

## AIMS AND SCOPE

Although 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 metal catalysis, biocatalysis and organocatalysis 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.

# Advanced Synthesis & Catalysis

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2007, 349, 7, Pages 997–1268

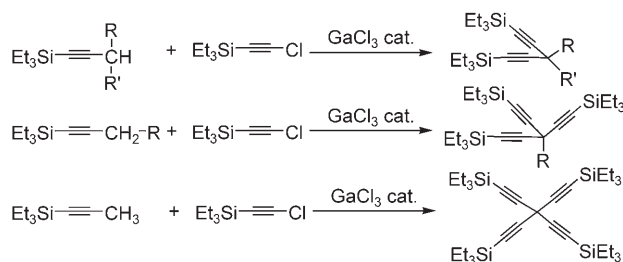
Issue 6/2007 was published online on April 17, 2007

## COMMUNICATIONS

### Gallium Trichloride-Catalyzed Exhaustive $\alpha$ -Ethynylation Reaction of 1-Silylacetylenes

*Adv. Synth. Catal.* **2007**, 349, 1011–1014

 Ryo Amemiya, Masahiko Yamaguchi\*

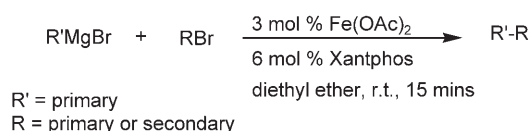


1011

### Iron-Catalysed $sp^3$ – $sp^3$ Cross-Coupling Reactions of Unactivated Alkyl Halides with Alkyl Grignard Reagents

*Adv. Synth. Catal.* **2007**, 349, 1015–1018

Krishna G. Dongol, Huishi Koh, Manisankar Sau, Christina  
L. L. Chai\*

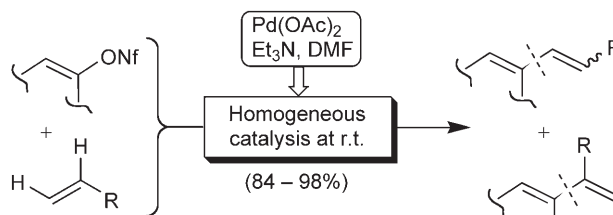


1015

- 1019** An Expedient Variant of Heck Reaction of Alkenyl Nonaflates: Homogeneous Ligand-Free Palladium Catalysis at Room Temperature

*Adv. Synth. Catal.* **2007**, 349, 1019–1024

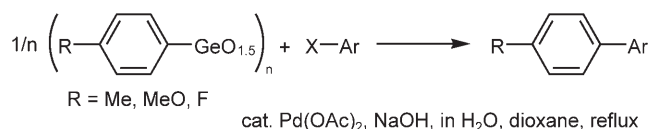
 Michael A. K. Vogel, Christian B. W. Stark,\* Ilya M. Lyapkalo\*



- 1025** Palladium-Catalyzed Cross-Coupling Reaction Using Arylgermanium Sesquioxide

*Adv. Synth. Catal.* **2007**, 349, 1025–1027

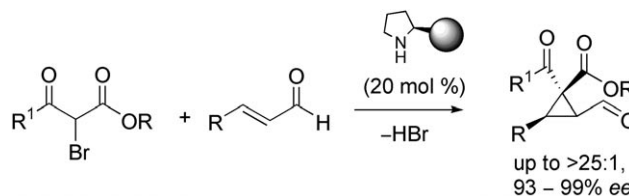
 Mayuko Endo, Keigo Fugami,\* Tatsuki Enokido, Hiroshi Sano, Masanori Kosugi\*



- 1028** A Simple Organocatalytic Enantioselective Cyclopropanation of  $\alpha,\beta$ -Unsaturated Aldehydes

