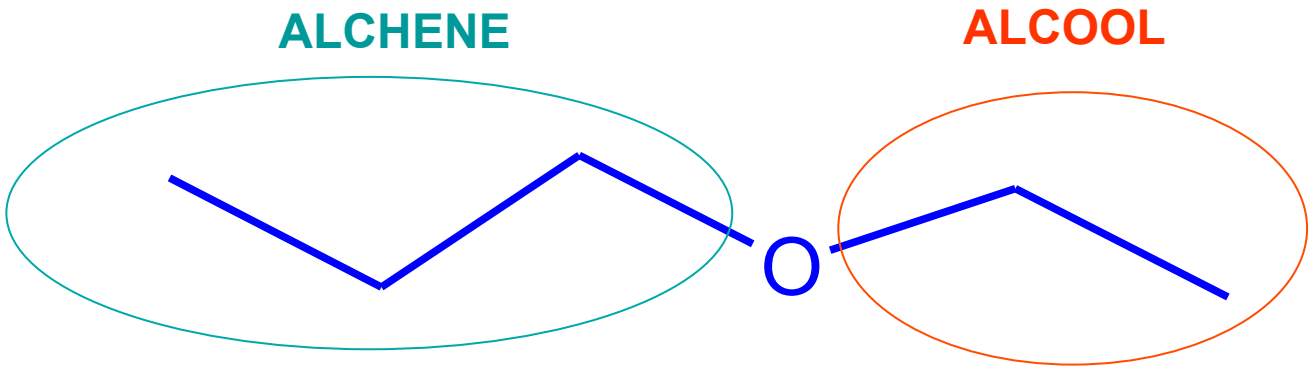
IL SUBSTRATO (ALOGENURO) *DEVE* ESSERE *SEMPRE* PRIMARIO



SINTESI DI ETERI A PARTIRE DA ALCHENI + ALCOOL



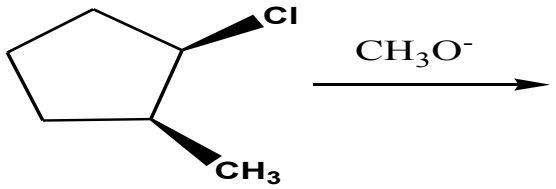
OK

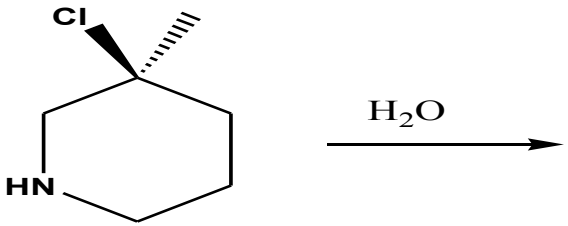


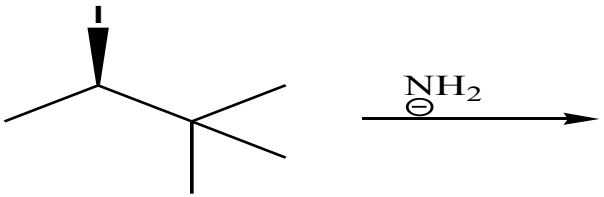
NO

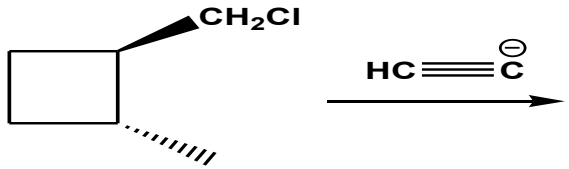
Assegno:

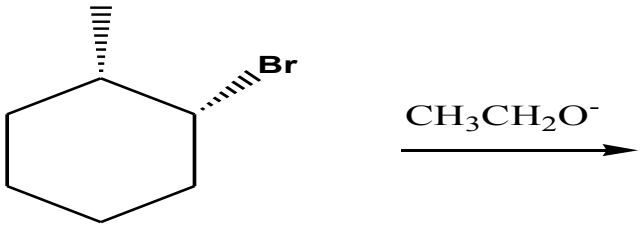
scrivere il prodotto o i prodotti delle seguenti reazioni indicando la stereochimica dei reagenti e dei prodotti











Assegno:
proporre delle sintesi per ottenere i seguenti prodotti a partire dai reagenti indicati