

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. Achieving chemical reactions that are highly selective, economical, safe, resource- and energy-efficient, and environmentally benign is a primary challenge to chemistry in this century. Realizing this goal will demand the highest level of scientific creativity, insight and understanding in a combined effort by academic, government and industrial chemists and engineers.

Advanced Synthesis & Catalysis promotes that process by publishing high-impact research results reporting the development and application of efficient synthetic methodologies and strategies for organic targets that range from pharmaceuticals to organic materials. Homogeneous catalysis, biocatalysis, organocatalysis and heterogeneous catalysis directed towards organic synthesis are playing an ever increasing role in achieving synthetic efficiency. Asymmetric catalysis remains a topic of central importance. In addition, *Advanced Synthesis & Catalysis* includes other areas that are making a contribution to green synthesis, such as synthesis design, reaction techniques, flow chemistry and continuous processing, multi-phase catalysis, green solvents, catalyst immobilization and recycling, separation science and process development.

Practical processes involve development of effective integrated strategies, from an elegant synthetic route based on mechanistic and structural insights at the molecular level through to process optimization at larger scales. These endeavors often entail a multidisciplinary approach that spans the broad fields chemistry, biology, and engineering and involve contributions from academic, government, and industrial laboratories.

The unique focus of *Advanced Synthesis & Catalysis* has rapidly made it a leading organic chemistry and catalysis journal. The goal of *Advanced Synthesis & Catalysis* is to help inspire 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

succeeding *Journal für praktische
Chemie*
(founded in 1828)

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2008, 350, 13, Pages 1909–2136

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on July 31, 2008

COMMENTARY

Fresh, Simple, and Powerful! The Research Philosophy of
Professor Ryoji Noyori

1923

Adv. Synth. Catal. **2008**, 350, 1923–1941

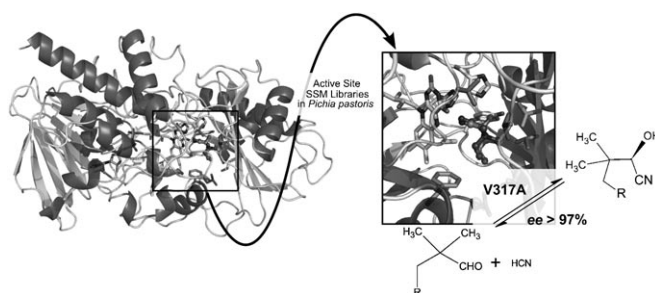
Hisashi Yamamoto*

COMMUNICATIONS

Efficient Biocatalytic Synthesis of (*R*)-Pantolactone

Adv. Synth. Catal. **2008**, 350, 1943–1948

Beate Pscheidt, Zhibin Liu, Richard Gaisberger,
Manuela Avi, Wolfgang Skranc, Karl Gruber,
Herfried Griengl, Anton Glieder*

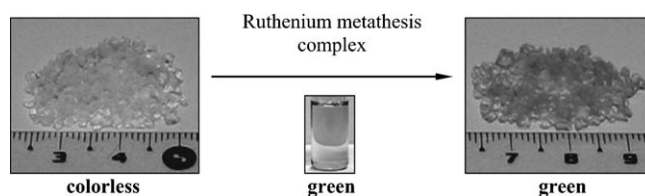


1943

- 1949** Silica Immobilized Second Generation Hoveyda-Grubbs: A Convenient, Recyclable and Storageable Heterogeneous Solid Catalyst


Adv. Synth. Catal. **2008**, 350, 1949–1953

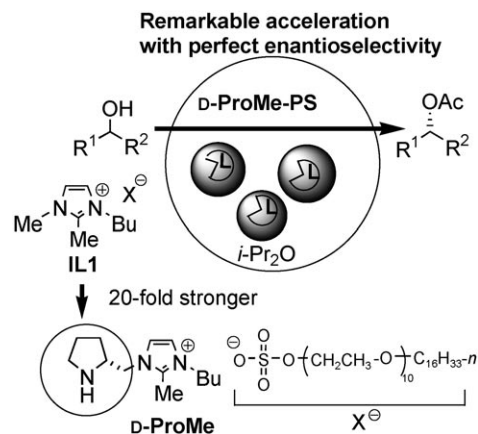
 Boris Van Berlo, Kristof Houthoofd, Bert F. Sels,*
Pierre A. Jacobs*



