

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:

Victoria Coombes, Jennifer Delaney, Andrew Gunn, Stephen McAteer, Joanne Peach, Stefan Schunk and Josephine Yuen, Department of Chemistry, Leeds University, Leeds, LS2 9JT, UK.

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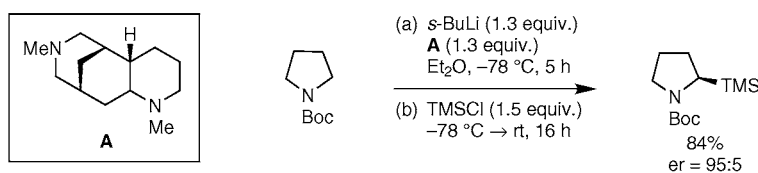
The journals regularly covered by the abstractors are:

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

Synthesis and applications of a readily accessible surrogate for (+)-sparteine.

Dearden, M. J.; Firkin, C. R.; Hermet, J. -P. R.; O'Brian, P. *J. Am. Chem. Soc.* **2002**, *124*, 11870.

Enantioselective α -Lithiation

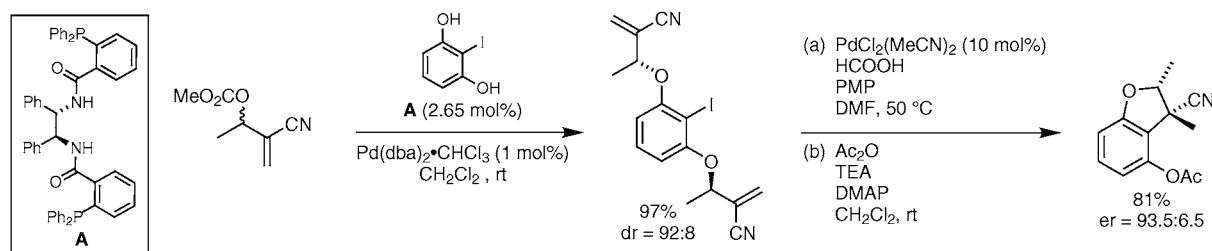


4 applications of the (+)-diamine are reported.

Desymmetrization of Baylis–Hillman adducts.

Trost, B. M.; Thiel, O. R.; Tsui, H.-C. *J. Am. Chem. Soc.* **2002**, *124*, 11616.

Allylic Alkylation

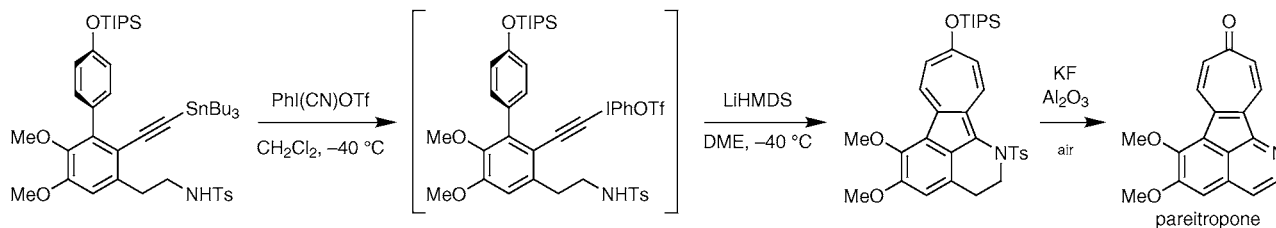


Application to the total synthesis of Furaquinocin E.

Total synthesis of pareitropone via alkynyliodonium salt-mediated cyclization cascade.

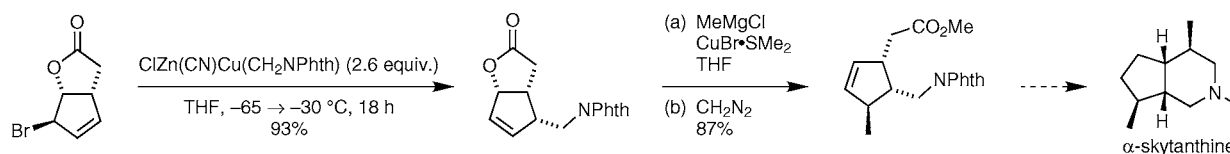
Feldman, K. S.; Cutarelli, T. D. *J. Am. Chem. Soc.* **2002**, *124*, 11600.

Cyclization Cascade



Stereoselective synthesis of iridoids.
Ernst, M.; Helmchen, G. *Synthesis* **2002**, 1953.

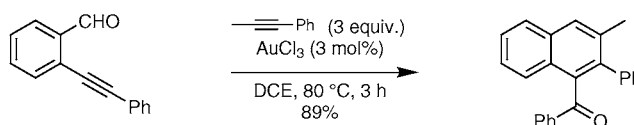
S_N2' -Reaction



Total synthesis of isoirdomyrmecin is also reported.

