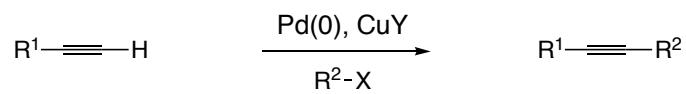


**Réaction de Sonogashira**

R<sup>1</sup> = alkyl, vinyl, allyl, aryl (alcynes terminaux)

R<sup>2</sup> = vinyl, allyl, aryl

X = Br, I, OTf

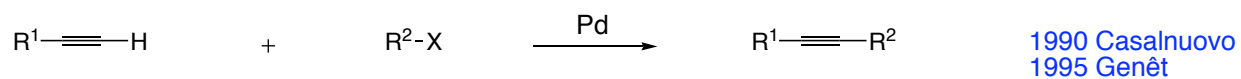
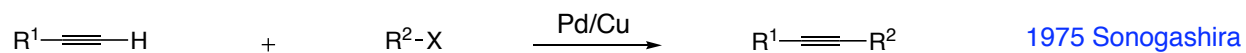
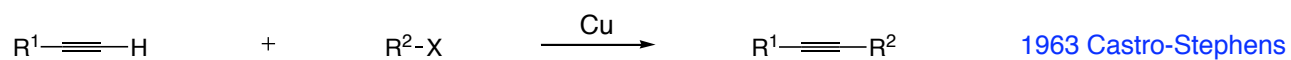
Y = I, Br

[Sonogashira 75TL4467](#)

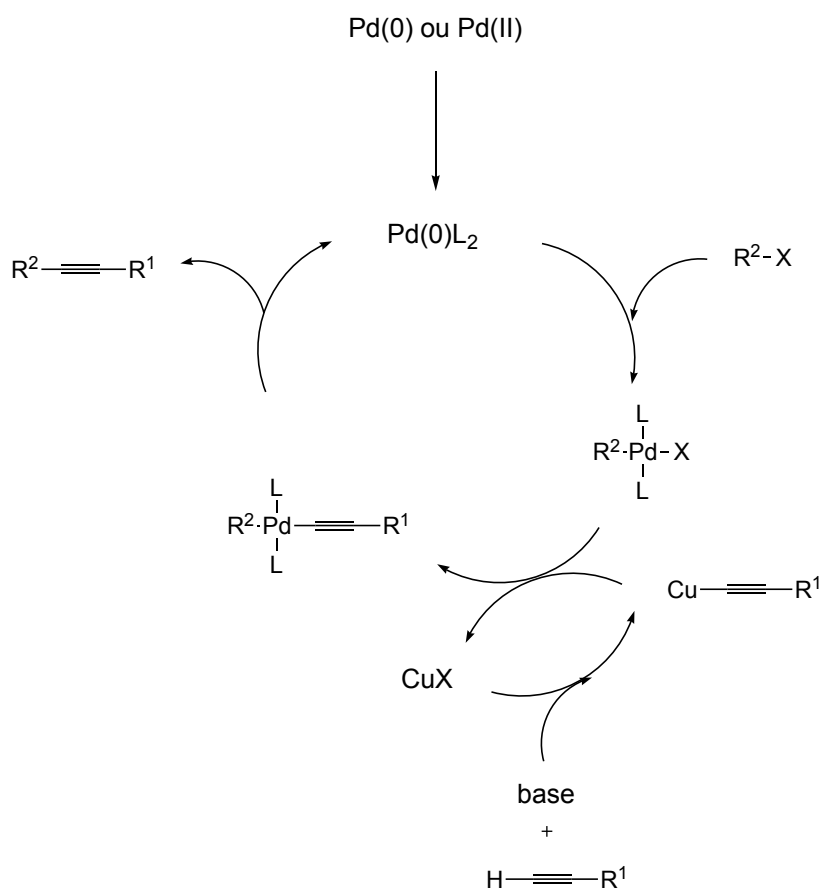
Revue

[91COC521](#)