*Adv. Synth. Catal.* **2007**, 349, 1028–1032

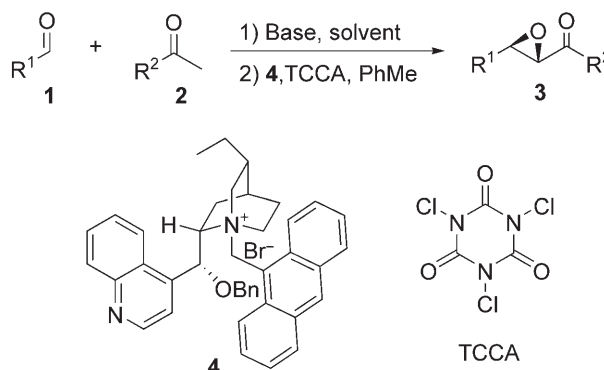
 Ramon Rios, Henrik Sundén, Jan Vesely, Gui-Ling Zhao, Pawel Dziedzic, Armando Córdoba\*



- 1033** Convenient Preparation of Chiral  $\alpha,\beta$ -Epoxy Ketones via Claisen–Schmidt Condensation–Epoxidation Sequence

*Adv. Synth. Catal.* **2007**, 349, 1033–1036

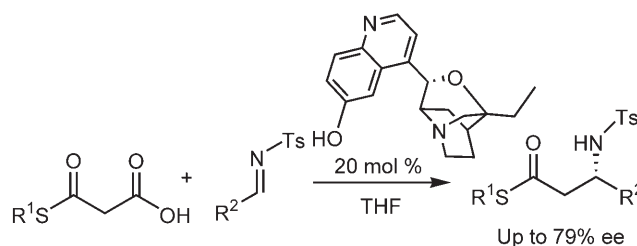
 Yongcan Wang, Jinxing Ye,\* Xinmiao Liang\*



- 1037** Organocatalytic Enantioselective Decarboxylative Addition of Malonic Half Thioesters to Imines

*Adv. Synth. Catal.* **2007**, 349, 1037–1040

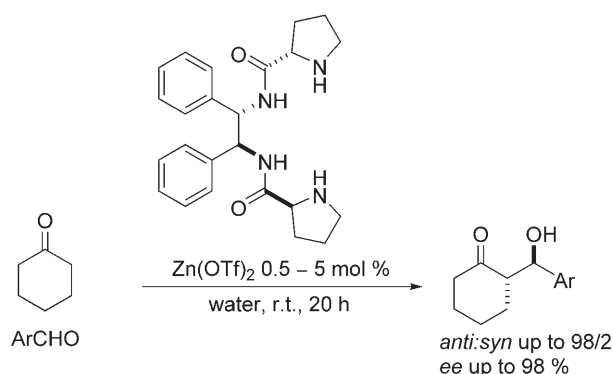
 Alfredo Ricci,\* Daniel Pettersen,\* Luca Bernardi, Francesco Fini, Mariafrancesca Fochi, Raquel Perez Herrera, Valentina Sgarzani



