

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.

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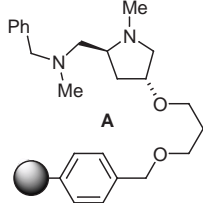
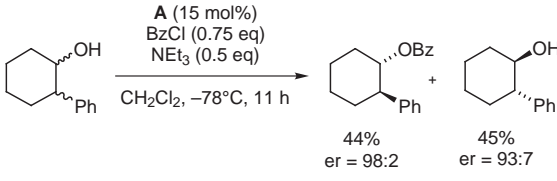
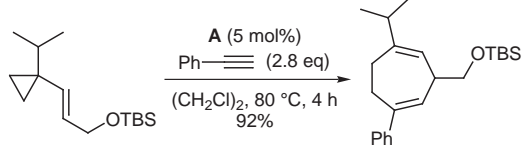
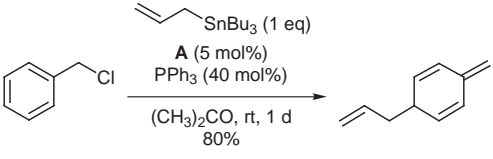
Fabrize Anizon, Robert Chow, Jennifer Delaney, Hassan Mamdani, Marcel de Puit and Sukhjinder Uppal, Department of Chemistry, Leeds University, Leeds, LS2 9JT, UK.

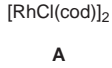
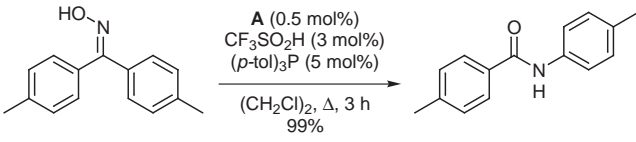
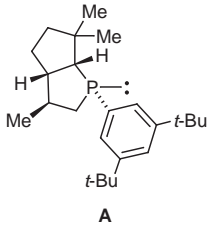
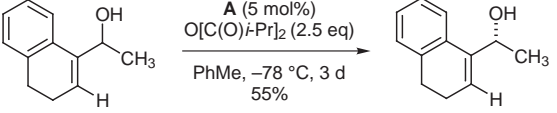
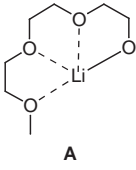
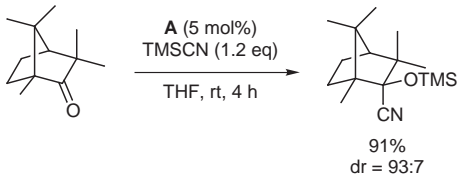
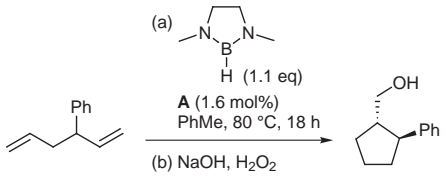
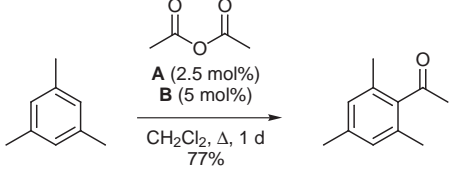
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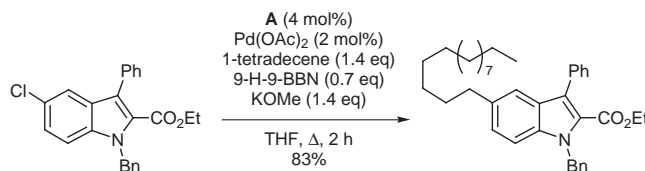
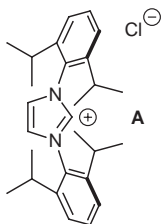
Polymer-Supported Proline-Based Diamine		Catalyst
<p>Polymer-supported proline-based diamine A catalyses the kinetic resolution of racemic secondary alcohols.</p> <p>Clapham, B.; Cho, C.-W.; Janda, K. D. <i>J. Org. Chem.</i> 2001, <i>66</i>, 868.</p>		 <p>7 examples (yields 24-58%, %ee 0-85%) are reported.</p>
[Rh(CO) ₂ Cl] ₂		Catalyst
<p>The title reagent catalyses the intermolecular [5+2] cycloaddition of vinylcyclopropanes.</p> <p>Wender, P. A.; Barzilay, C. M.; Dyckman, A. J. <i>J. Am. Chem. Soc.</i> 2001, <i>123</i>, 179.</p>	<p>[Rh(CO)₂Cl]₂</p> <p>A</p>	 <p>17 examples (yields 23-95%) are reported.</p>
Tris(dibenzylideneacetone)dipalladium(0) Chloroform Complex		Catalyst
<p>The title reagent catalyses the allylative dearomatisation of benzyl chloride derivatives with allyltributylstannane.</p> <p>Bao, M.; Nakamura, H.; Yamamoto, Y. <i>J. Am. Chem. Soc.</i> 2001, <i>123</i>, 759.</p>	<p>Pd₂(dba)₃·CHCl₃</p> <p>A</p>	 <p>11 examples (yields 71-87%) are reported.</p>