AuCl₃-catalyzed reaction of *o*-alkynylbenzaldehydes with alkynes.
Asao, N.; Takahashi, K.; Lee, S.; Kasahara, T.; Yamamoto, Y. *J. Am. Chem. Soc.* **2002**, *124*, 12650.

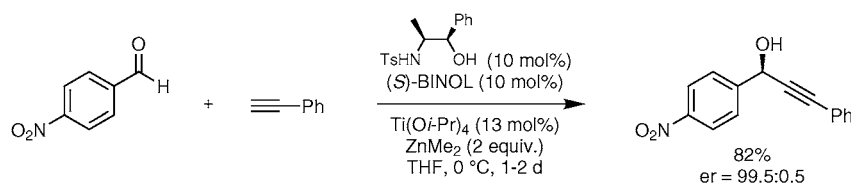
Cycloaddition



11 examples (yields 52-96%).

Enantioselective Ti-catalyzed alkynylzinc addition to aromatic aldehydes.
Li, X.; Lu, G.; Kwok, W. H.; Chan, A. S. C. *J. Am. Chem. Soc.* **2002**, *124*, 12636.

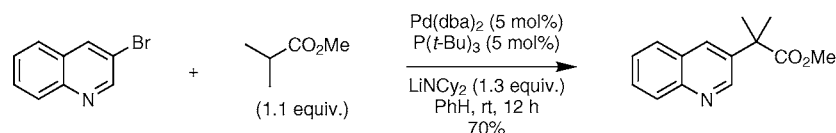
Enantioselective 1,2-Addition



10 examples (yields 78-86%, %ee 88->99%).

Pd-catalyzed coupling of aryl halides with ester enolates.
Jørgensen, M.; Lee, S.; Liu, X.; Wolkowski, J. P.; Hartwig, J. F. *J. Am. Chem. Soc.* **2002**, *124*, 12557.

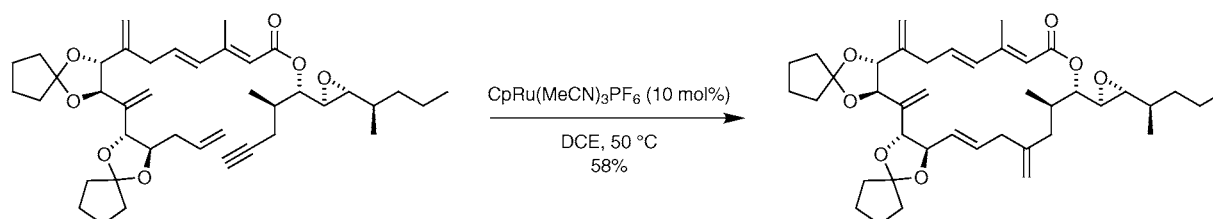
sp^2 - sp^3 -Coupling



85 examples (yields 70-99%).

Ru-catalyzed alkene-alkyne coupling.
Trost, B. M.; Chisholm, J. D.; Wroblewski, S. T.; Jung, M. *J. Am. Chem. Soc.* **2002**, *124*, 12420.

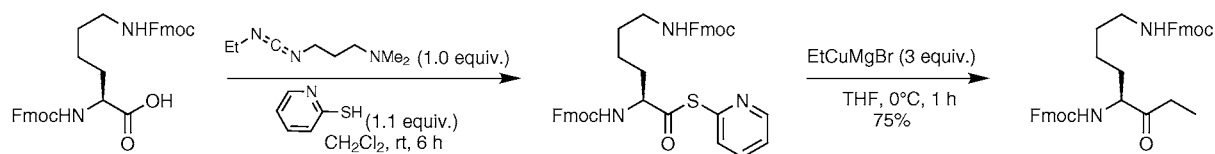
Alkene-Alkyne Coupling



2 examples (yields 46-58%). Application to the total synthesis of amphidinolide A is reported.

Synthesis of Fmoc-protected amino ketones.
Vazquez, J.; Albericio, F. *Tetrahedron Lett.* **2002**, *43*, 7499.

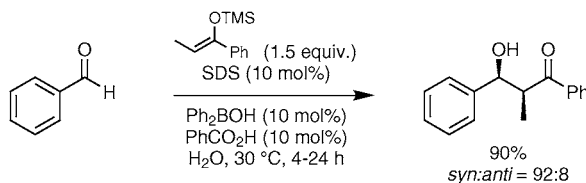
Amino Ketone Synthesis



8 examples (yields 46-77%).

Boronic acid-catalyzed aldol reaction.
Mori, Y.; Kobayashi, J.; Manabe, K.; Kobayashi, S. *Tetrahedron Lett.* **2002**, *43*, 8263.

