

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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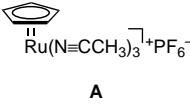
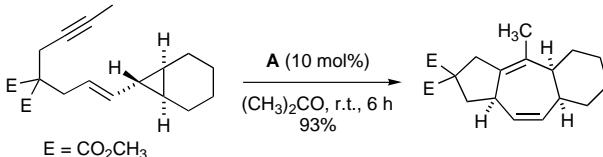
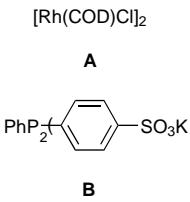
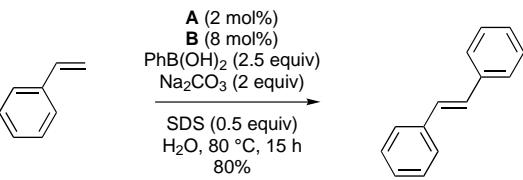
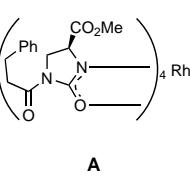
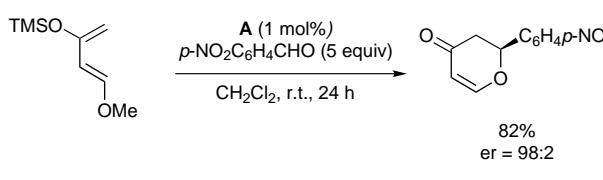
Elyse Bourque, Robert Chow, Jennifer Delaney, Marcel de Puit and Sukhjinder Uppal, Department of Chemistry, Leeds University, Leeds, LS2 9JT, UK.

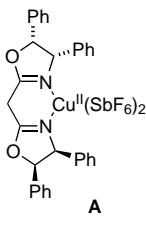
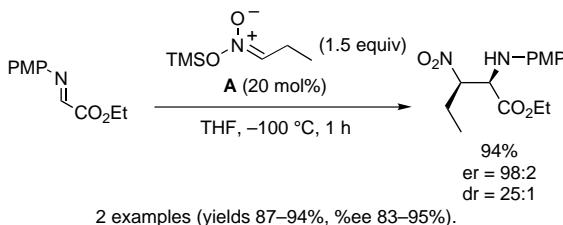
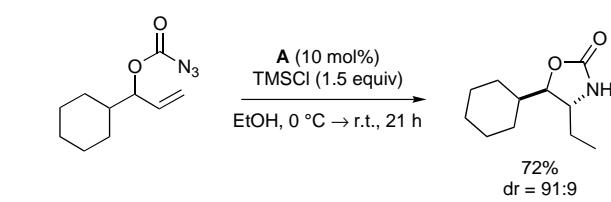
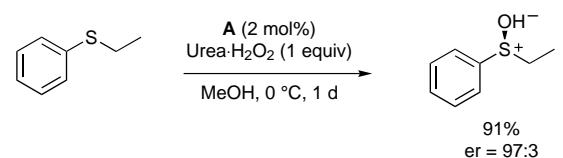
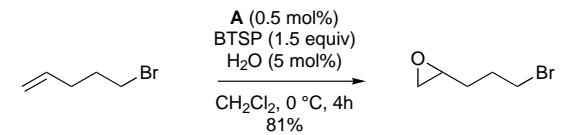
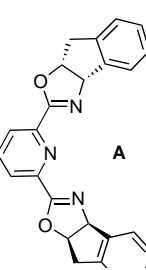
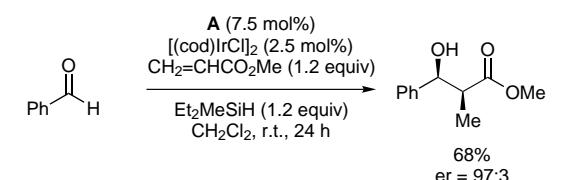
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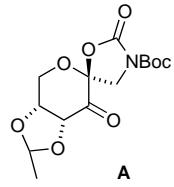
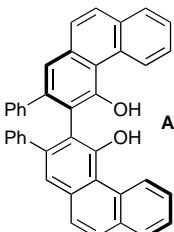
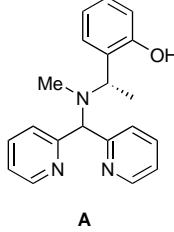
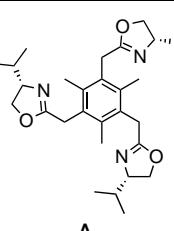
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Chemistry Letters
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Journal of the American Chemical Society
Journal of Organic Chemistry
Organic Letters
Organometallics
Perkin Transactions I
Synlett
Synthesis
Tetrahedron
Tetrahedron Asymmetry and Tetrahedron Letters

