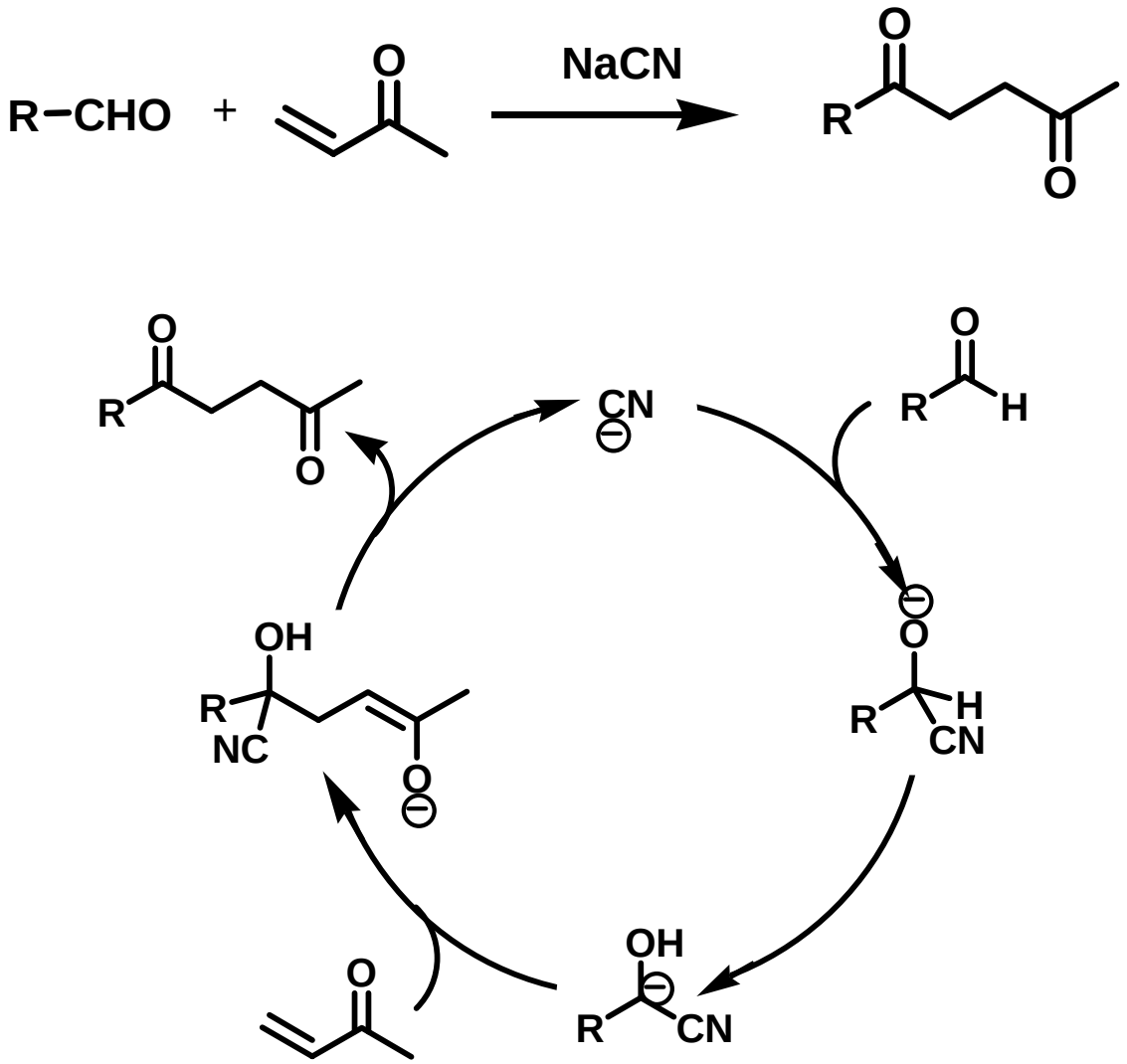
Séminaire bibliographique

22 mars 2007

Réaction de Stetter

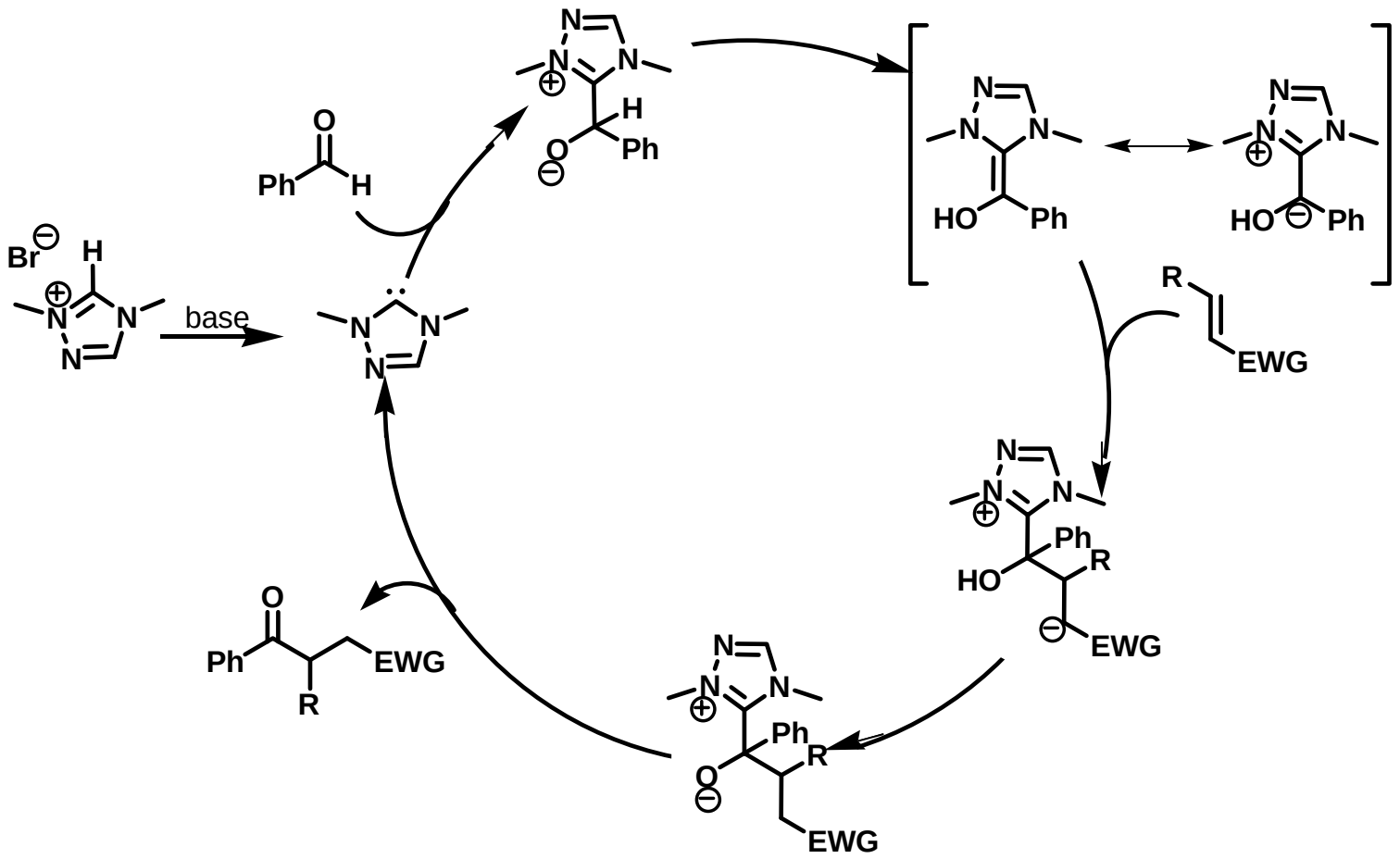
Corinne LAMIT

Synthèse catalytique de composés 1,4-dicarbonylés



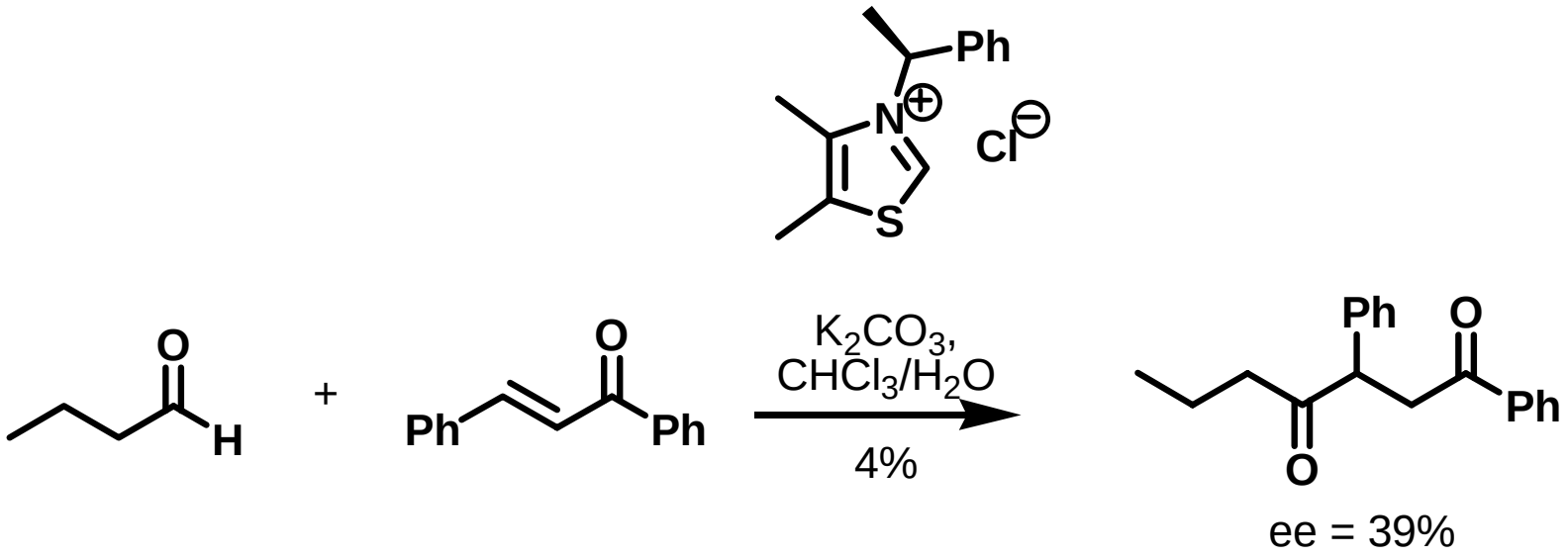
Hermann Stetter *Angew. Chem. Int. Ed.* **1976**, 15(11), 639-647

Synthèse catalytique de composés 1,4-dicarbonylés



Enders D., Balensiefer T. *Acc. Chem. Res.* **2004**, 37(8), 534-541

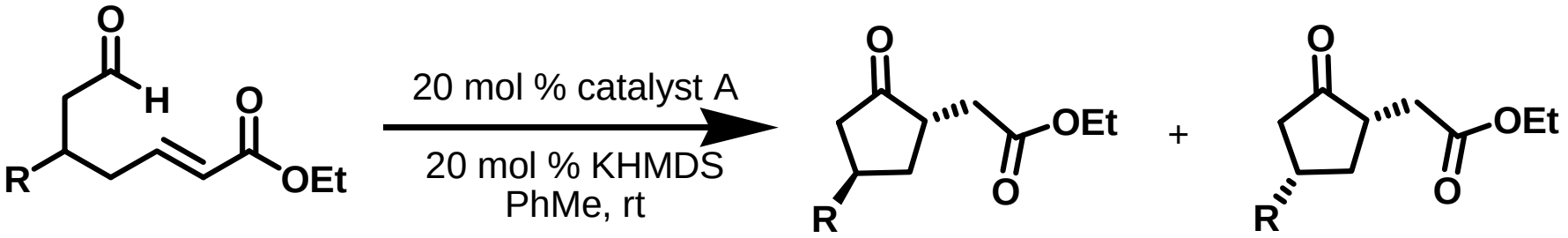
Réaction de Stetter intermoléculaire