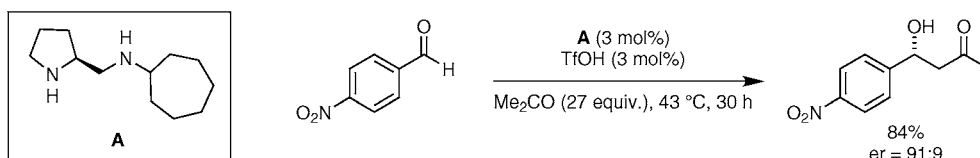
1,2-Addition



15 examples (yields 51-90%). SDS = sodium dodecyl sulfate. Screening of 11 diarylboronic acids is also reported.

Enantioselective organocatalyzed aldol reaction.
Nakadai, M.; Saito, S.; Yamamoto, H. *Tetrahedron Lett.* **2002**, *43*, 8167.

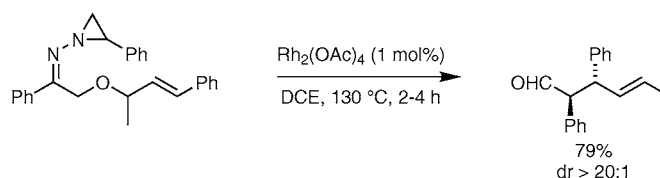
Enantioselective 1,2-Addition



6 examples (yields 66-97%, %ee 78-96%). Screening of 15 organocatalysts is also reported.

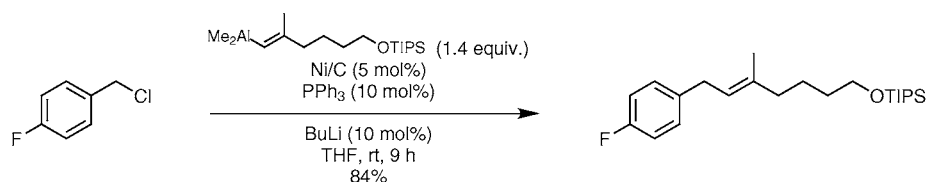
Rh-catalyzed metallocarbenoid Claisen rearrangement.
May, J. A.; Stoltz, B. M. *J. Am. Chem. Soc.* **2002**, *124*, 12426.

Bamford–Stevens/Claisen Rearrangement



17 examples (yields 62-88%, %de 50->90%).

Ni-catalyzed cross-coupling of benzylic chlorides with vinylic alanes.
Lipshutz, B. H.; Frieman, B.; Pfeiffer, S. S. *Synthesis* **2002**, 2110.

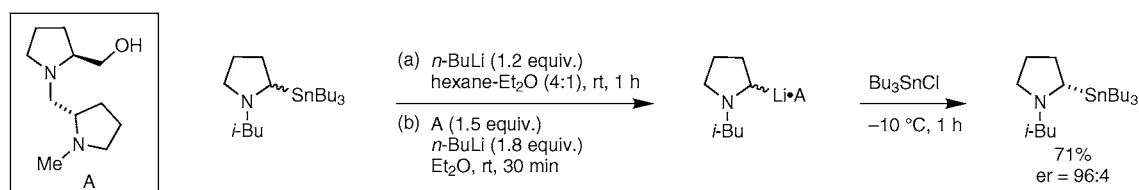
sp²-sp³ Coupling

12 examples (yields 78-94%).

Enantioselective synthesis of substituted pyrrolidines by dynamic resolution.

Coldham, I.; Dufour, S.; Haxell, T. F. N.; Howard, S.; Vennall, G. P. *Angew. Chem. Int. Ed.* **2002**, *41*, 3887.

Dynamic Resolution

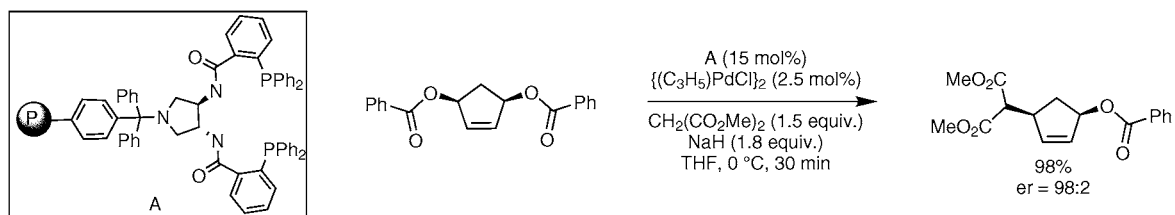


15 examples (yields 30-83%, %ee 18-94%).

Enantioselective Pd-catalyzed allylic alkylation using resin-supported biphosphane ligands.