[RhCl(cod)]₂		Catalyst
<p>The title reagent catalyses the Beckmann rearrangement of oximes to give the corresponding amides.</p> <p>Arisawa, M.; Yamaguchi, M. <i>Org. Lett.</i> 2001, 3, 311.</p>	 <p>A</p>	 <p>16 examples (yields 30-99%) are reported.</p>
Di-tert-butylphenylphospha-bicyclo[3.3.0]octane		Catalyst
<p>The title reagent catalyses the kinetic resolution of allylic alcohols with isobutyric anhydride.</p> <p>Vedejs, E.; MacKay, J. A. <i>Org. Lett.</i> 2001, 3, 535.</p>	 <p>A</p>	 <p>12 examples (yields 34-67%, %ee 45-95%) are reported.</p>
Lithium Triglyme Monomethyl Ether (LiTGMM)		Catalyst
<p>The title reagent catalyses the diastereoselective addition of TMSCN or TBSCN to aldehydes and ketones.</p> <p>Wilkinson, H. S.; Grover, P. T.; Vandebossche, C. P.; Bakale, R. P.; Bhongle, N. N.; Wald, S. A.; Senanayake, C. H. <i>Org. Lett.</i> 2001, 3, 553.</p>	 <p>A</p>	 <p>15 examples (yields 71-98%, %de = 77-99%) are reported.</p>
Bis(pentamethylcyclopentadienyl) Samarium Tetrahydrofuran Complex		Catalyst
<p>The title reagent catalyses the cyclisation/boration of 1,5- and 1,6-dienes to give organoboranes which are oxidised to the corresponding cyclic primary alcohols.</p> <p>Molander, G. A.; Pfeiffer, D. <i>Org. Lett.</i> 2001, 3, 361.</p>	<p>Cp*₂Sm•THF Cp* = pentamethylcyclopentadienyl</p> <p>A</p>	 <p>4 examples (yields 52-86%) are reported.</p>
Bis(benzonitrile)dichloroplatinum(II) / Silver Hexafluoroantimonate		Catalyst
<p>The title reagent pair catalyses the Friedel-Crafts acylation of moderately activated arenes by carboxylic anhydrides.</p> <p>Furstner, A.; Voigtlander, D.; Schrader, W.; Giebel, D.; Reetz, M. T. <i>Org. Lett.</i> 2001, 3, 417.</p>	<p>(PhCN)₂PtCl₂</p> <p>A</p> <p>AgSbF₆</p> <p>B</p>	 <p>12 examples (yields 61-92%) are reported.</p>

1,3-Bis(2,6-diisopropylphenyl)-imidazolium Chloride

Catalyst

The title reagent mediates the Pd-catalysed cross-coupling reactions of aryl chlorides with various 9-R-9-BBN derivatives (R = alkyl, allyl, alkynyl) in the presence of KOMe as base.



10 examples (yields 61-98%) are reported.

Fürstner, A.; Leitner, A. *Synlett* **2001**, 290.

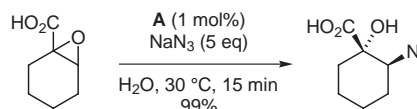
Aluminium Trichloride

Catalyst

The title reagent catalyses the regio- and stereoselective azidolysis of α,β -epoxycarboxylic acids in water.

AlCl_3

A



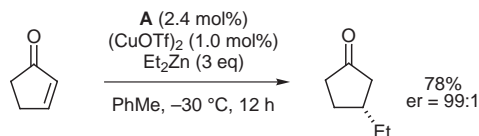
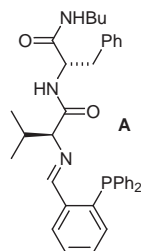
6 examples (yields 97-99%) are reported.

Fringuelli, F.; Pizzo, F.; Vaccaro, L. *Tetrahedron Lett.* **2001**, 42, 1131.

Peptide-based Phosphine Ligand

Ligand

The title ligand is used in the enantioselective Cu-catalysed conjugate addition of dialkylzinc reagents to various cyclic enones.



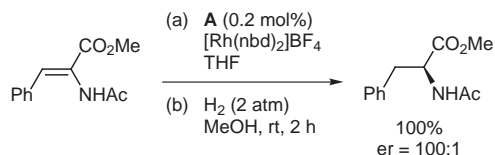
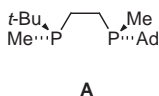
17 examples (yields 55-98%, %ee 62->98) are reported.

Degrado, S. J.; Mizutani, H.; Hoveyda, A. H. *J. Am. Chem. Soc.* **2001**, 123, 755.

Unsymmetric P-Chirogenic Bis(phosphino)ethane

Ligand

The title reagent, when complexed to rhodium, catalyses the hydrogenation of α -hydroamino acid derivatives.



