

AIMS AND SCOPE

While total synthesis reached extraordinary levels of sophistication in the last century, the development of practical and efficient synthetic methodologies is still in its infancy. The goal of achieving chemical reactions that are economical, safe, environmentally benign, resource- and energy-saving will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic and industrial chemists.

Advanced Synthesis & Catalysis is designed to stimulate and advance that process by focusing on the development and application of efficient synthetic methodologies and strategies in organic, bioorganic, pharmaceutical, natural product, macromolecular and materials chemistry. The targets of synthetic studies can range from natural products and pharmaceuticals to macromolecules and organic materials. While catalytic methods based on metal complexes or enzymes play an ever increasing role in achieving synthetic efficiency, all areas of interest to the practical synthetic chemist fall within the purview of *Advanced Synthesis & Catalysis*, including synthesis design, reaction techniques, separation science and process development.

Contributions from industrial and governmental laboratories are highly encouraged. It is the goal of the journal to help initiate a new era of chemical science, based on the efforts of synthetic chemists and on interdisciplinary collaboration, so that chemistry will make an even greater contribution to the quality of life than it does now.

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2006, 348, 7 + 8, Pages 785 – 984

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COVER PICTURE

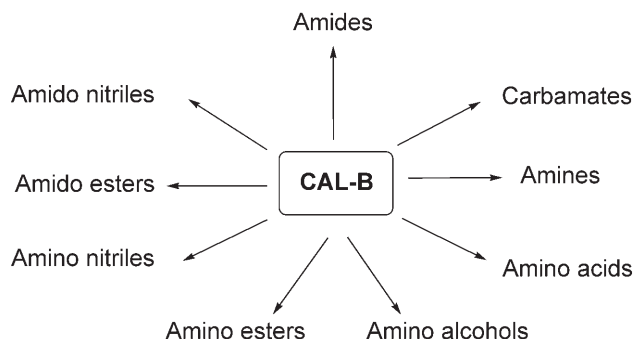
The cover picture, provided by Andreas Pfaltz, depicts a schematic representation of the catalytic cycle of the Ir-catalyzed asymmetric hydrogenation of non-functionalized alkenes along with a space-filling model of one of the outstanding catalysts for this reaction.

REVIEW

Candida antarctica Lipase B: An Ideal Biocatalyst for the Preparation of Nitrogenated Organic Compounds

Adv. Synth. Catal. **2006**, 348, 797–812

Vicente Gotor-Fernández, Eduardo Busto, Vicente Gotor*



797

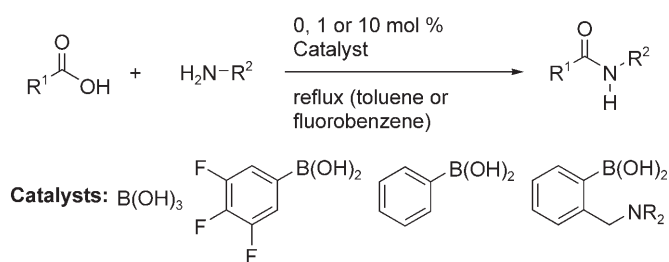
COMMUNICATIONS

- 813** To Catalyze or not to Catalyze? Insight into Direct Amide Bond Formation from Amines and Carboxylic Acids under Thermal and Catalyzed Conditions

Adv. Synth. Catal. **2006**, 348, 813–820



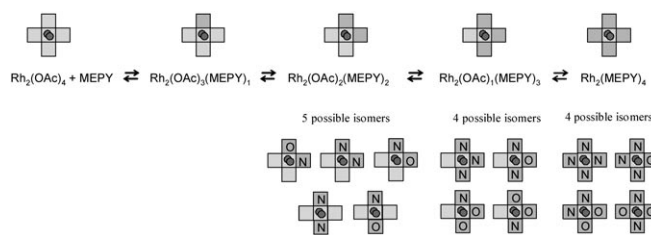
Kenny Arnold, Bryan Davies, Richard L. Giles, Christophe Grosjean, Gillian E. Smith, Andrew Whiting*



- 821** Observations of Rhodium-Containing Reaction Intermediates using HPLC with ICP-MS and ESI-MS Detection

Adv. Synth. Catal. **2006**, 348, 821–825

Christopher J. Welch,* Qiang Tu, Tiebang Wang,* Conrad Raab, Peng Wang, Xiujuan Jia, Xiaodong Bu, Darren Bykowski, Benjamin Hohenstaufen, Michael P. Doyle*