Song, C. E.; Yang, J. W.; Roh, E. J.; Lee, S.; Ahn, J. H.; Han, H. *Angew. Chem. Int. Ed.* **2002**, *41*, 3852.

Allylic Alkylation

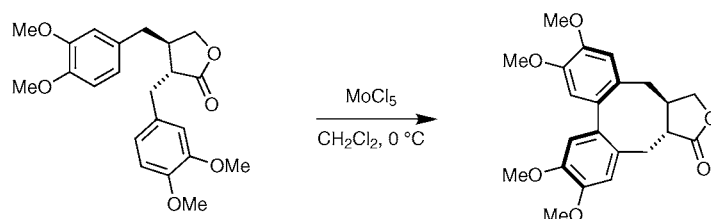


10 examples (yields 73-99%, %ee 84-99%). P = polystyrene-based resin or JandaJEL.

Formation of eight-membered ring systems via MoCl₅-mediated oxidative cyclization.

Kramer, B.; Averhoff, A.; Waldvogel, S. R. *Angew. Chem. Int. Ed.* **2002**, *41*, 2981.

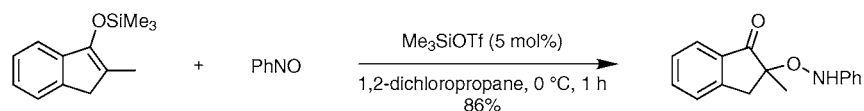
Oxidative Cyclization



O-Selective nucleophilic addition of silyl enol ethers to N=O bonds.

Momiyama, N.; Yamamoto, H. *Angew. Chem. Int. Ed.* **2002**, *41*, 2986.

1,2- Addition

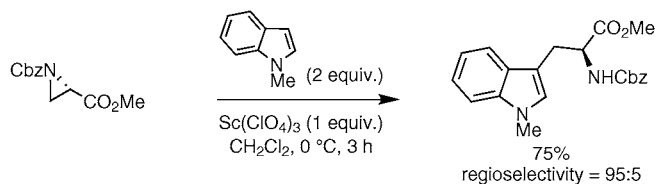


9 different Lewis acids and 8 silyl enol ethers investigated (yields 37-94%).

Scandium perchlorate as a superior Lewis acid for regioselective ring opening of aziridine carboxylate with indoles.

Nishikawa, T.; Kajii, S.; Wada, K.; Ishikawa, M.; Isobe, M. *Synthesis*, **2002**, 1658.

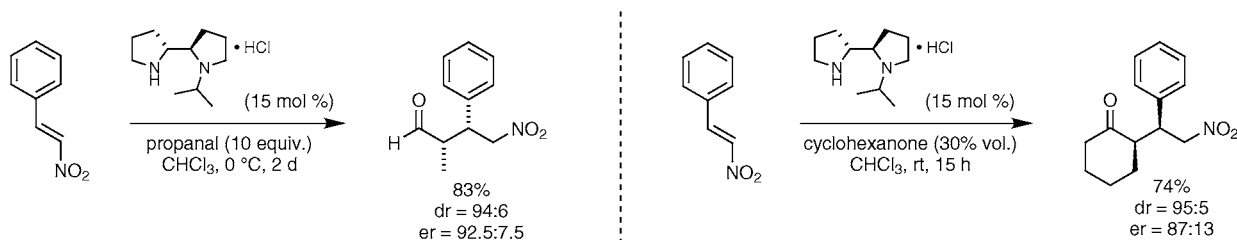
1,2-Addition



6 examples (yields 2-75%). Screening of a variety of Lewis acids is also reported.

Stereoselective diamine-catalyzed Michael addition to nitrostyrene.
Alexakis, A.; Andrey, O. *Org. Lett.* **2002**, *4*, 3611.

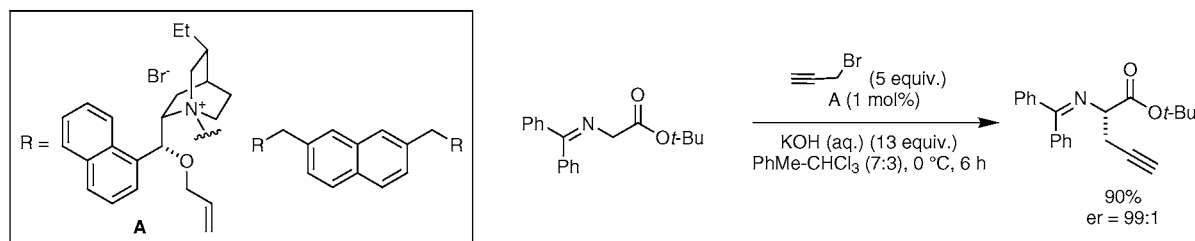
Enantioselective 1,4-Addition



27 examples (yields 8-99%, %de 64-92%, %ee 23-85%).