- 1954** Remarkable Activation of an Enzyme by (*R*)-Pyrrolidine-Substituted Imidazolium Alkyl PEG Sulfate


Adv. Synth. Catal. **2008**, 350, 1954–1958

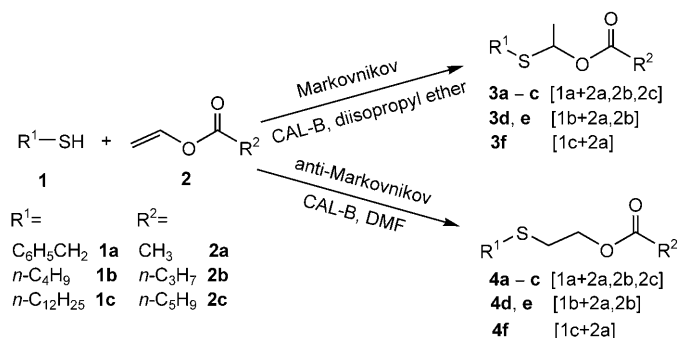
 Yoshikazu Abe, Takuya Hirakawa, Shino Nakajima,
Nagisa Okano, Shuichi Hayase, Motoi Kawatsura,
Yoshihiko Hirose, Toshiyuki Itoh*



- 1959** *Candida antarctica* Lipase B (CAL-B)-Catalyzed Carbon-Sulfur Bond Addition and Controllable Selectivity in Organic Media


Adv. Synth. Catal. **2008**, 350, 1959–1962

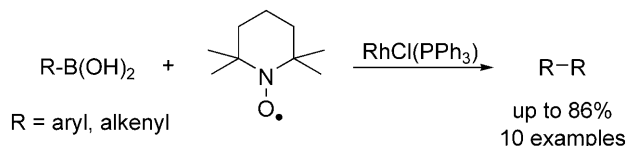
 Feng-Wen Lou, Bo-Kai Liu, Qi Wu, De-Shui Lv,
Xian-Fu Lin*



- 1963** Rhodium-Catalyzed Oxidative Homocoupling of Boronic Acids

Adv. Synth. Catal. **2008**, 350, 1963–1967

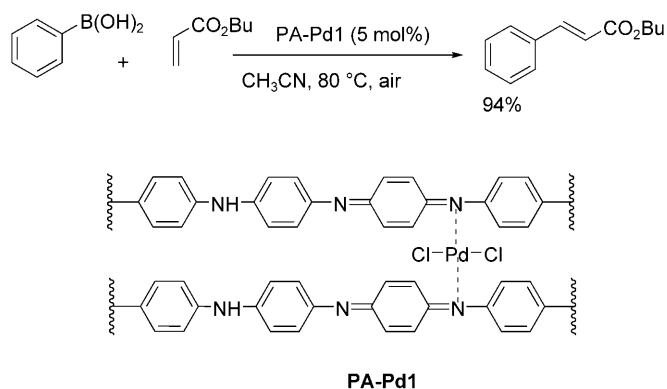
 Thomas Vogler, Armido Studer*



- 1968** Highly Efficient and Reusable Polyaniline-Supported Palladium Catalysts for Open-Air Oxidative Heck Reactions under Base- and Ligand-Free Conditions

Adv. Synth. Catal. **2008**, 350, 1968–1974

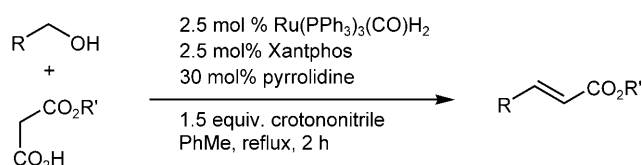
Pravin R. Likhar,* Moumita Roy, Sarabindu Roy,
M. S. Subhas, M. Lakshmi Kantam, B. Sreedhar