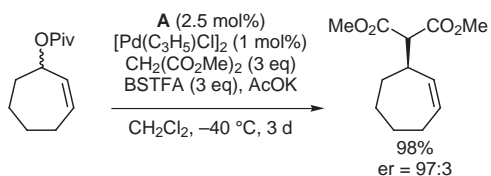
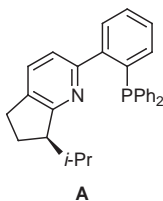
25 examples (yields 100%, %ee 10-100%) are reported.

Ohashi, A.; Imamoto, T. *Org. Lett.* **2001**, 3, 373.

2-(Phosphinoaryl)pyridine

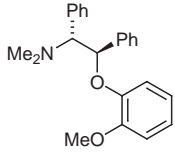
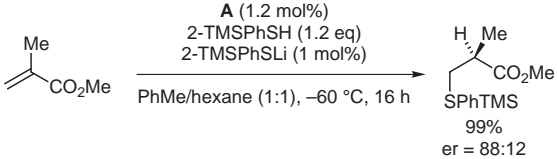
Ligand

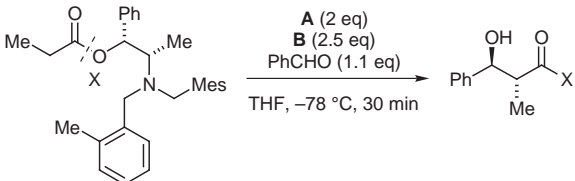
The title reagent mediates the asymmetric allylic alkylation of acyclic alkenyl carboxylate.

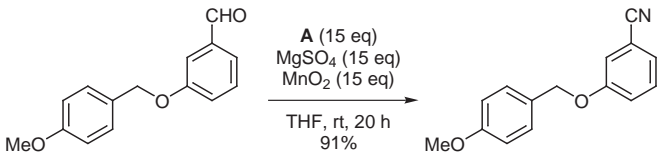


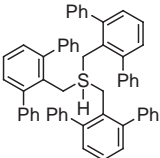
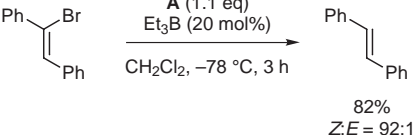
15 examples (yields 35-98%, %ee 59-94%) are reported.

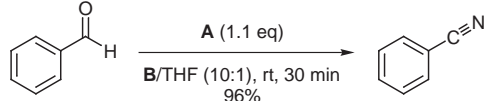
Ito, K.; Kashiwagi, R.; Hayashi, S.; Uchida, T.; Katsuki, T. *Synlett*, 284.

Chiral Amino Diether		Ligand
The title reagent promotes the acylation of alcohols with acid anhydrides.	 <p style="text-align: center;">A</p>	 <p style="text-align: center;">6 examples (yields 93-99%, %ee 60-91%).</p>
Nishimura, K.; Ono, M.; Nagaoka, Y.; Tomioka, K. <i>Angew. Chem. Int. Ed.</i> 2001 , <i>40</i> , 440.		

Lithium Diisopropylamide / Bis(cyclopentadienyl)zirconium Dichloride		Reagent
The title reagent pair mediates the diastereoselective <i>anti</i> -aldol reaction for the preparation of optically active <i>anti</i> -2-alkyl-3-hydroxycarboxylic acid esters.	<p>LDA</p> <p style="text-align: center;">A</p> <p>Cp₂ZrCl₂</p> <p style="text-align: center;">B</p>	 <p style="text-align: center;">18 examples (yields 90-98%, 56:44 <i>syn:anti</i> ≤ 94:6).</p>
Kurosu, M.; Lorca, M. <i>J. Org. Chem.</i> 2001 , <i>66</i> , 1205.		

Ammonia		Reagent
The title reagent is used along with magnesium sulfate and manganese dioxide in a one-pot preparation of aromatic nitriles from aldehydes.	<p>NH₃</p> <p style="text-align: center;">A</p>	 <p style="text-align: center;">13 examples (yields 76-93%) are reported.</p>
Lai, G.; Bhamare, N. K.; Anderson, W. K. <i>Synlett</i> 2001 , 230.		

Tris(2,6-diphenylbenzyl)tin Hydride		Reagent
The title reagent is used for the stereoselective radical cyclisation and vinyl radical reduction of acyclic systems.	 <p style="text-align: center;">A</p>	 <p style="text-align: center;">3 examples of radical cyclisations (yields 76-97%) and 2 examples of vinyl radical reduction (yields 74-82%, 92:1 ≤ <i>Z:E</i> ≤ 100:1) are reported.</p>
Sasaki, K.; Kondo, Y.; Maruoka, K. <i>Angew. Chem. Int. Ed.</i> 2001 , <i>40</i> , 411.		

Iodine / Aqueous Ammonia		Reagent
The title reagent pair is used for the direct transformation of aldehydes to nitriles.	<p>I₂</p> <p style="text-align: center;">A</p> <p>aq NH₃</p> <p style="text-align: center;">B</p>	 <p style="text-align: center;">14 examples (yields 57-97%) are reported.</p>
Talukdar, S.; Hsu, J.-L.; Chou, T.-C.; Fang, J.-M. <i>Tetrahedron Lett.</i> 2001 , <i>42</i> , 1103.		