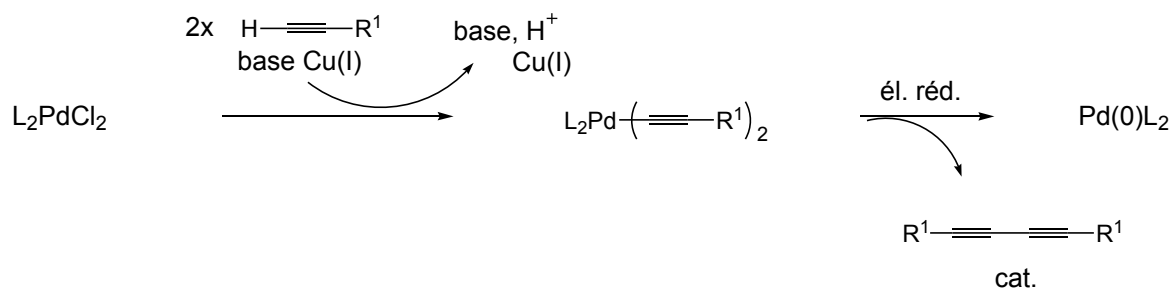
[2000ACR2632](#)



## Mécanisme



si utilisation de Pd(II)

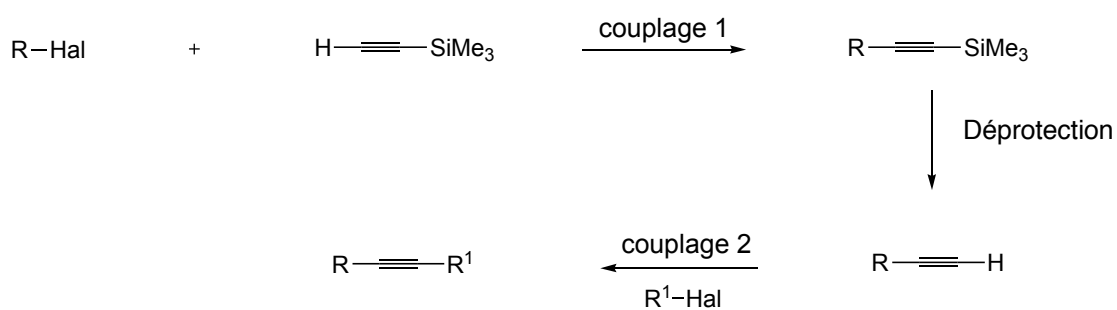


→ consommation de 2 équivalents catalytiques de l'alkyne terminal

Conditions typiques :

$\text{PdCl}_2(\text{PPh}_3)_2$ ,  $\text{CuI}$ ,  $\text{NEt}_3$ , THF,  $25^\circ\text{C}$ -reflux

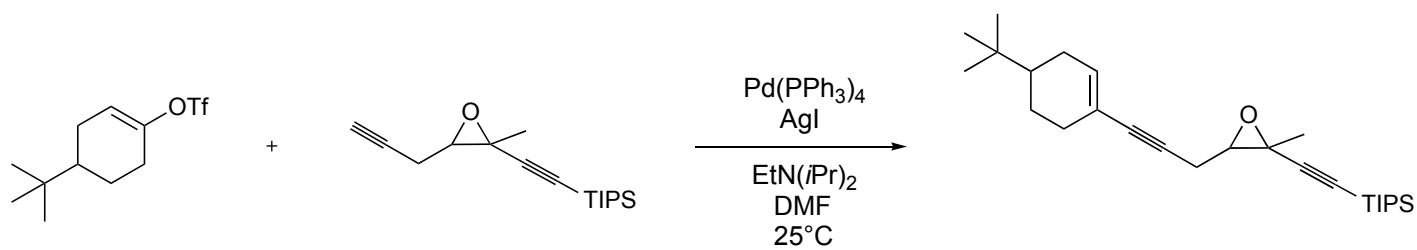
- Bases : souvent amines III
- Synthèse d'alcynes disubstitués



