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:

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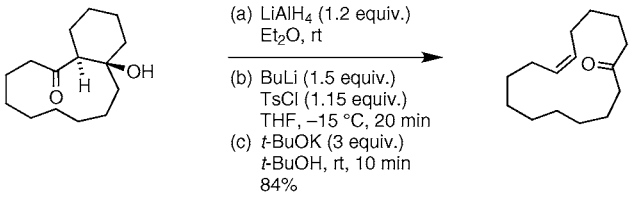
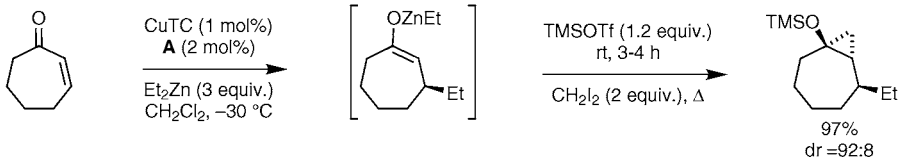
Heterocycles
Journal of the American Chemical Society
Journal of Organic Chemistry
Organic Letters
Organometallics
Perkin Transactions 1
Synlett
Synthesis
Tetrahedron
Tetrahedron Asymmetry and Tetrahedron Letters

Synthesis of macrocyclic ketones *via* fragmentation of a tricyclic system. **Fragmentation**
Fehr, C.; Galindo, J.; Etter, O.; Thommen, W. *Angew. Chem. Int. Ed.* **2002**, *41*, 4523.



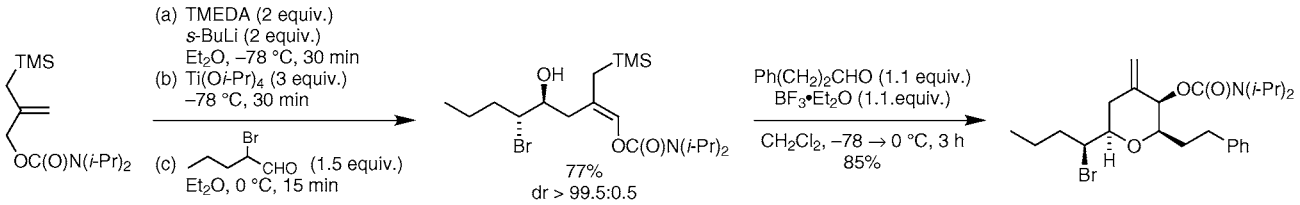
3 examples (yields 43-84%).

Tandem enantioselective conjugate addition/cyclopropanation sequence. **1,4-Addition/Cyclopropanation**
Alexakis, A.; March, S. *J. Org. Chem.* **2002**, *67*, 8753.



4 examples (yields 91-97%, %de 60-84%). CuTC = copper(I) thiophene-2 -carboxylate.

Synthesis of polysubstituted tetrahydropyrans *via* a metallo-ene/intramolecular Sakurai cyclization sequence. **1,2-Addition**
Leroy, B.; Markó, I. E. *J. Org. Chem.* **2002**, *67*, 8744.



5 examples (yields 49-65% over 2 steps).

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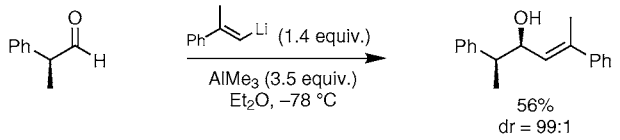
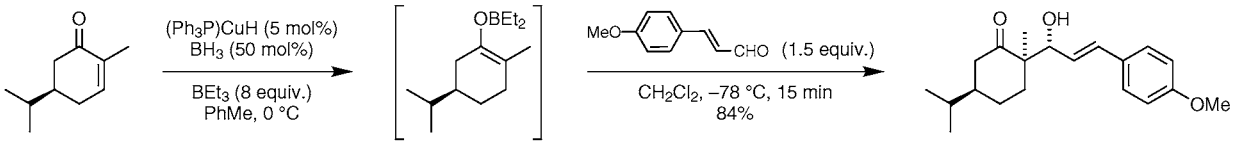
Increased Felkin–Anh selectivity using $AlMe_3$ in the addition of vinyllithiums to α-chiral aldehydes. **1,2-Addition**
Spino, C.; Granger, M.-C.; Tremblay, M.-C. *Org. Lett.* **2002**, *4*, 4735.