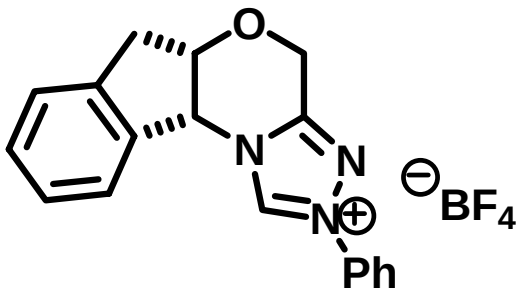


ee = 39%

Enders D., Balensiefer T. *Acc. Chem. Res.* **2004**, 37(8), 534-541

Réaction de Stetter intramoléculaire : Synthèse de cyclopentanones 2,4 disubstituées



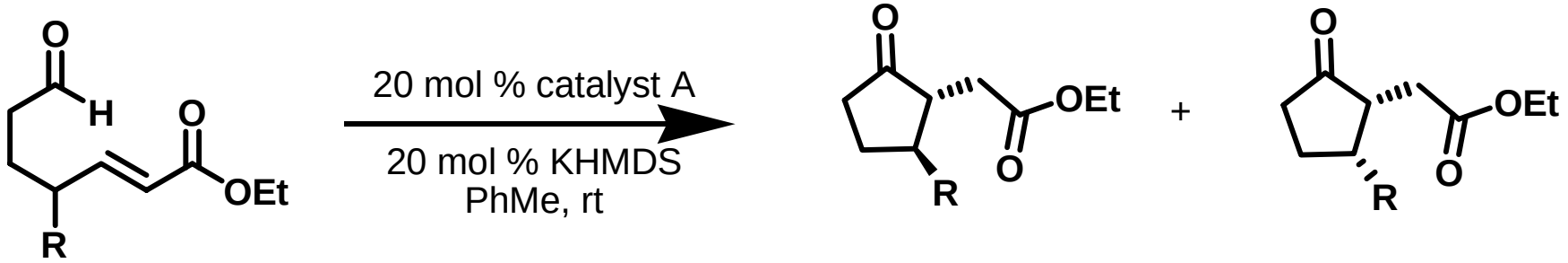


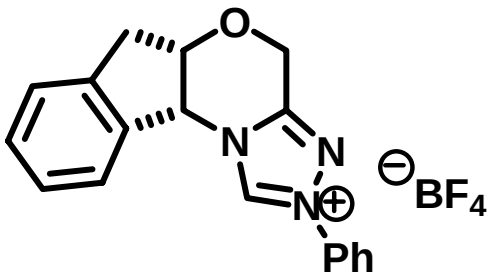
Catalyst A

	trans	50:50	cis
R = Me	98% ee	97% yield	94% ee
Ph	98% ee	96% yield	96% ee

Reynolds N. T., Rovis T. *Tetrahedron* **2005**, 61, 6368-6378

Réaction de Stetter intramoléculaire : Synthèse de cyclopentanones 2,3 disubstituées