# Direct Catalytic Asymmetric Aldol Reactions Assisted by Zinc Complex in the Presence of Water

*Adv. Synth. Catal.* **2007**, 349, 1041–1046

Joanna Paradowska, Maciej Stodulski, Jacek Mlynarski\*

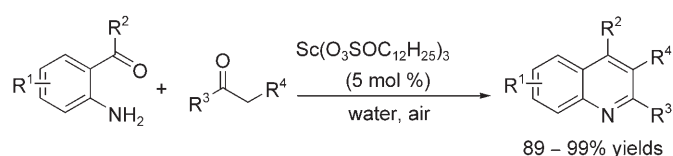


1041

# Friedländer Synthesis of Quinolines Using a Lewis Acid-Surfactant-Combined Catalyst in Water

*Adv. Synth. Catal.* **2007**, 349, 1047–1051

Liang Zhang, Jie Wu\*

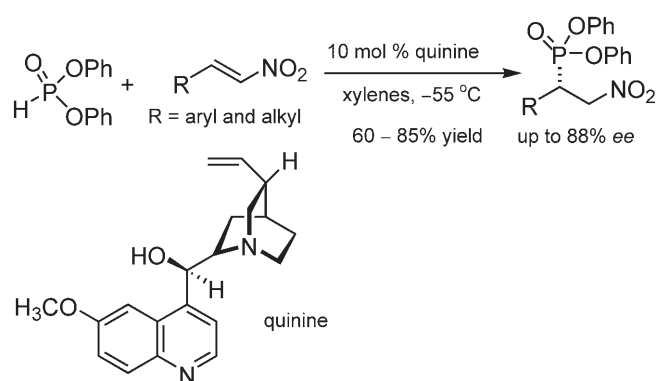


1047

# Quinine-Catalyzed Enantioselective Michael Addition of Diphenyl Phosphite to Nitroolefins: Synthesis of Chiral Precursors of $\alpha$ -Substituted $\beta$ -Aminophosphonates

*Adv. Synth. Catal.* **2007**, 349, 1052–1056

Jian Wang, Lora D. Heikkinen, Hao Li, Liansuo Zu, Wei Jiang, Hexin Xie, Wei Wang\*



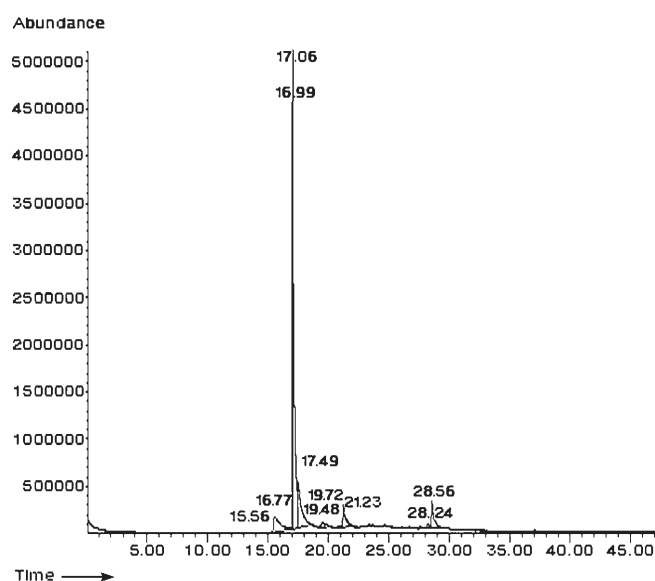
1052

## FULL PAPERS

# Transesterification of Vegetable Oil to Biodiesel using a Heteropolyacid Solid Catalyst

*Adv. Synth. Catal.* **2007**, 349, 1057–1065

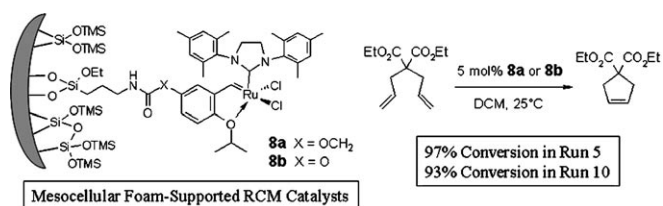
Fang Chai, Fenghua Cao, Fengying Zhai, Yang Chen, Xiaohong Wang,\* Zhongmin Su\*



1057

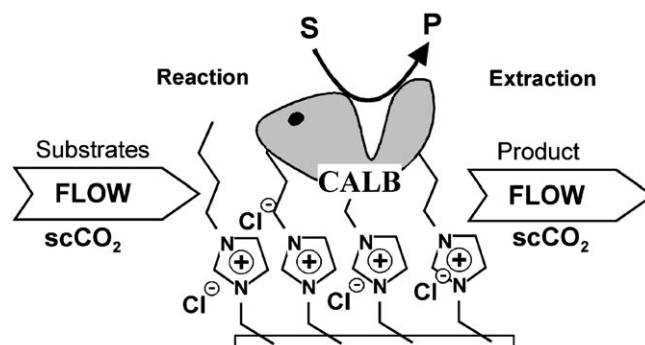
**1066** Mesocellular Foam-Supported Catalysts: Enhanced Activity and Recyclability for Ring-Closing Metathesis