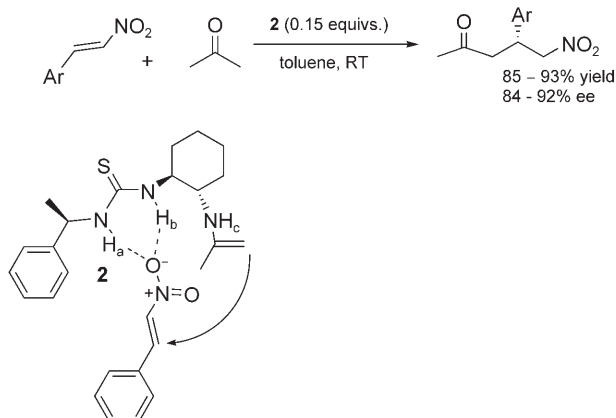


- 826** Chiral Thiourea-Based Bifunctional Organocatalysts in the Asymmetric Nitro-Michael Addition: A Joint Experimental-Theoretical Study

Adv. Synth. Catal. **2006**, 348, 826–832



Denis A. Yalalov, Svetlana B. Tsogoeva,* Stefan Schmatz*

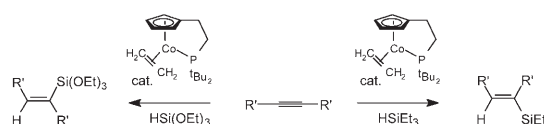


- 833** Stereodivergent Formation of Alkenylsilanes: *syn* or *anti* Hydrosilylation of Alkynes Catalyzed by a Cyclopentadienylcobalt(I) Chelate Bearing a Pendant Phosphane Tether

Adv. Synth. Catal. **2006**, 348, 833–836



Li Yong, Karin Kirleis, Holger Butenschön*

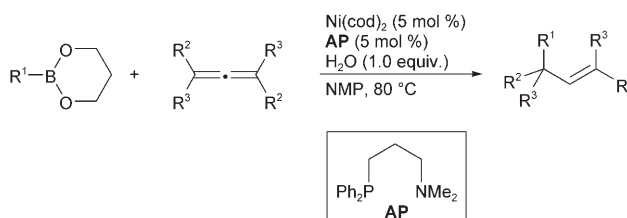


- 837** Nickel-Catalyzed Addition of Organoboronates to 1,2-Dienes and the Corresponding Three-Component Reaction with an Alkyne

Adv. Synth. Catal. **2006**, 348, 837–840



Go Takahashi, Eiji Shirakawa,* Teruhisa Tsuchimoto, Yusuke Kawakami

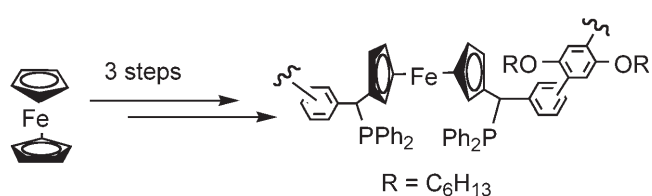


Synthesis of Novel Bisphosphine-Containing Polymers and Their Applications as Bidentate Ligands for Nickel(0)-Catalyzed Cross-Coupling Reactions

Adv. Synth. Catal. **2006**, 348, 841–845



Yong Lu, Elizabeth Plocher, Qiao-Sheng Hu*



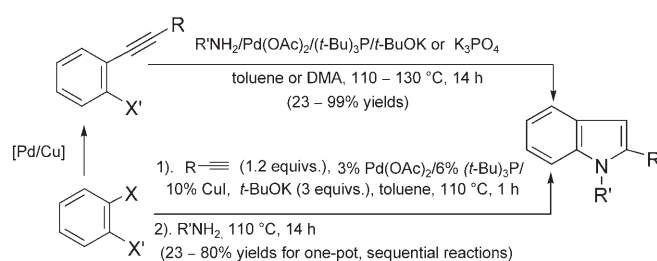
841

Efficient Synthesis of 2-Substituted Indoles Based on Palladium(II) Acetate/Tri-*tert*-butylphosphine-Catalyzed Alkynylation/Amination of 1,2-Dihalobenzenes