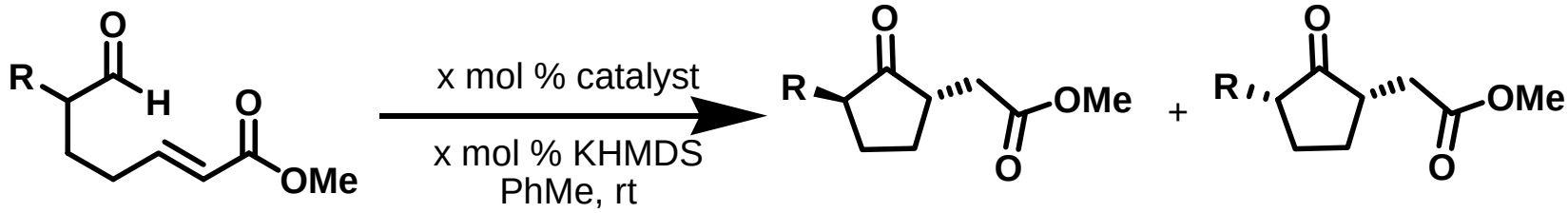


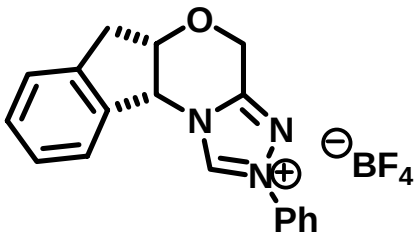
Catalyst A

	trans		cis
		50:50	
R = Me	90% ee	90% yield	95% ee
		53:47	
iPr	84% ee	96% yield	96% ee

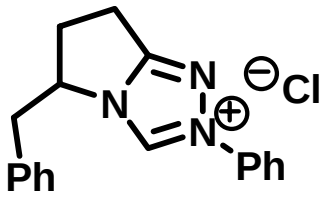
Reynolds N. T., Rovis T. *Tetrahedron* **2005**, 61, 6368-6378

Réaction de Stetter intramoléculaire : Synthèse de cyclopentanones 2,5 disubstituées





Catalyst A

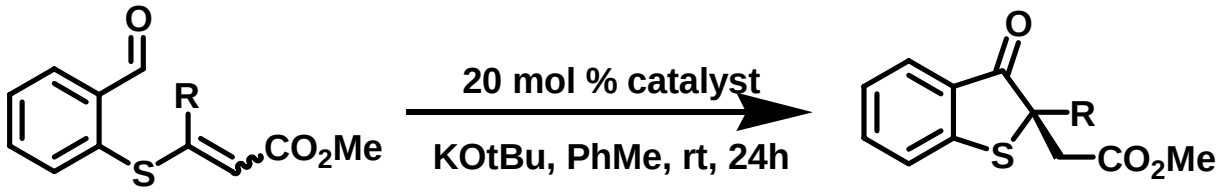


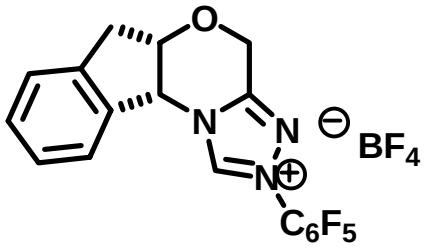
Catalyst B

	trans		cis
R = Me 50 mol % catalyst A	<5% ee	15:85 95% yield	<5% ee
iPr 20 mol % catalyst B	20% ee	3.5:96.5 74% conversion	6% ee

Reynolds N. T., Rovis T. *Tetrahedron* **2005**, 61, 6368-6378

Réaction de Stetter intramoléculaire : Formation de centres quaternaires

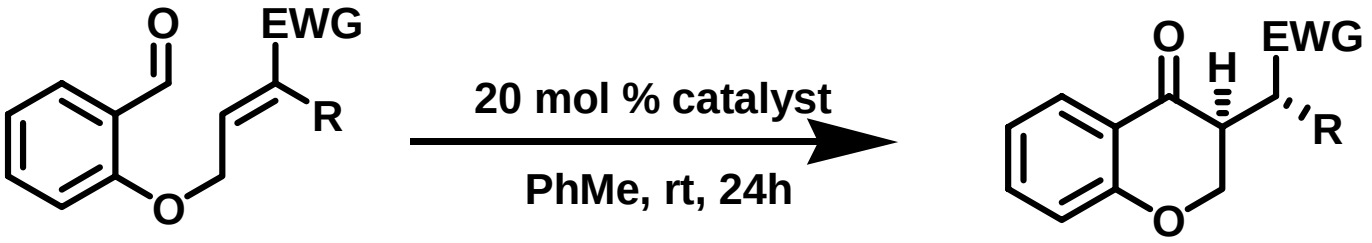


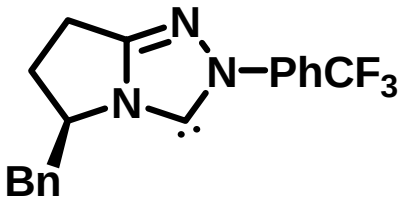


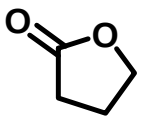
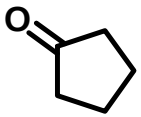
R		yield (%)	ee (%)
Et	E	90%	97%
	Z	89%	86%
Pr	E	83%	98%
	Z	85%	89%
CH_2CH_2Ph	E	91%	99%
	Z	92%	84%
CO_2Me	Z	85%	90%

Moore J.L., Kerr M.S., Rovis T. *Tetrahedron* **2006**, 62, 11477-11482

Réaction de Stetter intramoléculaire :

