UCCS
UNITÉ DE CATALYSE
ET CHIMIE DU SOLIDE

Journées des doctorants 27/03/2018

Nouveaux développements méthodologiques en photocatalyse. Application à la synthèse de produits naturels et/ou biologiquement actifs

Présenté par

Tiphaine Dedours

Thèse effectuée du 10/2017 au 10/2020

Responsables scientifiques :

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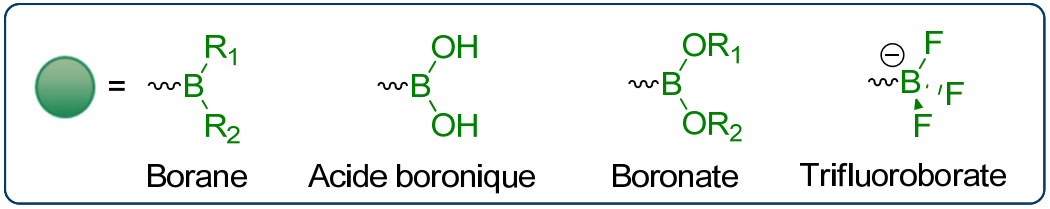
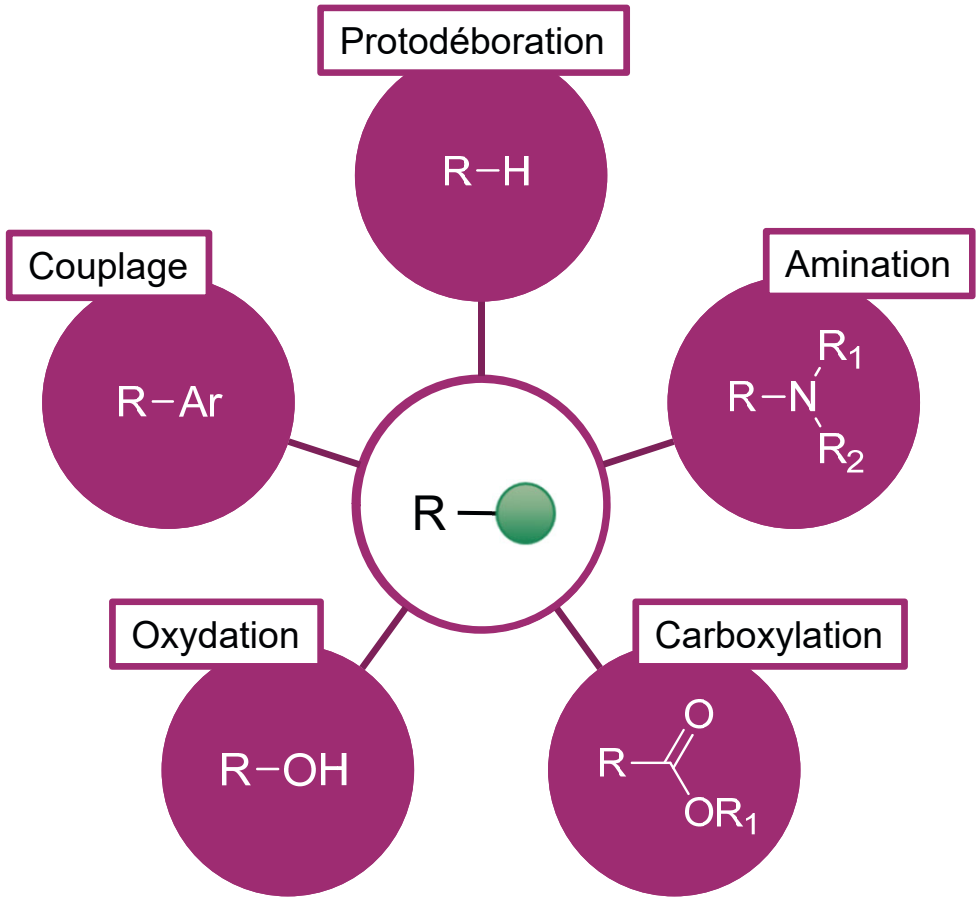
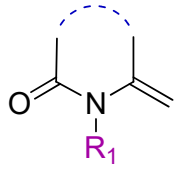
Introduction





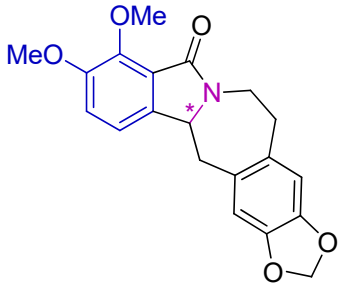
N. Miyaura, A. Suzuki *Chem. Rev.* **1995**, *95*, 2457
T. Koike, M. Akita *Synlett.* **2013**, 2492

Schéma réactionnel

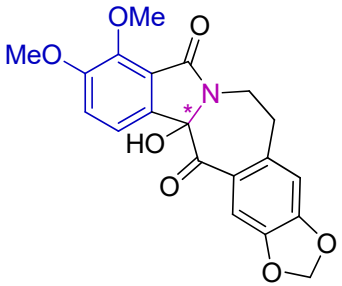


Enamides

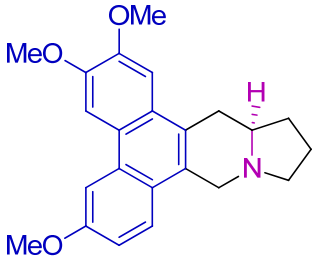
R= Alkyl, Aryl, GP, ...



