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:

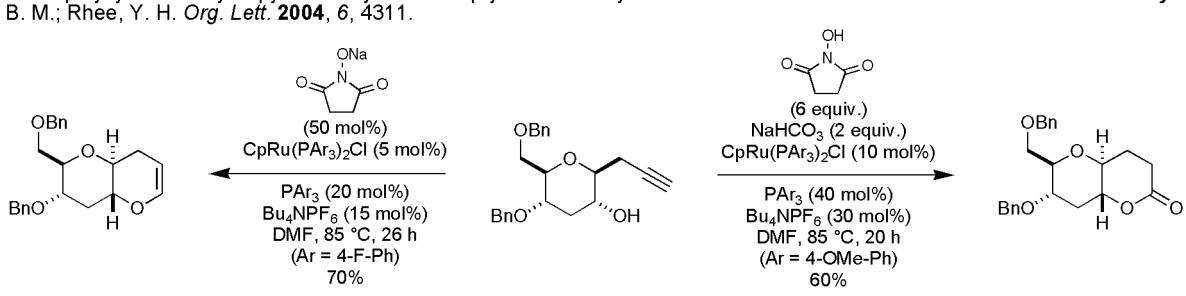
Fiona Black, John Cooksey, Victoria Coombes, Przemylslaw Kubinski, Joanne Peach, and Thomas Snaddon, Department of Chemistry, Leeds University, Leeds, LS2 9JT, UK.

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 and Biomolecular Chemistry
Organic Letters
Organometallics
Synlett
Synthesis
Tetrahedron
Tetrahedron Asymmetry
Tetrahedron Letters

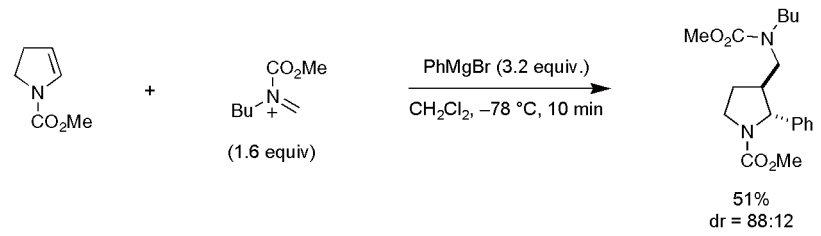
SYNTHESIS 2005, No. 3, pp 500–507
Advanced online publication: 04.02.2005
Art ID: X0305SS

trans-Fused polycyclic tetrahydropyrans: a synthesis of prymnesin and yessotoxin units. **Oxidative Cyclization**
Trost, B. M.; Rhee, Y. H. *Org. Lett.* **2004**, *6*, 4311.



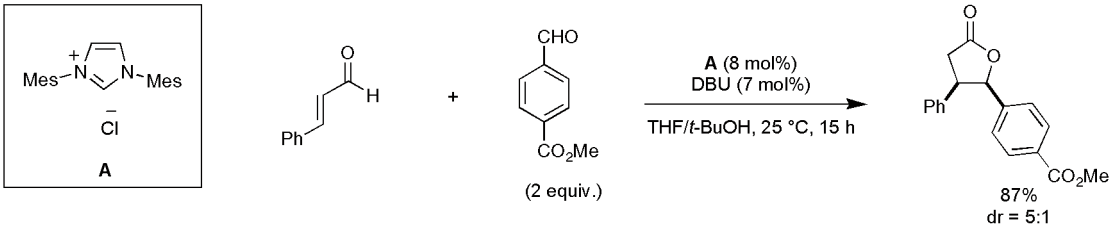
3 examples (yields 60-70%).

Three component coupling based on the "cation pool" method. **C-C Bond Formation**
Suga, S.; Nishida, T.; Yamada, D.; Nagaki, A.; Yoshida, J. *J. Am. Chem. Soc.* **2004**, *126*, 14338.



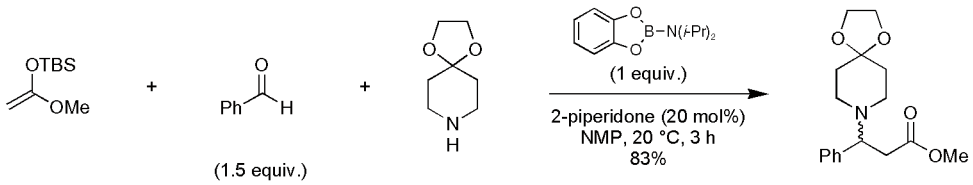
11 examples (yields 42-76%, %de 22-98%).

γ-Butyrolactones by direct annulation of enals and aldehydes. **Annulation**
Sohn, S. S.; Rosen, E. L.; Bode, J. W. *J. Am. Chem. Soc.* **2004**, *126*, 14370.



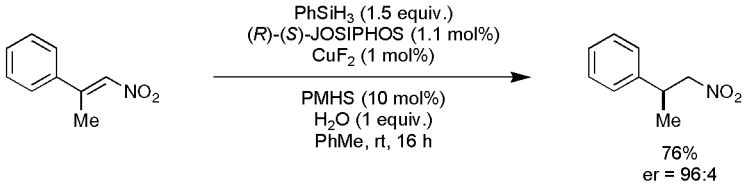
8 examples (yields 41-87%, %de 50-75%).