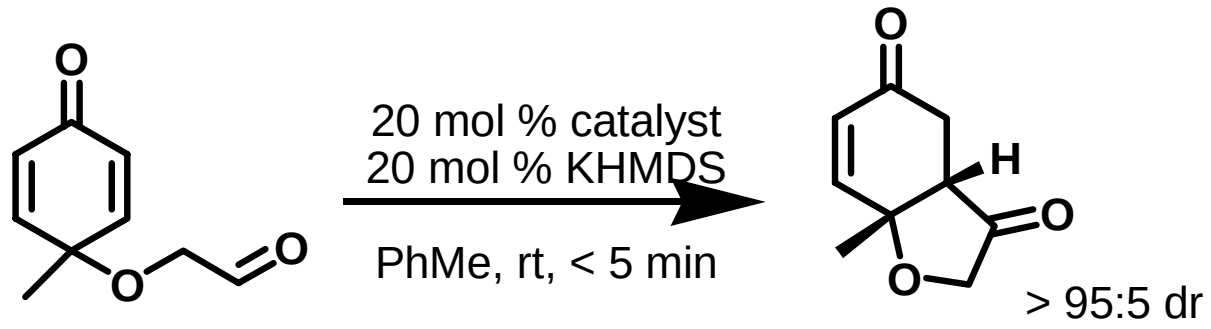


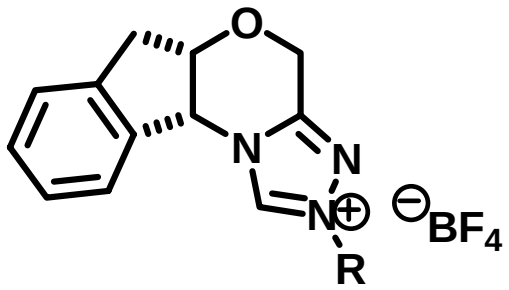


R	EWG	yield (%)	ee (%)	dr (%)
Me	CO_2Et	94	95	30:1
Et	CO_2Et	95	92	35:1
n-Bu	CO_2Et	53	94	12:1
Bn	CO_2Et	80	84	20:1
CH_2CHCH_2	CO_2Me	95	83	13:1
		95	94	10:1
		80	95	18:1
Me	COMe	85	55	10:1

Alaniz J.R., Rovis T. *J. Am. Chem. Soc.* **2005**, 127(17), 6284-6289

Réaction de Stetter intramoléculaire : Synthèse d'hydrobenzofuranones

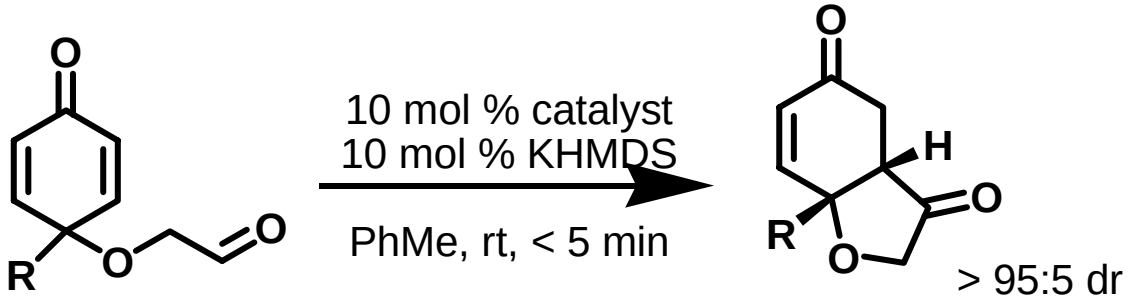


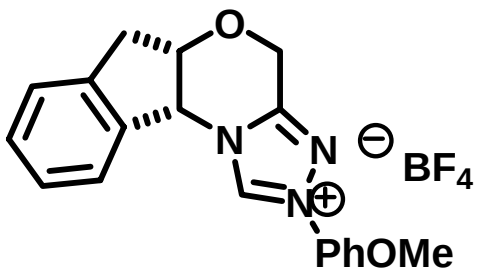


R	yield (%)	ee (%)
4-OMePh	90	88
Ph	75	80
C_6F_5	92	31

Liu Q., Rovis T. *J. Am. Chem. Soc.* **2006**, 128(8), 2552-2553

Réaction de Stetter intramoléculaire : Synthèse d'hydrobenzofuranones

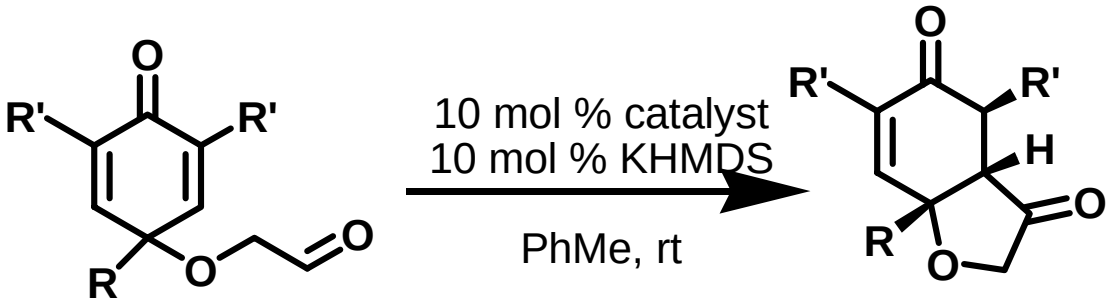


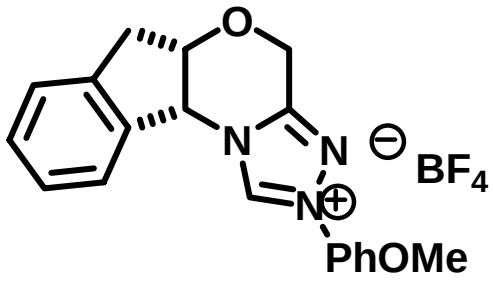


R	yield (%)	ee (%)
Me	90	92
Et	86	94
iPr	87	94
iBu	86	94
Ph	87	88
4-BrPh	78	85
CH_2OAc	86	83
CH_2CH_2OMe	86	82
$CH_2CH_2CO_2Me$	94	87