Déprotection in situ avec  $\text{K}_2\text{CO}_3$

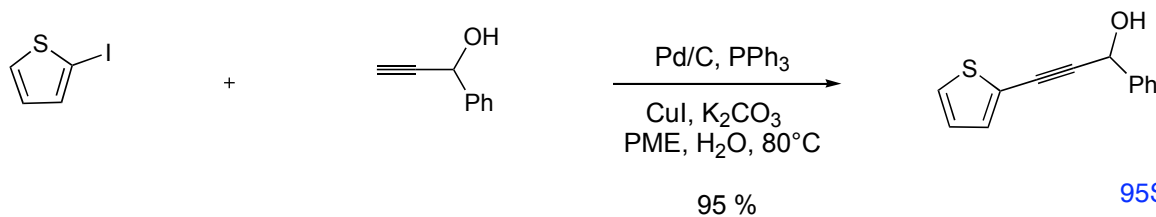
97TL7483

## Exemples



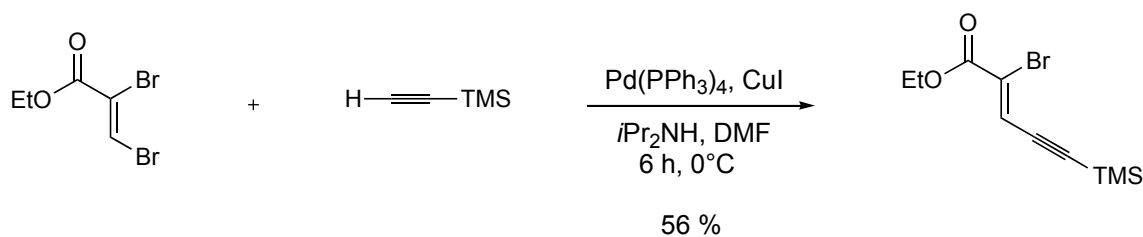
Conditions très douces !  
90 %

96TL2019

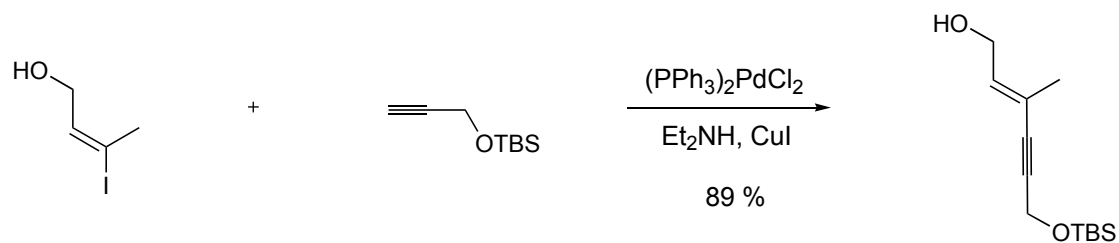


95 %

95SL1115