Aminoboranes as "compatible" iminium ion generators in aminative C-C bond formations. **C-C Bond Formation**
Suginome, M.; Uehlin, L.; Murakami, M. *J. Am. Chem. Soc.* **2004**, *126*, 13196.



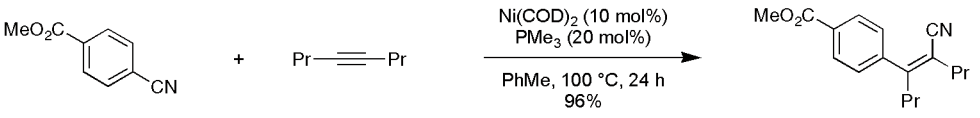
23 examples (yields 0-99%).

Catalytic, enantioselective conjugate reduction of nitroalkenes using CuF_2. **Asymmetric Reduction**
Czekelius, C.; Carreira, E. M. *Org. Lett.* **2004**, *6*, 4575.



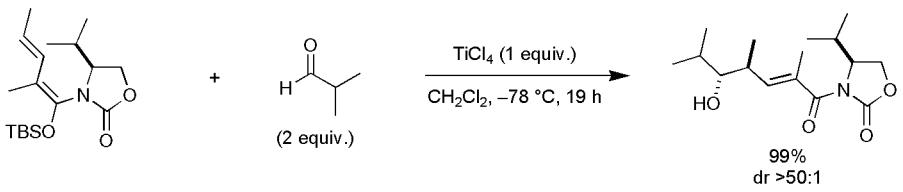
JOSIPHOS = 1-[2-(diphenylphosphino)ferrocenyl]ethyldicyclohexylphosphine, PMHS = Poly(methylhydrosiloxane).
6 examples (yields 52-88%, %ee 82-92%).

Ni-Catalyzed arylcyanation of alkynes. **C-C Bond Formation**
Nakao, Y.; Oda, S.; Hiyama, T. *J. Am. Chem. Soc.* **2004**, *126*, 13904.



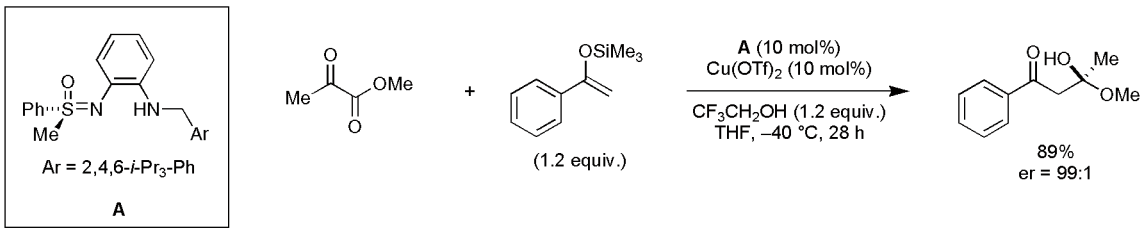
22 examples (yields 54-96%).

Remote asymmetric induction with vinylketene silyl *N*,*O*-acetal. **Vinylogous Aldol Reaction**
Shirokawa, S.; Kamiyama, M.; Nakamura, T.; Okada, M.; Nakazaki, A.; Hosokawa, S.; Kobayashi, S.
J. Am. Chem. Soc. **2004**, *126*, 13604.



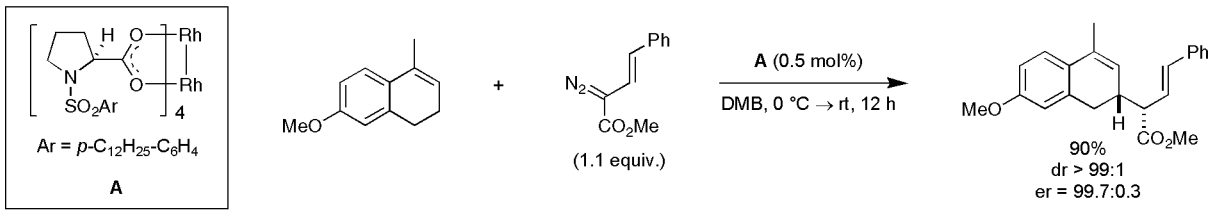
12 examples (yields 38-99%, %de 60-96%).

C_1-Symmetric sulfoximines as ligands in Cu-catalyzed asymmetric Mukaiyama-type aldol reactions. **Asymmetric Aldol Reaction**
Langner, M.; Bolm, C. *Angew. Chem. Int. Ed.* **2004**, *43*, 5984.



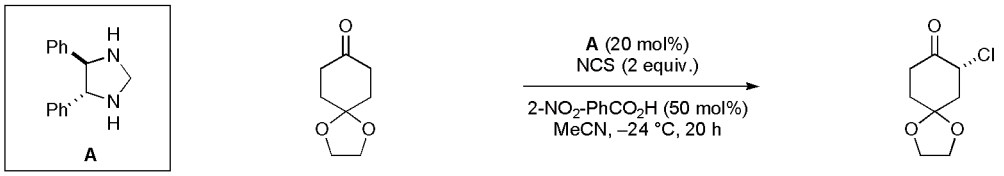
7 examples (yields 71-99%, %ee 89-99%).