Liu Q., Rovis T. *J. Am. Chem. Soc.* **2006**, 128(8), 2552-2553

Réaction de Stetter intramoléculaire : Synthèse d'hydrobenzofuranones

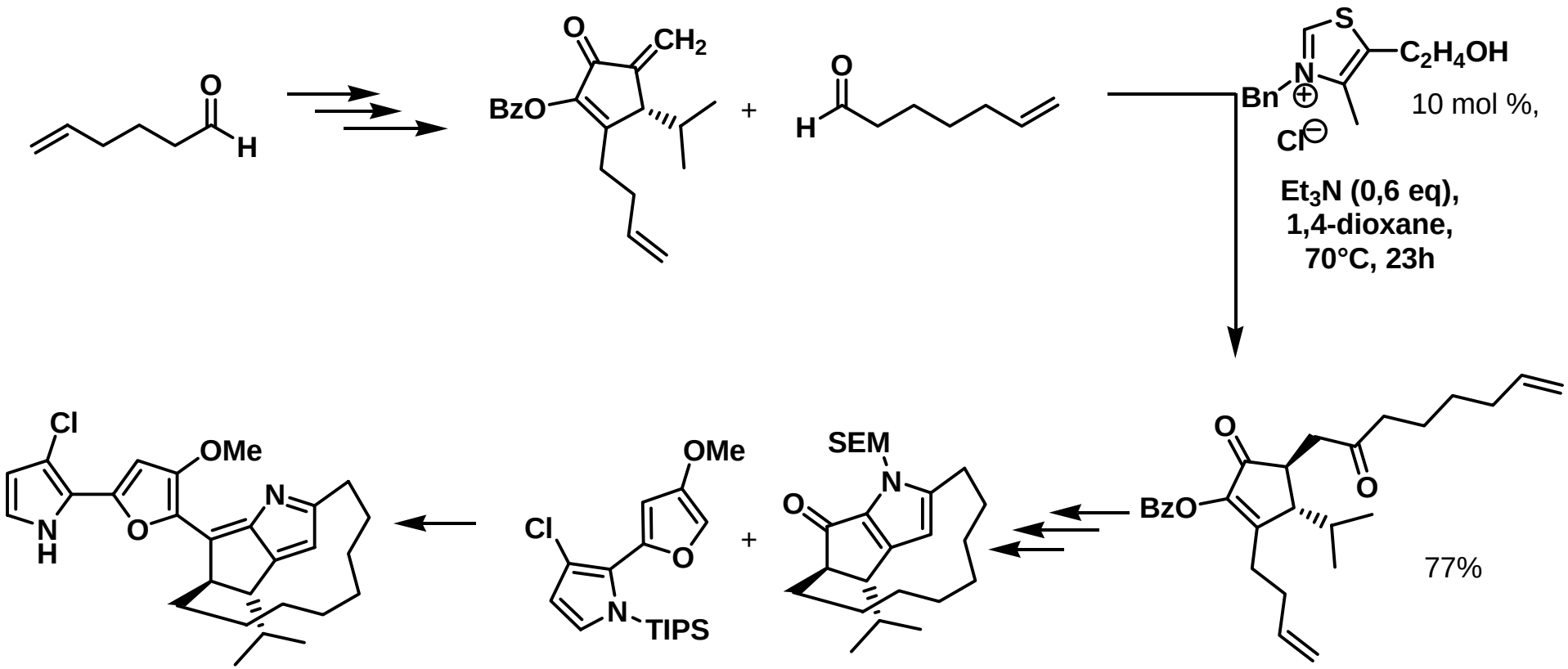




R	R'	yield (%)	ee (%)
Me	Me	86	>99
Me	MeO	71	99
Me	^{t}Bu	80	>99
^{t}Bu	^{t}Bu	62	>99

Liu Q., Rovis T. *J. Am. Chem. Soc.* **2006**, 128(8), 2552-2553

Synthèse de la Roséophilin

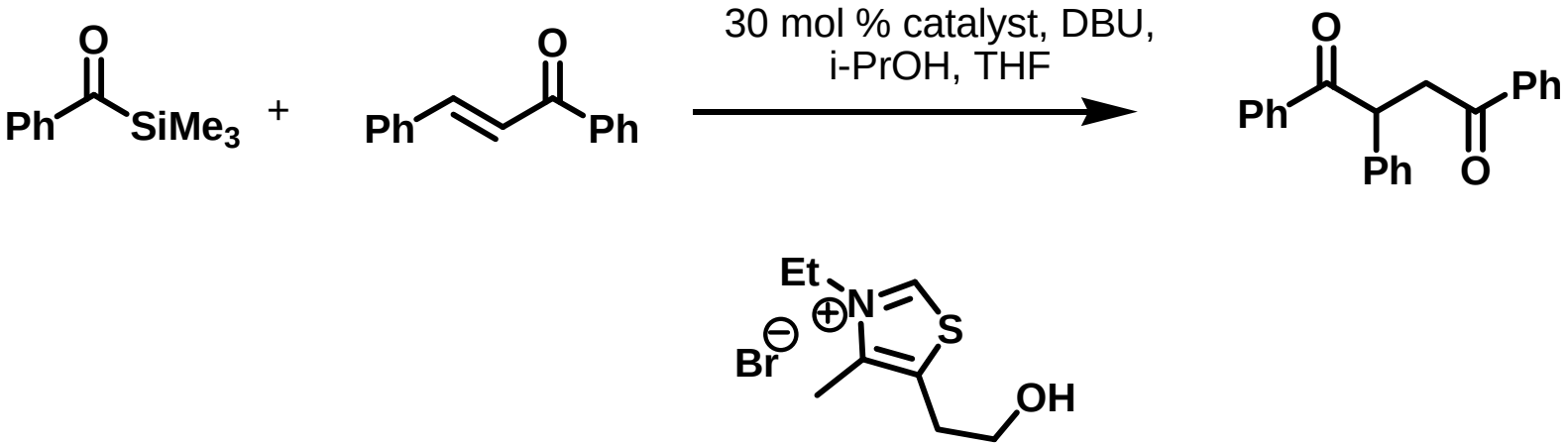


(22R,23R)-roseophilin,

15 étapes, 7%

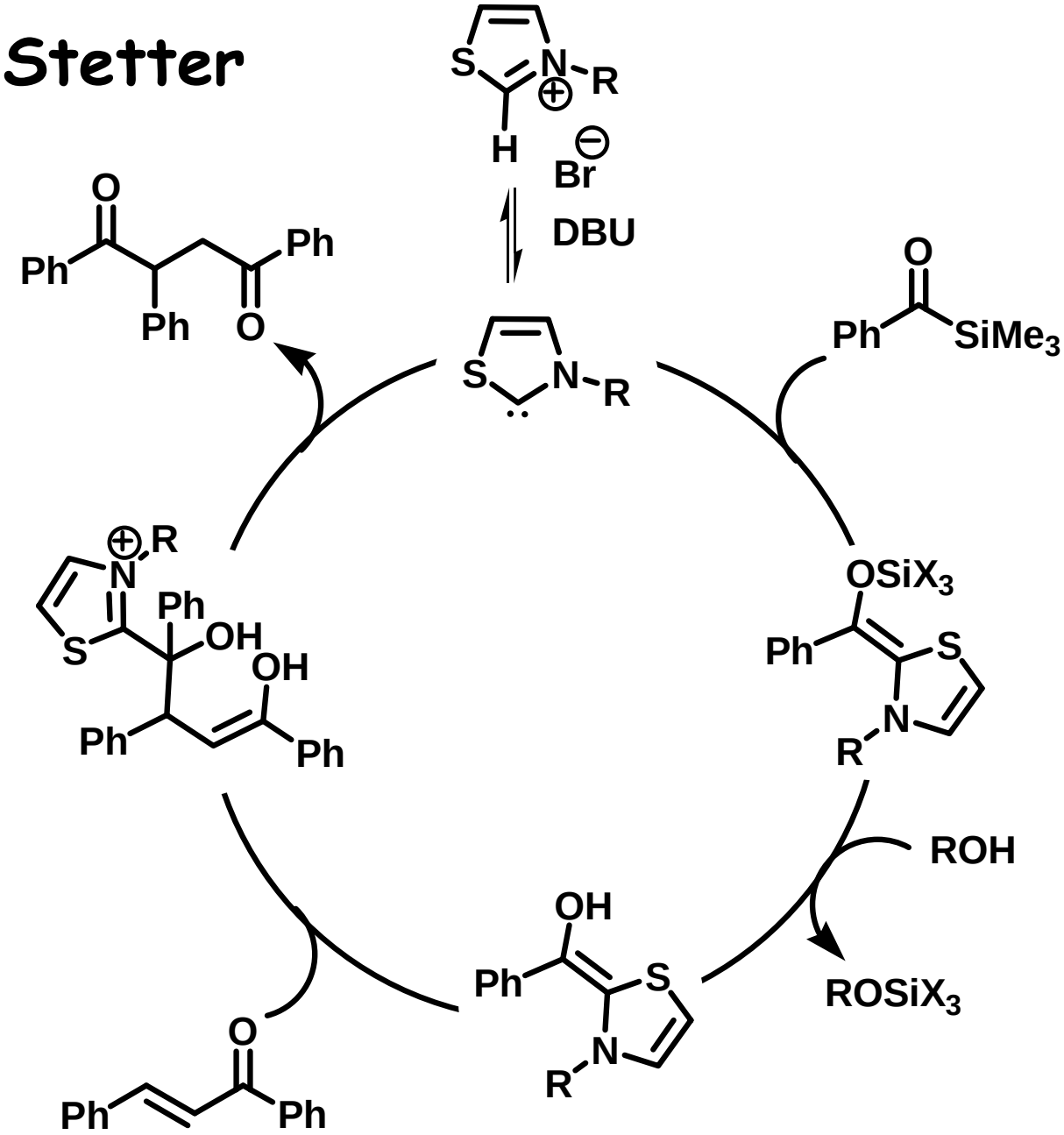
Harrington P. E., Tius M. A. *J. Am. Chem. Soc.* **2001**, 123(35), 8509-8514