*Adv. Synth. Catal.* **2007**, 349, 1066–1076

 Jaehong Lim, Su Seong Lee, Siti Nurhanna Riduan, Jackie Y. Ying\*

**1077** Bioreactors Based on Monolith-Supported Ionic Liquid Phase for Enzyme Catalysis in Supercritical Carbon Dioxide

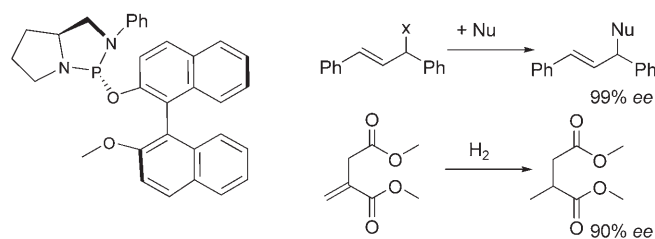
*Adv. Synth. Catal.* **2007**, 349, 1077–1084

Pedro Lozano, Eduardo García-Verdugo, Rungtiwa Piamtongkam, Naima Karbass, Teresa De Diego, M. Isabel Burguete, Santiago V. Luis,\* José L. Iborra\*

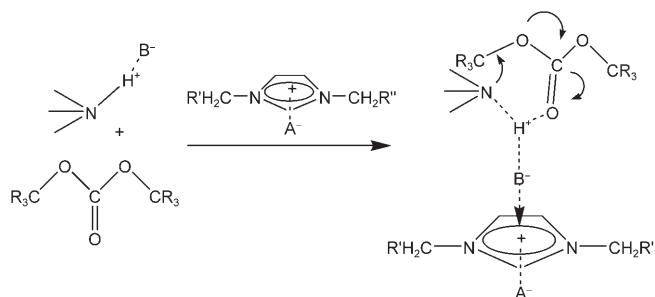

**1085** MOP-Type Binaphthyl Phosphite and Diamidophosphite Ligands and Their Application in Catalytic Asymmetric Transformations

*Adv. Synth. Catal.* **2007**, 349, 1085–1094

Konstantin N. Gavrilov, Sergey E. Lyubimov,\* Sergey V. Zheglov, Eduard B. Benetsky, Pavel V. Petrovskii, Eugenie A. Rastorguev, Tatiana B. Grishina, Vadim A. Davankov

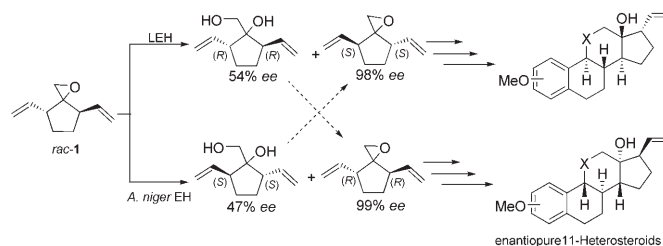

**1095** Alkylation of Ammonium Salts Catalyzed by Imidazolium-Based Ionic Liquid Catalysts

*Adv. Synth. Catal.* **2007**, 349, 1095–1101

 Zhuo Qun Zheng, Jie Wang, Ting Hua Wu,\* Xiao Ping Zhou\*

**1102** Epoxide Hydrolase-Catalysed Kinetic Resolution of a Spiroepoxide, a Key Building Block of Various 11-Heterosteroids

*Adv. Synth. Catal.* **2007**, 349, 1102–1110

Anne-Lise Bottalla, Malika Ibrahim-Ouali, Maurice Santelli, Roland Furstoss, Alain Archelas\*



Stereoselective Prostereogenic 3-Oxo Ester Reduction  
Mediated by a Novel Yeast Alcohol Dehydrogenase Derived  
from *Kluyveromyces marxianus* CBS 6556