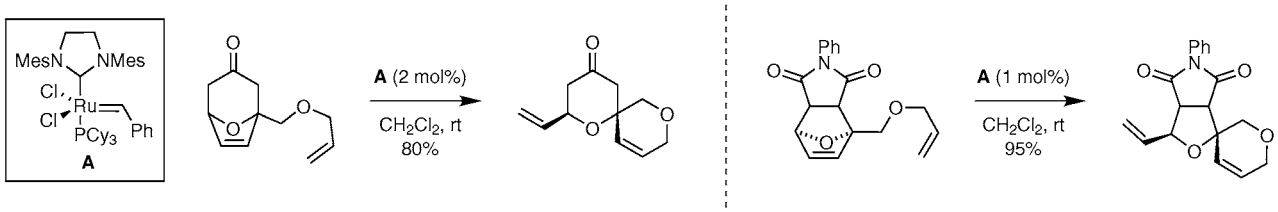
7 examples (yields 47-76%, %de 50-98%).

Cu-catalyzed reductive alkylations of enones. **1,4/1,2-Addition**
Lipshutz, B. H.; Papa, P. *Angew. Chem. Int. Ed.* **2002**, *41*, 4581.



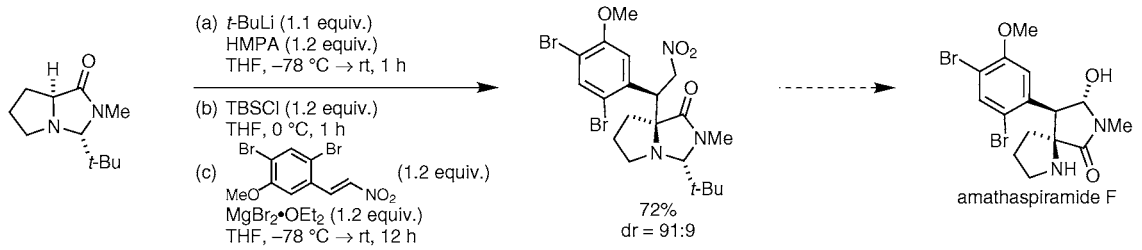
9 examples (yields 80-95%).

Synthesis of functionalized pyrans *via* metathesis of oxabicyclo derivatives. **Metathesis**
Usher, L. C.; Estrella-Jimenez, M.; Ghiviriga, I.; Wright, D. L. *Angew. Chem. Int. Ed.* **2002**, *41*, 4560.

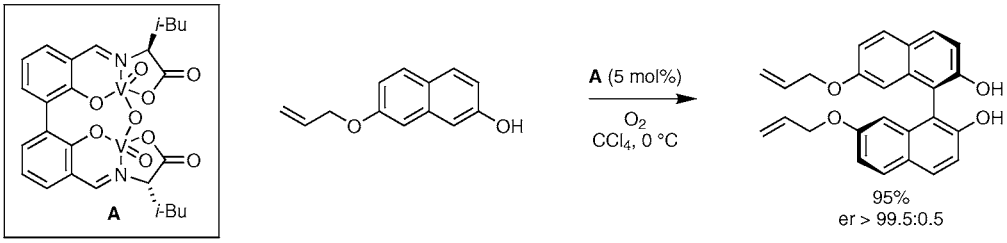


16 examples (yields 15-95%).

Total synthesis of (–)-amathaspiramide F. **1,4-Addition**
Hughes, C. C.; Trauner, D. *Angew. Chem. Int. Ed.* **2002**, *41*, 4556.



Oxovanadium(IV)-catalyzed coupling of 2-naphthols. **sp^2-sp^2 Coupling**
Luo, Z.; Liu, Q.; Gong, L.; Cui, X.; Mi, A.; Jiang, Y. *Angew. Chem. Int. Ed.* **2002**, *41*, 4532.



11 examples (yields 80-99%).

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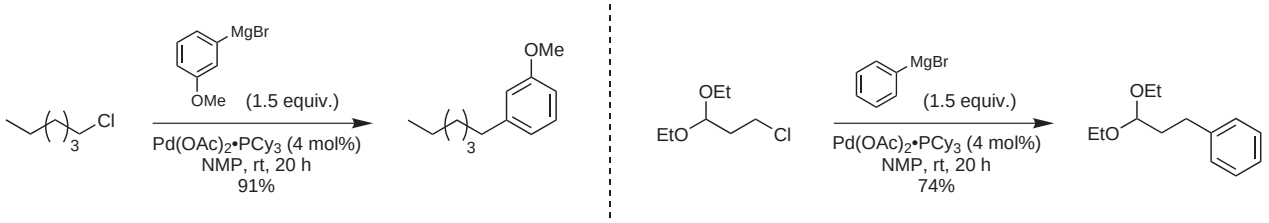
Pd-catalyzed coupling of alkyl chlorides and Grignard reagents.
Frisch, A. C.; Shaikh, N.; Zapf, A.; Beller, M. *Angew. Chem. Int. Ed.* **2002**, *41*, 4056.