Adv. Synth. Catal. **2006**, 348, 846–850



Zhen-Yu Tang, Qiao-Sheng Hu*



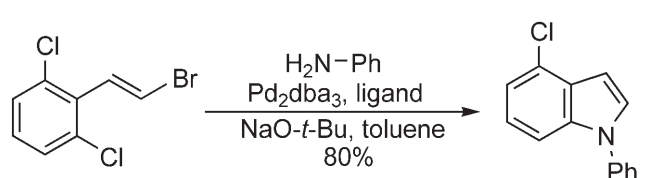
846

2-(2-Haloalkenyl)-aryl Halides as Substrates for Palladium-Catalysed Tandem C–N Bond Formation: Efficient Synthesis of 1-Substituted Indoles

Adv. Synth. Catal. **2006**, 348, 851–856



Michael C. Willis,* Gareth N. Brace, Thomas J. K. Findlay, Ian P. Holmes



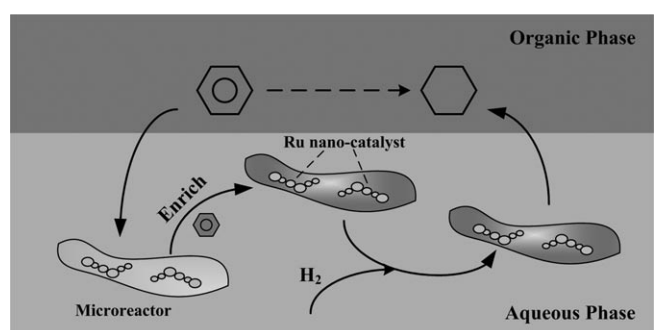
851

Fast Aqueous/Organic Hydrogenation of Arenes, Olefins and Carbonyl Compounds by Poly(*N*-Vinylpyrrolidone)-Ru as Amphiphilic Microreactor System

Adv. Synth. Catal. **2006**, 348, 857–861



Fang Lu, Jing Liu, Jie Xu*

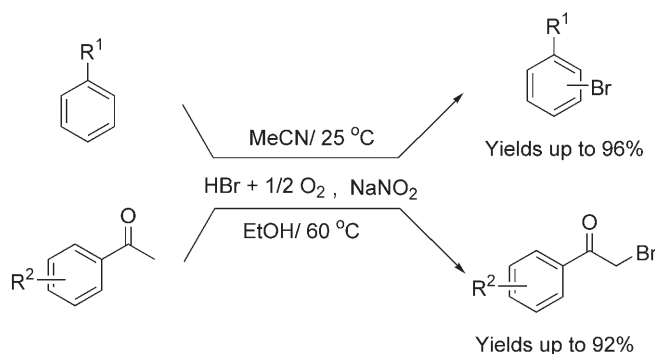


857

Sodium Nitrite-Catalyzed Oxybromination of Aromatic Compounds and Aryl Ketones with a Combination of Hydrobromic Acid and Molecular Oxygen under Mild Conditions

Adv. Synth. Catal. **2006**, 348, 862–866

Guofu Zhang, Renhua Liu* Qing Xu, Lixin Ma, Xinmiao Liang*

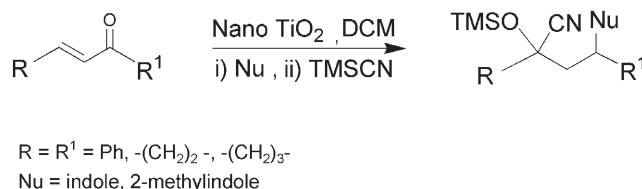


862

- 867** Nanocrystalline Titanium(IV) Oxide as an Efficient Heterogeneous Catalyst for Tandem Michael and Nucleophilic 1,2-Addition to Enones

Adv. Synth. Catal. **2006**, 348, 867–872

M. Lakshmi Kantam,* Soumi Laha, Jagjit Yadav,
B. M. Choudary, B. Sreedhar

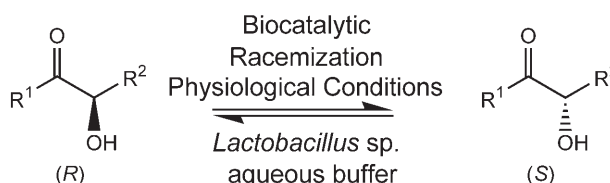


- 873** Biocatalytic Racemization of α -Hydroxy Ketones (Acylolins) at Physiological Conditions using *Lactobacillus paracasei* DSM 20207

