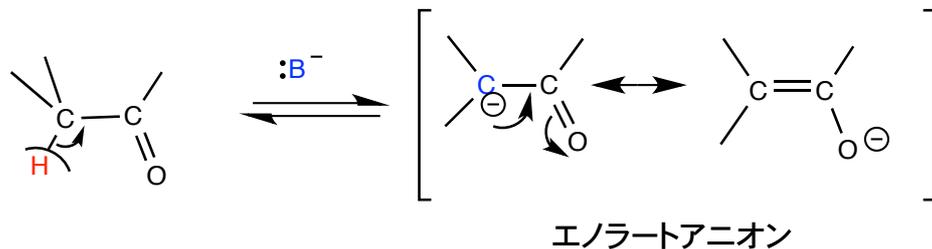
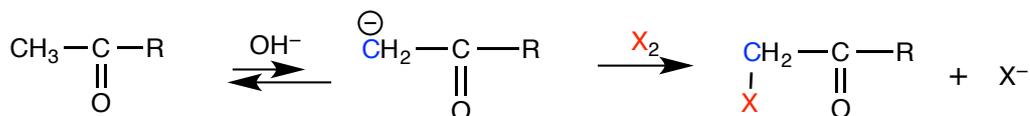


## 16.カルボニルのα位での置換反応

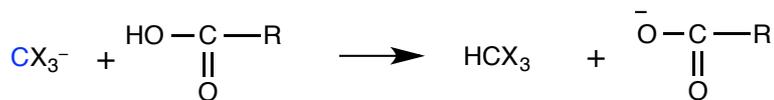
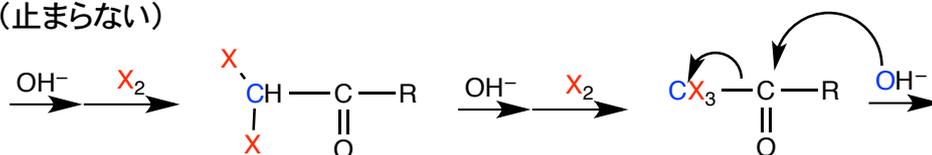
## 16.1. 塩基性下の反応(Case 2)



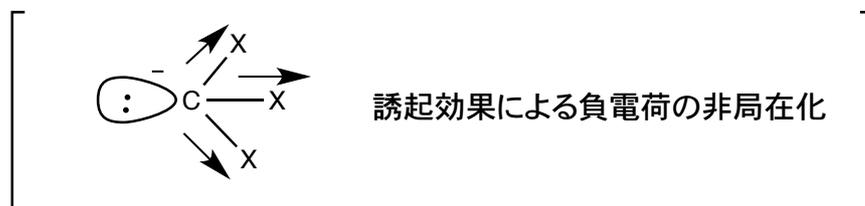
## (1) ハロゲン-ハロホルム反応



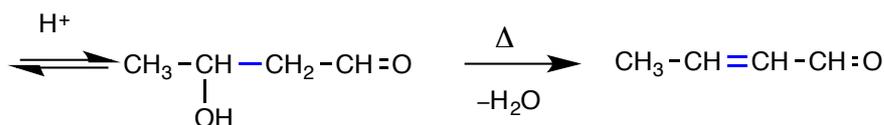
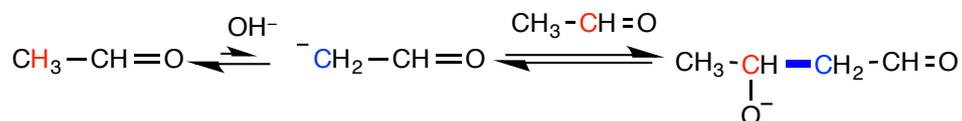
(止まらない)