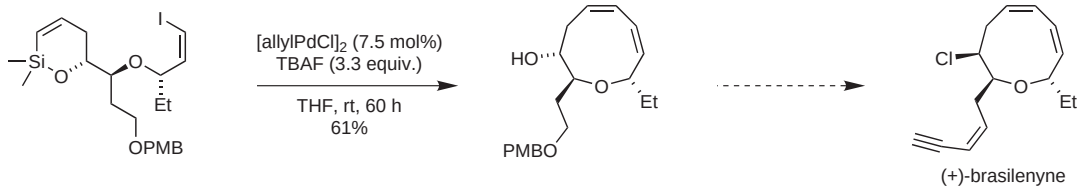
sp^2-sp^3 Coupling



12 examples (yields 43-99%).

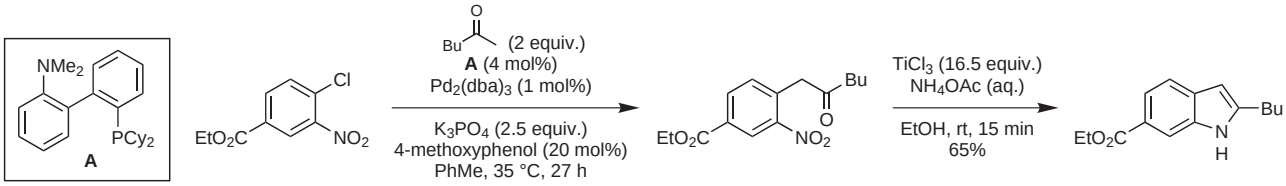
Total synthesis of (+)-brasilenyne *via* silicon-assisted intramolecular cross-coupling.
Denmark, S. E.; Yang, S. -M. *J. Am. Chem. Soc.* **2002**, *124*, 15196.

sp^2-sp^2 Coupling



Synthesis of highly substituted indoles *via* arylation of ketone enolates.
Rotulo-Sims, D.; Prunet, J. *J. Am. Chem. Soc.* **2002**, *124*, 15168.

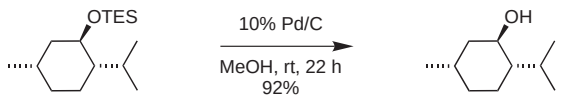
sp^2-sp^3 Coupling/Reductive Cyclization



21 examples (yields 44-90%).

Pd-catalyzed cleavage of triethylsilyl ethers.
Rotulo-Sims, D.; Prunet, J. *Org. Lett.* **2002**, *4*, 4701.

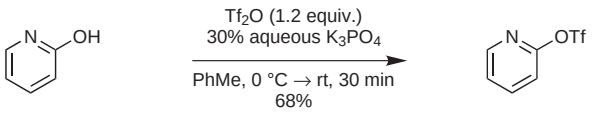
Deprotection



13 examples (yields 49-100%).

Synthesis of aryl triflates under aqueous conditions.
Frantz, D. E.; Weaver, D. G.; Carey, J. P.; Kress, M. H.; Dolling, U. H. *Org. Lett.* **2002**, *4*, 4717.

Triflate Formation



10 examples (yields 64-95%).

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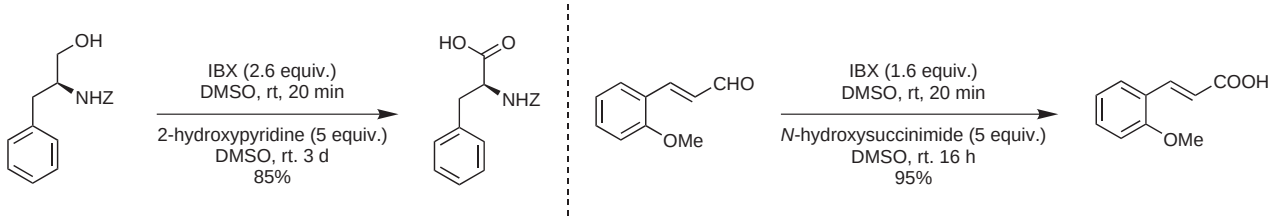
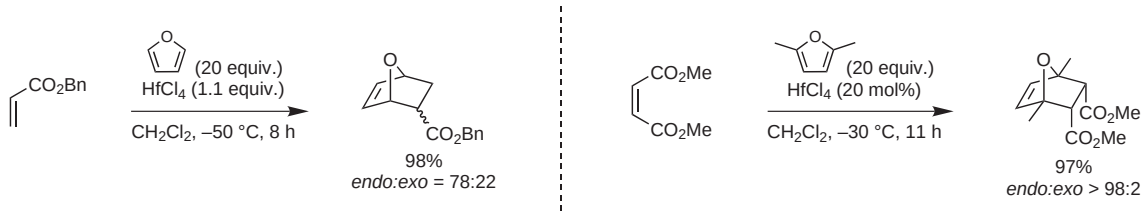
IBX-mediated oxidation of primary alcohols and aldehydes to carboxylic a cids. **Oxidation**
Mazitshek, R.; Mulbaier, M.; Giannis, A. *Angew. Chem. Int. Ed.* **2002**, *41*, 4059.