Adv. Synth. Catal. **2006**, 348, 873–876



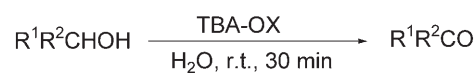
Bettina M. Nestl, Wolfgang Kroutil, Kurt Faber*



- 877** Catalyst-Free Oxidation of Alcohols at Room Temperature Using Water as Solvent

Adv. Synth. Catal. **2006**, 348, 877–880

Ziqiang Lei,* Yaoxia Yang, Xiangzhen Bai

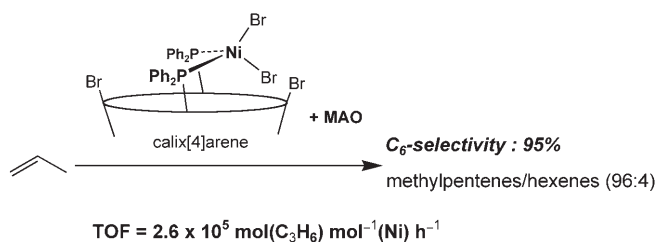


FULL PAPERS

- 881** Fast Propene Dimerization Using Upper Rim-Diphosphinated Calix[4]arenes as Chelators

Adv. Synth. Catal. **2006**, 348, 881–886

Manuel Lejeune, David Sémeril, Catherine Jeunesse,
Dominique Matt,* Pierre Lutz, Loïc Toupet

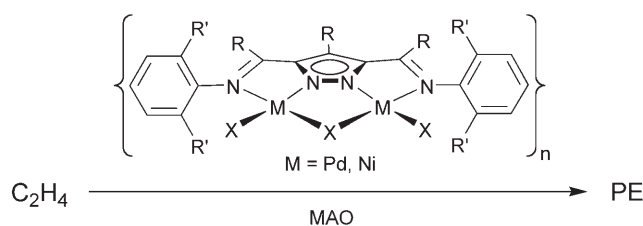


- 887** Pyrazolate-Based Dinuclear α -Diimine-Type Palladium(II) and Nickel(II) Complexes – a Bimetallic Approach in Olefin Polymerisation

Adv. Synth. Catal. **2006**, 348, 887–897



Gilles Noël, Jens C. Röder, Sebastian Dechert, Hans Pritzkow, Lars Bolk, Stefan Mecking, Franc Meyer*

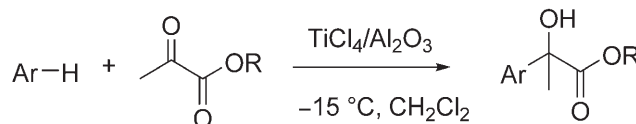


- 898** Highly Regioselective Friedel–Crafts Reactions of Electron-Rich Aromatic Compounds with Pyruvate Catalyzed by Lewis Acid-Base: Efficient Synthesis of Pesticide Cycloprothrin

Adv. Synth. Catal. **2006**, 348, 898–904



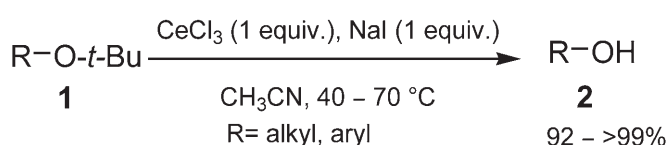
Yu-Gui Si, Jun Chen, Fan Li, Jin-Hua Li, Ye-Jun Qin,
Biao Jiang*



tert-Butyl Ethers: Renaissance of an Alcohol Protecting Group. Facile Cleavage with Cerium(III) Chloride/Sodium Iodide

Adv. Synth. Catal. **2006**, 348, 905–910

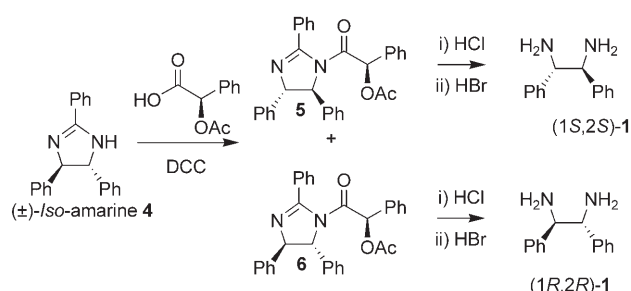
Giuseppe Bartoli,* Marcella Bosco, Armando Carlone, Manuela Locatelli, Enrico Marcantoni, Paolo Melchiorre, Letizia Sambri*



