

Synthesis Alerts is a monthly feature to help readers of Synthesis keep abreast of new reagents, catalysts, ligands, chiral auxiliaries, and protecting groups which have appeared in the recent literature. Emphasis is placed on new developments but established reagents, catalysts etc. are also covered if they are used in novel and useful reactions. In each abstract, a specific example of a transformation is given in a concise format designed to aid visual retrieval of information.

Synthesis Alerts is a personal selection by:

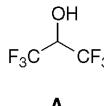
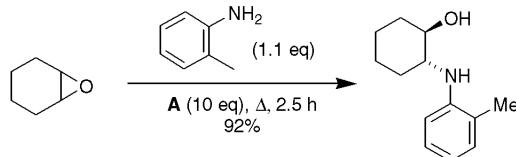
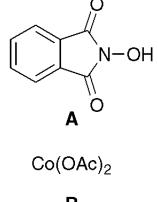
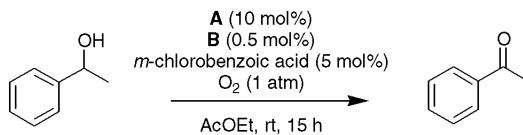
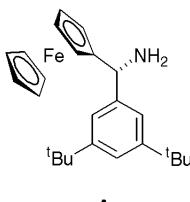
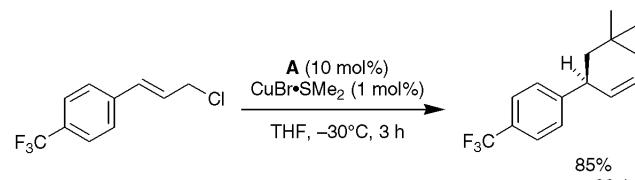
Fabrice Anizon, Robert Chow, and Sukhjinder Uppal,
Department of Chemistry, Leeds University.

Georg Thieme Verlag does not accept responsibility for the accuracy, content, or selection of the data.

Article Identifier:
1437-210X,E;2001,0,03,0499,0504,ftx,en;X00301SS.pdf

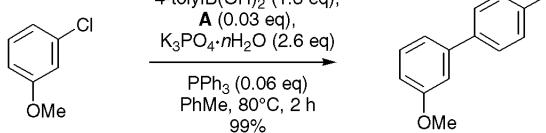
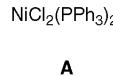
The journals regularly covered by the abstractors are:

Angewandte Chemie International Edition
Bulletin of the Chemical Society of Japan
Chemical Communications
Chemistry A European Journal
Chemistry Letters
Collection Czechoslovak Chemical Communications
European Journal of Organic Chemistry
Helvetica Chimica Acta
Heterocycles
Journal of the American Chemical Society
Journal of Organic Chemistry
Organic Letters
Organometallics
Perkin Transactions 1
Synlett
Synthesis
Tetrahedron
Tetrahedron Asymmetry and Tetrahedron Letters

Reagent		
Hexafluoro-2-propanol (HFIP)		
The title reagent, when used as the solvent, facilitates the ring opening of oxiranes by aryl amines in the formation of β -amino alcohols.		 <p>11 examples (yields 68-92%) are reported.</p>
U. Das, B. Crousse, V. Kesavan, D. Bonnet-Delpont, J.-P. Bégué <i>J. Org. Chem.</i> 2000 , <i>65</i> , 6749.		
N-Hydroxyphthalimide (NHPI) / Cobalt(II) Acetate		Catalyst
The title reagent pair catalyse the oxidation of primary and secondary alcohols, and diols with molecular oxygen.		 <p>22 examples (yields 47-98%) are reported.</p>
T. Iwahama, Y. Yoshino, T. Keitoku, S. Sakaguchi, Y. Ishii <i>J. Org. Chem.</i> 2000 , <i>65</i> , 6502.		
3,5-Di-tert-butylphenyl Ferrocenyl Amine		Ligand
The title reagent was developed for use in copper catalysed, enantioselective allylic substitution with organometallic reagents.		 <p>8 examples (yields 72-89%, %ee = 44-89%) are reported.</p>
F. Durber, P. Knochel <i>Tetrahedron Lett.</i> 2000 , <i>41</i> , 9233.		