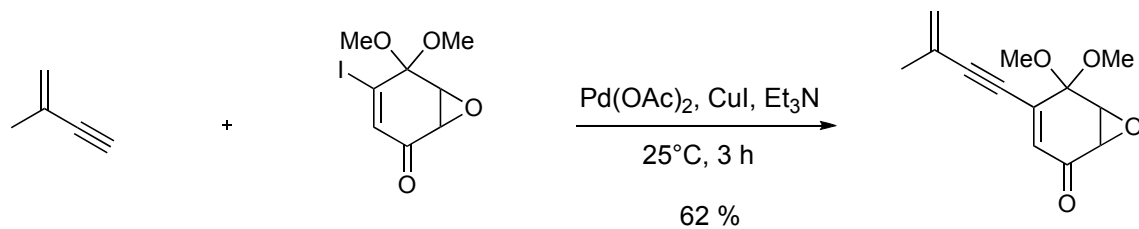


56 %

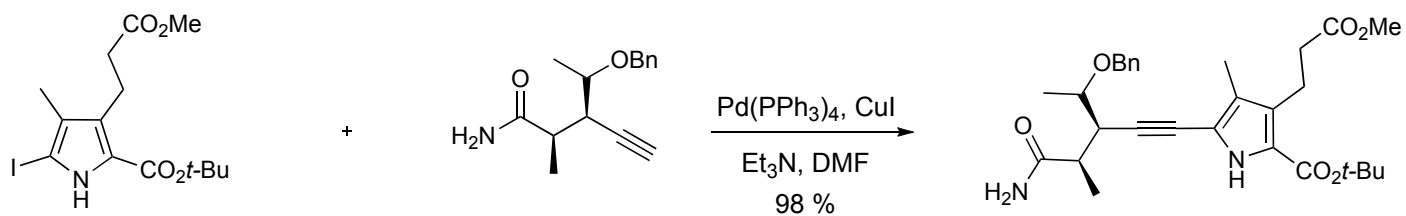


89 %

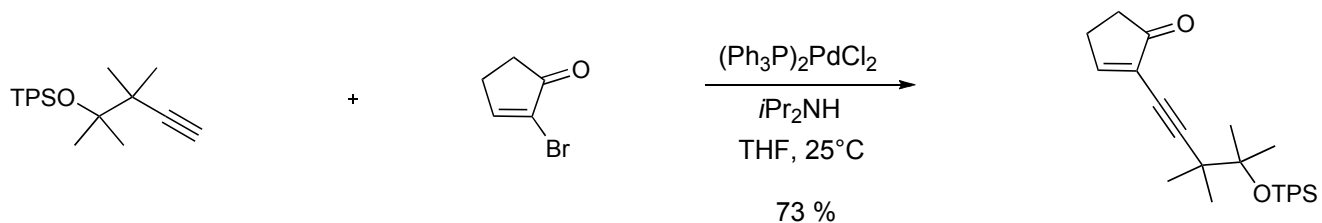
Marshall 93JOC7180



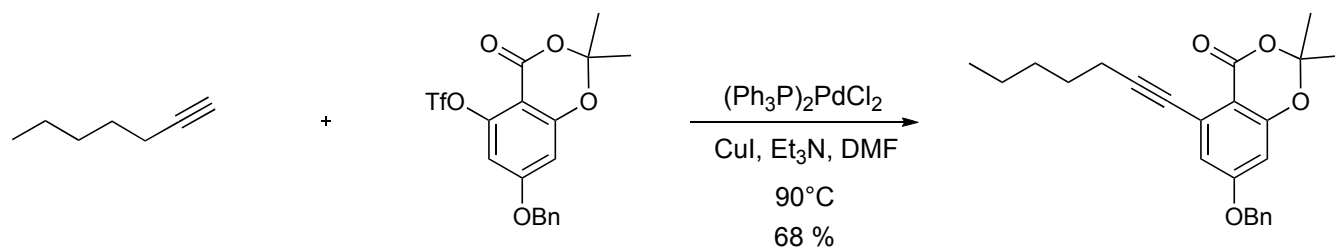
96TL7445



95TL1197

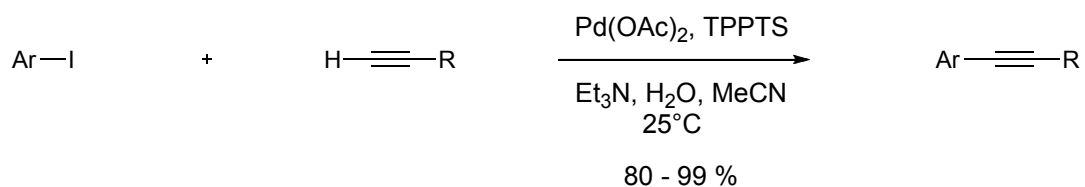