A Convenient Preparation of Enantiomerically Pure (+)-(1*R*,2*R*)- and (–)-(1*S*,2*S*)-1,2-Diamino-1,2-diphenylethanes

Adv. Synth. Catal. **2006**, 348, 911–916

D. Christopher Braddock,* Joanna M. Redmond, Stephen A. Hermitage, Andrew J. P. White

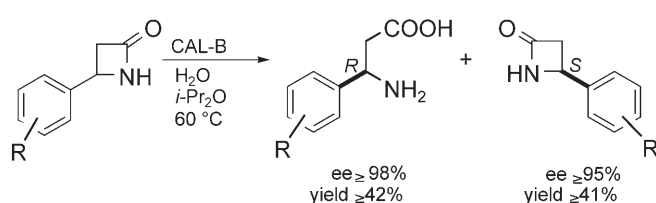


A New Route to Enantiopure β -Aryl-Substituted β -Amino Acids and 4-Aryl-Substituted β -Lactams through Lipase-Catalyzed Enantioselective Ring Cleavage of β -Lactams

Adv. Synth. Catal. **2006**, 348, 917–923



Enikő Forró, Tihamér Paál, Gábor Tasnádi, Ferenc Fülöp*

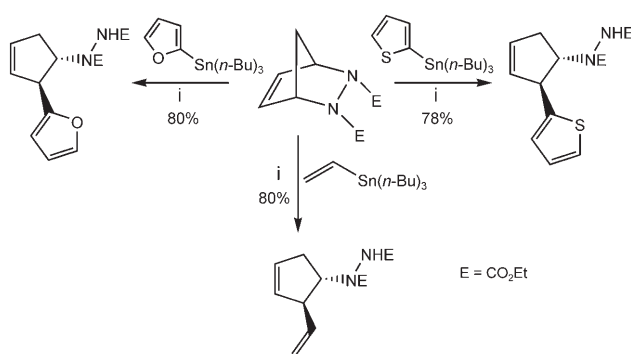


R = H, 4-Me, 2-Cl, 3-Cl, 4-Cl, 4-Br, 4-F

Palladium/Lewis Acid-Catalyzed Reactions of Bicyclic Hydrazines with Organostannanes: A General Methodology for the Stereoselective Synthesis of 3,4-Disubstituted Cyclopentenes

Adv. Synth. Catal. **2006**, 348, 924–930

V. S. Sajisha, K. V. Radhakrishnan*



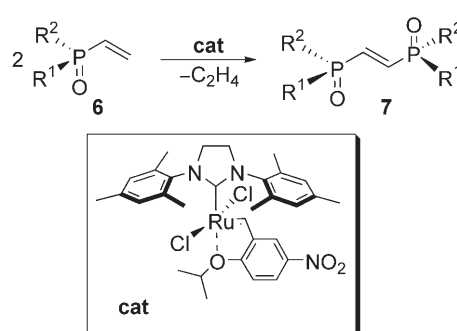
i = [Pd(allyl)Cl]₂ (5 mol %), dppe (10 mol %), Sc(OTf)₃ (2 mol %), toluene, 60 °C

Homo- and Cross-Olefin Metathesis Coupling of Vinylphosphane Oxides and Electron-Poor Alkenes: Access to P-Stereogenic Dienophiles

Adv. Synth. Catal. **2006**, 348, 931–938



Nikolai Vinokurov, Anna Michrowska, Anna Szmigielska, Zbigniew Drzazga, Grzegorz Wójciuk, Oleg M. Demchuk, Karol Grela,* K. Michał Pietrusiewicz,* Holger Butenschön*

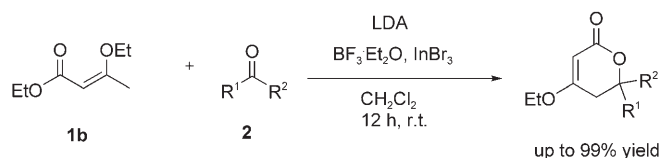


- 939** Highly Efficient Approach to 4-Ethoxy-5,6-dihydro-6,6-disubstituted Pyran-2-ones using a Combinational Lewis Acid-Base System