Ruthenium(II) Complex		Catalyst
Reagent A catalyses the intramolecular [5+2] cycloaddition of cyclopropyl enynes.	 A	 E = CO2CH3 A (10 mol%) $(\text{CH}_3)_2\text{CO}$, r.t., 6 h 93%
Trost, B. M.; Shen, H. C. <i>Angew. Chem. Int. Ed.</i> 2001 , <i>40</i> , 2313.		11 examples (yields 69–93%).
Rhodium Cyclooctadienylchloride Dimer/Bis(p-sulfonatophenyl)phenylphosphine Dipotassium Salt (TPPDS)		Catalyst
The title reagent pair catalyse coupling reactions of arylboronic acids to olefins in aqueous media.	 A B	 A (2 mol%) B (8 mol%) $\text{PhB}(\text{OH})_2$ (2.5 equiv) Na_2CO_3 (2 equiv) SDS (0.5 equiv) H_2O , 80°C , 15 h 80%
Lautens, M.; Roy, A.; Fukuoka, K.; Fagnou, K.; Martin-Matute, B. <i>J. Am. Chem. Soc.</i> 2001 , <i>123</i> , 5358.		17 examples (yields 20–88%).
Dirhodium(II) Carboxamidate		Catalyst
The title reagent promotes enantioselective Hetero-Diels–Alder reactions.	 A	 $p\text{-NO}_2\text{C}_6\text{H}_4\text{CHO}$ (5 equiv) CH_2Cl_2 , r.t., 24 h 82% er = 98:2
Doyle, M. P.; Phillips, I. M.; Hu, W. J. <i>Am. Chem. Soc.</i> 2001 , <i>123</i> , 5366.		3 examples (yields 41–82%, %ee 81–95%).

Chiral Bisoxazoline		Catalyst
The title reagent catalyses the enantio- and diastereoselective aza-Henry reaction between silyl nitronates and α -amino esters to generate β -nitro- α -amino esters.		 <p>PMP-N⁺CO₂E⁻ (1.5 equiv) A (20 mol%) THF, -100 °C, 1 h</p> <p>O₂N-CH(CO₂E)-HN-PMP 94% er = 98:2 dr = 25:1</p> <p>2 examples (yields 87–94%, %ee 83–95%).</p>
Knudsen, K. R.; Risgaard, T.; Nishiaki, N.; Gothelf, K. V.; Jorgensen, K. A. <i>J. Am. Chem. Soc.</i> 2001 , 123, 5843.		
Iron (II) Chloride		Catalyst
The title reagent catalyses intramolecular nitrogen transfer in alkenyloxy-carbonyl azides to give the corresponding oxazolidinones.	FeCl ₂ A	 <p>EtOH, 0 °C → r.t., 21 h</p> <p>72% dr = 91:9</p> <p>11 examples (yields 33–82%. %de 2–99%).</p>
Bach, T.; Schlummer, B.; Harms, K. <i>Chem.—Eur. J.</i> 2001 , 7, 2581.		
(R,R)-Di-m-oxo Ti(salen)		Catalyst
The title reagent, in the presence of urea·H ₂ O ₂ , catalyses the asymmetric oxidation of sulfides to sulfoxides in good yields and with high enantioselectivities.	(R,R)-Di- μ -oxo Ti(salen) A	 <p>MeOH, 0 °C, 1 d</p> <p>91% er = 97:3</p> <p>7 examples (yields 72–93%, %ee 92–99%).</p>
Saito, B.; Katsuki, T. <i>Tetrahedron Lett.</i> 2001 , 42, 3873.		
Rhenium Trioxide		Catalyst
The title reagent catalyses olefin epoxidation by bis(trimethylsilyl) peroxide (BTSP).	ReO ₃ A	 <p>CH₂Cl₂, 0 °C, 4 h 81%</p> <p>8 examples (yields 70–96%).</p>
Yudin, A. K.; Chiang, J. P.; Adolfsson, H.; Copéret, C. <i>J. Org. Chem.</i> 2001 , 66, 4713.		
Iridium-Pybox Catalyst		Catalyst
The title reagent converts trialkyl-silanes, methyl acrylate and certain aldehydes to the corresponding reduced aldol products with good enantio- and diastereocontrol.		 <p>[(cod)IrCl]₂ (2.5 mol%) CH₂=CHCO₂Me (1.2 equiv) Et₂MeSiH (1.2 equiv) CH₂Cl₂, r.t., 24 h</p> <p>68% er = 97:3 dr = 7:1</p> <p>10 examples (yields 0–68%, %ee 76–96%, %de 66–90%).</p>
Zhao, C.-X.; Duffey, M. O.; Taylor, S. J.; Morken, J. P. <i>Org. Lett.</i> 2001 , 3, 1829.		