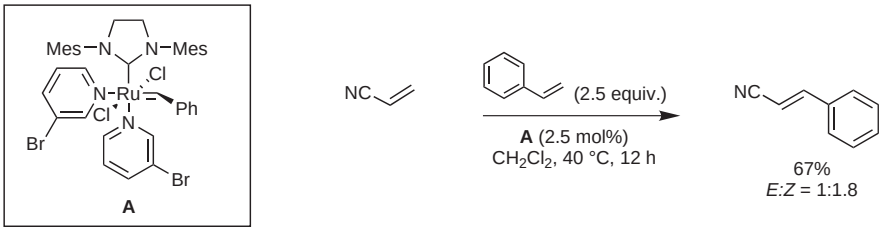
17 examples (yields 40-95%).

$HfCl_4$-mediated Diels–Alder reaction of furans. **Diels-Alder**
Hayashi, Y.; Nakamura, M.; Nakao, S.; Inoue, T.; Shoji, M. *Angew. Chem. Int. Ed.* **2002**, *41*, 4079.



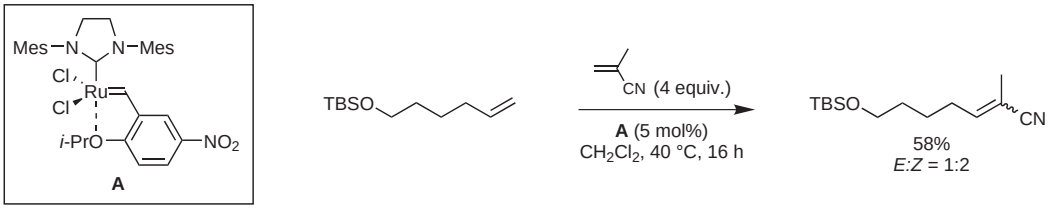
10 examples (yields 34-98%).

Ru-catalyzed cross metathesis of acrylonitrile. **Cross Metathesis**
Love, J. A.; Morgan, J. P.; Trnka, T. M.; Grubbs, R. H. *Angew. Chem. Int. Ed.* **2002**, *41*, 4035.



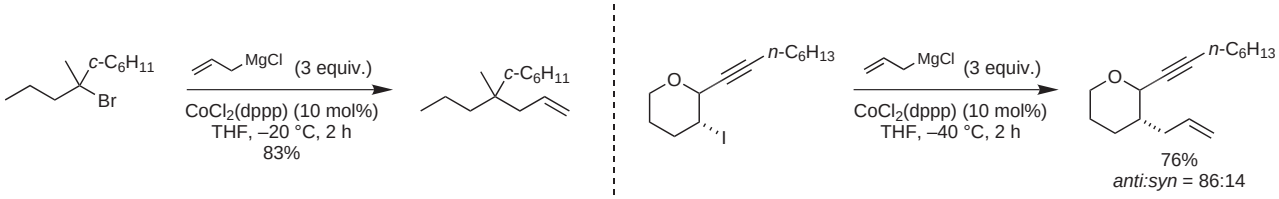
The synthesis of **A** is also reported.

Ru-catalyzed cross metathesis. **Cross Metathesis**
Grela, K.; Harutyunyan, S.; Michrowska, A. *Angew. Chem. Int. Ed.* **2002**, *41*, 4038.



10 examples (yields 58-99%). The synthesis of **A** is also reported.

Co-catalyzed cross-coupling of alkyl halides with allylic Grignard reagents. **sp^3-sp^3 Coupling**
Tsuji, T.; Yorimitsu, H.; Oshima, K. *Angew. Chem. Int. Ed.* **2002**, *41*, 4137.



16 examples (yields 19-100%).