Lennoxamine



Chilenine



Antofine

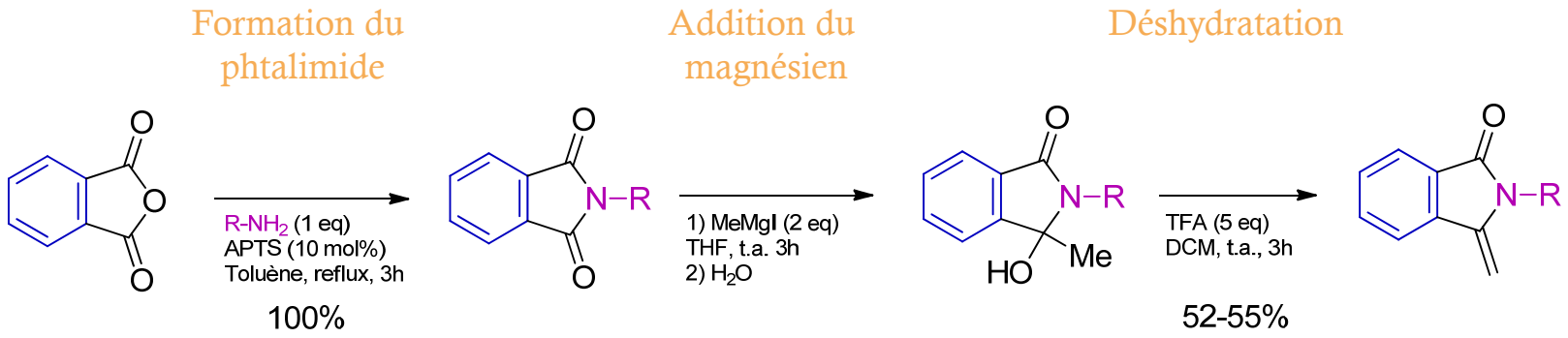
Extraits de végétaux de la famille des Berbéris

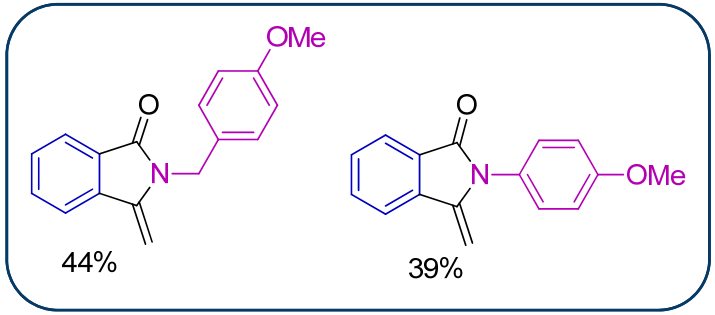
Anticancéreux

Brown H, Zweifel G. *J Am Chem Soc.* **1959,** 81(24), 6533.
Amani J, Molander GA. *J Org Chem*. **2017**,82,1856-63.

Synthèses des isoindolinones

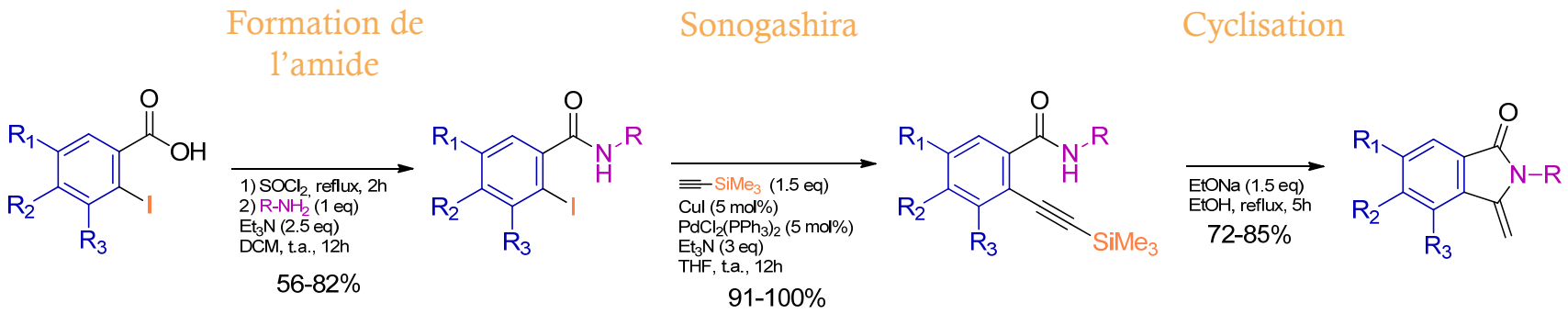
- Synthèse à partir de l'anhydride phtalique