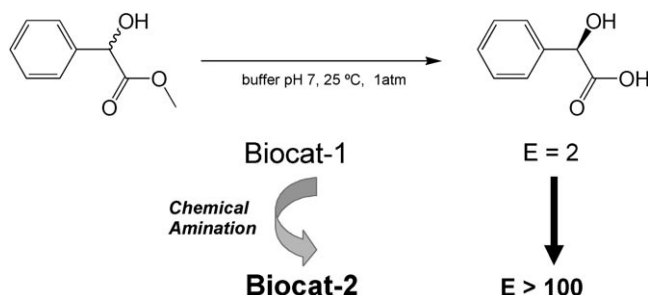
*Kluyveromyces marxianus* CBS 6556 disrupted cells  
1) ion-exchange chromatography  
2) affinity chromatography  
NADPH-dependent and (S)-selective novel ADH

1111

*Adv. Synth. Catal.* **2007**, 349, 1111–1118

Maria Grazia Perrone, Ernesto Santandrea,  
Antonio Scilimati,\* Christoph Sydatk

Modulation of Immobilized Lipase Enantioselectivity via  
Chemical Amination

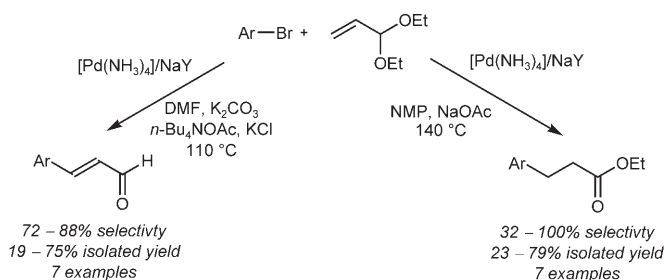


1119

*Adv. Synth. Catal.* **2007**, 349, 1119–1127

Jose M. Palomo, Gloria Fernández-Lorente, Jose M.  
Guisán,\* Roberto Fernández-Lafuente\*

Efficient Heterogeneously Palladium-Catalysed Heck  
Arylation of Acrolein Diethyl Acetal. Selective Synthesis of  
Cinnamaldehydes or 3-Arylpropionic Esters

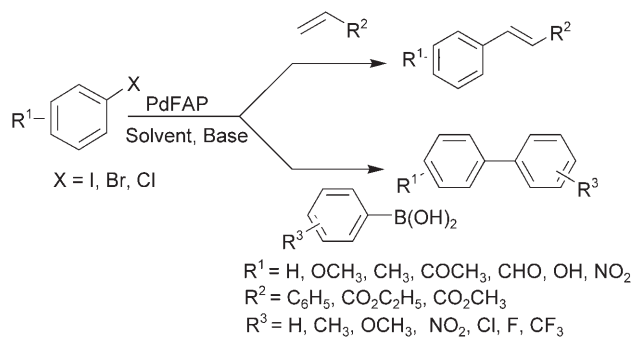


1128

*Adv. Synth. Catal.* **2007**, 349, 1128–1140

🖥 Sébastien Noël, Ciahong Luo, Catherine Pinel,  
Laurent Djakovitch\*

Fluorapatite-Supported Palladium Catalyst for Suzuki and  
Heck Coupling Reactions of Haloarenes

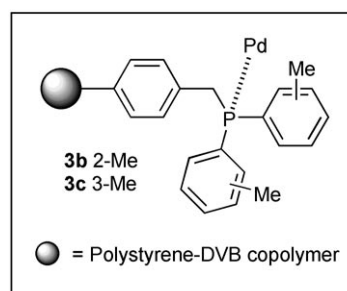


1141

*Adv. Synth. Catal.* **2007**, 349, 1141–1149

M. Lakshmi Kantam,\* K. B. Shiva Kumar, P. Srinivas,  
B. Sreedhar

Development of Efficient and Reusable  
Diarylphosphinopolystyrene-Supported Palladium Catalysts  
for C–C Bond Forming Cross-Coupling Reactions



