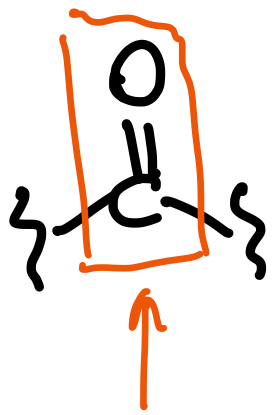
COMPOSTI CARBONILICI: ALDEIDI E CHETONI



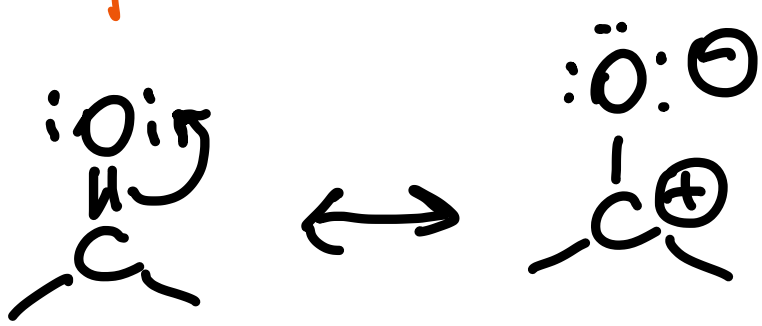
C sp^2 → trigonale planare

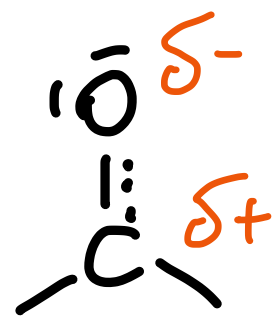
120°

σ, π

polarizzato, O è elettronegativo.

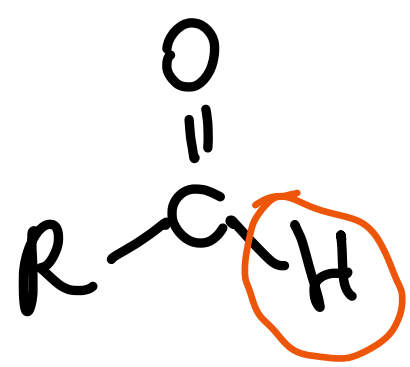
C povero di elettroni



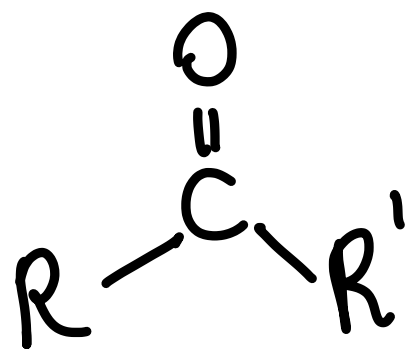


IBRIDO DI RISONANZA

C è elettrofilo.



ALDEIDI



CHETONI

} REAGISCONO CON Nu^-

> n° R, < reattività

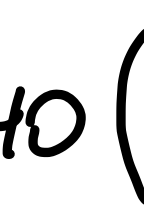
↳ Aldeidi sono + reattive dei chetoni.

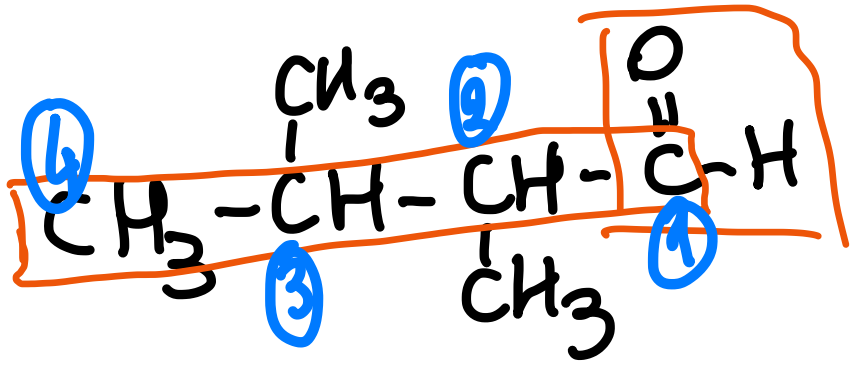
NOMENCLATURA ALDEIDI

-O ⟶ -ale

se legata ad anello ⟶ -carbaldeide

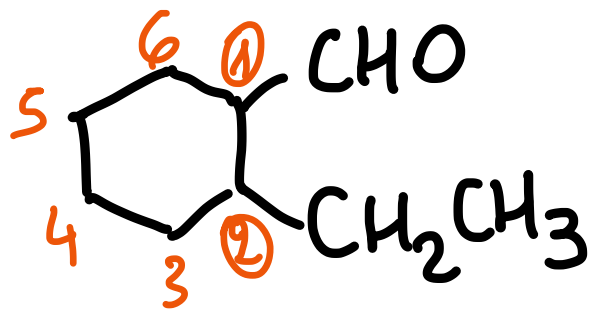
1) Catena carboniosa + lunga

2) il n° 1 ad CHO (⟶ )

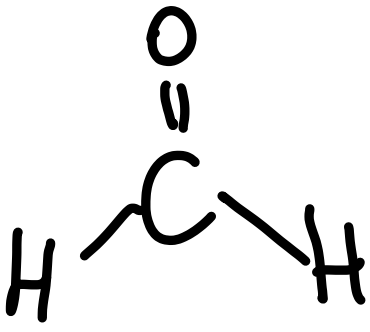


BUTANO ⟶ BUTANALE

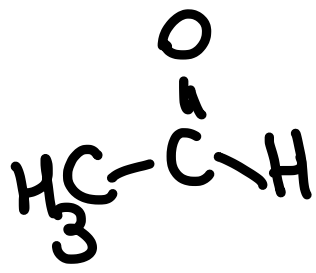
2,3-DIMETIL BUTANALE



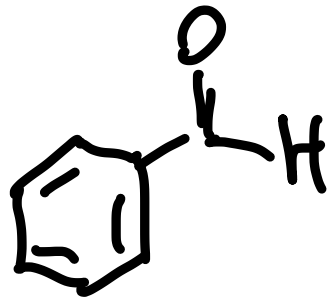
2-ETIL-CICLOESAN CARBALDEIDE



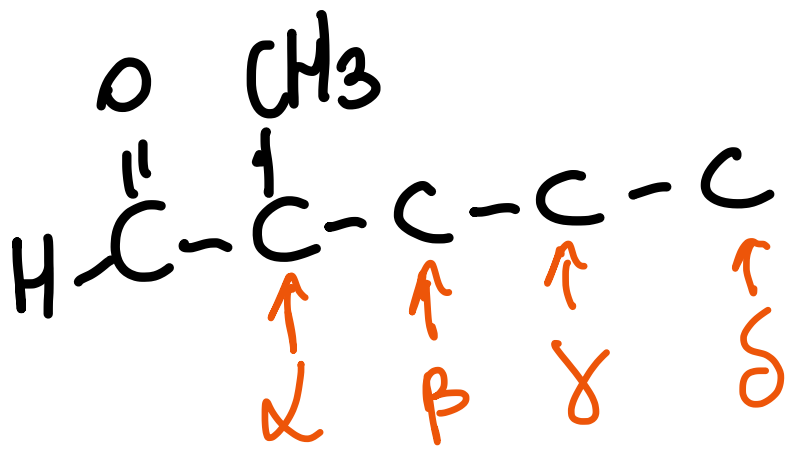
FORMALDEIDE
(METANALE)