Alkenes from Alcohols by Tandem Hydrogen Transfer and Condensation

Adv. Synth. Catal. **2008**, 350, 1975–1978

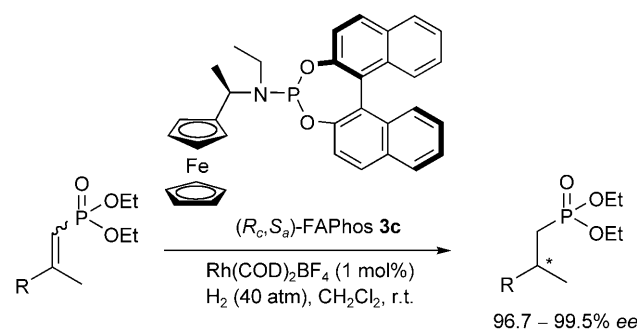
Michael I. Hall, Simon J. Pridmore, Jonathan M. J. Williams*



1975

Enantioselective Synthesis of Optically Active Alkanephosphonates via Rhodium-Catalyzed Asymmetric Hydrogenation of β -Substituted α,β -Unsaturated Phosphonates with Ferrocene-Based Monophosphoramidite Ligands*Adv. Synth. Catal.* **2008**, 350, 1979–1983

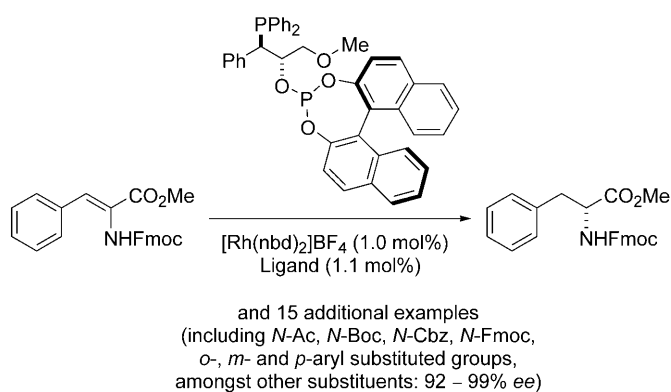
Zheng-Chao Duan, Xiang-Ping Hu,* Dao-Yong Wang, Jia-Di Huang, Sai-Bo Yu, Jun Deng, Zhuo Zheng*



1979

Highly Modular *P*-*O*-*P* Ligands for Asymmetric Hydrogenation*Adv. Synth. Catal.* **2008**, 350, 1984–1990

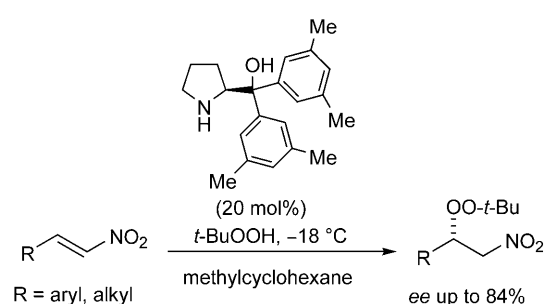
Héctor Fernández-Pérez, Miquel A. Pericàs, Anton Vidal-Ferran*



1984

Catalytic Asymmetric β -Peroxidation of Nitroalkenes*Adv. Synth. Catal.* **2008**, 350, 1991–1995

Alessio Russo, Alessandra Lattanzi*

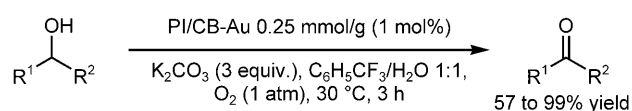


1991

Aerobic Oxidation of Alcohols under Mild Conditions Catalyzed by Novel Polymer-Incarcerated, Carbon-Stabilized Gold Nanoclusters

Adv. Synth. Catal. **2008**, 350, 1996–2000

Céline Lucchesi, Takeshi Inasaki, Hiroyuki Miyamura, Ryosuke Matsubara, Shū Kobayashi*