Enantioselective synthesis of α -amino acids using cinchona-derived phase-transfer catalysts.
Park, H.; Jeong, B.-S.; Yoo, M.-S.; Lee, J.-H.; Park, M.; Lee, Y.-J.; Kim, M.-J.; Jew, S. *Angew. Chem. Int. Ed.* **2002**, *41*, 3036.

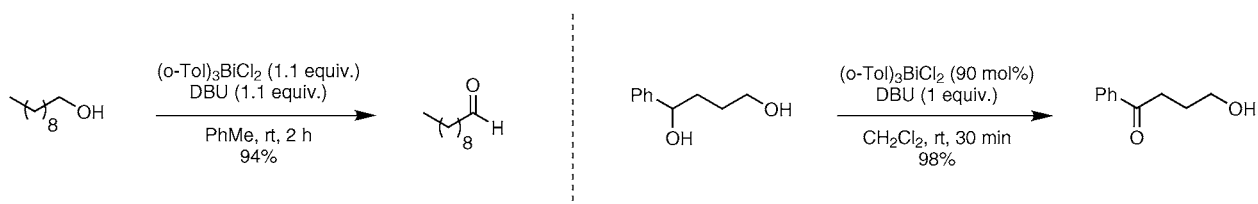
Alkylation



24 examples (yields 70-95%, %ee 36-99%).

Selective oxidation of primary and secondary alcohols using (*o*-Tol)₃BiCl₂•DBU.
Matano, Y.; Nomura, H. *Angew. Chem. Int. Ed.* **2002**, *41*, 3028.

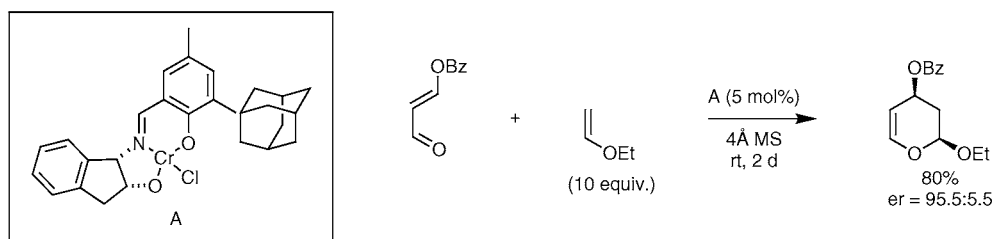
Oxidation



24 examples (yields 89-99%). High chemoselectivity for benzylic versus non-conjugated aliphatic alcohols.

Enantioselective Cr-catalyzed inverse electron demand hetero-Diels-Alder reaction.
Gademann, K.; Chavez, D. E.; Jacobsen, E. N. *Angew. Chem. Int. Ed.* **2002**, *41*, 3059.

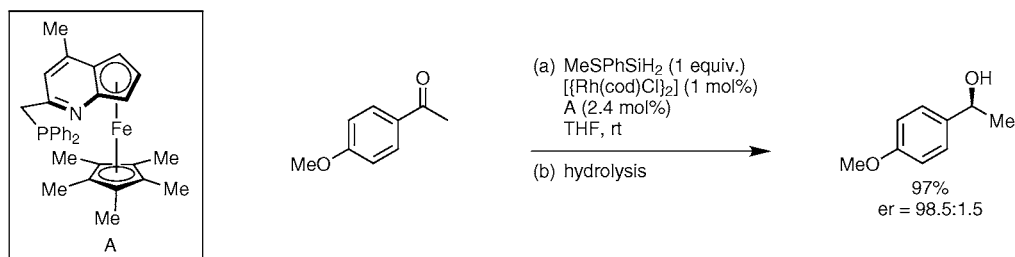
Enantioselective Hetero Diels-Alder



15 examples (yields 40-95%, %ee 89-98%).

Enantioselective hydrosilylation of aryl alkyl- and dialkyl ketones.
Tao, B.; Fu, G. C. *Angew. Chem. Int. Ed.* **2002**, *41*, 3892.

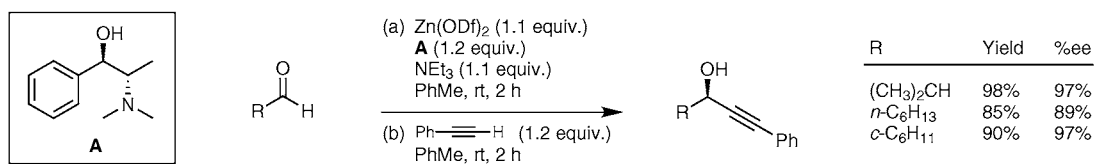
Enantioselective 1,2-Addition



13 examples (yields 74-99%, %ee 72-99%).