1150

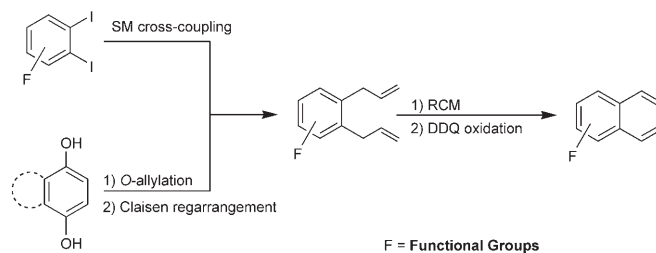
*Adv. Synth. Catal.* **2007**, 349, 1150–1158

🖥 Stéphane Schweizer, Jean-Michel Becht,\* Claude Le Drian\*

- 1159** Formation of Arenes *via* Diallylarenes: Strategic Utilization of Suzuki–Miyaura Cross-Coupling, Claisen Rearrangement and Ring-Closing Metathesis

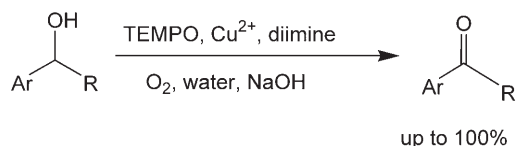
*Adv. Synth. Catal.* **2007**, 349, 1159–1172

Sambasivarao Kotha,\* Vrajesh R. Shah,  
Kalyaneswar Mandal



- 1173** TEMPO-Copper(II) Diimine-Catalysed Oxidation of Benzylic Alcohols in Aqueous Media

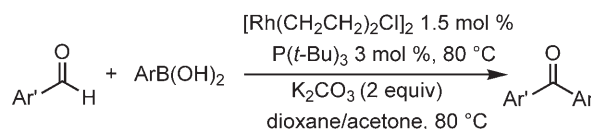
*Adv. Synth. Catal.* **2007**, 349, 1173–1179



Paweł J. Figiel, Markku Leskelä, Timo Repo\*

- 1180** Tandem Catalysis: Access to Ketones from Aldehydes and Arylboronic Acids *via* Rhodium-Catalyzed Addition/Oxidation

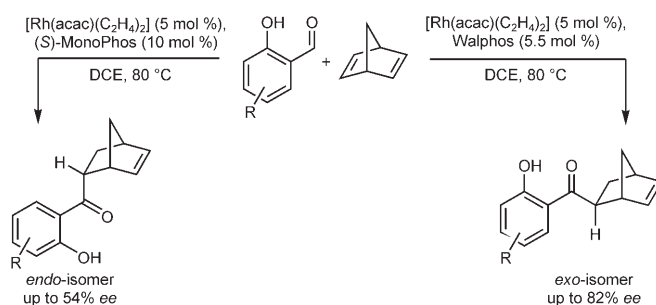
*Adv. Synth. Catal.* **2007**, 349, 1180–1184



Guilhem Mora, Sylvain Darses,\* Jean-Pierre Genet\*

- 1185** An Unprecedented Rhodium-Catalyzed Asymmetric Intermolecular Hydroacylation Reaction with Salicylaldehydes

*Adv. Synth. Catal.* **2007**, 349, 1185–1198

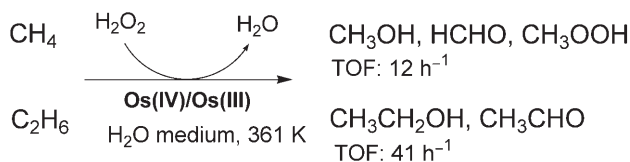


René T. Stemmler, Carsten Bolm\*

- 1199** Osmium-Catalyzed Selective Oxidations of Methane and Ethane with Hydrogen Peroxide in Aqueous Medium

*Adv. Synth. Catal.* **2007**, 349, 1199–1209

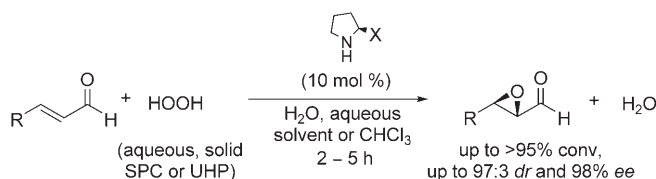
Qiang Yuan, Weiping Deng, Qinghong Zhang, Ye Wang\*