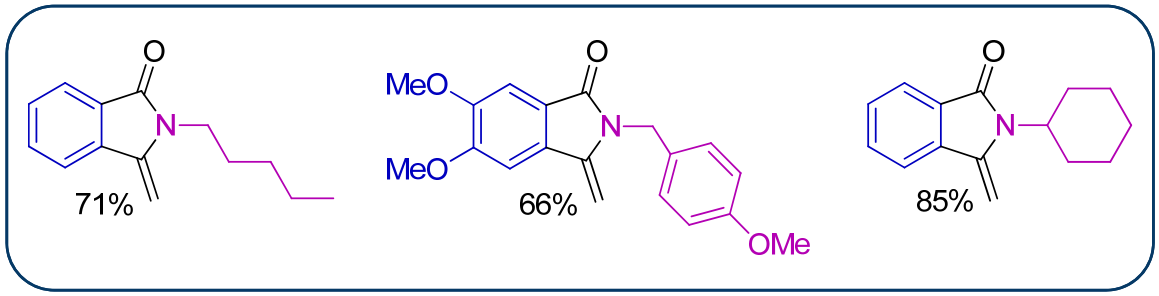




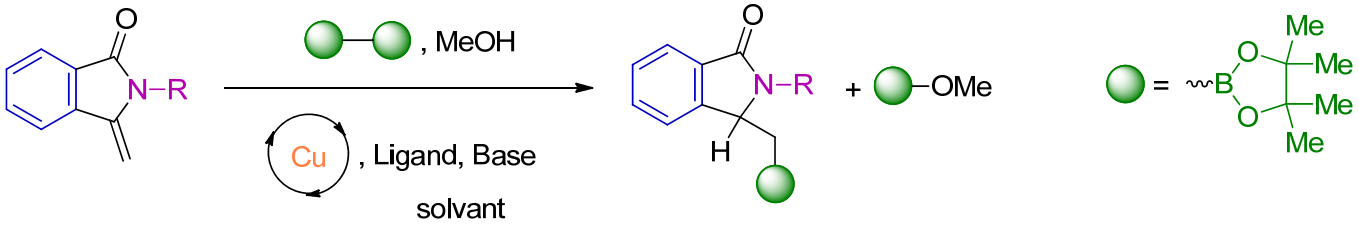
Synthèse des isoindolinones

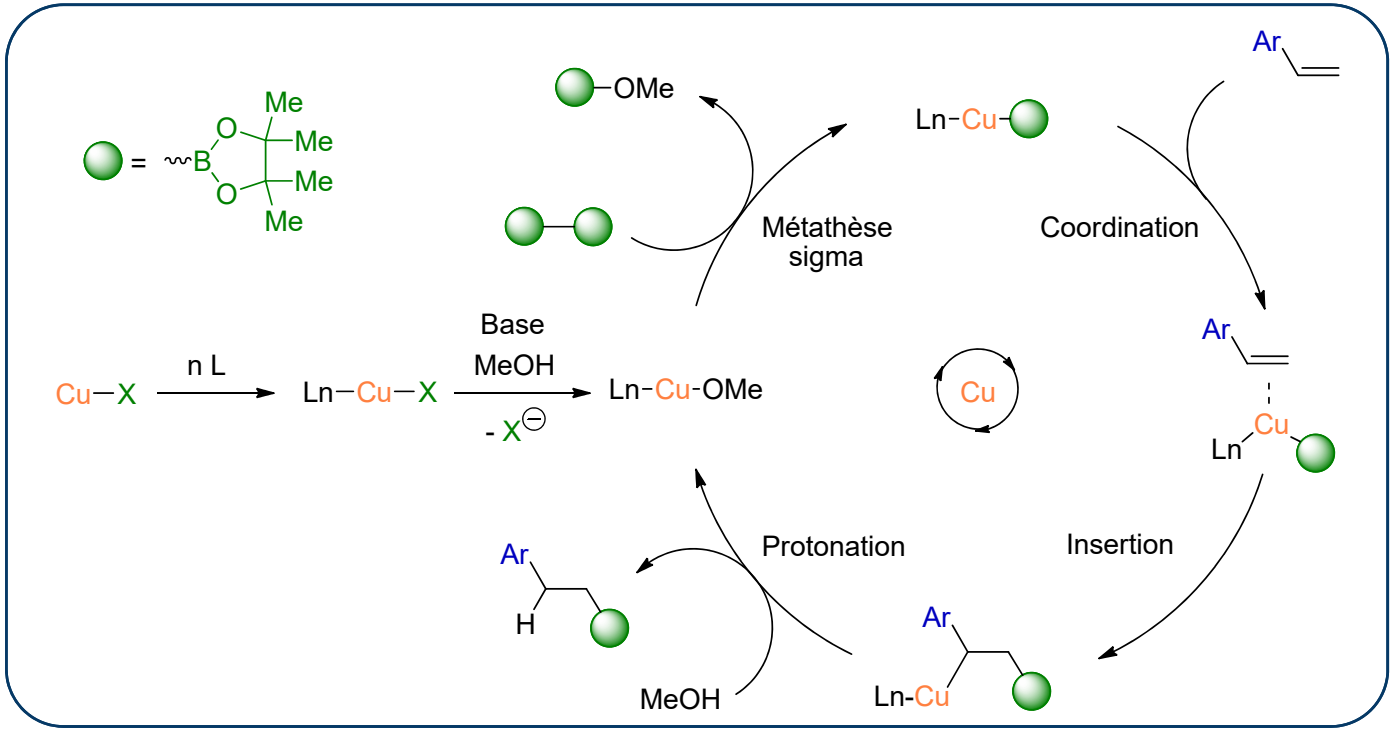
- Synthèse par hydroamination intramoléculaire d'alcynes