Nickel(II) Chloride / Triphenylphosphine Complex**Catalyst**

The title reagent catalyses the cross-coupling of arylboronic acids with arylchlorides for the synthesis of biaryls.

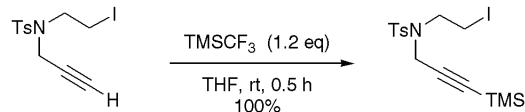


K. Inada, N. Miyaura *Tetrahedron* **2000**, *56*, 8657.

22 examples (yields 15, 68-99%) are reported.

Trifluoromethyltrimethylsilane**Reagent**

The title reagent is used for the trialkylsilylation of terminal alkynes, catalysed by cesium or potassium fluoride.

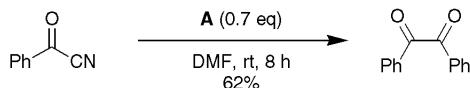


M. Ishizaki, O. Hoshino *Tetrahedron* **2000**, *56*, 8813.

25 examples (yields 40-100 %) are reported.

Indium**Reagent**

The title reagent is used for the reductive coupling of acyl cyanides to give the corresponding 1,2-diketones, in good to moderate yields.

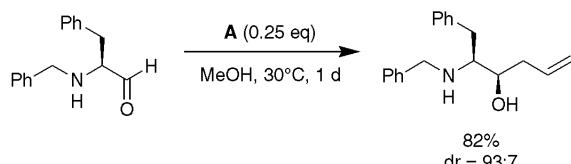
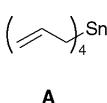


H. S. Baek, S. J. Lee, B. W. Yoo, J. J. Ko, S. H. Kim, J. H. Kim *Tetrahedron Lett.* **2000**, *41*, 8097.

12 examples (yields 0, 60-78%) are reported.

Tetraallylstannane**Reagent**

The title reagent is used for the allylation of *N*-protected aminoaldehydes to give the corresponding homoallylic alcohols in excellent yields and good diastereoselectivities.

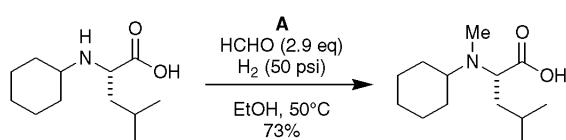
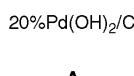


A. McCluskey, J. Garner, D. J. Young, S. Cabellero *Tetrahedron Lett.* **2000**, *41*, 8147.

6 examples (yields 68-94%, %de = 50-86%) are reported.