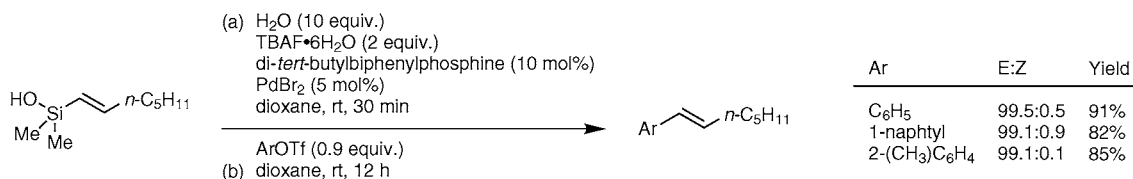
Enantioselective Zn-catalyzed alkylation of aldehydes.
Chen, Z.; Xiong, W.; Jiang, B. *Chem. Commun.* **2002**, 2098.

Enantioselective 1,2-Addition



26 examples (yields 51-99%, %ee 74-99%).

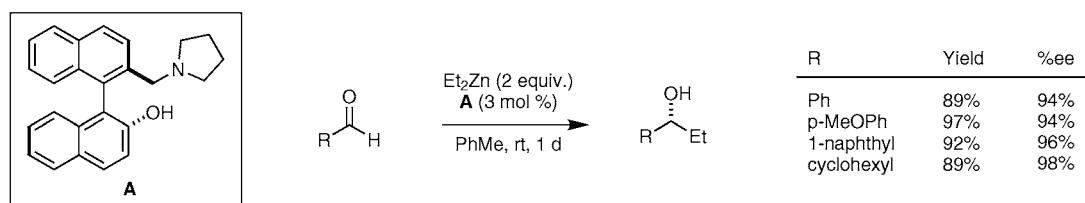
Cross-coupling reactions of alkenylsilanols with fluoroalkylsulfonates.
Denmark, S. E.; Sweis, R. F. *Org. Lett.* **2002**, 4, 3771.

sp²-sp² Coupling

10 examples (yields 82-91%, 0.4:99.6 E:Z 99.5:0.5).

Enantioselective additions of diethylzinc and diphenylzinc to aldehydes.
Ko, D. H.; Kim, K. H.; Ha, D. C. *Org. Lett.* **2002**, 4, 3759.

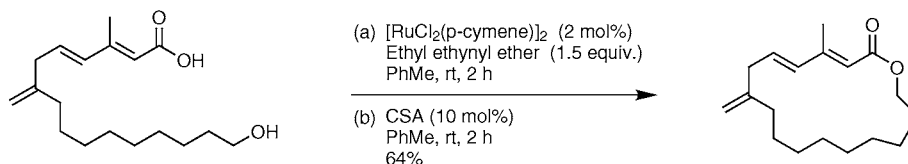
Enantioselective 1,2-Addition



43 examples (yields 71-98%, %ee 75-99%).

An acid catalyzed macrolactonization protocol.
Trost, B. M.; Chisholm, J. D. *Org. Lett.* **2002**, 4, 3743.

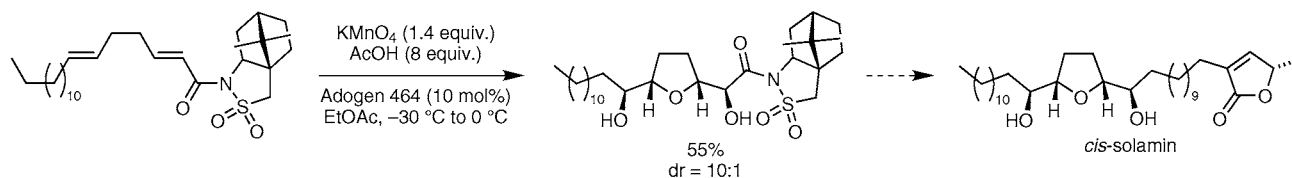
Macrolactonization



7 examples (yields 4-70%).

Synthesis of *cis*-solamin using a permanganate-mediated oxidative cyclization.
Cecil, A. R. L.; Brown, C. D. *Org. Lett.* **2002**, 4, 3715.

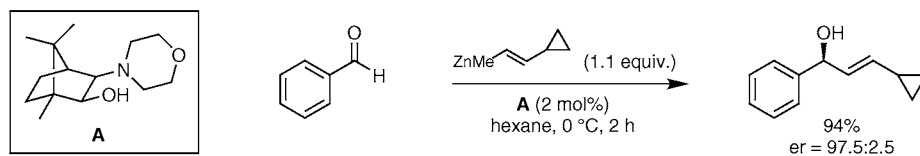
Oxidative Cyclization



Enantioselective synthesis of allylic alcohols.