Diastereo- and enantio-selective C–H functionalization of 1,2-dihydronaphthalenes. **[3,3]-Sigmatropic Rearrangement**
Davies, H. M. L.; Jin, Q. *J. Am. Chem. Soc.* **2004**, *126*, 10862.



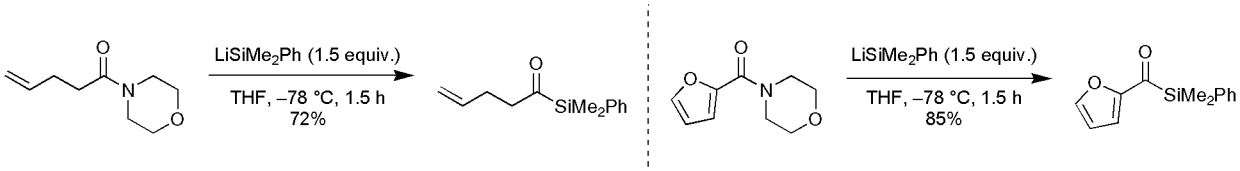
DMB = 2,2-dimethylbutane. 9 examples (yields 53-95%, %de >98%, %ee 91-99.6%).

Direct organocatalytic α-chlorination of ketones. **Asymmetric Chlorination**
Marigo, M.; Bachmann, S.; Halland, N.; Braunton, A.; Jørgensen, K. A. *Angew. Chem. Int. Ed.* **2004**, *43*, 5507.



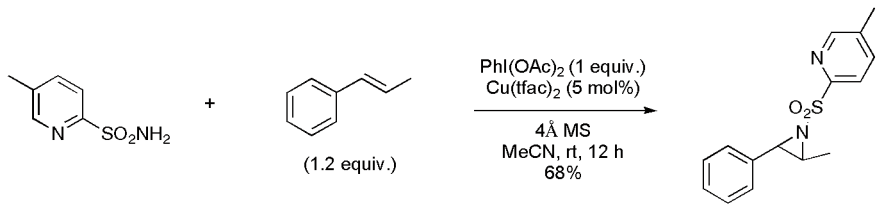
6 examples (yields 40-83%, %ee 86-98%).

Synthesis of acylsilanes from morpholine amides. **1,2-Addition**
Clark, C. T.; Milgram, B. C.; Scheidt, K. A. *Org. Lett.* **2004**, *6*, 3977.



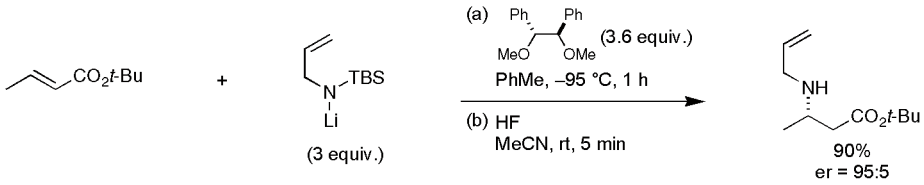
19 examples (yields 0-85%).

Aziridination and selective aziridine ring opening with the use of 2-pyridinesulfonamides. **Annulation**
Han, H.; Bae, I.; Yoo, E. J.; Lee, J.; Do, Y.; Chang, S. *Org. Lett.* **2004**, *6*, 4109.



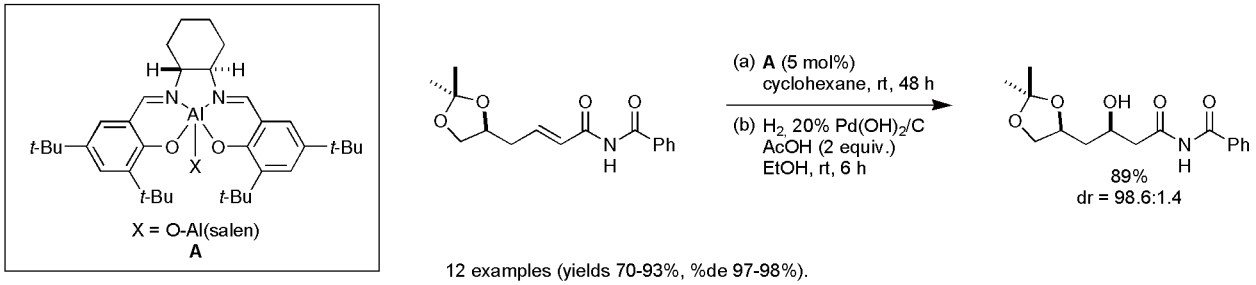
tfac = trifluoroacetylacetonate. 15 examples (yields 44-84%).

Chiral ligand-controlled asymmetric conjugate addition to *t*-butyl alkenoates. **1,4-Addition**
Doi, H.; Sakai, T.; Yamada, K-I.; Tomioka, K. *Chem. Commun.* **2004**, 1850.