Hydroboration catalysée au cuivre





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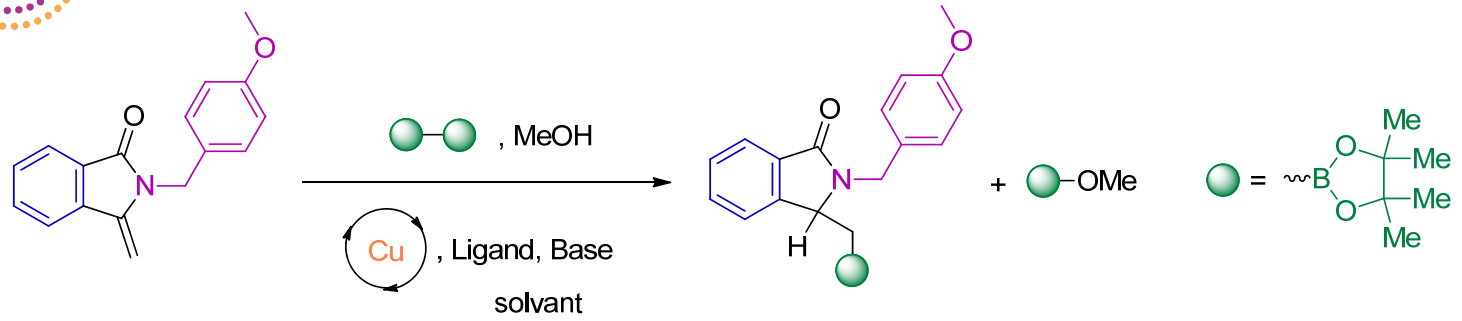
Hydroboration catalysée au cuivre