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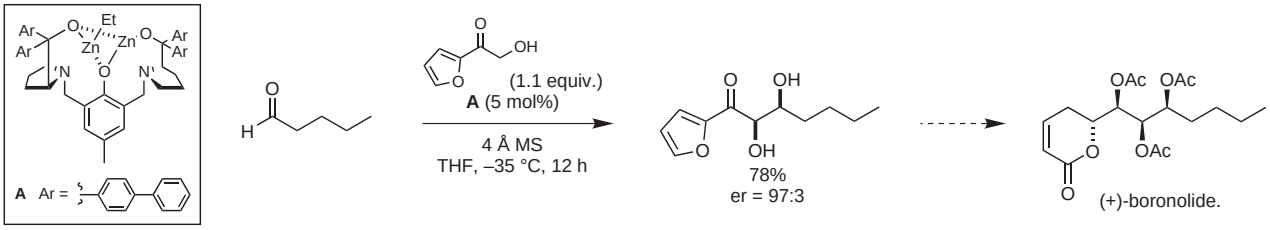
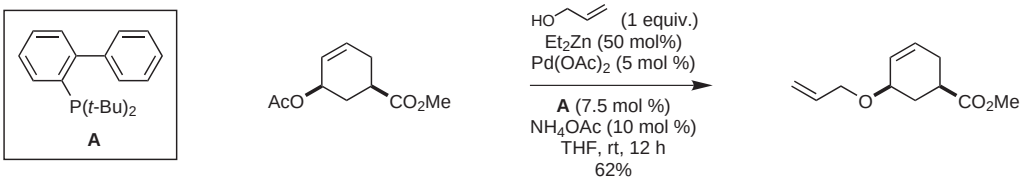
A novel dizinc *syn*-selective aldol catalyst. **1,2-Addition**
Trost, B. M.; Yeh, S. C. *Org. Lett.* **2002**, 4, 3513.

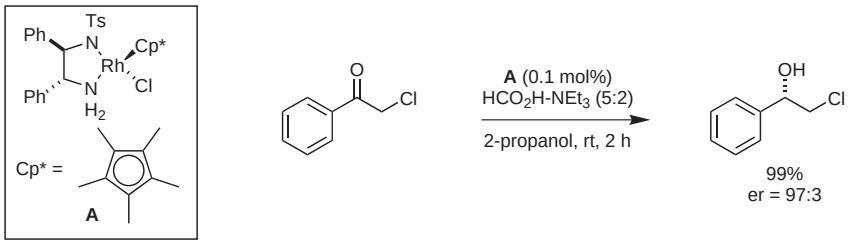


Pd-catalyzed allylic etherification using Zn(II) alkoxides. **Etherification**
Kim, H.; Lee, C. *Org. lett.* **2002**, 24, 4369.



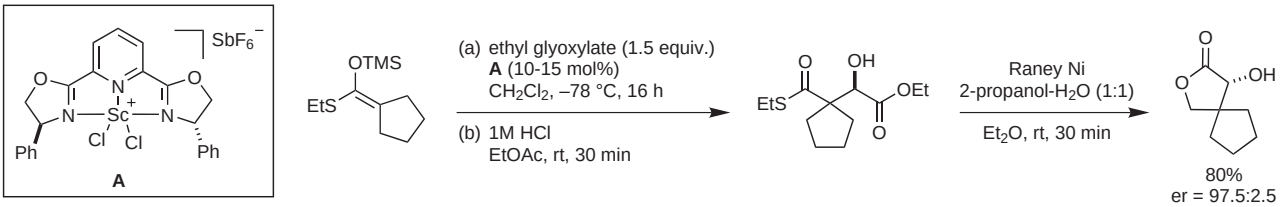
16 examples (yields 51-99%).

Enantioselective Rh-catalyzed hydrogenation of 2-chloroacetophenones. **Hydrogenation**
Hamada, T.; Torii, T.; Izawa, K.; Noyori, R.; Ikariya, T. *Org. Lett.* **2002**, 24, 4373.



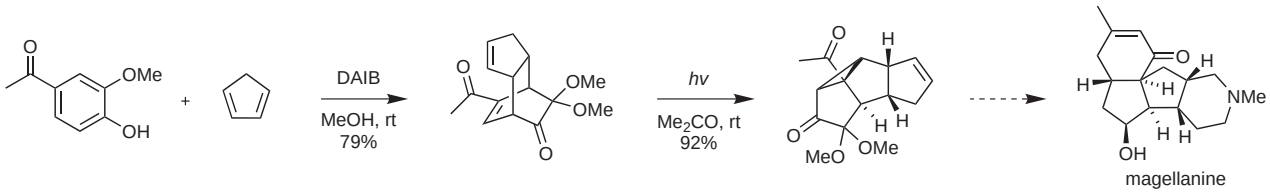
12 examples (yields 80-99%, %ee 88-98%).

Enantioselective Sc-catalyzed aldol reaction. **1,2-Addition**
Evans, D. A.; Wu, J.; Masse, C. E.; MacMillan, D. W. C. *Org. Lett.* **2002**, 4, 3379.



9 examples (yields 49-88%, %ee 92-98%).

Photochemical oxa-di-π-methane(ODPM) rearrangement. **Rearrangement**
Yen, C. -F.; Liao, C. -C. *Angew. Chem. Int. Ed.* **2002**, *41*, 4090.