Chen, Y. K.; Lurain, A. E.; Walsh, P. J. *J. Am. Chem. Soc.* **2002**, *124*, 12225.

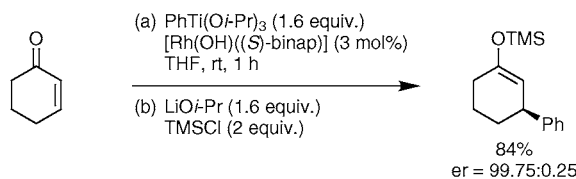
Enantioselective 1,2-Addition



Enantioselective Rh-catalyzed 1,4-addition of aryltitanium reagents.

Hayashi, T.; Tokunaga, N.; Yoshida, K.; Han, J. W. *J. Am. Chem. Soc.* **2002**, *124*, 12102.

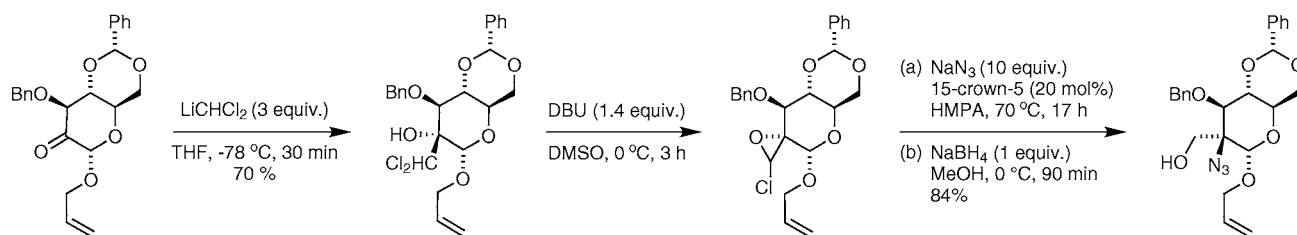
Enantioselective 1,4-Addition



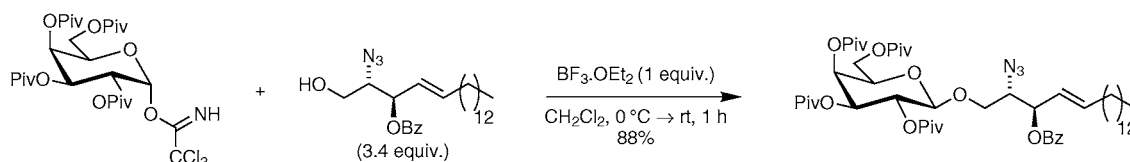
Total synthesis of sphingofungin E.

Nakamura T.; Shiozaki, M. *Tetrahedron*, **2002**, *58*, 8779.

Nucleophilic Addition



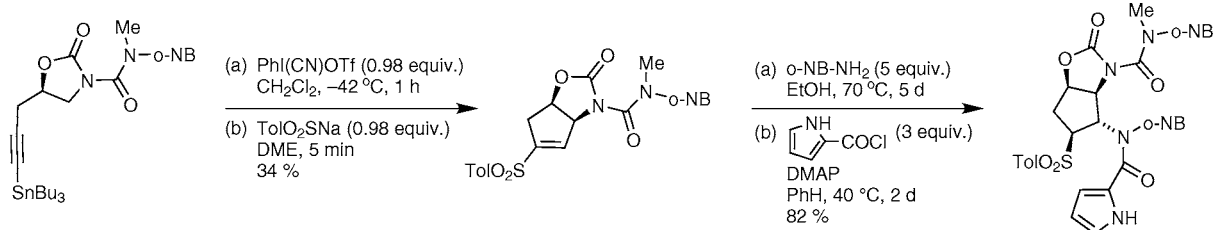
Synthesis of a family of sulfatides

Compostella, F.; Franchini, L.; De Libero, G.; Palmisano, G.; Ronchetti, F.; Panza, L. *Tetrahedron*, **2002**, *58*, 8703. β -Glycosylation

Total synthesis of (-)-agelastatin A and B.

Feldman, K. S.; Saunders, J. C.; Wroblewski, M. L. *J. Org. Chem.* **2002**, *67*, 7096.

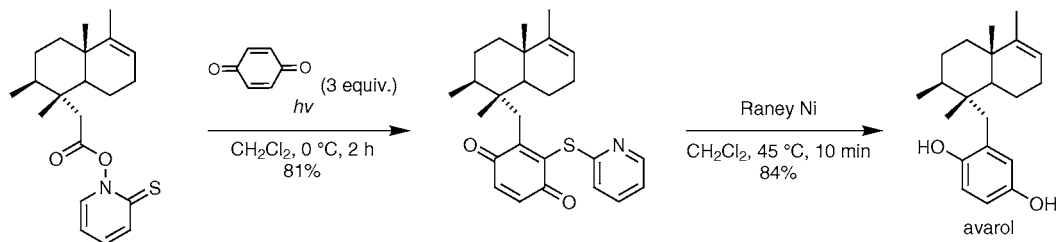
Cyclization/1,4-Addition



Radical decarboxylation and quinone addition reaction.