Cu_2O

Cs_2CO_3 Na_2CO_3 Base $NaHCO_3$ K_3PO_4

Sans base

Ligands

MeOH THF Solvant DCM Acétone

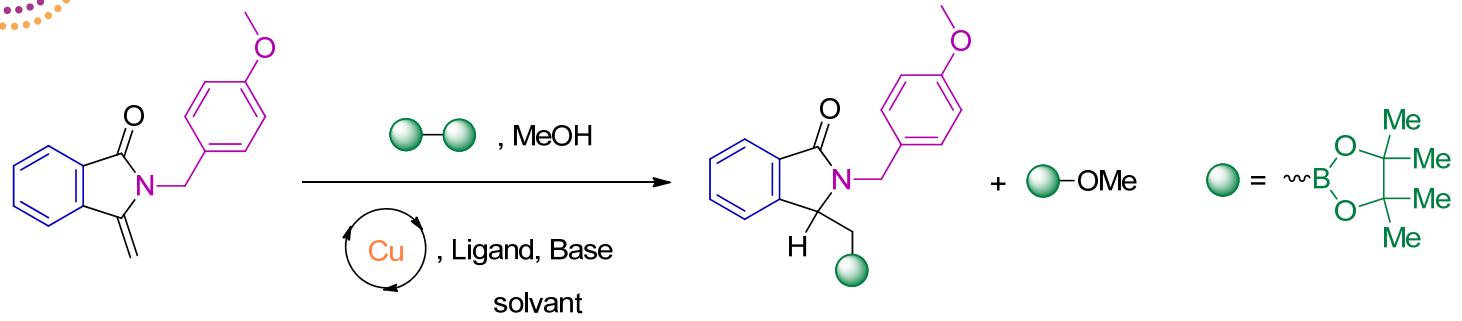
Cu_2O

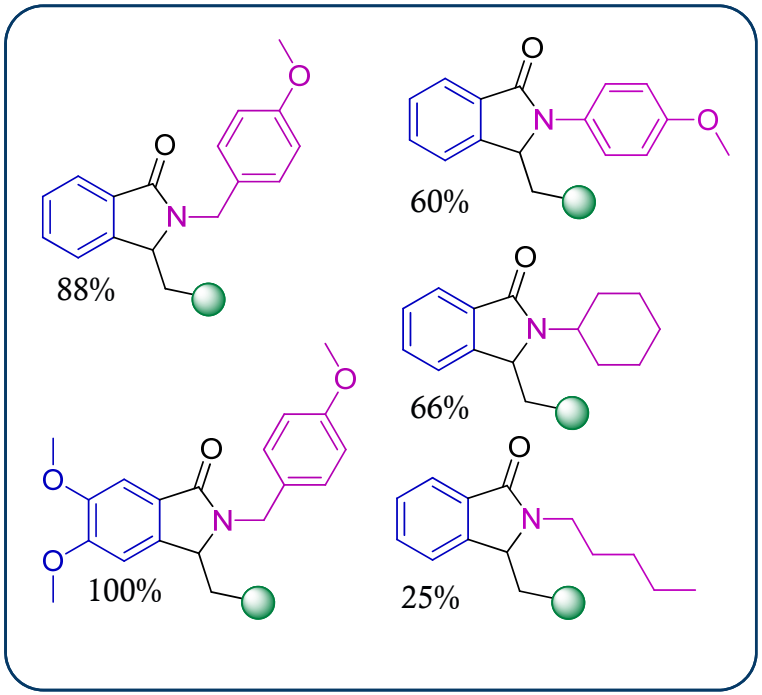
Sans base

MeOH

100% de conversion en 3h

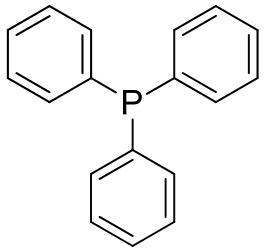
Hydroboration catalysée au cuivre





Cu_2O

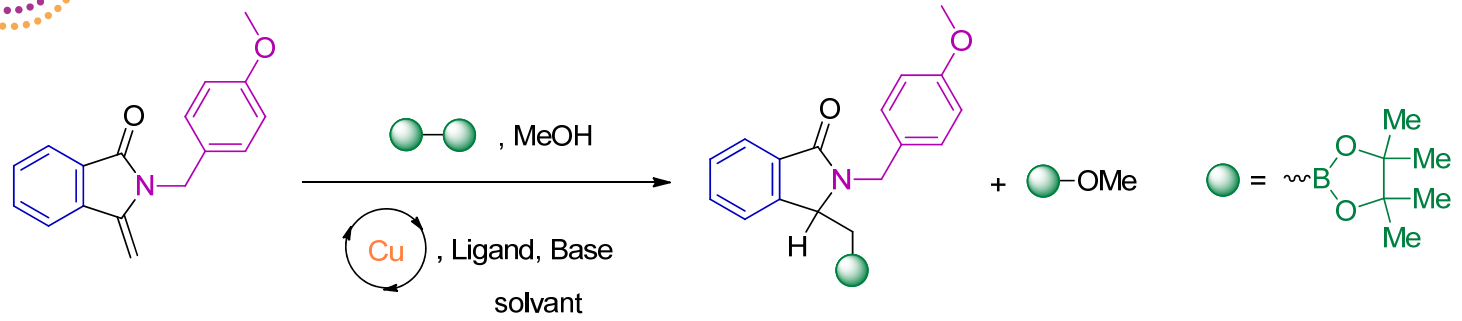