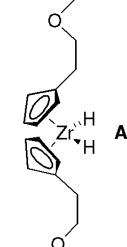
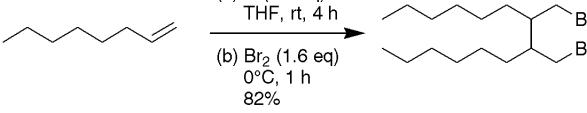
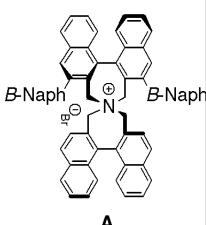
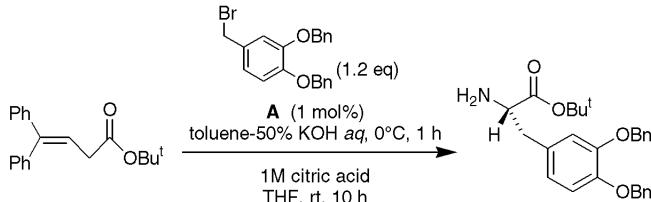
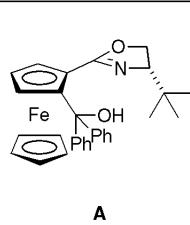
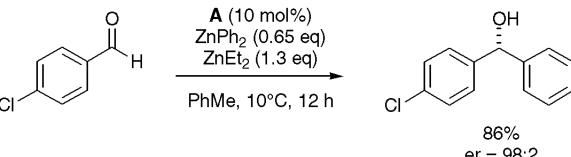
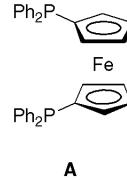
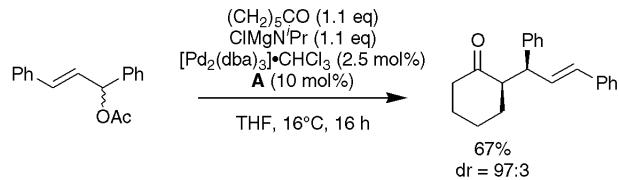
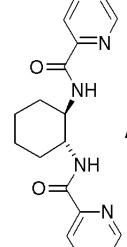
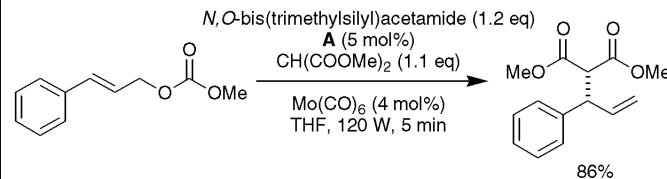
Palladium Hydroxide / Charcoal**Catalyst**

The title catalyst can be used with formaldehyde to methylate *N*-mono-alkylated amino acids in good to excellent yields.



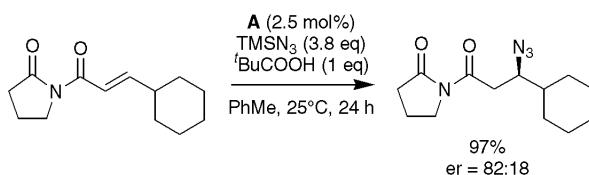
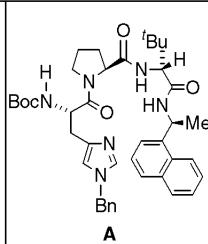
Y. Song, A. D. Sercel, D. R. Johnson, N. L. Colbray, K. L. Sun, B. D. Roth *Tetrahedron Lett.* **2000**, *41*, 8225.

4 examples (yields 58-92%) are reported.

Bis(methoxyethyl)zirconocene Dihydride	Reagent
The title reagent can be used for the reductive coupling of alkenes, dienes and enynes.	 <p>(a) A (0.5 eq) THF, rt, 4 h (b) Br₂ (1.6 eq) 0°C, 1 h 82%</p>  <p>8 examples (yields 28-82%) are reported.</p>
P. Wipf, X. Wang <i>Tetrahedron Lett.</i> 2000 , <i>41</i> , 8237.	
C ₂ -Symmetric Chiral Quaternary Ammonium Salts	Catalyst
The title phase-transfer catalyst can be used for the asymmetric synthesis of L-Dopa and related amino acid esters.	  <p>1 example (yield 80%, %ee = 90%) is reported.</p>
T. Ooi, M. Kameda, H. Tannai, K. Maruoka <i>Tetrahedron Lett.</i> 2000 , <i>41</i> , 8339.	
Ferrocenyl Oxazoline	Catalyst
The title reagent catalyses the formation of arylphenylmethanols from benzaldehydes with very high selectivities.	  <p>12 examples (yields 64-99%, %ee 83-98%) are reported.</p>
C. Bolm, N. Hermanns, J. P. Hildebrand, K. Muniz <i>Angew. Chem., Int. Ed. Engl.</i> 2000 , <i>39</i> , 3465.	
1,1'-Bis(diphenylphosphanyl)ferrocene	Ligand
The title reagent acts as chiral ligand for palladium-catalysed allylic substitution with high diastereoselectivity and enantioselectivity.	  <p>7 examples (%de 20-94%) are reported.</p>
M. Braun, F. Laicher, T. Meier <i>Angew. Chem., Int. Ed. Engl.</i> 2000 , <i>39</i> , 3494.	
N,N'-Bis(2-pyridinecarbonyl)-1,2-cyclohexanediamine	Ligand
The title reagent can be used for microwave-heated molybdenum(0)-catalysed asymmetric allylic alkylations.	  <p>12 examples (yields 1, 11, 59-94%, %ee = 95-98%) are reported.</p>
N.-F. K. Kaiser, U. Bremberg, M. Larhed, C. Moberg, A. Hallberg <i>Angew. Chem., Int. Ed. Engl.</i> 2000 , <i>39</i> , 3596.	