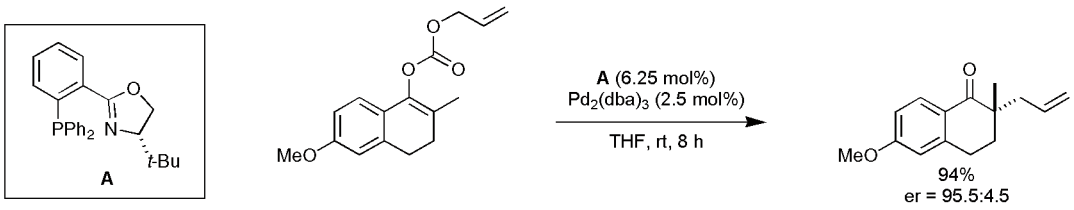
5 examples (yields 82-90%, %ee 75-94%).

Enantioselective formal hydration of α,β-unsaturated imides by conjugate addition of oxime nucleophiles. **1,4-Addition**
Vanderwal, C. D.; Jacobsen, E. N. *J. Am. Chem. Soc.* **2004**, *126*, 14724.



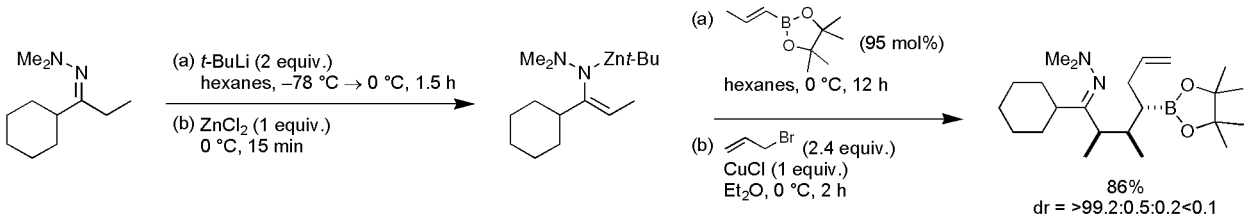
12 examples (yields 70-93%, %de 97-98%).

Enantioselective Tsuji allylation. **Enol Allylation**
Behenna, D. C.; Stoltz, B. M. *J. Am. Chem. Soc.* **2004**, *126*, 15044.



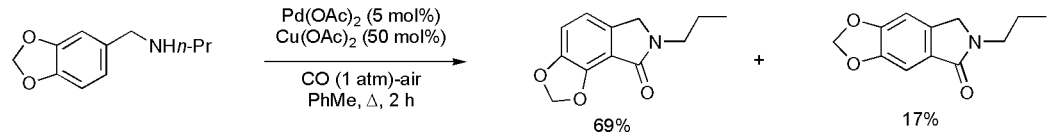
21 examples (yields 55-99%, %ee 79-92%).

Stereoselective sequential couplng of zincated hydrazones, alkenylboronates and electrophiles. **1,2-Addition**
Nakamura, M.; Hatakeyama, T.; Hara, K.; Fukudome, H.; Nakamura, E. *J. Am. Chem. Soc.* **2004**, *126*, 14344.



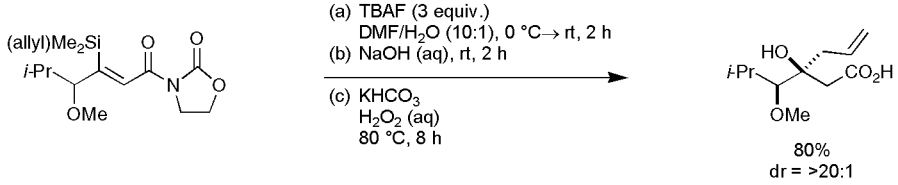
10 examples (yields 48-93%).

Preparation of benzolactams by Pd-catalyzed direct aromatic carbonylation. **Carbonylation**
Orito, K.; Horibata, A.; Nakamura, T.; Ushito, H.; Nagasaki, H.; Yuguchi, M.; Yamashita, S.; Tokuda, M.
J. Am. Chem. Soc. **2004**, *126*, 14342.



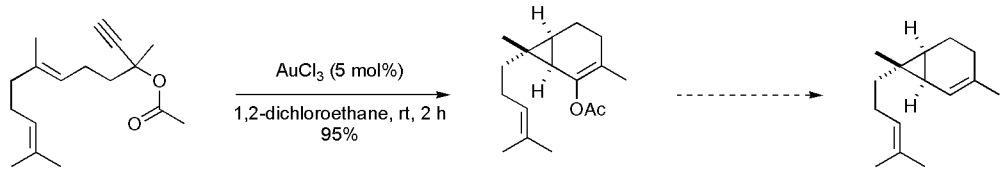
35 examples (yields 0-95%).

Geminal alkylation-hydroxylation of alkynyl carbonyl compounds. **C-C Bond Formation**
Trost, B. M.; Ball, Z. T. *J. Am. Chem. Soc.* **2004**, *126*, 13942.



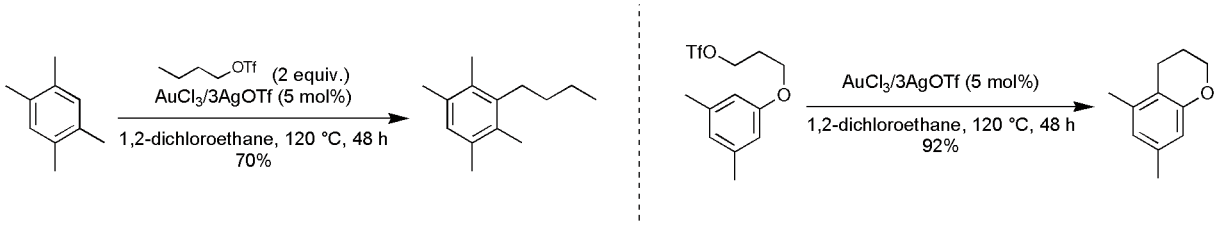
13 examples (yields 0-86%, %de 50->90%).