Sans base

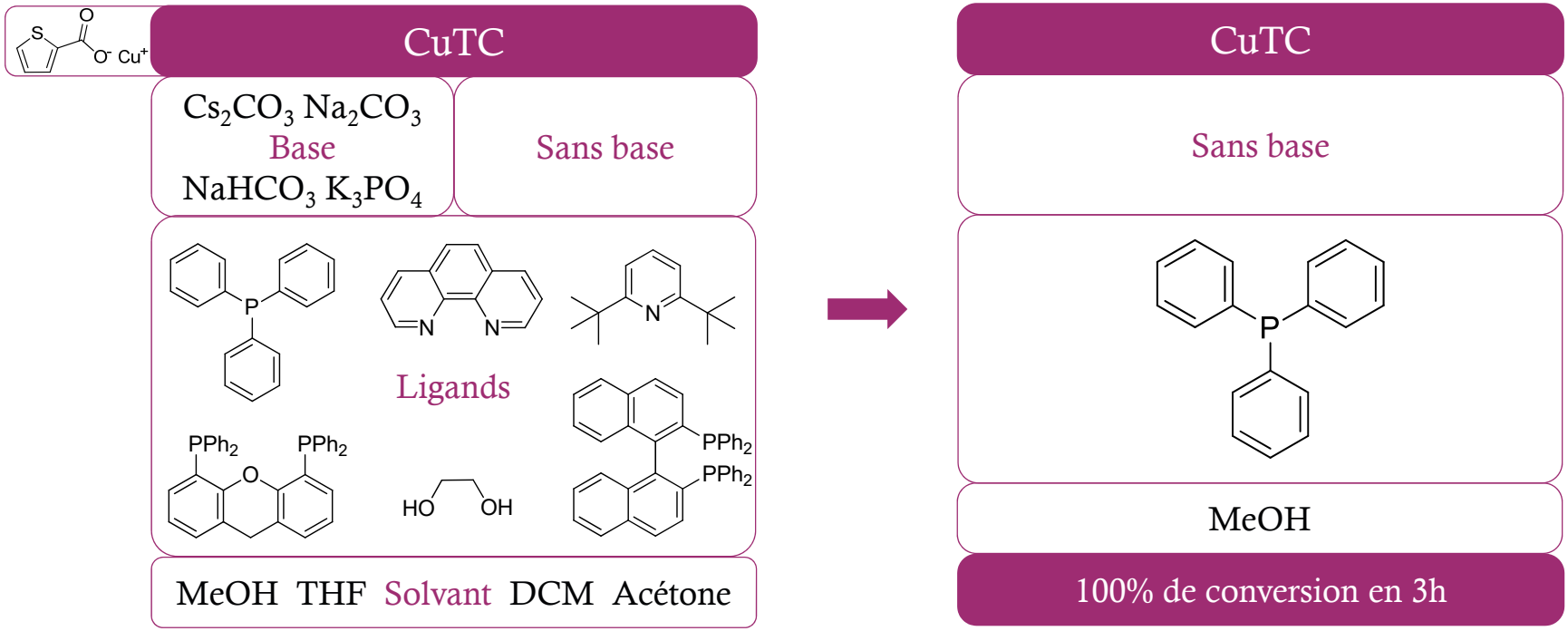


MeOH

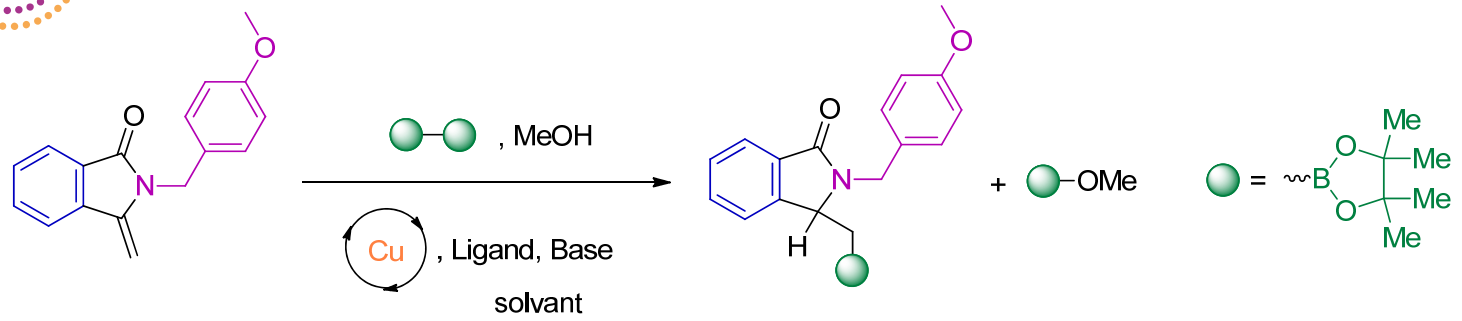
100% de conversion en 3h

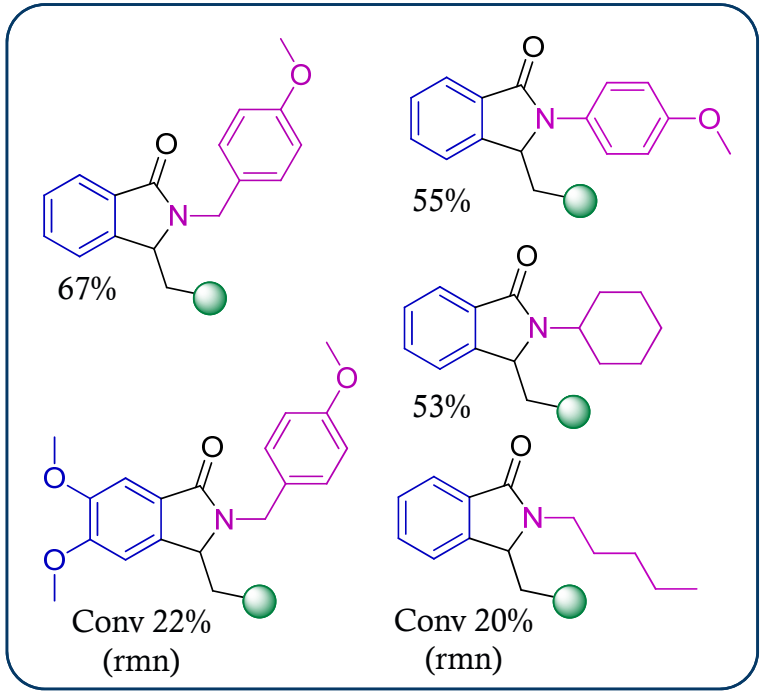
Hydroboration catalysée au cuivre





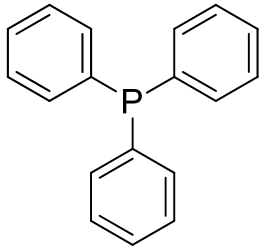
Hydroboration catalysée au cuivre





CuTC

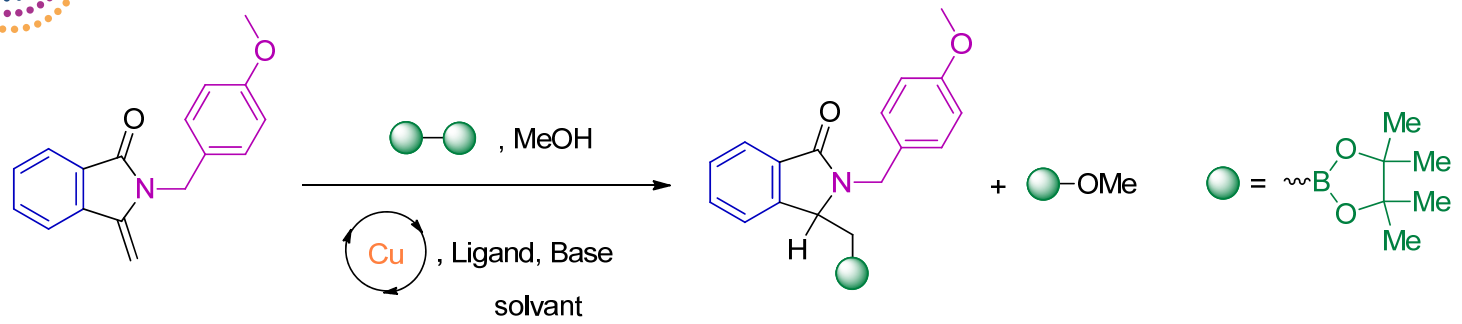
Sans base



MeOH

100% de conversion en 3h