Chiral Ketone	Catalyst		
The title reagent catalyses the enantioselective epoxidation of terminal olefins using oxone.	 <p>A (15 mol%) Oxone (1.8 equiv) K_2CO_3 (4 equiv) Buffer (0.2 M K_2CO_3/AcOH, pH 8) DME-DMM (3:1), $-10^\circ C$, 3.5 h 100% er = 91:9</p> <p>10 examples (yields 61–100%, %ee 71–85%).</p>		
Tian, H.; She, X.; Xu, J.; Shi, Y. <i>Org. Lett.</i> 2001 , 3, 1929.			
(S)-VAPOL	Ligand		
The title ligand is applied in the asymmetric zirconium-catalysed imino aldol reaction.	 <p>Ph $\text{---} \text{N}(\text{Ph})\text{---} \text{C}_6\text{H}_3(\text{OH})_2$ Ph</p> <p>Zr(<i>i</i>-Pr)₄/<i>i</i>-PrOH (20 mol%) A (44 mol%), NMI (24 mol%) PhMe, r.t., 15 h 7 examples (yields 78–100%, %ee 36–99%).</p>		
Xue, S.; Yu, S.; Deng, Y.; Wulff, W. D. <i>Angew. Chem. Int. Ed.</i> 2001 , 40, 2271.			
(S)-(Di-pyridin-2-ylmethyl)-methyl-(1-phenylethyl)-amine	Ligand		
The title ligand, when complexed with manganese, catalyses the oxidation of sulfides to sulfoxides using hydrogen peroxide.	 <p>Ph $\text{---} \text{S}^+(\text{Me})\text{---} \text{C}_6\text{H}_3(\text{N})_2$ Ph</p> <p>Mn(OAc)₃·2H₂O (0.2 mol%) H_2O_2 (8 equiv) Me₂CO, $0^\circ C$, 2 h 55% er = 59:41</p> <p>6 examples (yields 48–55%, %ee 5–18%).</p>		
Brinksma, J.; La Crois, R.; Feringa, B. L.; Donnoli, M. I.; Rosini, C. <i>Tetrahedron Lett.</i> 2001 , 42, 4049.			
Benzene-based tripodal oxazoline	Ligand		
The title reagent can be used as a ligand in the enantioselective catalytic Michael addition of methyl phenyl-acetate to methyl acrylate.	 <p>Ph $\text{---} \text{CH}_2\text{---} \text{C}_6\text{H}_3\text{---} \text{CH}_2\text{---} \text{C}_6\text{H}_3(\text{N})_2$ Ph</p> <p>PhCH₂CO₂Me (1 equiv) <i>t</i>-BuOK (20 mol%) PhMe, $-78^\circ C$, 8 h 83% er = 91:9</p> <p>1 example (yield 83%, %ee 82%).</p>		
Kim, S.-G.; Ahn, K. H. <i>Tetrahedron Lett.</i> 2001 , 42, 4175.			
Tin(IV) Chloride	Reagent		
The title reagent promotes asymmetric synthesis of β -mercaptop carboxylic acid derivatives by intramolecular sulfur transfer in <i>N</i> -enoyl oxazolidine-2-thiones.	 <p>a) A (1.5 equiv) CH_2Cl_2, $-78^\circ C$ b) H_2O 72% dr = 98:2</p> <p>15 examples (yields 56–98%, %de 30–96%).</p>		
Palomo, C.; Oiarbide, M.; Dias, F.; Ortiz, A.; Linden, A. <i>J. Am. Chem. Soc.</i> 2001 , 123, 5602.			

(Cyanomethyl)trimethylphosphonium Iodide			Reagent
The title reagent promotes the formation of thioethers from thiols and aliphatic alcohols.	 A		8 examples (yields 38–84%).
Zaragoza, F. <i>Tetrahedron</i> . 2001 , <i>57</i> , 5451.			
Lithium Dibutylisopropylmagnesate			Reagent
The title reagent is used for the selective halogen-magnesium exchange of alkanyl halides with retention of configuration of the double bond.	<i>i</i> -PrBu ₂ MgLi A		44 examples (yields 24–99%).
Inoue, A.; Kitagawa, K.; Shinokubo, H.; Oshima, K. <i>J. Org. Chem.</i> 2001 , <i>66</i> , 4333.			
Cerium Trichloride Heptahydrate/Sodium Iodide			Reagent
The title reagent is used in the selective deprotection of <i>tert</i> -butyl amino acids in the presence of <i>N</i> -Boc protected amines.	CeCl ₃ ·7H ₂ O A NaI B		11 examples (yields 75–99%).
Marcantoni, E.; Massaccesi, M.; Torregiani, E. <i>J. Org. Chem.</i> 2001 , <i>66</i> , 4430.			
Dichlorogallium Hydride			Reagent
The title reagent can be used for the triethylborane-induced radical cyclisation of halo acetals.	HGaCl ₂ A		10 examples (yields 79–99%, %de 0–68%).
Mikami, S.; Fujita, K.; Nakamura, T.; Yorimitsu, H.; Shinokubo, H.; Matsubara, S.; Oshima, K. <i>Org. Lett.</i> 2001 , <i>3</i> , 1853.			
Stryker's Reagent			Reagent
The title reagent can be used for the tandem conjugate reduction-aldoxyl cyclisation of enediones to form the corresponding five- and six-membered carbocycles in good yields.	[(Ph ₃ P)CuH] ₆ A		14 examples (yields 19–93%).
Chiu, P.; Szeto, C.-P.; Geng, Z.; Cheng, K.-F. <i>Org. Lett.</i> 2001 , <i>3</i> , 1901.			