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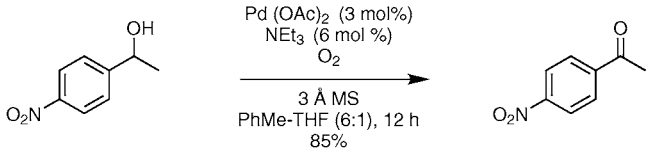
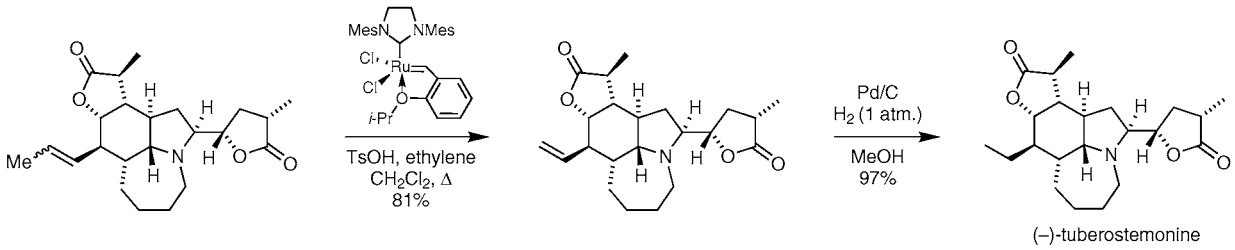
Pd-catalyzed aerobic oxidation. **Oxidation**
Schultz, M. J; Park, V. C.; Sigman, M. S. *Chem. Commun.* **2002**, 3034.

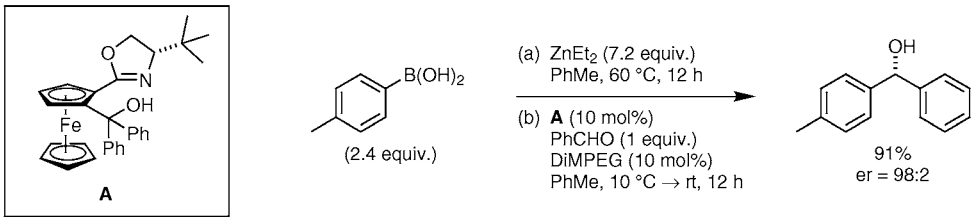


17 examples (yields 0-98%).

Chain contraction *via* a cross-metathesis propenyl-vinyl exchange. **Cross Metathesis**
Wipf, P.; Rector, S. R.; Takahashi, H. *J. Am. Chem. Soc.* **2002**, *124*, 14848.

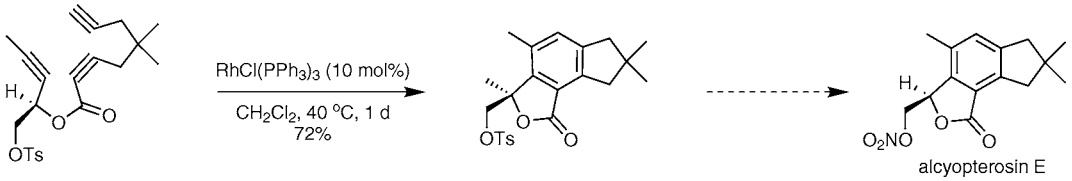


Enantioselective Fe-catalyzed reaction of aryl aldehydes with aryl boronic acids. **1,2-Addition**
Bolm, C.; Rudolph, J. *J. Am. Chem. Soc.* **2002**, *124*, 14850.

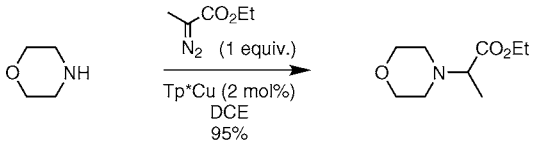


9 examples (yields 48-93%, %ee 85-98%).

Total synthesis of alcyopterosin E. **Alkyne Cyclotrimerization**
Witulski, B.; Zimmermann, A.; Gowans, N. D. *Chem. Commun.* **2002**, 2984.



Cu-catalyzed insertion of diazo compounds into N-H bonds. **Insertion**
Morilla, M. E.; Diaz-Requejo, M. M.; Belderrain, T. R.; Nicasio, M. C.; Trofimenko, S.; Perez, P. J. *Chem. Commun.* **2002**, 2998.