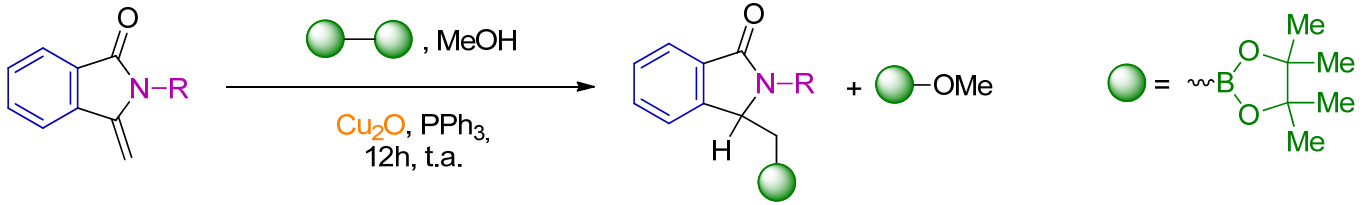
Hydroboration catalysée au cuivre

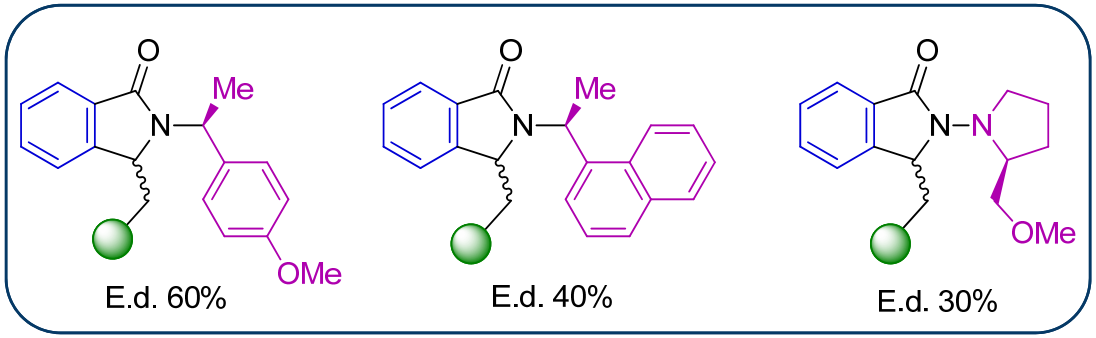


Conditions optimales	
Dérivé boré	B_2Pin_2
Catalyseur	Cu_2O (10mol%)
Ligand	PPh_3 (15mol%)
Solvant	MeOH
Durée	3h
Température	t.a.

Hydroboration diastéréosélective

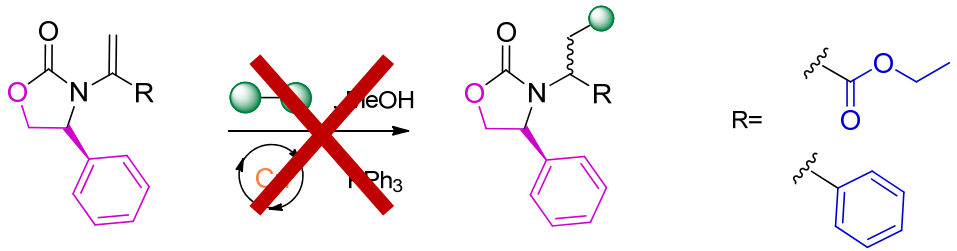
(Thèse Hamida Jellali)