ハロホルム



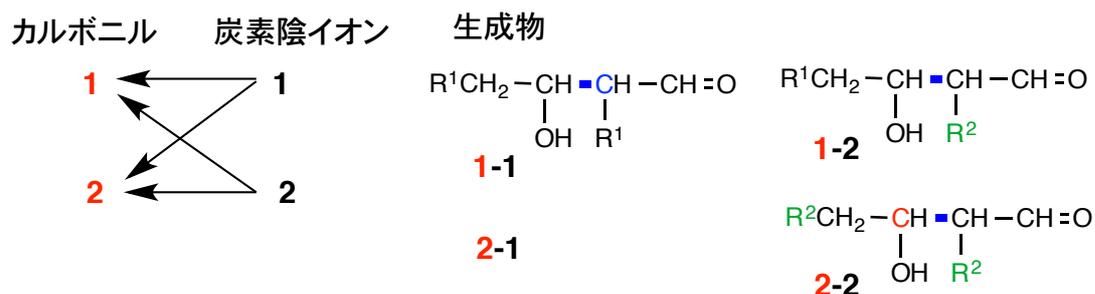
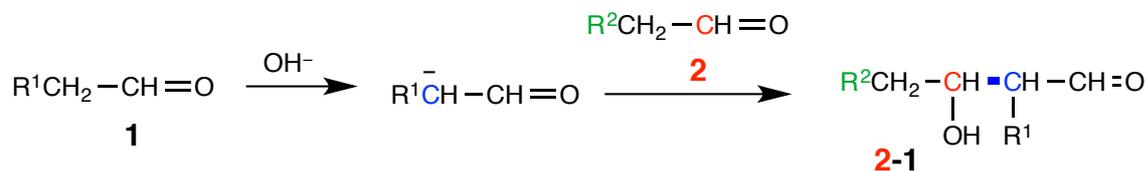
## (2) アルドール反応



Aldol

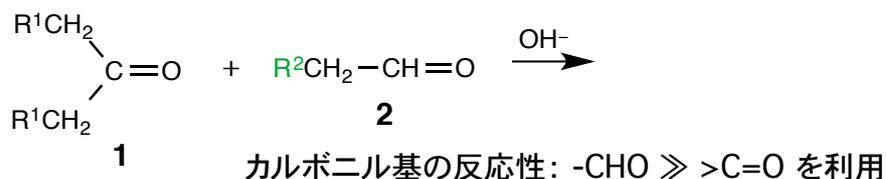
## (3) 交差アルドール反応

## (a) 2種類のアルデヒドの交差反応

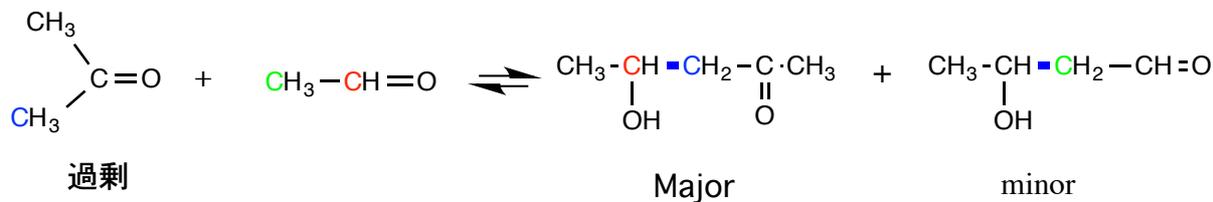
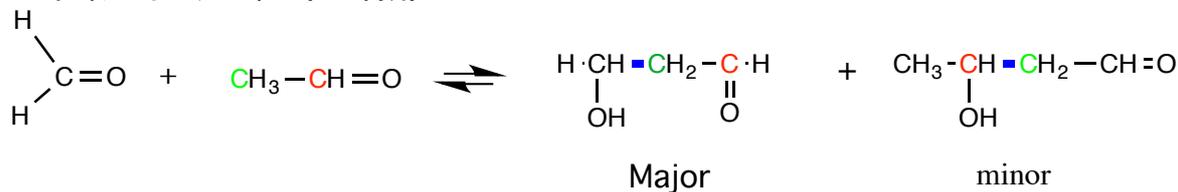


4種類の生成物が同じ割合で生じる(収率約25%)!