94SC2461



Danishefsky 92JACS655

Catalyse dans l'eau

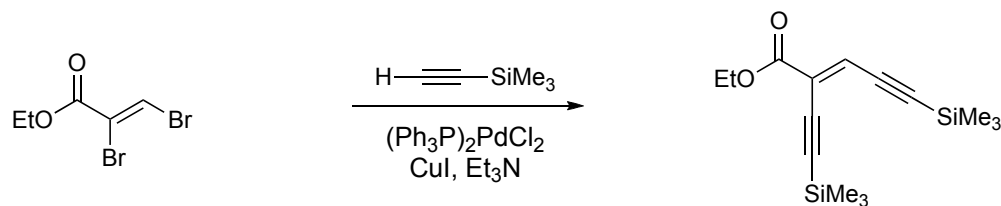
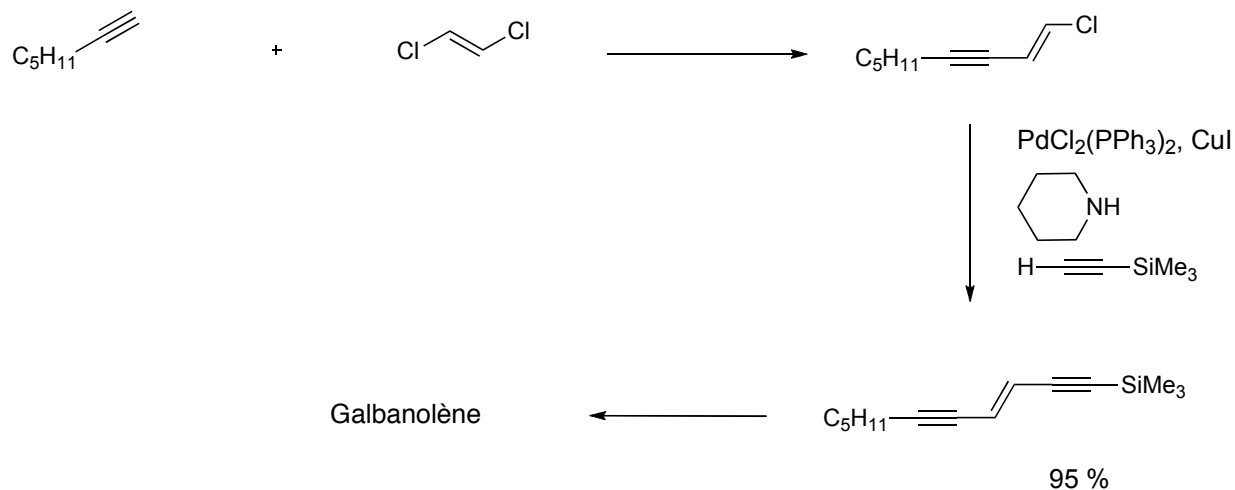


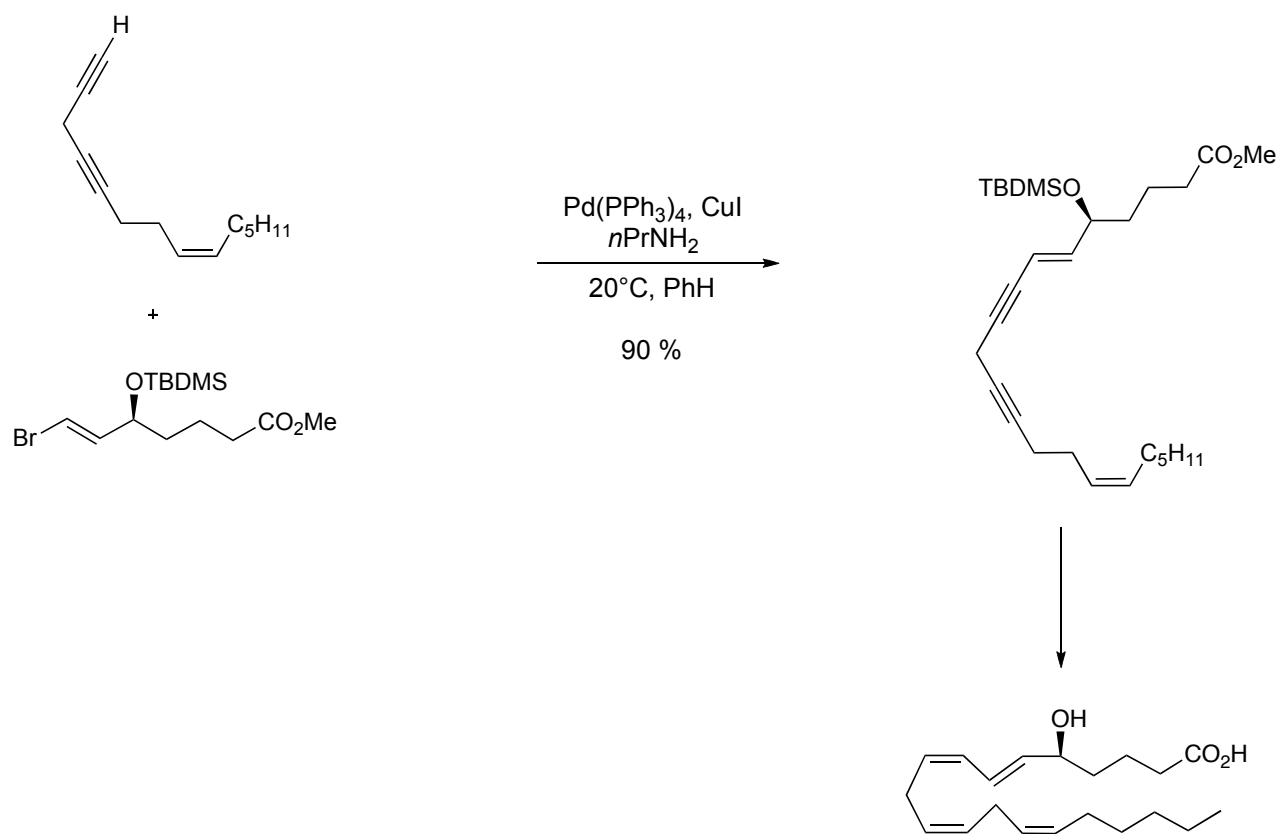
- Aspect de "chimie verte"
- Autre intérêt : pas d'utilisation de Cu