Ling, T.; Poupon, E.; Rueden, E. J.; Kim, S. H.; Theodorakis, E. A. *J. Am. Chem. Soc.* **2002**, *124*, 12261.

Radical Addition

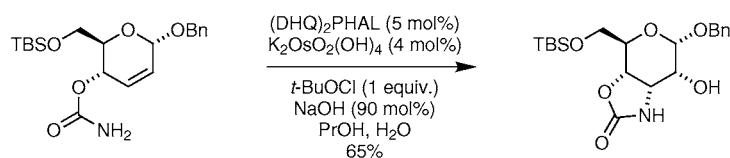


Application to the total syntheses of avarone, mothoxyavarone, ilimaquinone and smenospongidine is also reported.

Tethered aminohydroxylation of cyclic allylic carbamates.

Donohue, T. J.; Johnson, P. D.; Cowley, A.; Keenan, M. *J. Am. Chem. Soc.* **2002**, *124*, 12934.

Aminohydroxylation

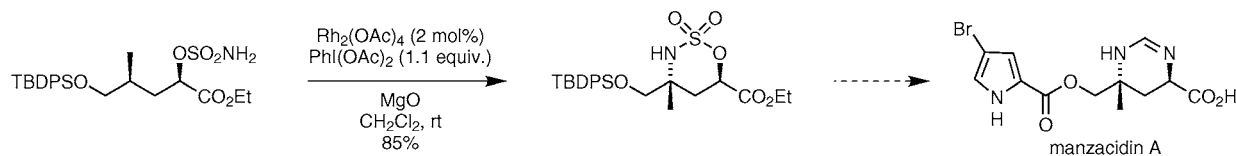


7 examples (yields 50-83%).

Stereoselective Rh-catalyzed C-H bond oxidation.

Wehn, P. M.; Du Bois, J. *J. Am. Chem. Soc.* **2002**, *124*, 12950.

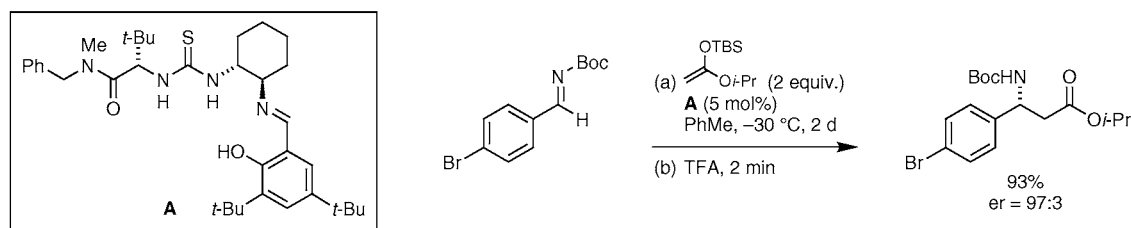
C-N Bond Formation



Enantioselective urea-catalyzed Mannich reaction.

Wenzel, A. G.; Jacobsen, E. N. *J. Am. Chem. Soc.* **2002**, *124*, 12964.

Enantioselective 1,2-Addition

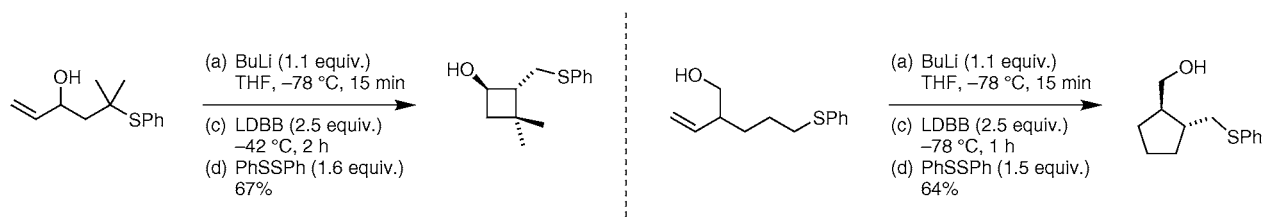


14 examples (yields 84-99%, %ee 86-98%).

Intramolecular carbolithiation/cyclization reaction.

Deng, K.; Bensari, A.; Cohen, T. *J. Am. Chem. Soc.* **2002**, *124*, 12106.

4-exo/5-exo Cyclization



8 examples (yields 64-86%).