Réaction de sila-Stetter



Mattson A.E., Bharadwaj A.R., Scheidt K.A. *J. Am. Chem. Soc.* **2004**, 126(8), 2314-2315

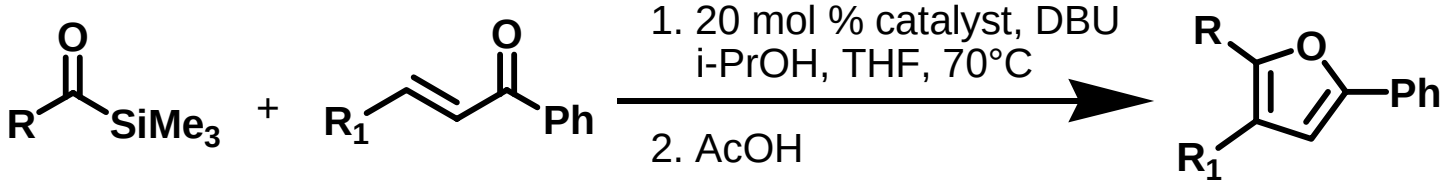
Réaction de sila-Stetter

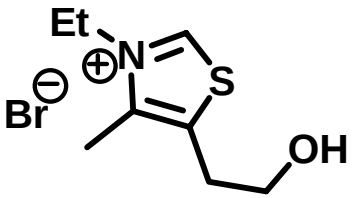


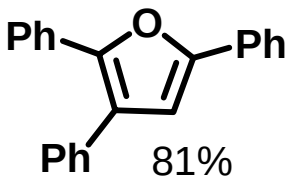
Mattson A.E., Bharadwaj A.R., Scheidt K.A. *J. Am. Chem. Soc.* **2004**, 126(8), 2314-2315

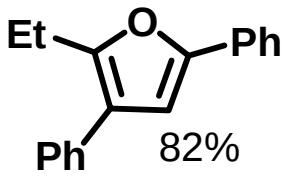
Réaction de sila-Stetter :

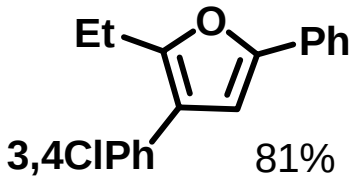
Synthèse de furanes

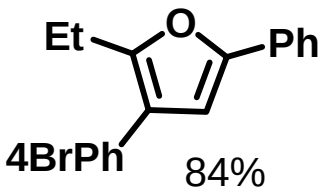


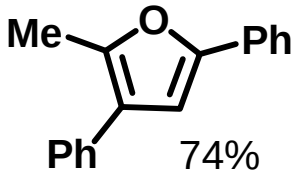


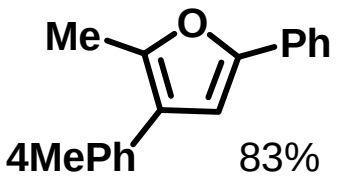






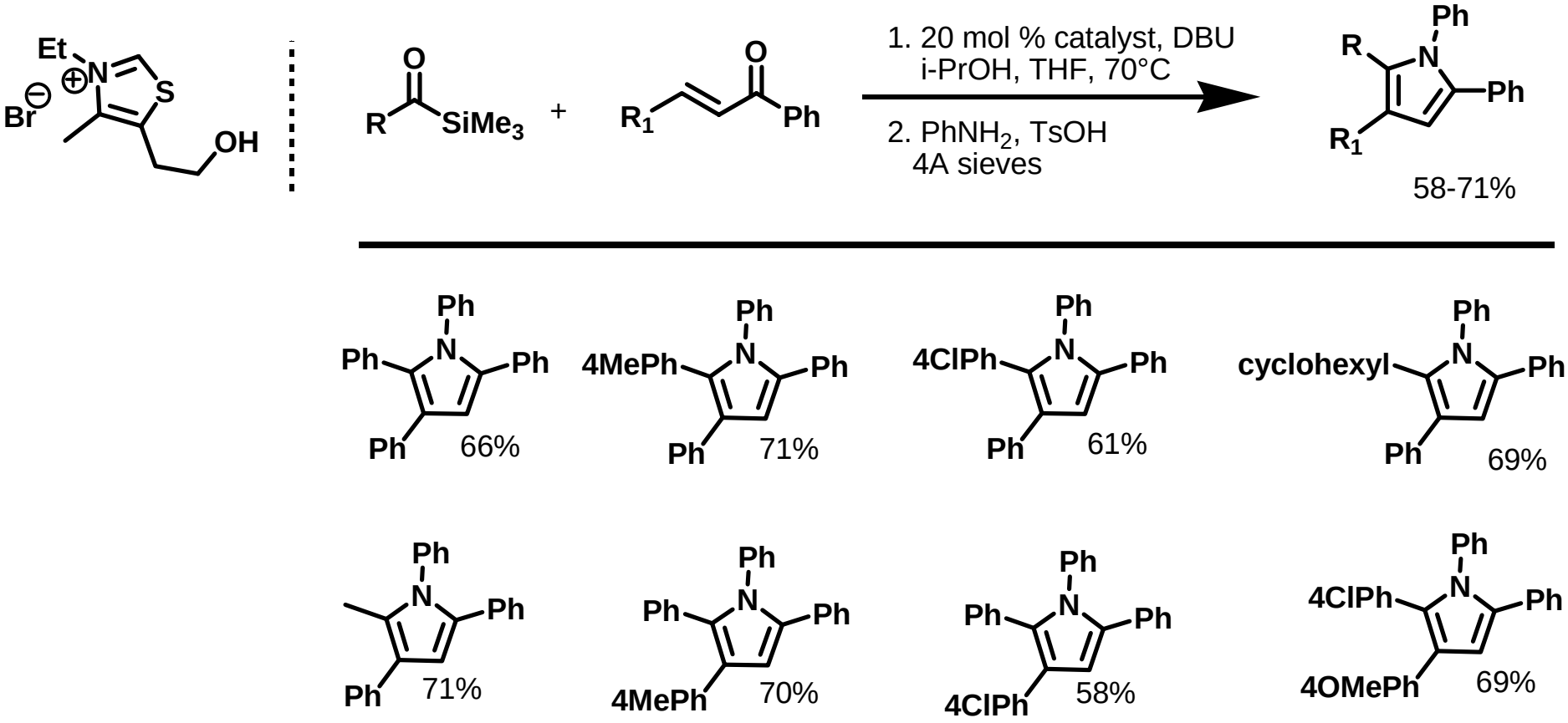






Mattson A.E., Bharadwaj A.R., Scheidt K.A. *J. Org. Chem.* **2006**, 71(15), 5715-5724