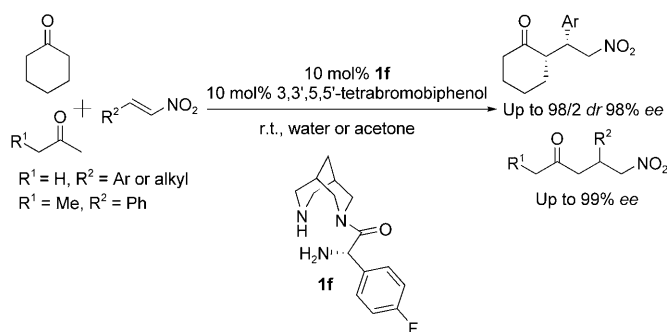
1996

PI/CB-Au = Polymer Incarcerated, Carbon Black-stabilized Au nanocluster

- 2001** Highly Efficient Amine Organocatalysts Based on Bispidine for the Asymmetric Michael Addition of Ketones to Nitroolefins

Adv. Synth. Catal. **2008**, 350, 2001–2006

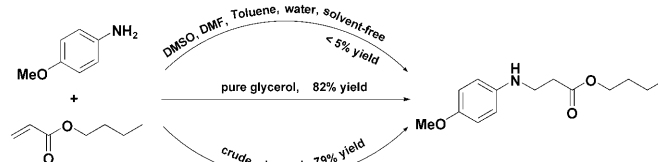
 Zhigang Yang, Jie Liu, Xiaohua Liu, Zhen Wang, Xiaoming Feng,* Zhishan Su, Changwei Hu*



- 2007** Glycerol as An Efficient Promoting Medium for Organic Reactions

Adv. Synth. Catal. **2008**, 350, 2007–2012

 Yanlong Gu, Joël Barrault, François Jérôme*

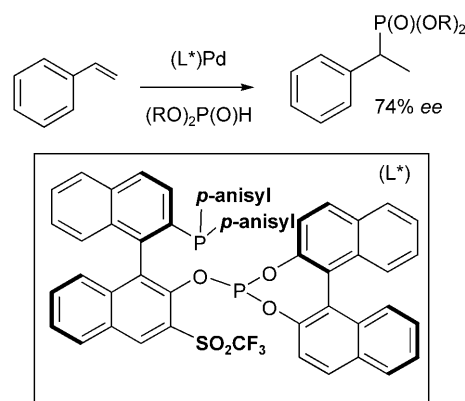


FULL PAPERS

- 2013** A New Class of 3'-Sulfonyl BINAPHOS Ligands: Modulation of Activity and Selectivity in Asymmetric Palladium-Catalysed Hydrophosphorylation of Styrene


Adv. Synth. Catal. **2008**, 350, 2013–2023

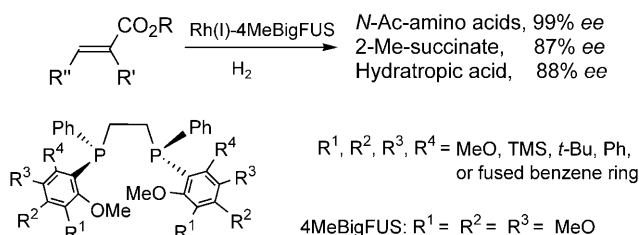
Katalin Barta, Giancarlo Franciò, Walter Leitner,*
Guy C. Lloyd-Jones,* Ian R. Shepperson



- 2024** Impact of Incorporating Substituents onto the P-*o*-Anisyl Groups of DiPAMP Ligand on the Rhodium(I)-Catalyzed Asymmetric Hydrogenation of Olefins


Adv. Synth. Catal. **2008**, 350, 2024–2032

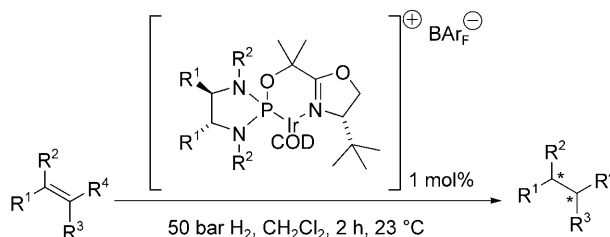
 Borut Zupančič, Barbara Mohar,* Michel Stephan*



- 2033** Chiral Bis(*N*-arylamino)phosphine-oxazolines: Synthesis and Application in Asymmetric Catalysis