Au-catalyzed cycloisomerization reactions. **Cycloisomerization**
Fürstner, A.; Hannen, P. *Chem. Comm.* **2004**, 2546.



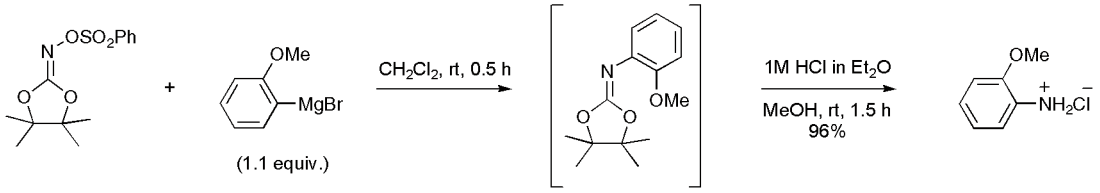
2 examples (yield 95-98%).

Au(III)-Catalyzed direct functionalization of arenes by primary alcohol sulfonate esters. **C-C Bond formation**
Shi, Z.; He, C. *J. Am. Chem. Soc.* **2004**, *126*, 13596.



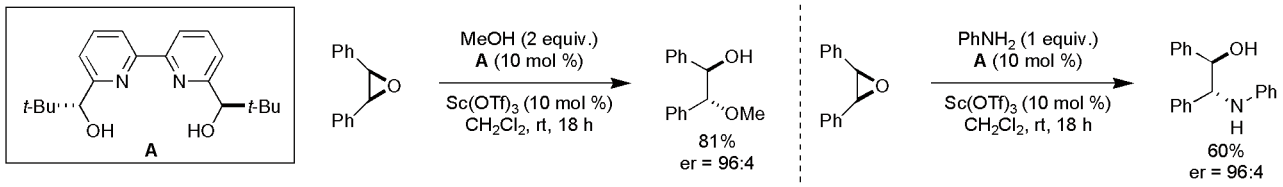
21 examples (yields 5-97%).

Synthesis of primary amines by the electrophilic amination of grignard reagents with 1,3-dioxolan-2-one *O*-sulfonyloxime. **Amination**
Kitamura, M.; Suga, T.; Chiba, S.; Narasaka, K. *Org. Lett.* **2004**, *6*, 4619.



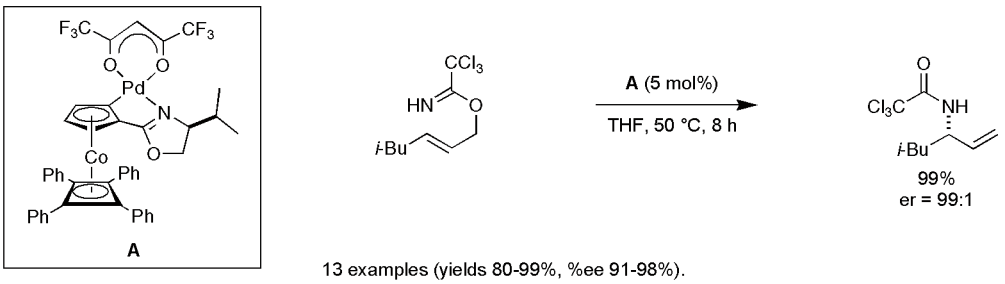
20 examples (yields 64-97%).

Scandium-bipyridine catalyzed enantioselective addition of alcohols and amines to *meso*-epoxides. **Substitution**
Schneider, C.; Sreekanth, A. R.; Mai, E. *Angew. Chem. Int. Ed.* **2004**, *43*, 5691.



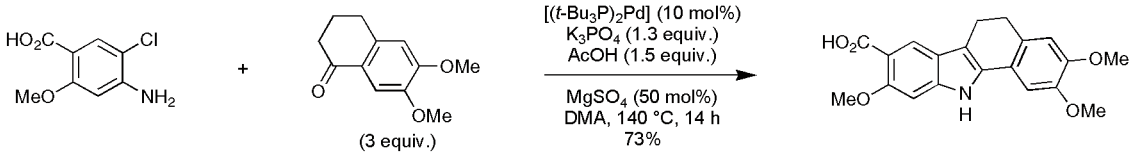
9 examples (yields 75-93%, %ee 49-98%). 8 examples (yields 76-96%, %ee 54-97%).

Cobalt oxazoline palladacycles as catalysts for the asymmetric rearrangement of allylic trichloroacetimidates. **[3,3]-Sigmatropic Rearrangement**
Kirsch, S. F.; Overman, L. E.; Watson, M. P. *J. Org. Chem.* **2004**, *69*, 8101.