- 1210** Amine-Catalyzed Asymmetric Epoxidation of  $\alpha,\beta$ -Unsaturated Aldehydes

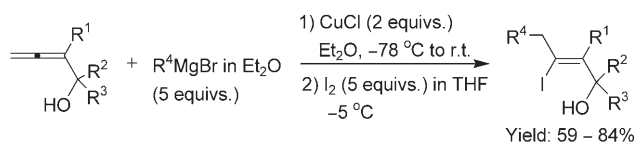
*Adv. Synth. Catal.* **2007**, 349, 1210–1224

Gui-Ling Zhao, Ismail Ibrahim, Henrik Sundén,  
Armando Córdoba\*



- 1225** Highly Regio- and Stereoselective Copper(I) Chloride-Mediated Carbometallation of 2,3-Allenols with Grignard Reagents

*Adv. Synth. Catal.* **2007**, 349, 1225–1230

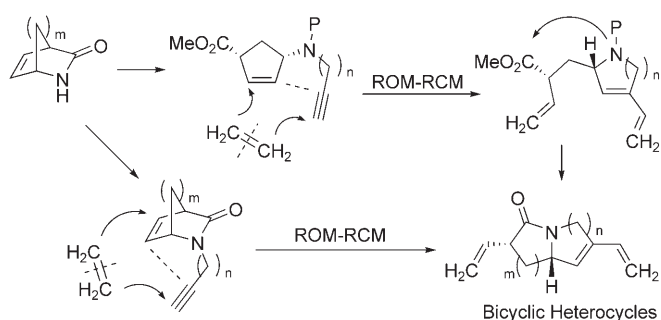


Zhan Lu, Shengming Ma\*

# Synthesis of Pyrrolizidine, Indolizidine, and Quinolizidine Derivatives Using Ruthenium-Catalyzed Ring-Opening Metathesis and Ring-Closing Metathesis of Cycloalkene-ynes

*Adv. Synth. Catal.* **2007**, 349, 1231–1246

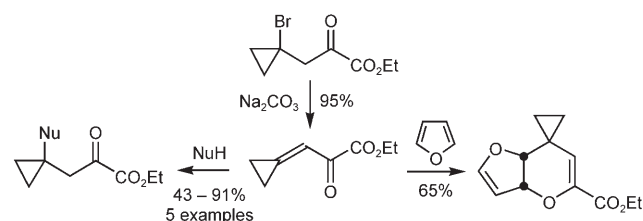
Hideaki Wakamatsu, Yoshihiro Sato, Reiko Fujita, Miwako Mori\*



1231

## Cyclopropyl Building Blocks for Organic Synthesis, 139. Ethyl Cyclopropylidenepyruvate as a Novel Multifunctional Cyclopropyl Building Block: Facile Preparation and Basic Reaction Patterns

*Adv. Synth. Catal.* **2007**, 349, 1247–1255



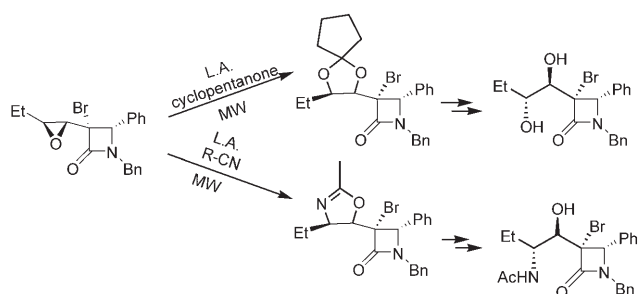
1247

Viktor Bagutski, Armin de Meijere\*

## A Microwave-Enhanced, Lewis Acid-Catalyzed Synthesis of 1,3-Dioxolanes and Oxazolines from Epoxides

*Adv. Synth. Catal.* **2007**, 349, 1256–1264

Fides Benfatti, Giuliana Cardillo,\* Luca Gentilucci, Alessandra Tolomelli,\* Magda Monari, Fabio Piccinelli



1256

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\*Author to whom correspondence should be addressed.