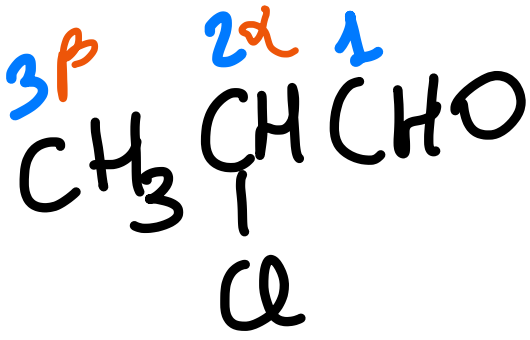
ACETALDEIDE
(ETANALE)



BENZALDEIDE
(BENZENCARBALDEIDE)



⇒ SOLO CON NOMI COMUNI

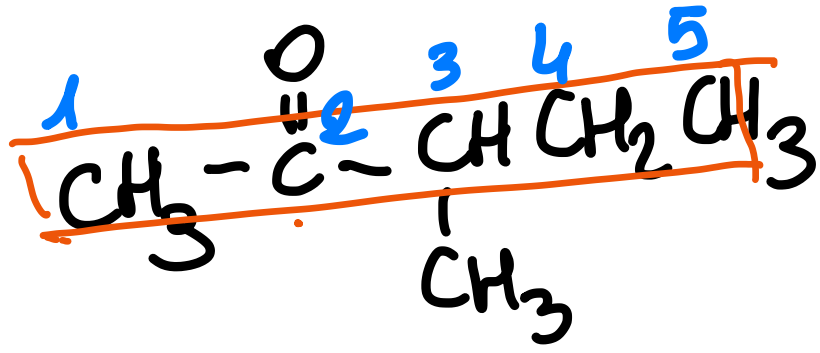


2-cloro-propanale
(α-cloropropionaldeide)

NOMENCLATURA CHETONI

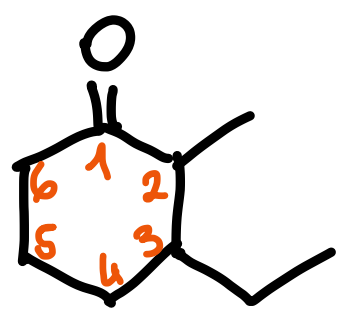
SUFFISSO:

-ano → -one



PENTANO → PENTANONE

3-METIL-2-PENTANONE

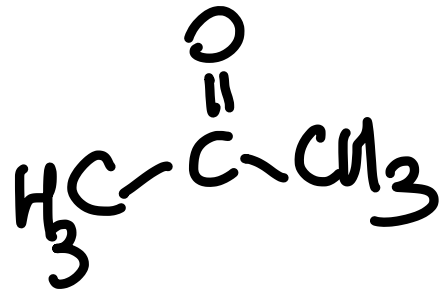


CICLOESANO → CICLOESANONE

2-METIL-3-ETILCICLOESANONE

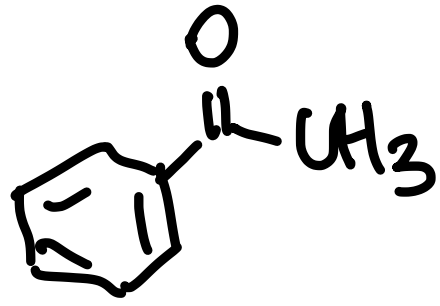
SE IL CHETONE È IN POSIZIONE 1, VIENE OMESSO NELLA NOMENCLATURA IUPAC.

NOMI COMUNI CHETONI



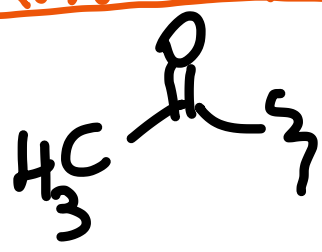
(2-propanone)

ACETONE

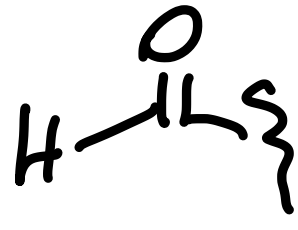


ACETOFENONE

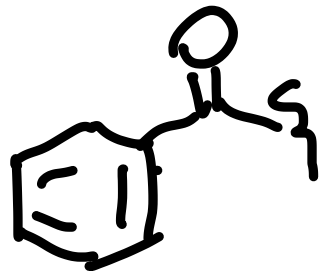
GRUPPI PIÙ COMUNI:



GR. ACETILE

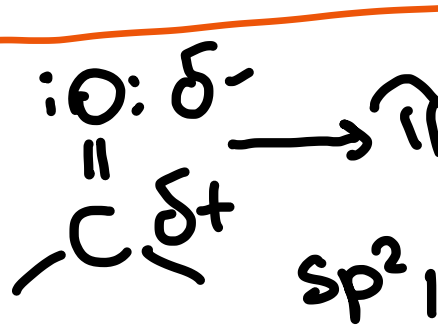


GR. FORMILE



GR. BENZOILE

REAZIONI DI ALDEIDI E CHETONI

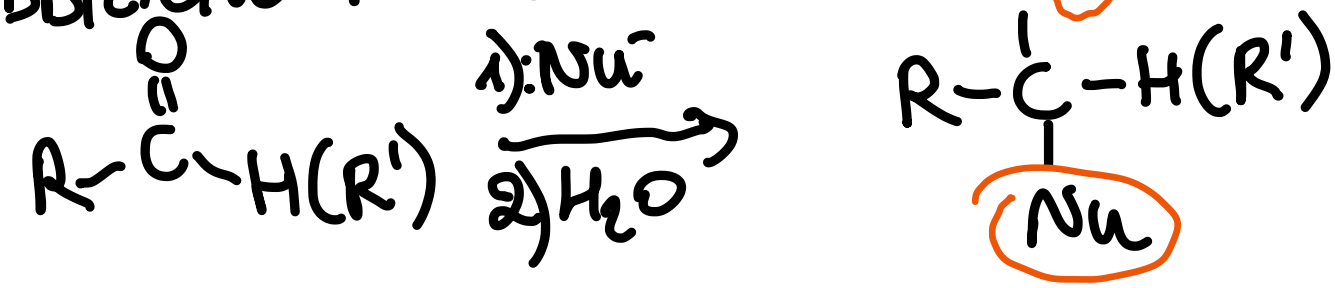


→ π FACILE DA ROMPERE

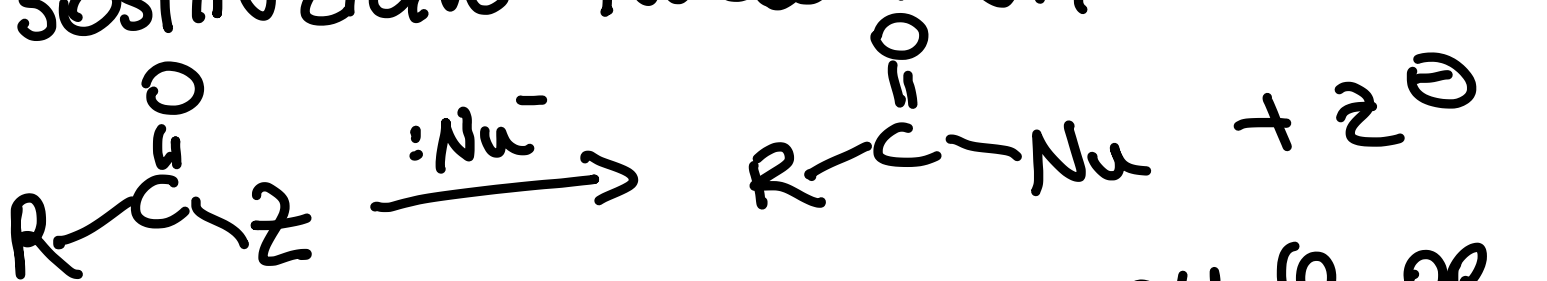
sp^2, poco impedito stericamente

REAGISCONO CON NUCLEOFILI:

1) ADDIZIONE NUCLEOFILA:



2) SOSTITUZIONE NUCLEOFILA:

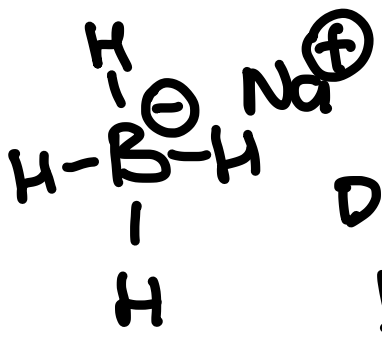


Z= UN BUON GRUPPO USCENTE = OH_2, Cl, OR

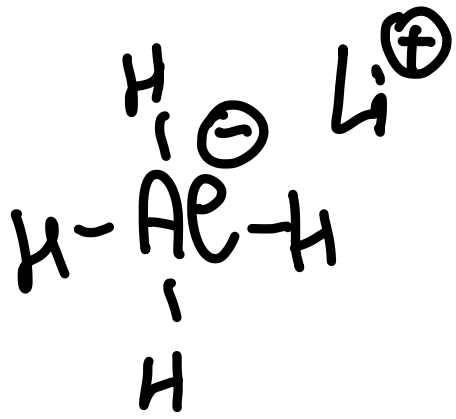
- ADDIZIONE NUCLEOFILA:

RIDUZIONE DI ALDEIDI E CHETONI

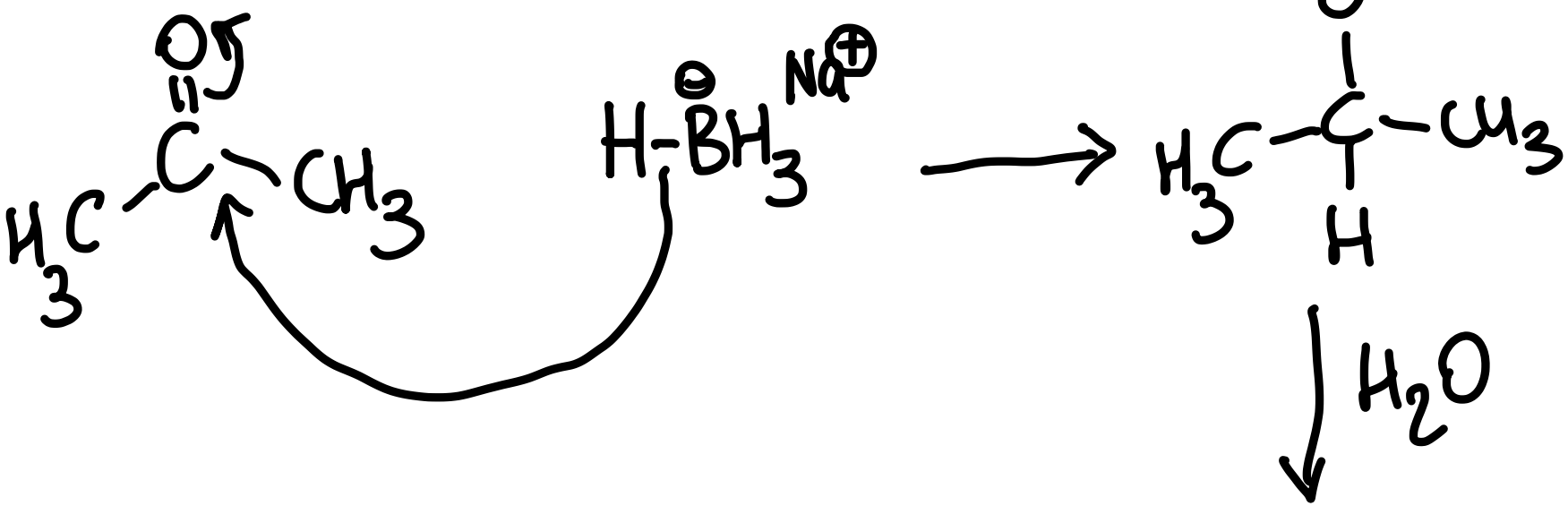
$NaBH_4$



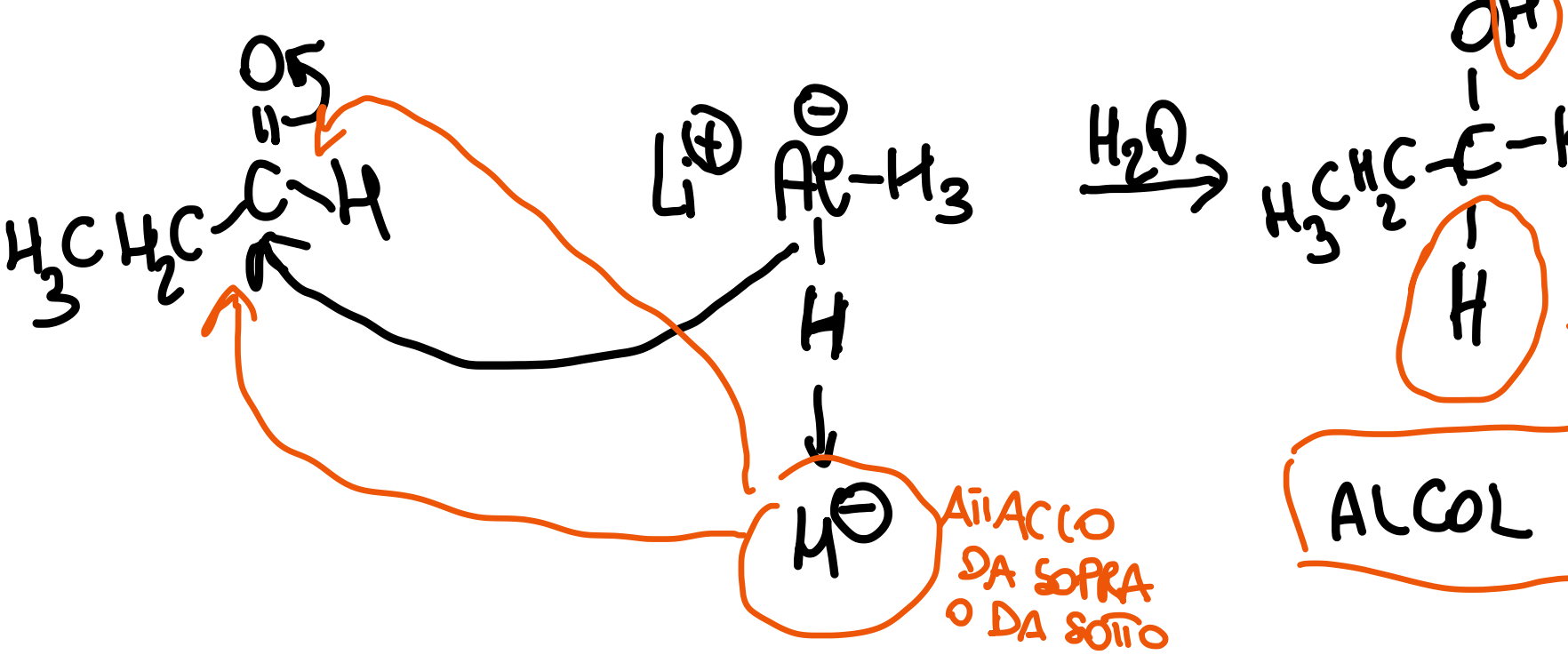
$LiAlH_4$



DONATORI DI $H^{\ominus}$ = IONE IDRURO ⇒ ATTACCO $Nu^{\ominus}$



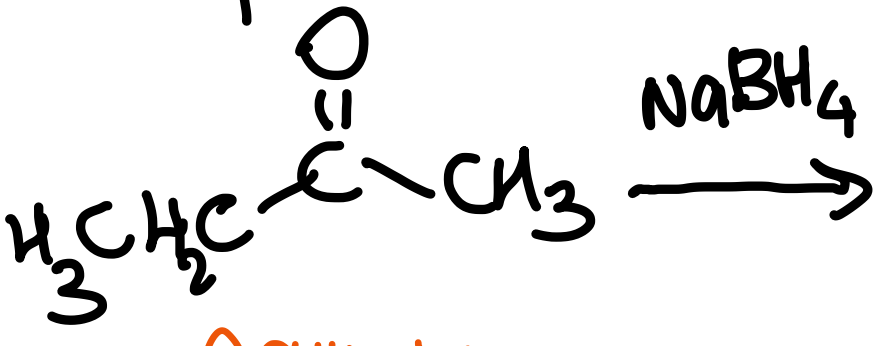
ALCOL 2°



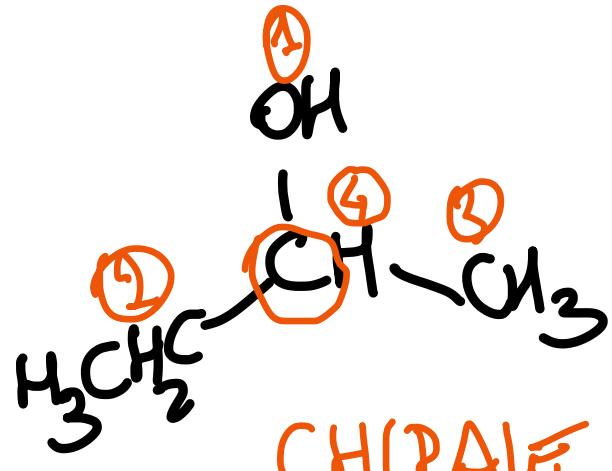
ALCOL 1°

STEREOCHIMICA

C sp^2 → sp^3



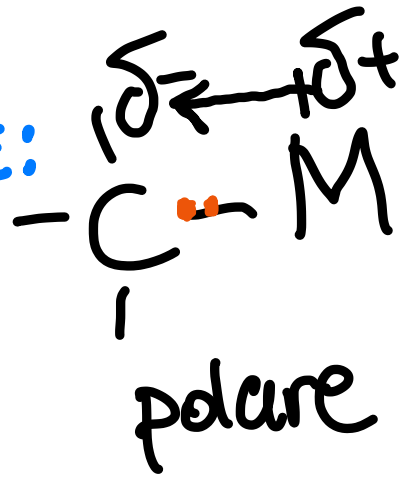
ACHIRALE



CHIRALE

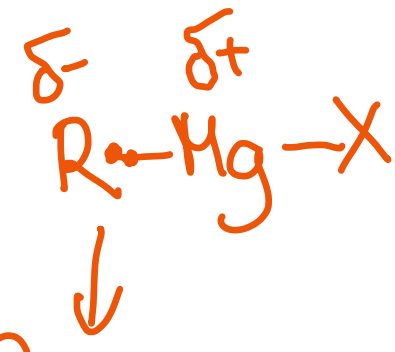
MISCELA RACEMICA 50 : 50 (R)/(S)

ADDIZIONE NUCLEOF. DI $R^{\ominus}$

IN GENERALE: 

M = Li, Mg, Cu

- REATTIVI DI GRIGNARD: (SEMPRE PRESENTE Mg)