Adv. Synth. Catal. **2006**, 348, 939–944



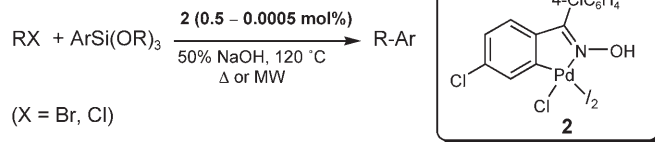
Jie Liu, Xing Li, Jun Wang, Xiaoming Feng*



- 945** Solvent-Less and Fluoride-Free Hiyama Reaction of Arylsiloxanes with Aryl Bromides and Chlorides Promoted by Sodium Hydroxide: A Useful Protocol for Palladium Recycling and Product Isolation

Adv. Synth. Catal. **2006**, 348, 945–952

Emilio Alacid, Carmen Nájera*

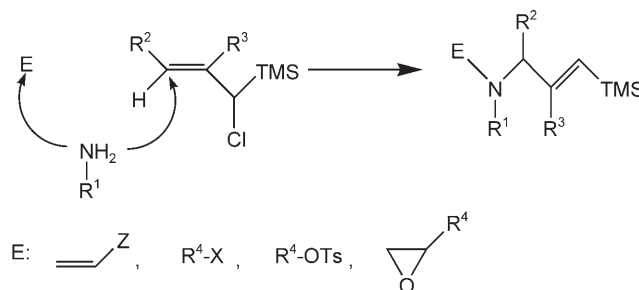


- 953** Copper(I) Chloride-Catalyzed Three-Component Coupling Reaction of Primary Amines with Electrophiles and α -Halogen-Substituted Allylsilanes to Form Unsymmetrical Tertiary Amines

Adv. Synth. Catal. **2006**, 348, 953–966



Makoto Kozuka, Akihiko Inoue, Teruko Tsuchida, Michiharu Mitani*

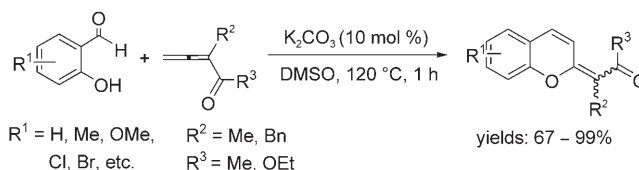


- 967** Potassium Carbonate-Catalyzed Reactions of Salicylic Aldehydes with Allenic Ketones and Esters: an Effective Way to Synthesize Functionalized 2*H*-Chromenes

Adv. Synth. Catal. **2006**, 348, 967–972



Min Shi,* Lun-Zhi Dai, Yong-Ling Shi, Gui-Ling Zhao

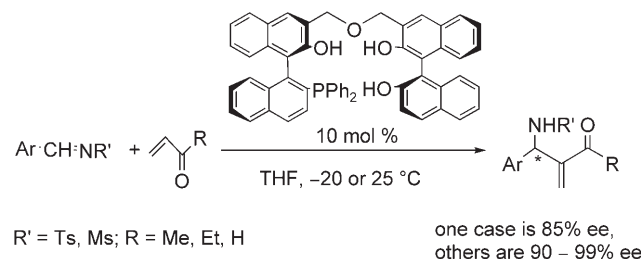


- 973** Asymmetric Aza-Morita–Baylis–Hillman Reaction of *N*-Sulfonated Imines with Activated Olefins Catalyzed by Chiral Phosphine Lewis Bases Bearing Multiple Phenol Groups

Adv. Synth. Catal. **2006**, 348, 973–979



Ying-Hao Liu, Lian-Hui Chen, Min Shi*



CORRIGENDA

In the paper by Chrétien Simons, Ulf Hanefeld, Isabel W. C. E. Arends, Thomas Maschmeyer and Roger A. Sheldon in Issue 4 + 5, 2006, pp. 471–475, the second column heading in Table 1 on page 473 should read "Conversion of **2** to **3a** [%]" and the fourth column heading should read "Conversion^[b] of **3a** [%]". The editorial office apologizes for this error.

In the paper by A. Stephen K. Hashmi, M. Carmen Blanco, Elzen Kurpejovic, Wolfgang Frey, and Jan W. Bats in Issue 6, 2006, pp. 709–713, the CCDC numbers in reference 13 should read CCDC 294704 (**12**) and 293003 (**17**).



Supporting information on the WWW (see article for access details).

*Author to whom correspondence should be addressed.