Catalyst**Conjugate Addition Catalyst**

The title reagent catalyses the asymmetric conjugate addition of azide to α,β -unsaturated carbonyl compounds.

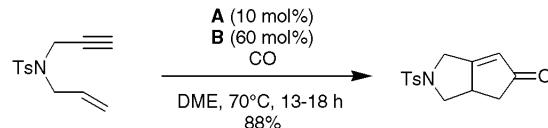
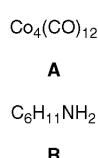


T. E. Horstmann, D. J. Guerin, S. J. Miller
Tetrahedron Lett. **2000**, *39*, 3635.

6 examples (yields 79-97%, %ee = 45-85%) are reported.

Catalyst**Dodecacarbonyltetracobalt / Cyclohexylamine**

The title reagent pair catalyse the Pauson-Khand reaction.

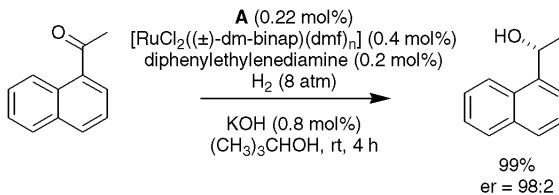
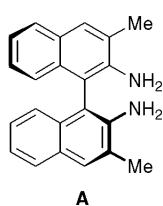


M. E. Krafft, L. V. R. Bonaga *Angew. Chem., Int. Ed. Engl.* **2000**, *39*, 3676.

10 examples (yields 44-94%) are reported.

Catalyst**(R)-3,3'-dimethyl-1,1'-binaphth-2,2'diamine (DM-DABN)**

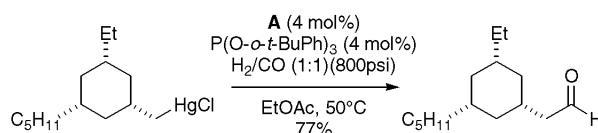
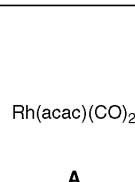
The title reagent catalyses the hydrogenation of ketones through asymmetric activation / deactivation.



7 examples (yields 99%, %ee = 91-96%) are reported.

Catalyst**Dicarbonyl(acetylacetone)rhodium**

The title reagent catalyses the carbonylation of organomercurial chlorides to generate aldehydes.

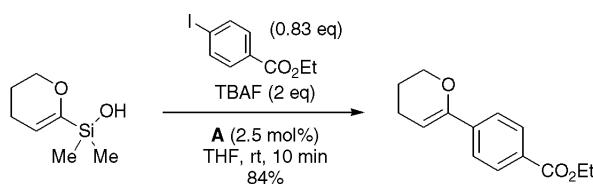
**Catalyst**

S. T. Sarraf, J. L. Leighton *Org. Lett.* **2000**, *2*, 3205.

5 examples (yields 60-79%) are reported.