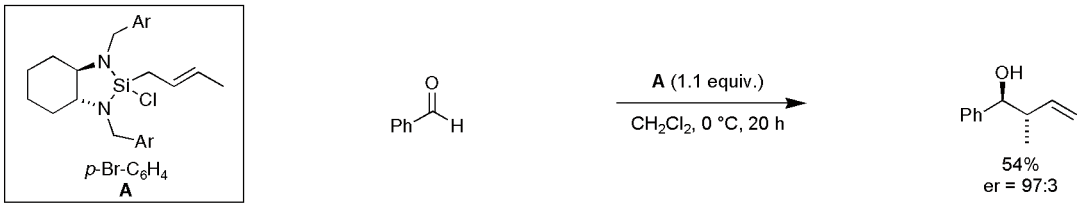
13 examples (yields 80-99%, %ee 91-98%).

Pd-Catalyzed synthesis of indoles and azaindoles *via* direct annulation of chloroanilines and chloroaminopyridines. **Annulation**
Nazaré, M.; Schneider, C.; Lindenschmidt, A.; Will, D. W. *Angew. Chem. Int. Ed.* **2004**, *43*, 4526.



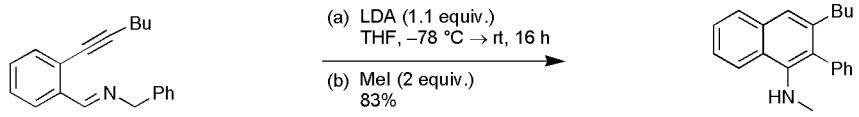
DMA = dimethylacetamide. Cyclic and acyclic ketones studies. 21 examples (yields 46-98%).

Diastereo- and enantio-selective reagents for aldehyde crotylation. **1,2-Addition**
Hackman, B. M.; Lombardi, P. J.; Leighton, J. L. *Org. Lett.* **2004**, *6*, 4375.



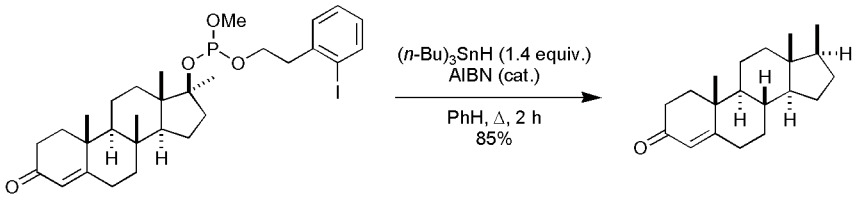
cis-Crotylsilane reagent also reported. 16 examples (yields 52-83%, %ee 93-99%).

Aminobenzannulation based on the deprotonation of 2-(1-alkynyl)-benzaldimines and 2-aza-2,4-heptadienyl-6-ynes. **Annulation**
Sagar, P.; Frohlich, R.; Wurthwein, E. U. *Angew. Chem. Int. Ed.* **2004**, *43*, 5694.



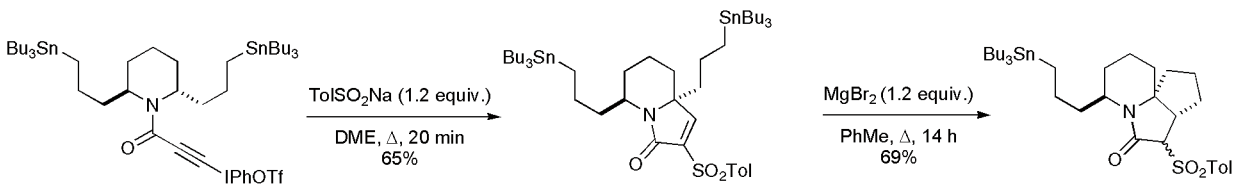
24 examples (yields 60-89%).

Radical deoxygenation of hydroxyl groups *via* phosphites. **Radical Deoxygenation**
Zhang, L.; Koreeda, M. *J. Am. Chem. Soc.* **2004**, *126*, 13190.



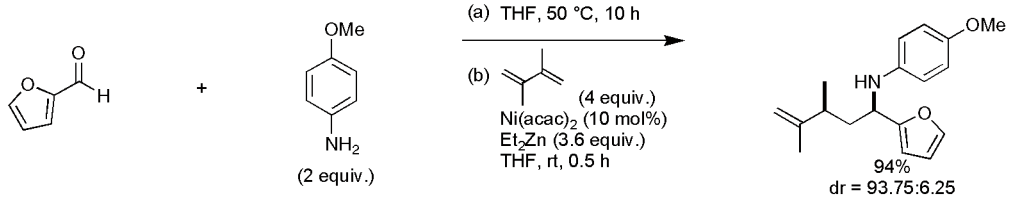
7 examples (yields 74-91%).

Alkynyliodonium salts in the preparation of the tricyclic core of (±)-Halichlorine. **Carbene Insertion**
Feldman, K. S.; Perkins, A. L.; Masters, K. M. *J. Org. Chem.* **2004**, *69*, 7928.



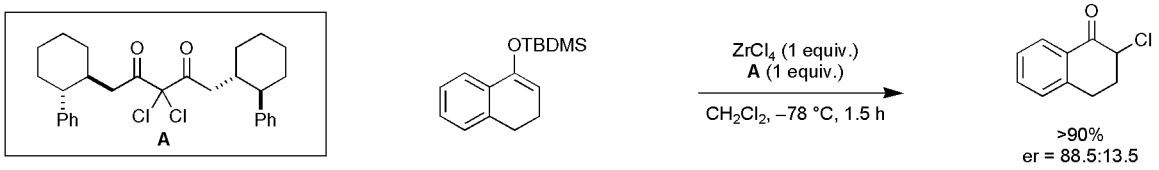
(±)-Halichlorine's tricyclic core is synthesised in 17 steps from pyridine.