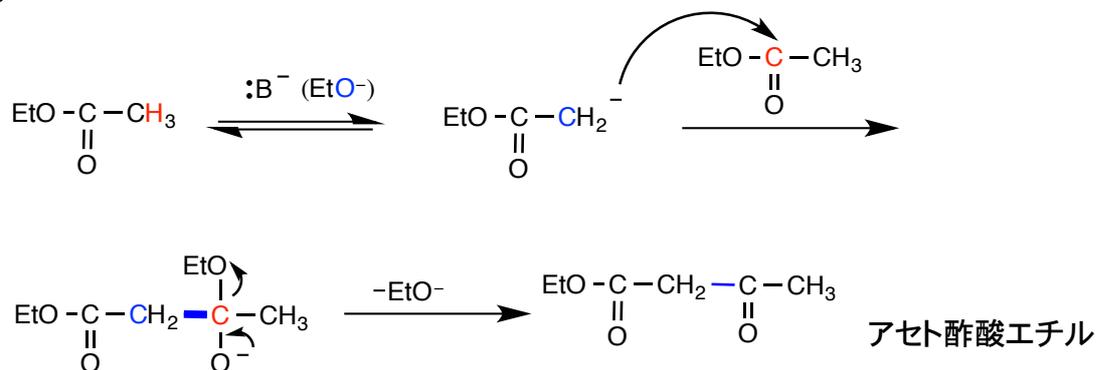
## (b) ケトンとアルデヒドの交差反応



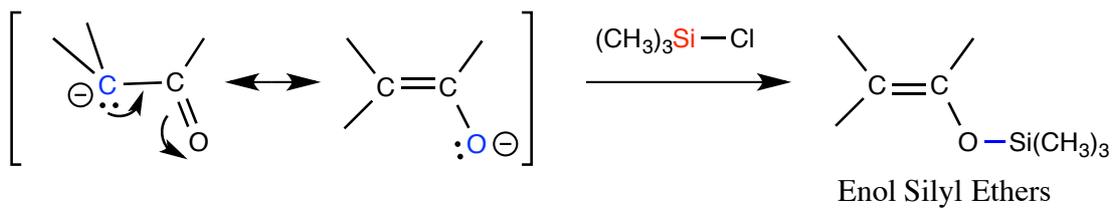
## (b') 選択的に反応を起こすには....

(c)  $\alpha$ 水素のないアルデヒドの利用

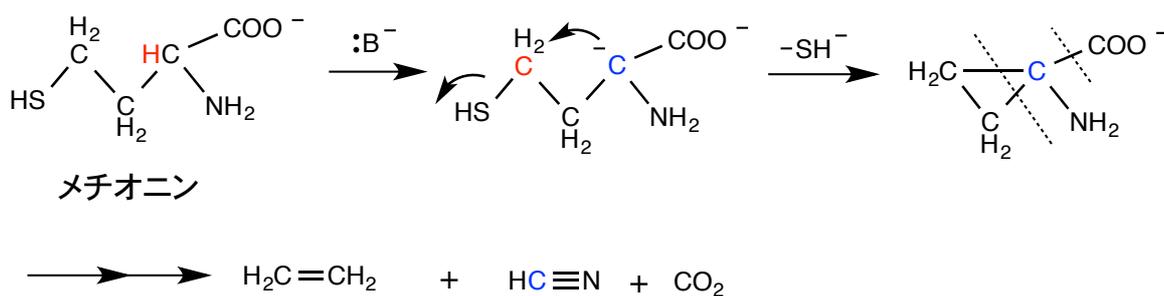
## (4) クライゼン縮合



## (補足) (5) Silyl Electrophileとの反応

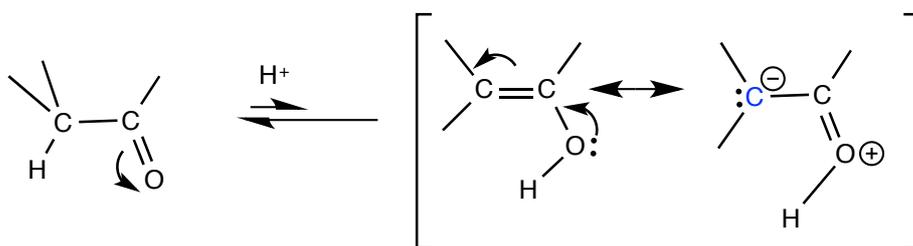


## (参考) エチレンの生合成 (植物ホルモン)



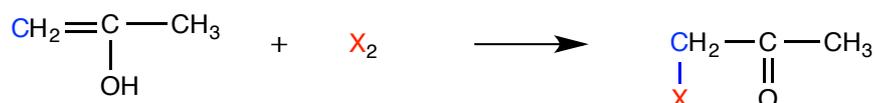


## 16.3. エノール体への求電子試薬の反応 [Case 2]

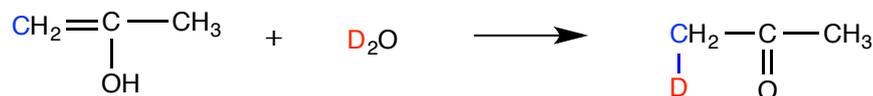


ケト-エノール互変異性 Tautomerism

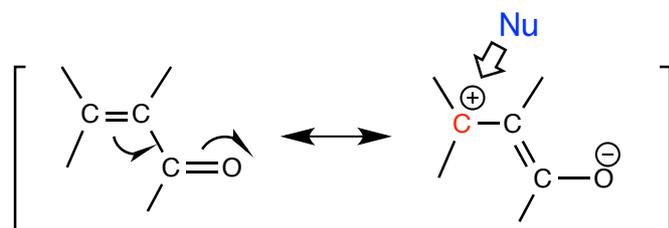
## (1) ハロゲン化



## (2) 水素の交換反応



## (参考) 16.4. マイケル反応 Michael Reaction

電子不足二重結合への  
求核付加反応

例)