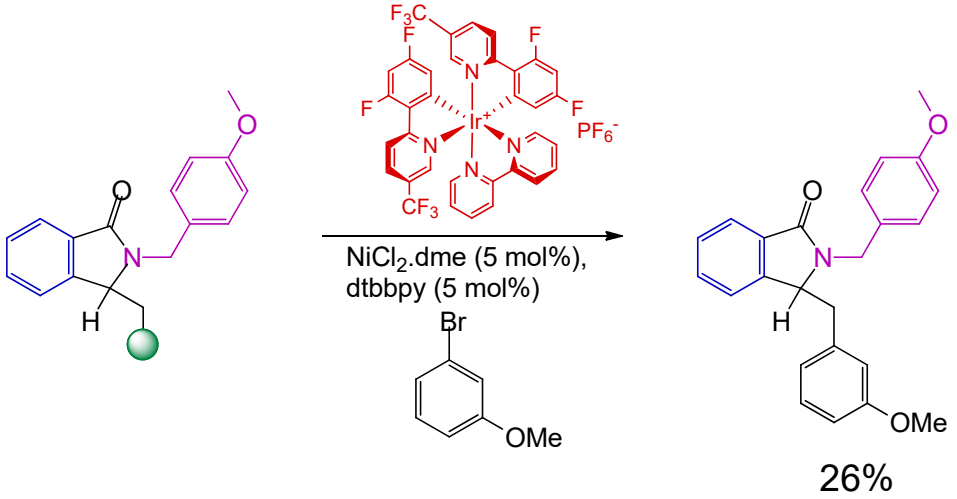


Perspectives

- Finir la mise au point de la synthèse stéréosélective
- Hydroboration catalysée au cuivre d'oxazolidinones



- Mise au point de la réaction de couplage en photocatalyse



Amani J, Molander GA. *Synthesis. J Org Chem.* **2017**,82,1856.

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Merci de votre attention

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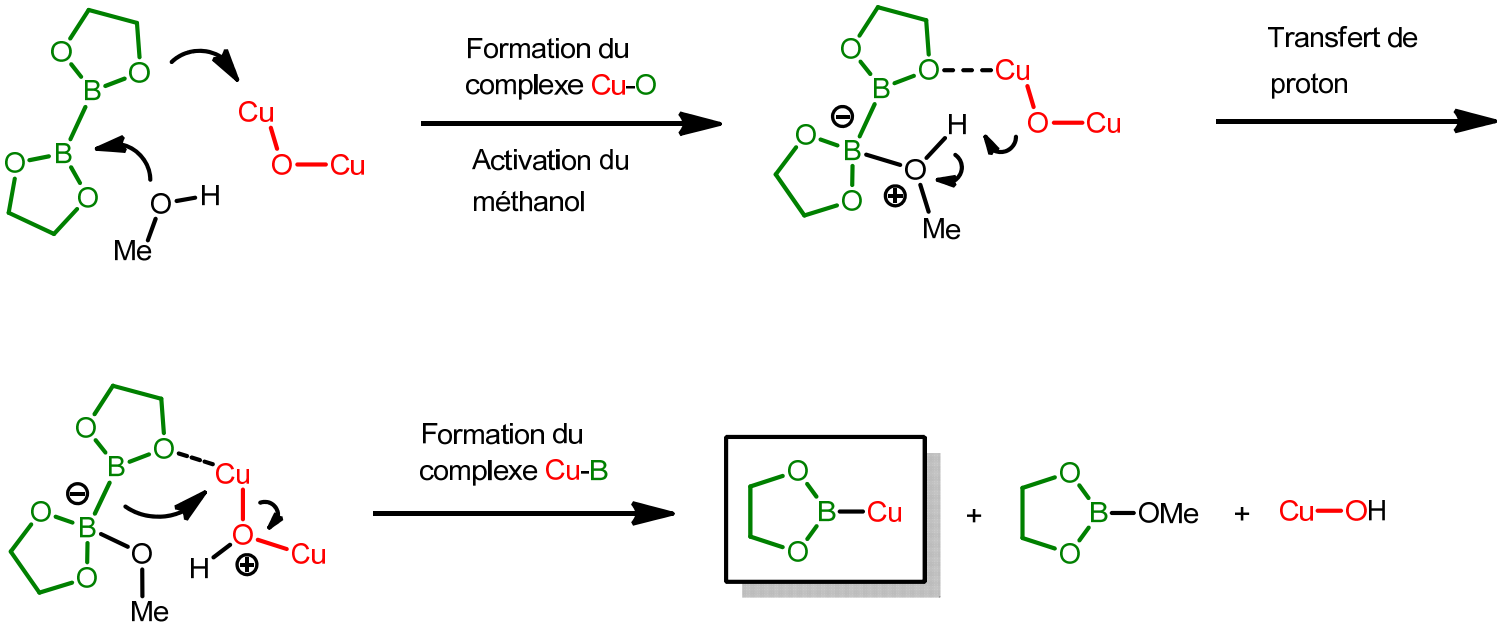
Mécanisme d'hydroboration catalysée au cuivre sans base



ChemCatChem **2013, *5*,** 2233.