Stereo- and regio-selective Ni-catalyzed homoallylation of aldimines. **Allylation**
Kimura, M.; Miyachi, S.; Kojima, K.; Tanaka, S.; Tamaru, Y. *J. Am. Chem. Soc.* **2004**, *126*, 14360.



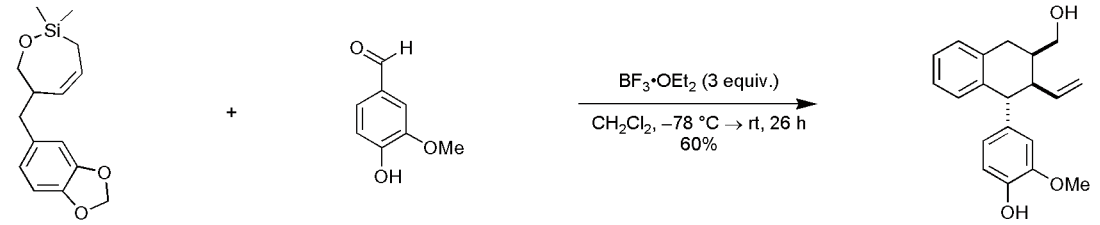
10 examples (yields 62-98%, %de 88-97%).

Lewis acid-mediated chlorination of silyl enolates. **Chlorination**
Zhang, Y.; Shibatomi, K.; Yamamoto, H. *J. Am. Chem. Soc.* **2004**, *126*, 15038.



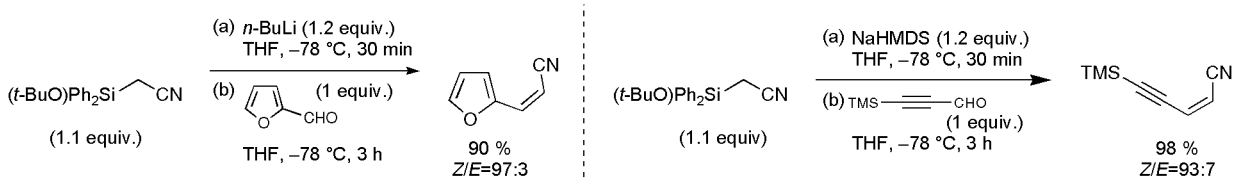
18 examples (yields >90%, %ee 31-98%).

Stereoselective synthesis of aryltetralins. **Condensation**
Miles, S. M.; Marsden, S. P.; Leatherbarrow, R. J.; Coates, W. J. *Chem. Commun*. **2004**, 2292.



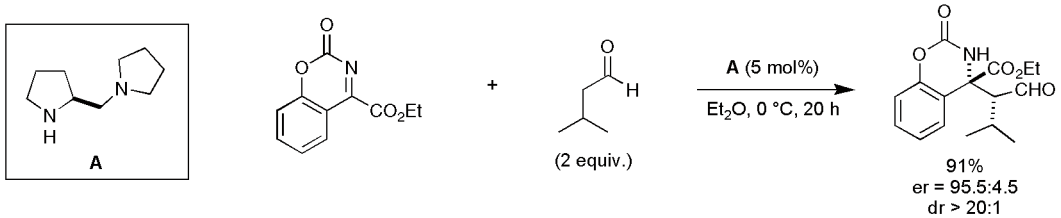
11 examples (yields 0-66%).

(*Z*)-Selective synthesis of β-monosubstituted α,β-unsaturated cyanides using the Peterson reaction. **C-C Bond Formation**
Kojima, S.; Fukuzaki, T.; Yamakawa, A.; Murai, Y. *Org. Lett.* **2004**, *6*, 3917.



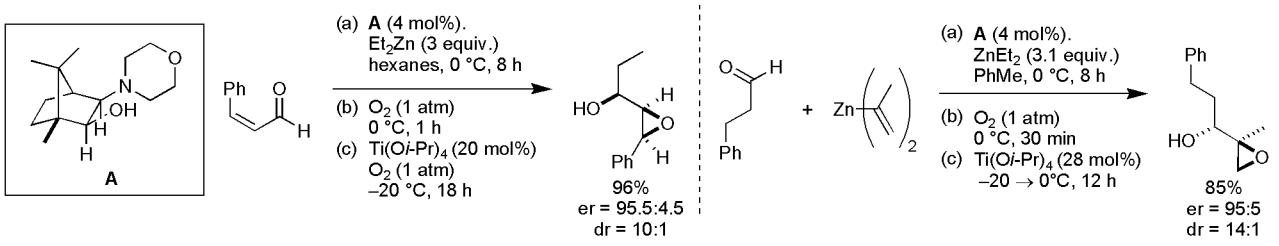
Aromatic and aliphatic aldehydes investigated. 15 examples (yields 24-100%, *Z*/*E* 66:34-99:1).

Organocatalytic enantioselective Mannich reactions of ketimines. **1,2-Addition**
Zhuang, W.; Saaby, S.; Jørgensen, K. A. *Angew. Chem. Int. Ed.* **2004**, *43*, 4476.