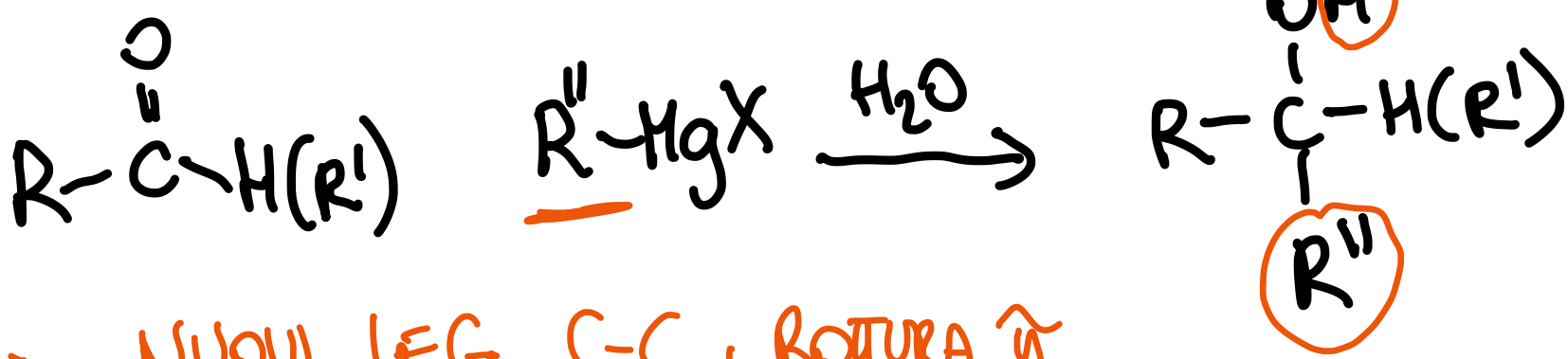


X = Br, Cl, I

R = alchile o arile

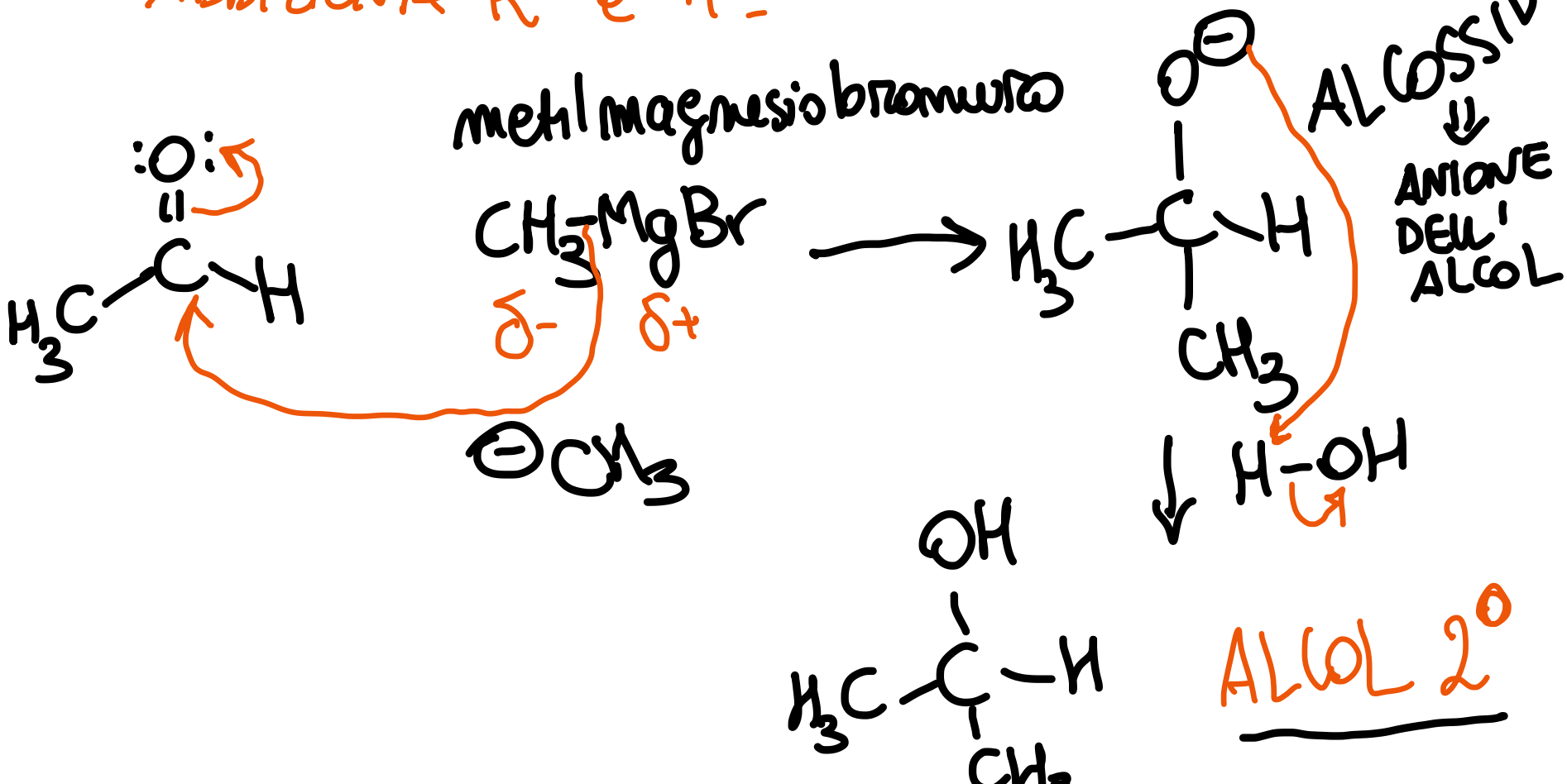
$R^{\ominus}$ = CARBANIONE

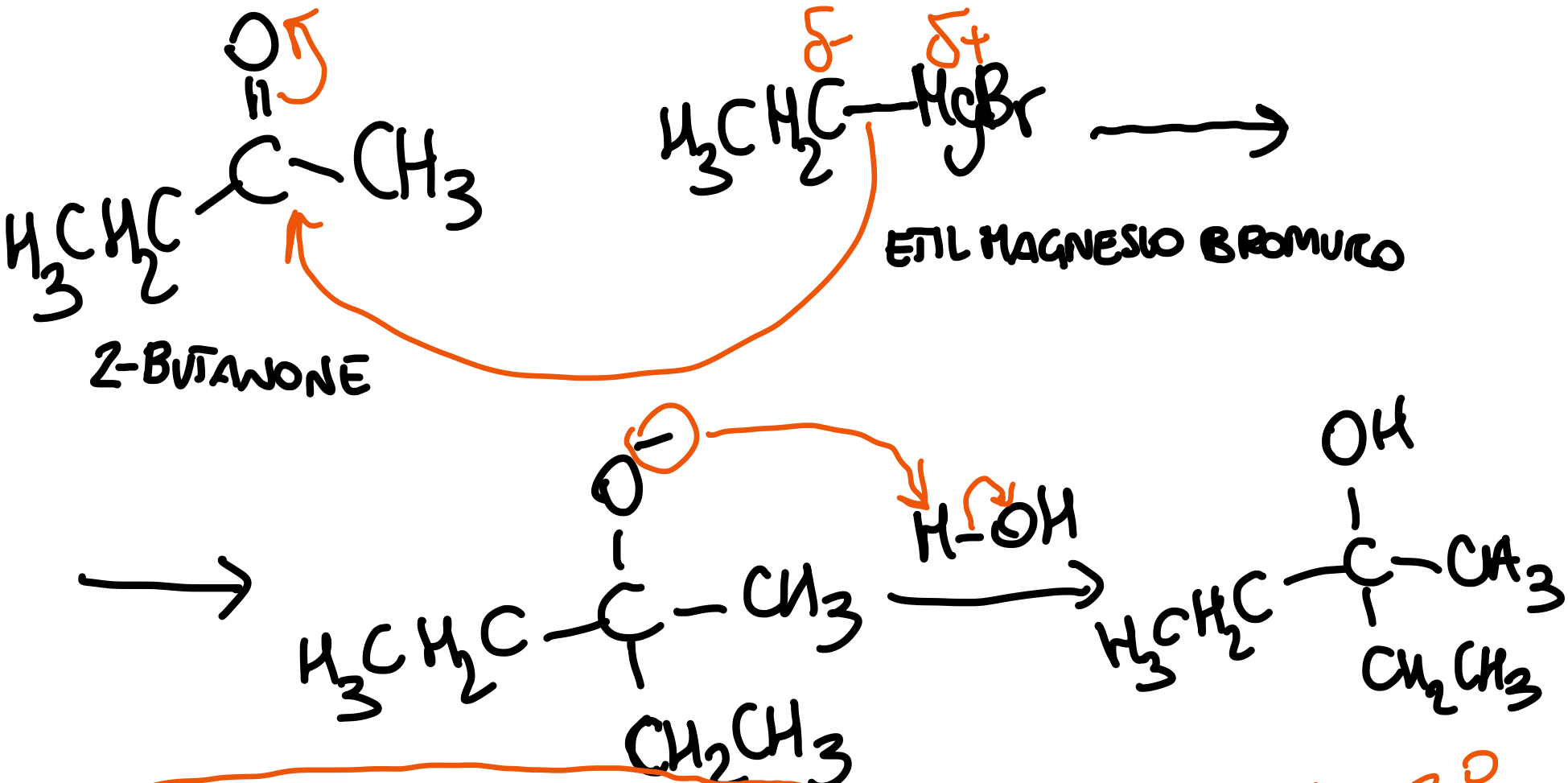
LEGAME POLARE → MOLTO REATTIVI