16 examples (yields 80-95 %)

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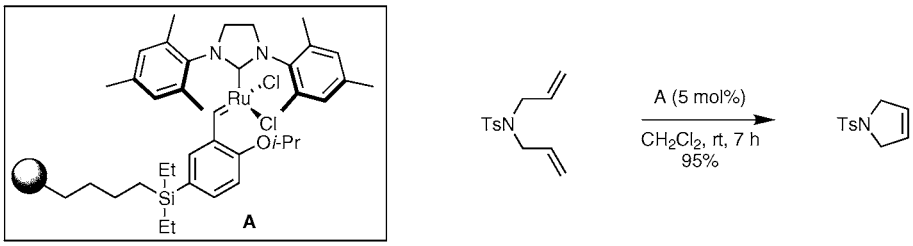
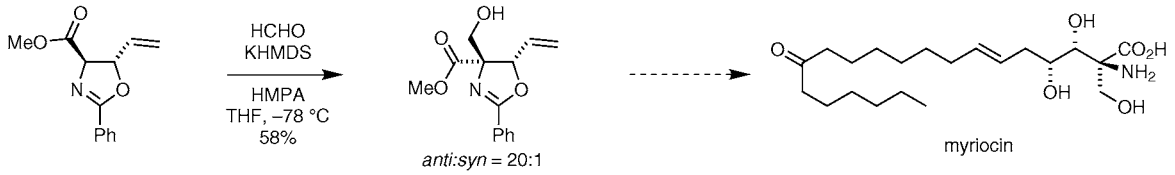
A polystyrene-supported butyldiethylsilyl ruthenium carbene for olefin metathesis. **Metathesis**
Grela, K.; Tryznowski, M.; Bieniek, M. *Tetrahedron Lett.* **2002**, *43*, 9055.

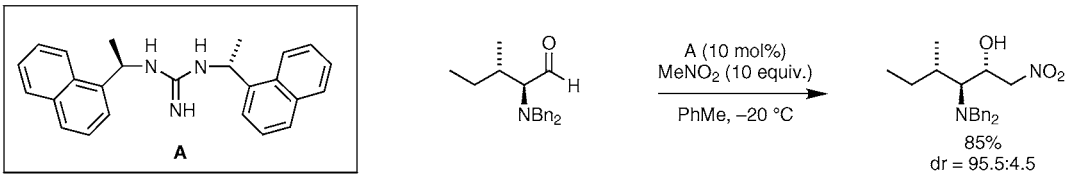


11 examples (yields 0-100%).

Total synthesis of myriocin. **1,2-Addition**
Lee, K. -Y.; Oh, C. -Y.; Kim, Y. -H.; Joo, J. -E.; Ham, W. -H. *Tetrahedron Lett.* **2002**, *43*, 9361.

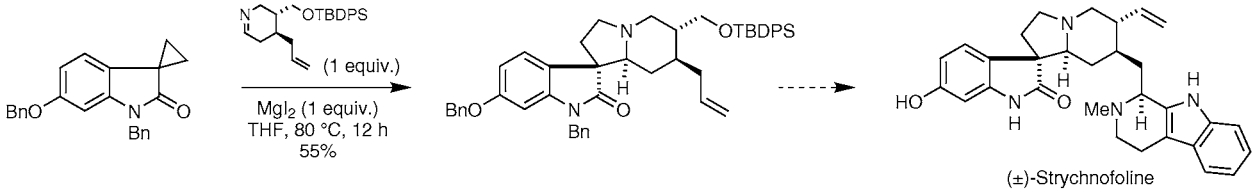


Stereoselective guanidine-catalyzed Henry reactions of *N,N*-dibenzyl α-amino aldehydes. **1,2-Addition**
Ma, D.; Pan, Q.; Han, F. *Tetrahedron Lett.* **2002**, *43*, 9401.

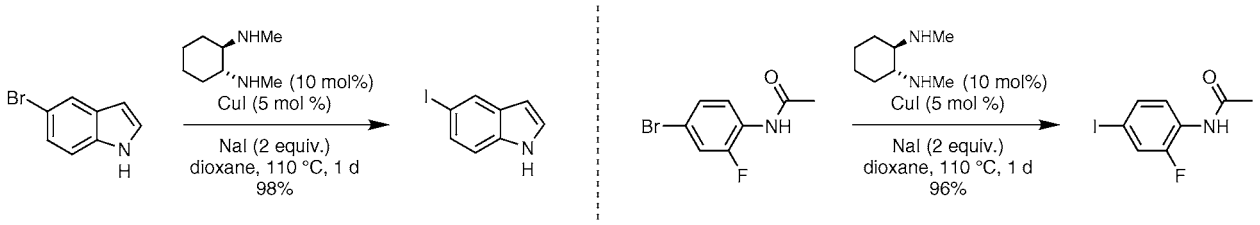


22 examples (yields 70-97%, %de 49-92%).

Stereoselective MgI_2-promoted reaction of a cyclic imine with a spiro[cyclopropan-1,3'-oxindole]. **Ring Expansion**
Lerchner, A.; Carreira, E. M. *J. Am. Chem. Soc.* **2002**, *124*, 14826.