Adv. Synth. Catal. **2008**, 350, 2033–2038

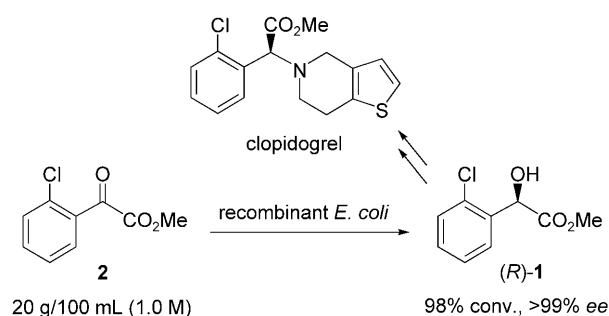
 Marc Schönleber, Robert Hilgraf, Andreas Pfaltz*



Highly Efficient Chemoenzymatic Synthesis of Methyl (*R*)-*o*-Chloromandelate, a Key Intermediate for Clopidogrel, via Asymmetric Reduction with Recombinant *Escherichia coli*

Adv. Synth. Catal. **2008**, 350, 2039–2044

Tadashi Ema,* Sayaka Ide, Nobuyasu Okita, Takashi Sakai*

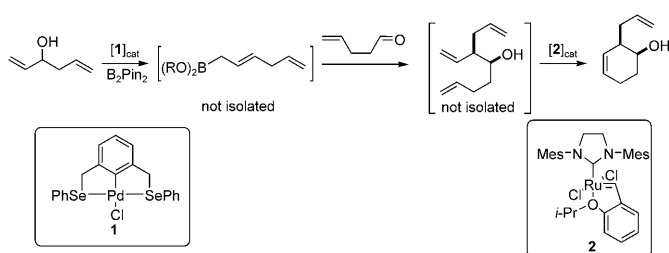


2039

Synthesis of Stereodefined Substituted Cycloalkenes by a One-Pot Catalytic Boronation–Allylation–Metathesis Sequence

Adv. Synth. Catal. **2008**, 350, 2045–2051

Nicklas Selander, Kálmán J. Szabó*

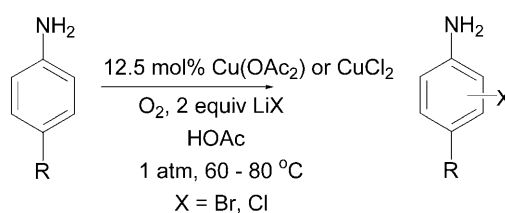


2045

Copper-Catalyzed Oxybromination and Oxychlorination of Primary Aromatic Amines Using LiBr or LiCl and Molecular Oxygen

Adv. Synth. Catal. **2008**, 350, 2052–2058

Luciano Menini, Joyce C. da Cruz Santos, Elena V. Gusevskaya*

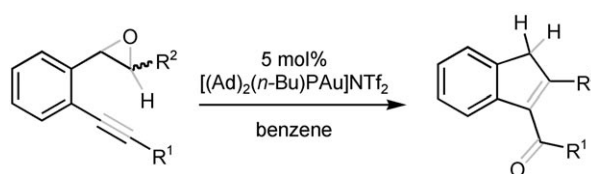


2052

Gold Catalysis: Synthesis of 3-Acylindenes from 2-Alkynylaryl Epoxides

Adv. Synth. Catal. **2008**, 350, 2059–2064

A. Stephen K. Hashmi,* Miriam Bührle, Ralph Salathé, Jan W. Bats

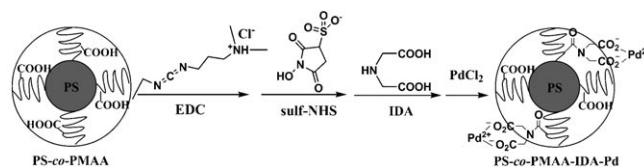


2059

Palladium-Iminodiacetic Acid Immobilized on pH-Responsive Polymeric Microspheres: Efficient Quasi-Homogeneous Catalyst for Suzuki and Heck Reactions in Aqueous Solution