↳ NUOVI LEG. C-C, ROTTURA π

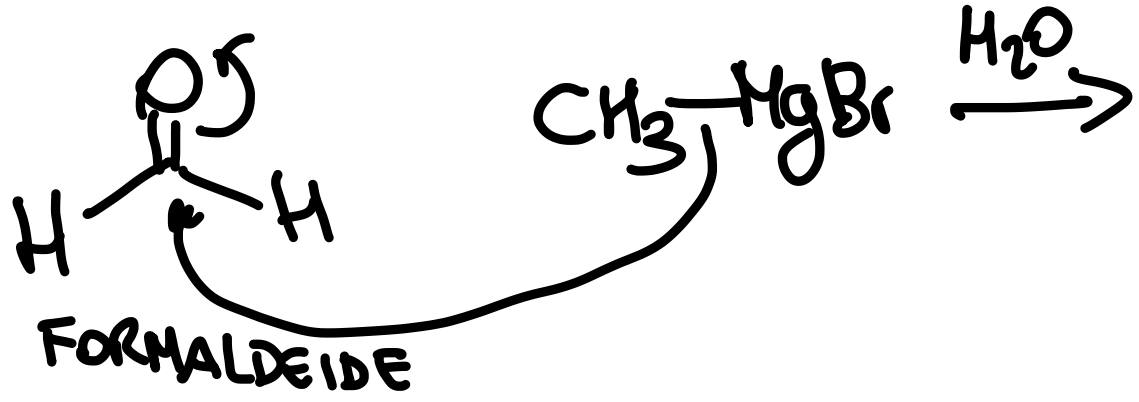
ADDIZIONA R'' e H-





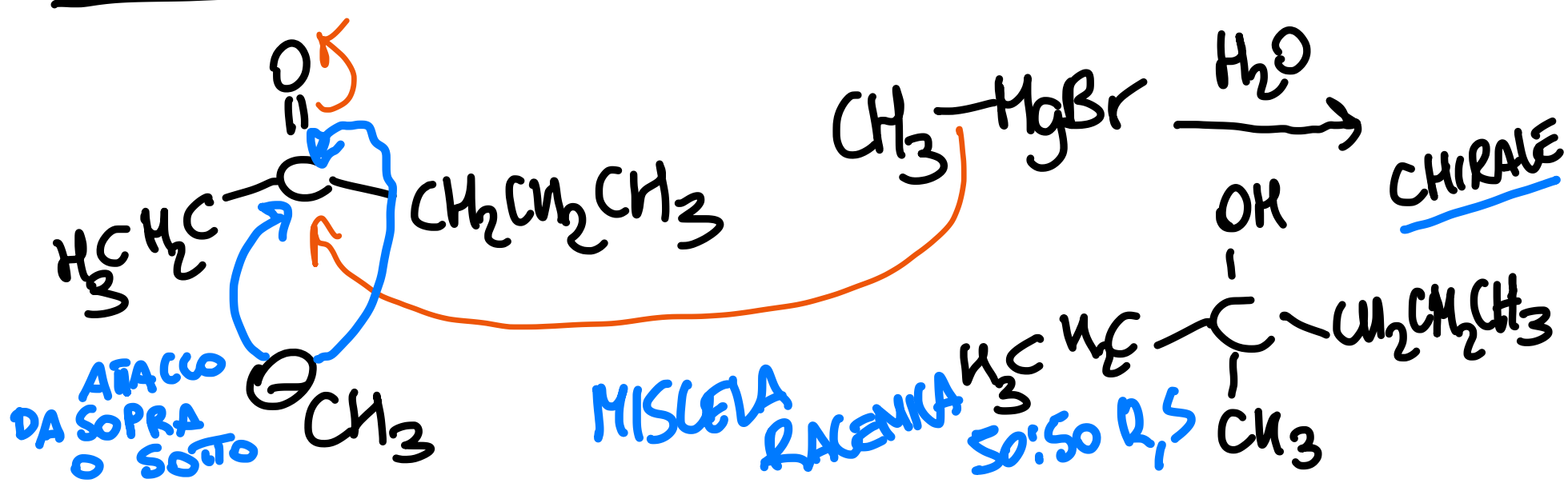
FORMALDEIDE → ALCOL 1°
ALDEIDI → ALCOL 2°
CHETONI → ALCOL 3°

ALCOL 3°