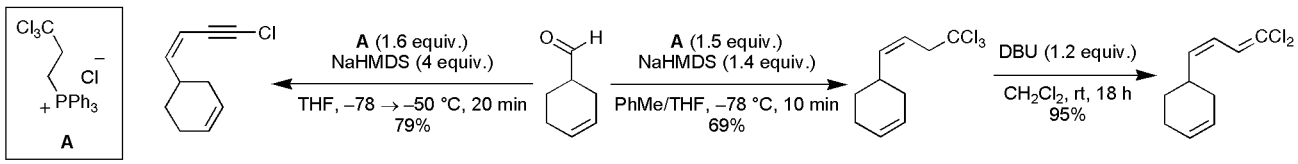
8 examples (yields 72-99%, %ee 83-98%, %de 60-90%).

Enantio- and diastereo-selective one-pot synthesis of acyclic epoxy alcohols with three contiguous stereocentres. **1,2-Addition**
Lurain, A. E.; Maestri, A.; Kelly, A. R.; Carroll, P. J.; Walsh, P. J. *J. Am. Chem. Soc.* **2004**, *126*, 13608.



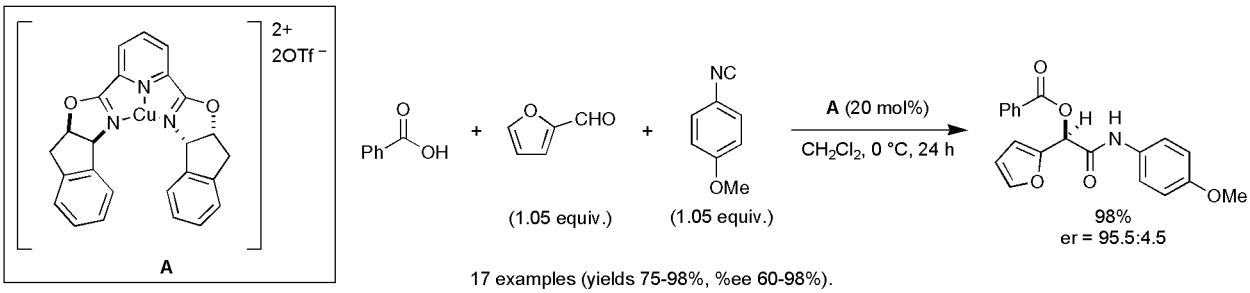
12 examples (yields 60-96% %ee 85-99%, %de 85-95%). 10 examples (yields 75-87% %ee 81-97%, %de 93-95%).

Synthesis of (*Z*)-1,3-enynes, (*Z*,*Z*)-1-chloro-1,3-dienes and 1,3-diynes. **C-C Bond Formation**
Karatholuvhu, M. S.; Fuchs, P. L. *J. Am. Chem. Soc.* **2004**, *126*, 14314.



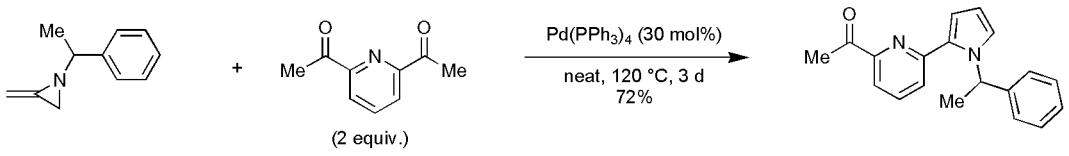
13 examples (yields 28-99%, *Z*/*E* = 50:50-0:100).

Catalytic asymmetric Passerini reaction. **Passerini Reaction**
Andreana, P. R.; Liu, C. C.; Schreiber, S. L. *Org. Lett.* **2004**, *6*, 4231.



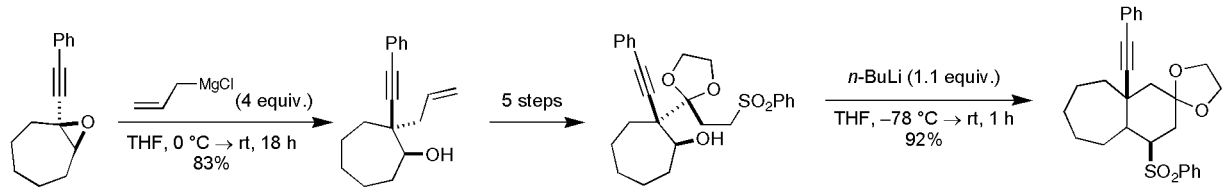
17 examples (yields 75-98%, %ee 60-98%).

Pd-Catalyzed synthesis of pyridinylpyrrole derivatives. **Annulation**
Siriwardana, A. I.; Kathriarachchi, K. K. A. D. S.; Nakamura, I.; Gridnev, I. D. Yamamoto, Y.
J. Am. Chem. Soc. **2004**, *126*, 13898.



11 examples (yields 43-96%).

Enantioselective construction of carbobicyclic scaffolds. **Substitution/Annulation**
Taber, D. F.; He, Y.; Xu, M. *J. Am. Chem. Soc.* **2004**, *126*, 13900.



6 examples (yields 76-88%). 6 examples (yields 72-92%).