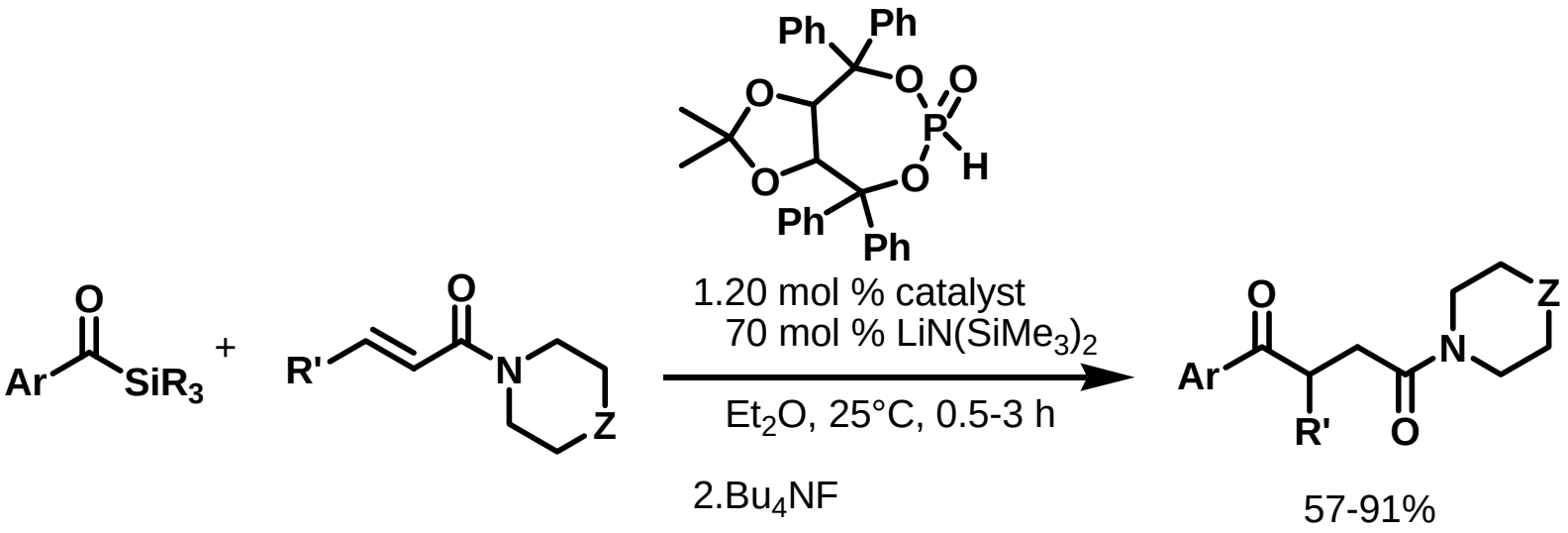
Réaction de sila-Stetter : Synthèse de pyrroles



Mattson A.E., Bharadwaj A.R., Scheidt K.A. *J. Org. Chem.* **2006**, 71(15), 5715-5724

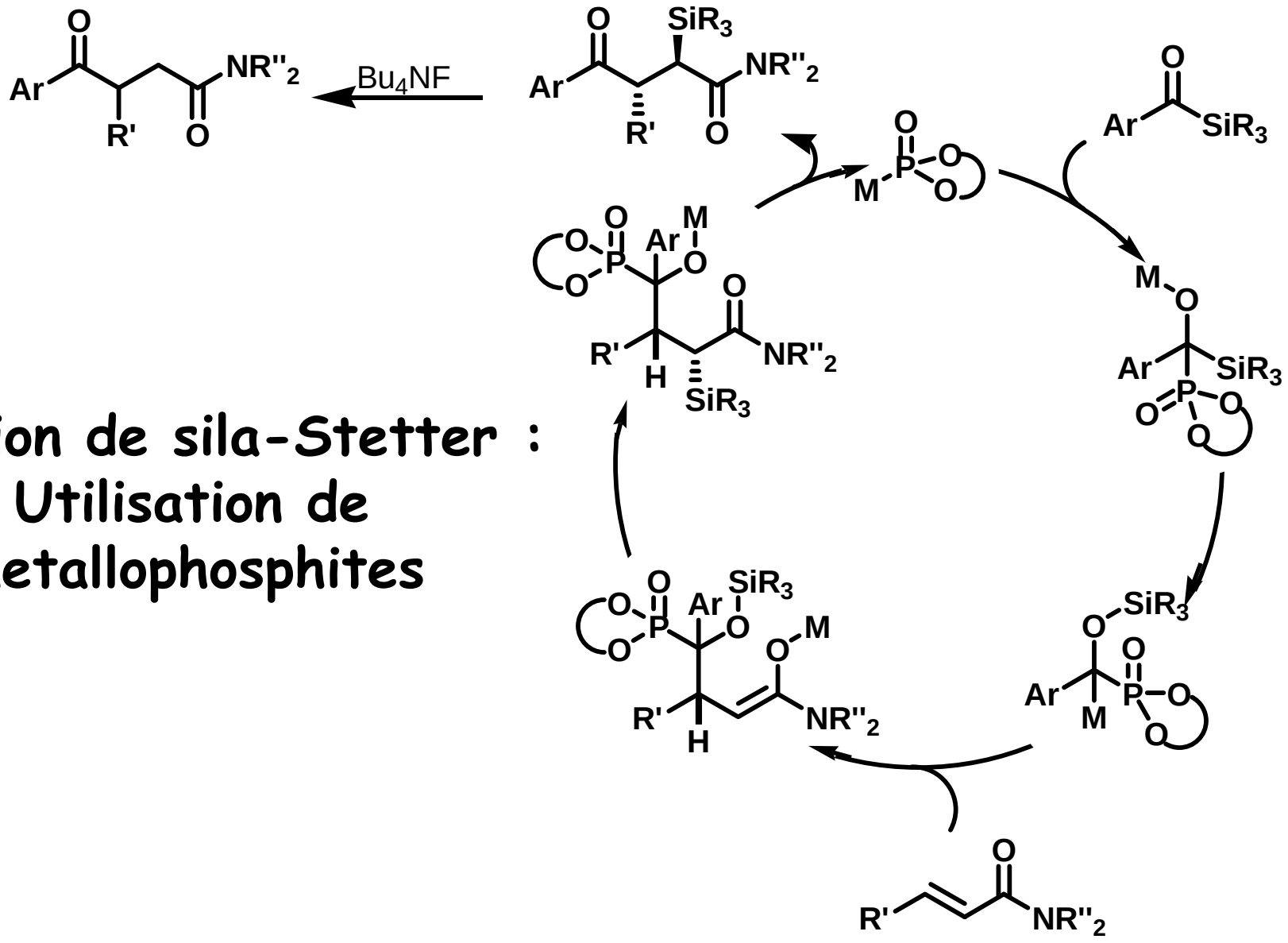
Bharadwaj A.R., Scheidt K.A. Org. Lett. 2004, 6(14), 2465-2468