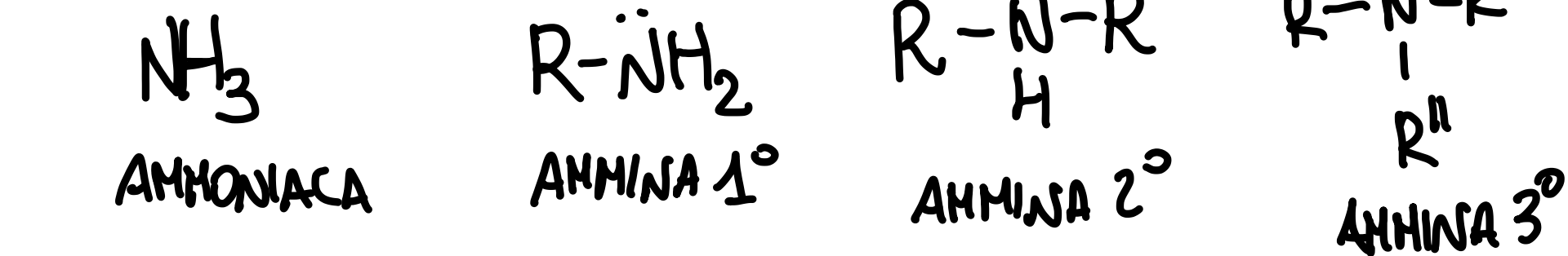
ALCOL 1°

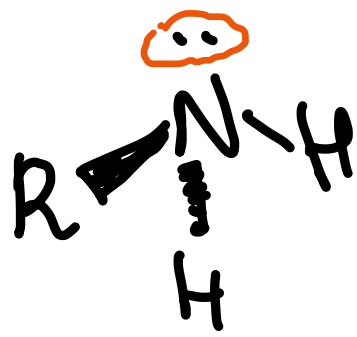
STEREOCHIMICA



R,S

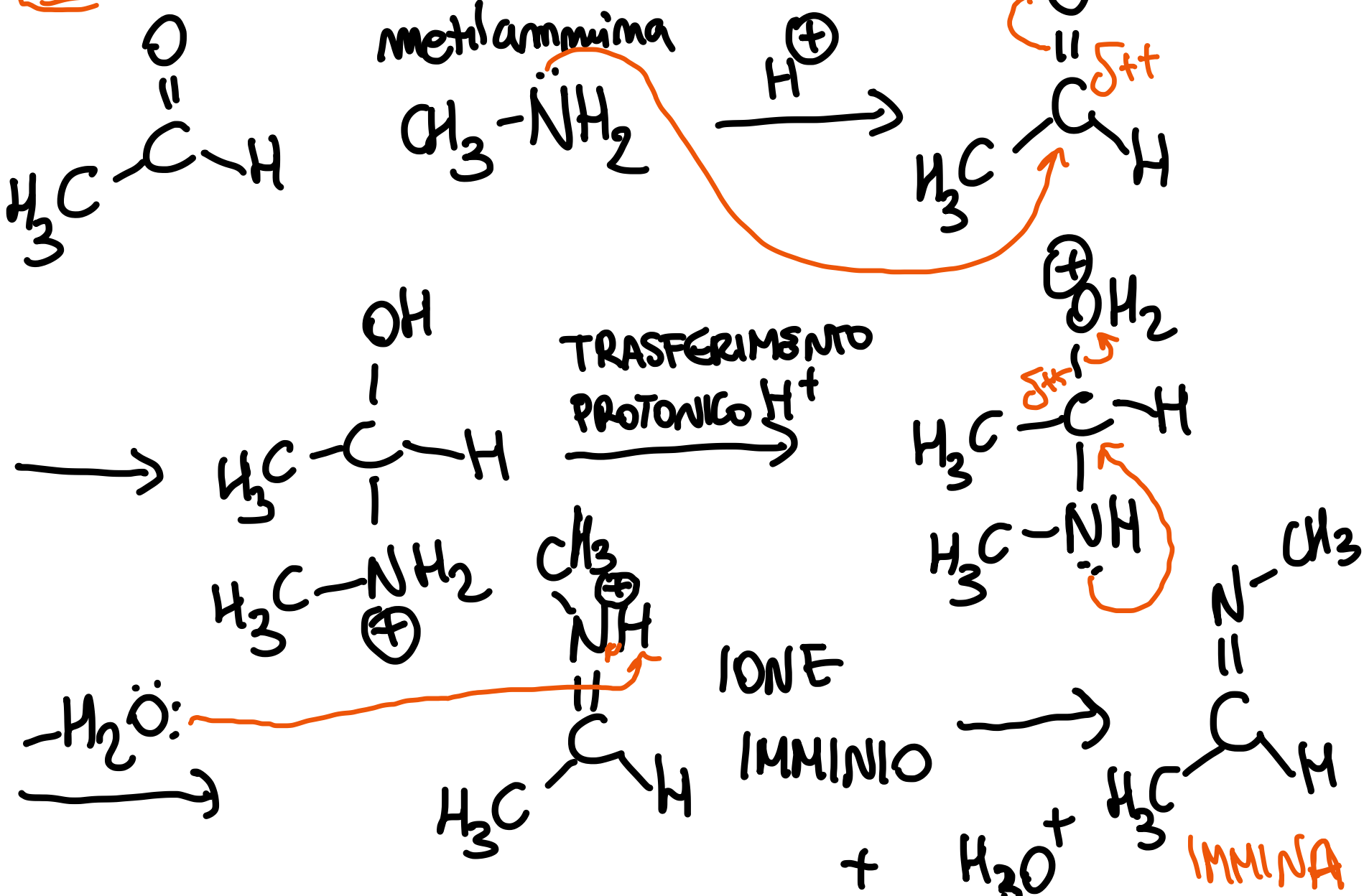
ADDIZIONE DI AMMINE

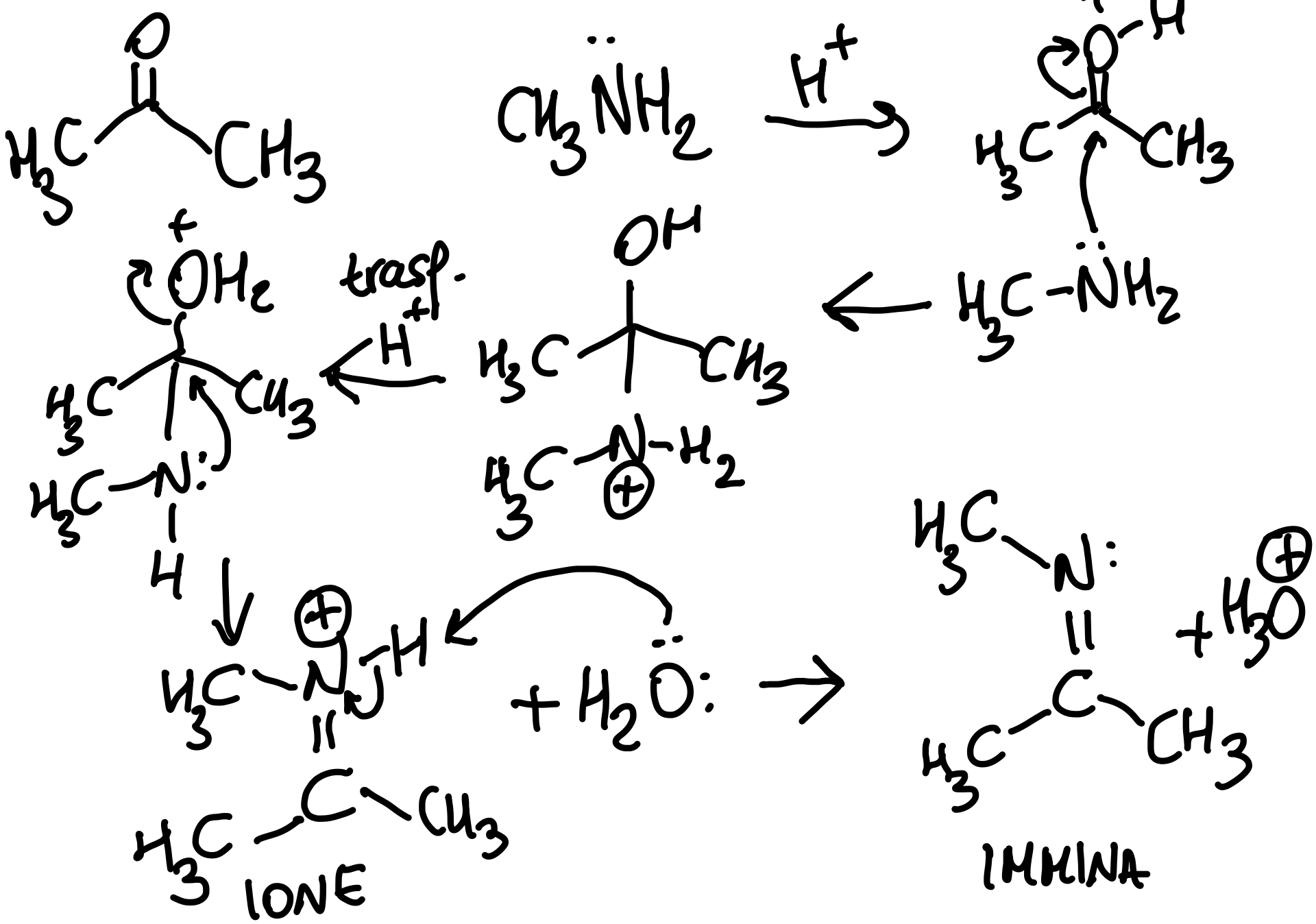




NUCLEOFILI