Cu-catalyzed halogen exchange in aryl halides. **Halogen Exchange**
Klapars, A.; Buchwald, S. L. *J. Am. Chem. Soc.* **2002**, *124*, 14844.



15 examples (yields 93-100%).

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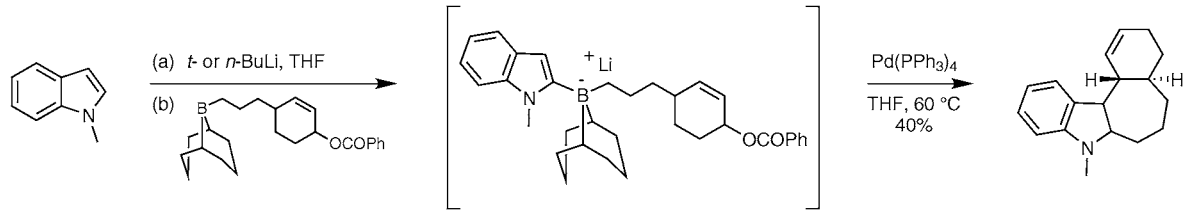
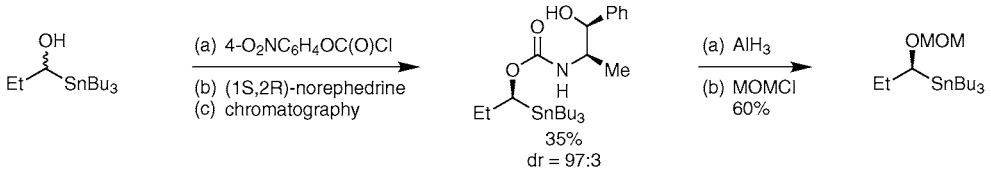
Synthesis of carbazole derivatives *via* intramolecular alkyl migration. **Cyclization**
Ishikura, M.; Kato, H. *Tetrahedron,* **2002**, 58, 9827.



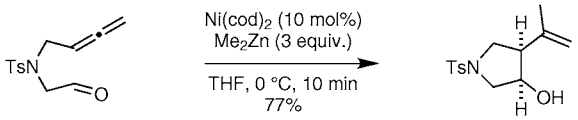
24 examples (yields 6-75%).

Resolution of α-hydroxystannanes *via* norephedrine carbamates. **Resolution**
Kells, K. W.; Nielsen, N. H.; Armstrong-Chong, R. J.; Chong, J. M. *Tetrahedron*, **2002**, *58*, 10287.



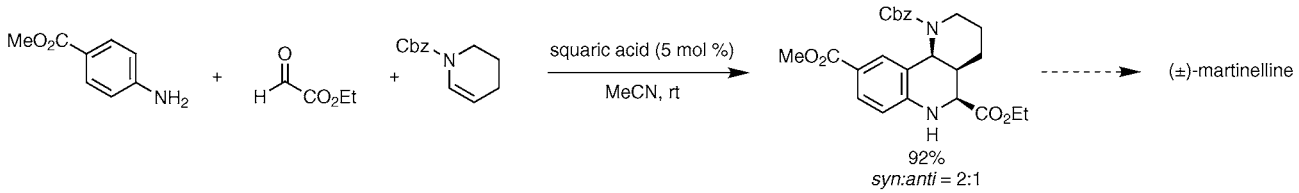
5 examples (yields 20-29% over 2 steps, %ee 90-96%).

Stereoselective Ni-catalyzed alkylative cyclization of allenyl-aldehydes and ketones with organozincs. **Cyclization**
Kang, S,; Yoon, S. *Chem. Commun.* **2002**, 2634.



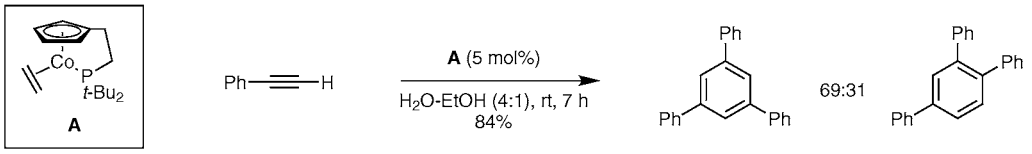
14 examples (yields 58-90%).

Squaric acid-catalyzed hetero Diels–Alder reaction. **Hetero Diels–Alder**
Xia, C.; Heng, L.; Ma, D. *Tetrahedron Lett.* **2002**, *43*, 9405.



Isomerization of the major *syn* isomer to the desired *anti* isomer is also reported.

Co-catalyzed [2+2+2] alkyne cyclotrimerization. **[2+2+2] Cyclization**
Yong, L.; Butenschön, H. *Chem. Commun.* **2002**, 2852.



8 examples (yields 71-91%).

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