Genêt 92SL715

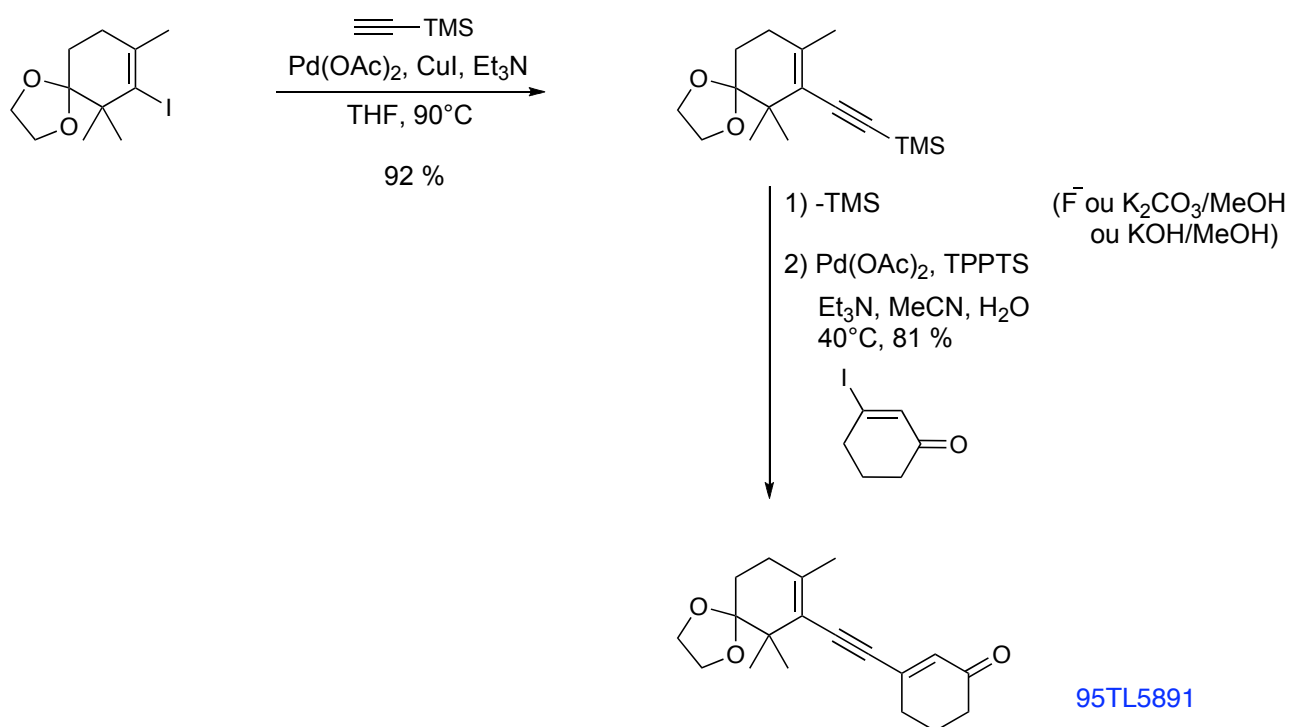
TPPTS :  $\text{P}(m\text{-C}_6\text{H}_4\text{SO}_3\text{Na})_3$ 

Application à la synthèse de produits naturels





Nicolaou 86S344



95TL5891