Réaction de sila-Stetter : Utilisation de metallophosphites



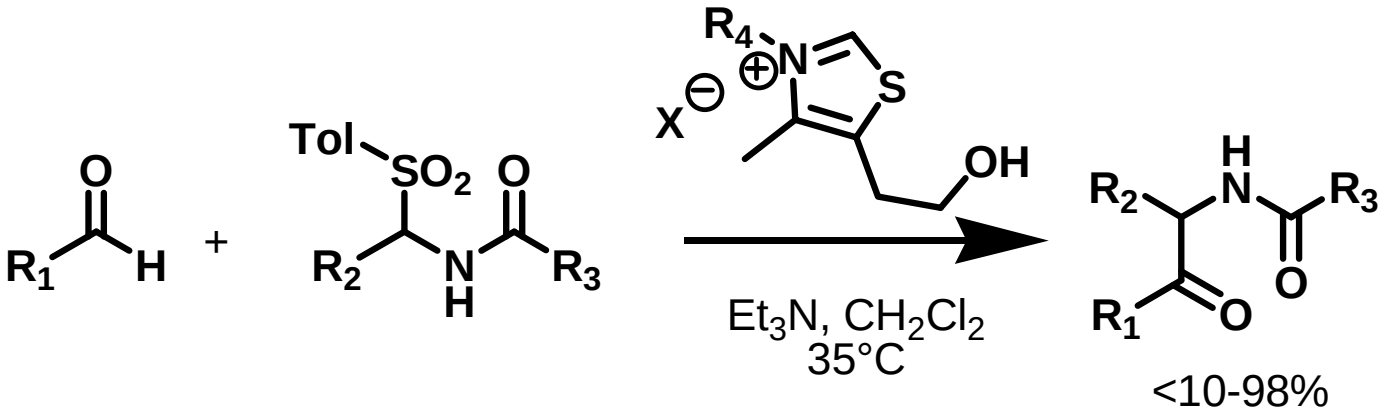
Nahm M.R., Linghu X., Potnick J.R., Yates C.M., White P.S., Johnson J. S.
Angew. Chem. Int. Ed. **2005**, 44, 2377-2379

Réaction de sila-Stetter : Utilisation de metallophosphites



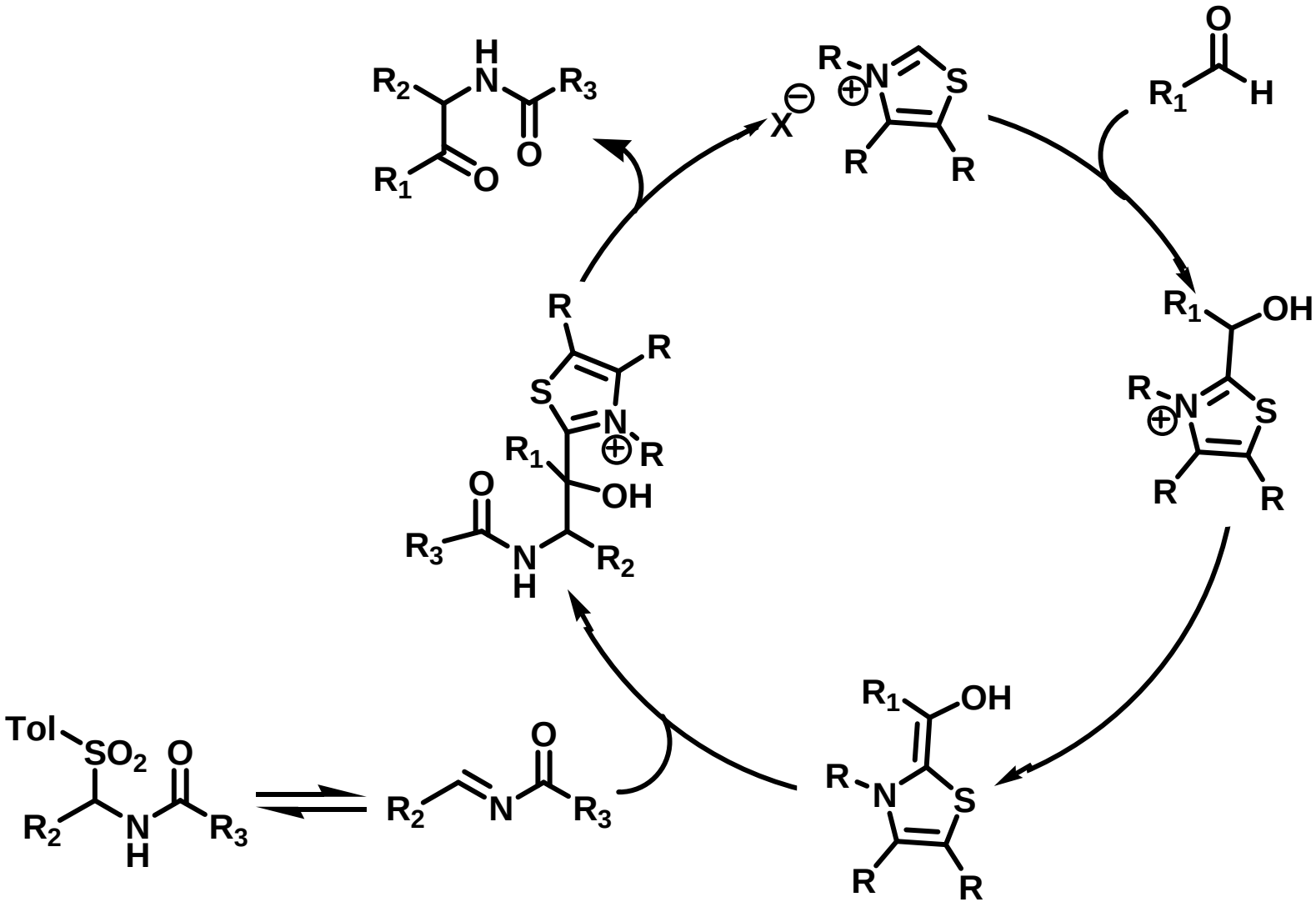
Nahm M.R., Linghu X., Potnick J.R., Yates C.M., White P.S., Johnson J. S. *Angew. Chem. Int. Ed.* **2005**, 44, 2377-2379

Synthèse d'α-amidocétones



Murry J.A., Frantz D.E., Soheili A., Tillyer R., Grabowski E.J.J., Reider P.J.
J. Am. Chem. Soc. **2001**, 123(39), 9696-9697

Synthèse d'α-amidocétones



Murry J.A., Frantz D.E., Soheili A., Tillyer R., Grabowski E.J.J., Reider P.J.
J. Am. Chem. Soc. **2001**, 123(39), 9696-9697