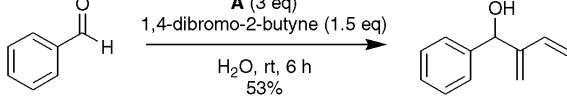
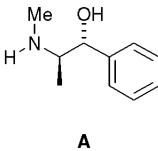
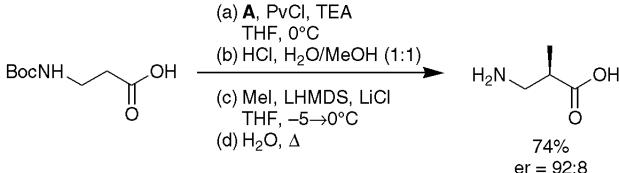
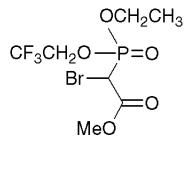
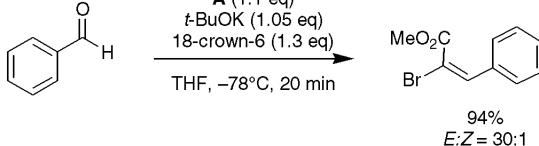
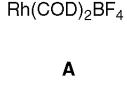
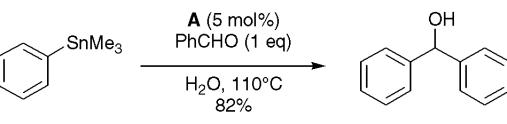
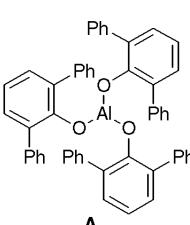
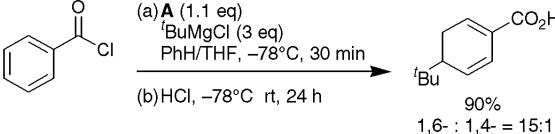
Catalyst **η^3 -Allylpalladium Chloride**

The title reagent catalyses the cross-coupling of aryl halides with (α -alkoxyvinyl)silans and (α -alkoxyvinyl)silyl hydrides in the presence of tetrabutylammonium fluoride or hydroxide.



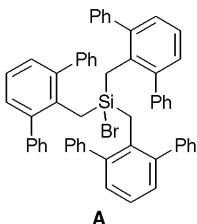
14 examples (yields 71-94%) are reported.

Catalyst

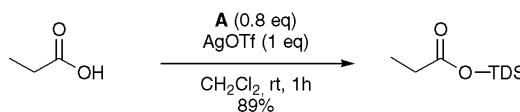
Reagent		
Indium	In A	 <p>7 examples (yields 53–68%) are reported.</p>
W. Lu, J. Ma, Y. Yang, T. H. Chan <i>Org. Lett.</i> 2000 , <i>2</i> , 3469.		
(R,R)-Pseudoephedrine		Chiral Auxiliary
The title reagent can be utilised as a chiral auxiliary for synthesizing α -substituted β -amino acids.	 A	 <p>4 examples (yields 52–74%, %ee = 75–99%) are reported.</p>
G. Nagula, V. J. Huber, C. Lum, B. A. Goodman <i>Org. Lett.</i> 2000 , <i>2</i> , 3527.		
Methyl Bis(2,2,2-trifluoroethoxy)bromophosphonoacetate		Reagent
The title reagent can be used for the preparation of (<i>E</i>)- α -bromoacrylates, using the Horner–Wadsworth–Emmons reaction, with high stereoselectivity and excellent yield.	 A	 <p>24 examples (yields 43, 64–99%, 7:1 \leq E:Z \leq 1:0) are reported.</p>
K. Tago, H. Kogen <i>Tetrahedron</i> 2000 , <i>56</i> , 8825.		
Bis(1,4-cyclooctadiene)rhodium Tetrafluoroborate		Catalyst
The title reagent catalyses the Grignard-type carbonyl phenylation of aldehydes by trimethylphenylstannane, in water and under air atmosphere.	 A	 <p>11 examples (yields 52–92%) are reported.</p>
C. J. Li, Y. Meng <i>J. Am. Chem. Soc.</i> 2000 , <i>122</i> , 9538.		
Aluminium Tris(2,6-diphenylphenoxyde)		Reagent
The title reagent complexes with aromatic acyl chlorides allowing conjugate addition of nucleophiles to aromatic systems.	 A	 <p>10 examples (yields 41–99%, 3.4:1 \leq 1,6-:1,4- \leq 99:1) are reported.</p>
S. Saito, T. Sone, M. Murase, H. Yamamoto <i>J. Am. Chem. Soc.</i> 2000 , <i>122</i> , 10216.		