BASI DEBOLI

ADDIZIONE DI AMMINE 1°

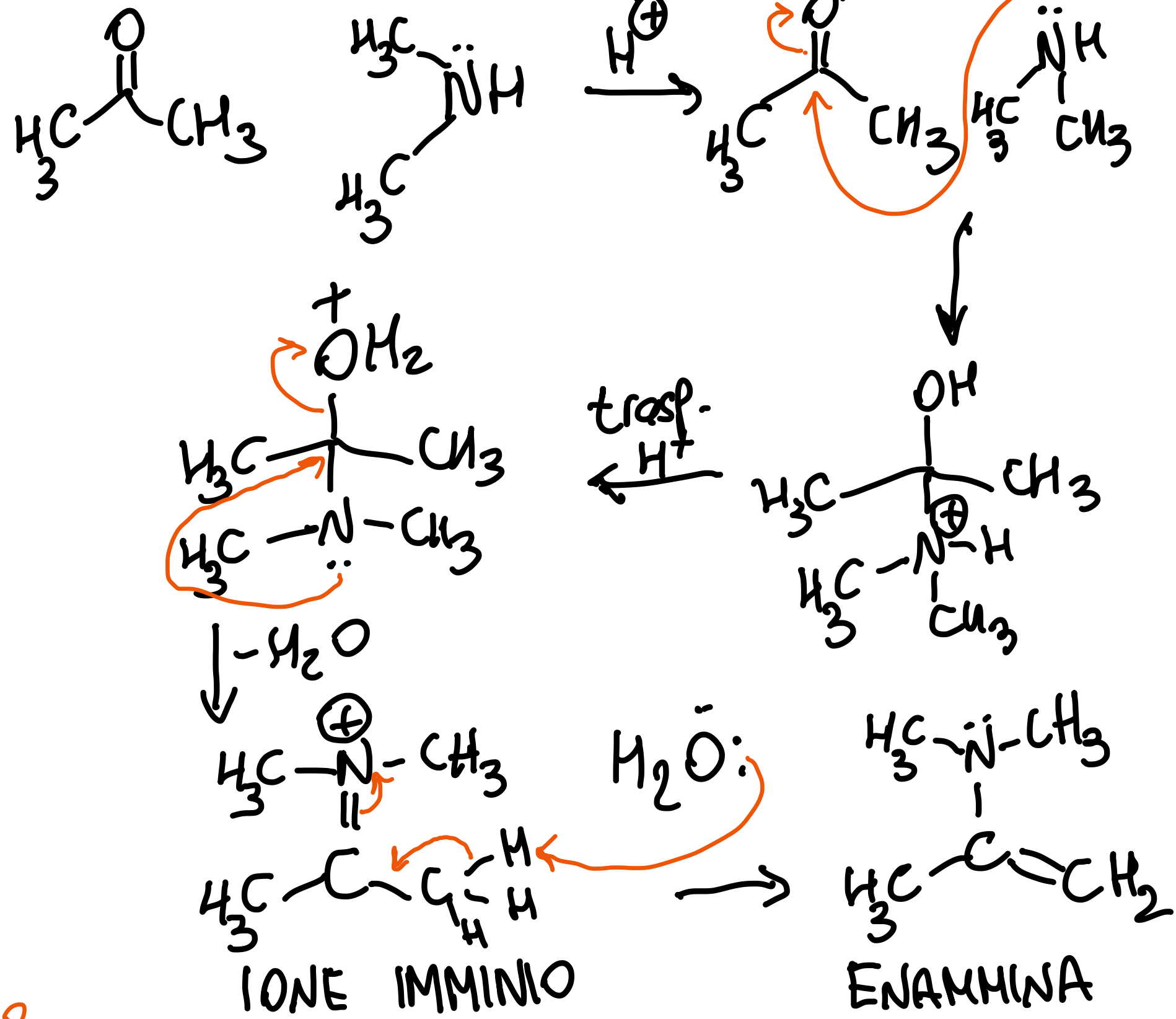




IMMINIO

NB CHETONI / ALDEIDI + $R-NH_2$ → IMMINA

ADDIZIONE R_2NH



NB

ALDEIDI / CHETONI + R_2NH → ENAMMINE

ALDEIDI / CHETONI + R_3N ⟶ ✗