Tris(2,6-diphenylbenzyl)silyl Bromide (TDS-Br)**Protecting Group**

The title reagent can be used to protect carboxylic acids against various nucleophilic attacks and α -deprotonation.



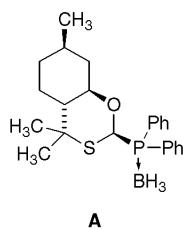
A. Iwasaki, Y. Kondo, K. Maruoka *J. Am. Chem. Soc.* **2000**, *122*, 10238.



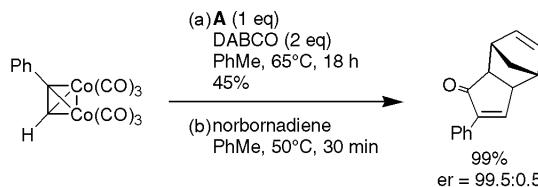
4 examples (yields 84-93%) are reported.

Chiral Phosphine Ligand**Ligand**

The title reagent acts as a chiral bidentate ligand for the asymmetric intermolecular Pauson-Khand reaction.



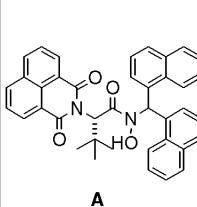
X. Verdaguera, A. Moyano, M. A. Pericás, A. Riera, M. A. Maestro, J. Mahla *J. Am. Chem. Soc.* **2000**, *122*, 10242.



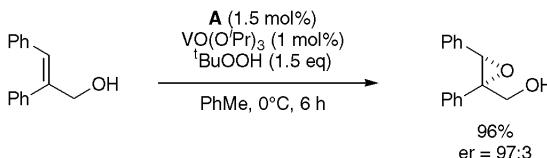
5 examples (yields 92-99%, %ee = 57-99%) are reported.

Chiral Hydroxamic Acid Ligand**Ligand**

The title reagent is used as a ligand for the vanadium-catalysed asymmetric epoxidation of allylic alcohols.



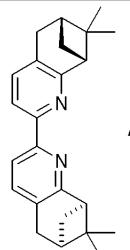
Y. Hoshino, H. Yamamoto *J. Am. Chem. Soc.* **2000**, *122*, 10452.



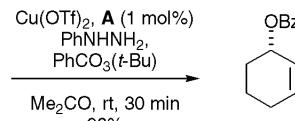
9 examples (yields 58-99%, %ee = 76-96%) are reported.

PINDY**Ligand**

The title ligand, when complexed with copper, can be used to catalyse asymmetric allylic oxidation, with high efficiency and good enantioselectivity.



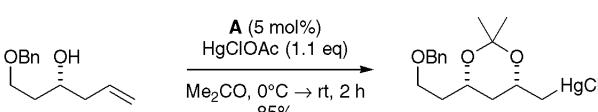
A. V. Malkov, M. Bella, V. Langer, P. Kocovsky *Org. Lett.* **2000**, *2*, 3047.



3 examples (yield 96%, %ee = 48-75%) are reported

Ytterbium Triflate**Catalyst**

The title reagent catalyses the oxymercuration of hemiketals and hemiacetals derived from homoallylic alcohols and acetone or benzaldehyde, with HgClOAc.



9 examples (yields 54-85%) are reported.