Adv. Synth. Catal. **2008**, 350, 2065–2076

Jianzheng Zhang, Wangqing Zhang,* Yao Wang, Minchao Zhang

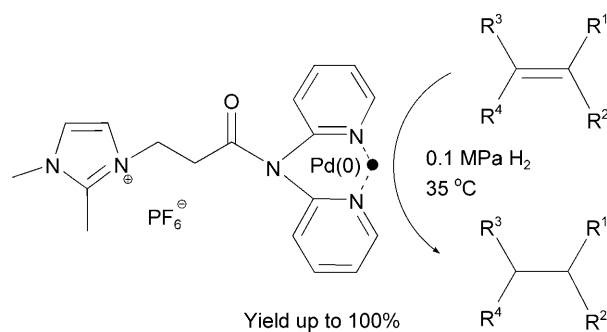


2065

- 2077** Biphase Hydrogenation of Olefins by Functionalized Ionic Liquid-Stabilized Palladium Nanoparticles


Adv. Synth. Catal. **2008**, 350, 2077–2085

 Yu Hu, Yinyin Yu, Zhenshan Hou,* Huan Li, Xiuge Zhao,
Bo Feng



- 2086** Sharpless Asymmetric Dihydroxylation of Olefins in Water/Surfactant Media with Recycling of the Catalytic System by Membrane Nanofiltration

Adv. Synth. Catal. **2008**, 350, 2086–2098

 Luis C. Branco,* Frederico Castelo Ferreira, José L. Santos,
João G. Crespo,* Carlos A. M. Afonso*



⇒ 7 examples: yields and ee higher or comparable to water-organic solvent system

⇒ No slow addition of olefins is required

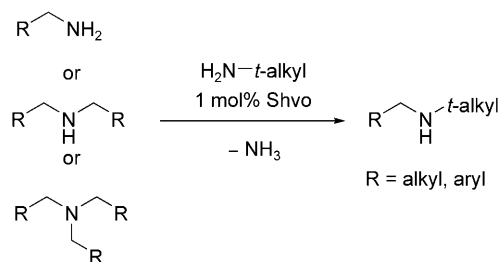
⇒ **Catalytic system efficiently reused for 6 cycles**

UPDATES

- ## 2099 Ruthenium-Catalyzed Synthesis of Secondary Alkylamines: Selective Alkylation with Aliphatic Amines

Adv. Synth. Catal. **2008**, 350, 2099–2103

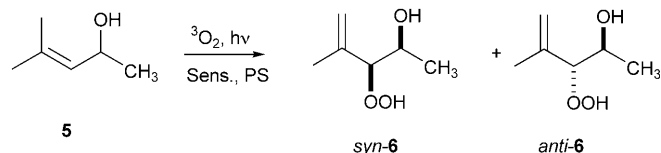
 Sebastian Bähn, Dirk Hollmann, Annegret Tillack,
Matthias Beller*



- 2104** Photooxygenation Catalysis with a Polyol-Decorated Disc-Shaped Porphyrin Sensitizer: Shell-Recognition Effects

Adv. Synth. Catal. **2008**, 350, 2104–2108

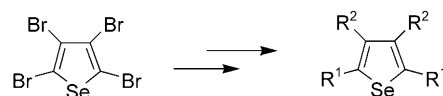
Axel G. Griesbeck,* Mathias Schäfer, Johannes Uhlig



- ## 2109 Efficient Synthesis of Substituted Selenophenes Based on the First Palladium(0)-Catalyzed Cross-Coupling Reactions of Tetrabromoselenophene

Adv. Synth. Catal. **2008**, 350, 2109–2117

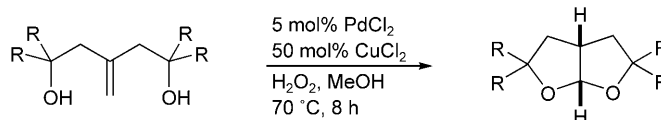
Dũng Thanh Tùng, Alexander Villinger, Peter Langer*



- ## 2118 Straightforward Synthesis of Perhydrofuro[2,3-*b*]furans through a Wacker-Type Reaction


Adv. Synth. Catal. **2008**, 350, 2118–2126

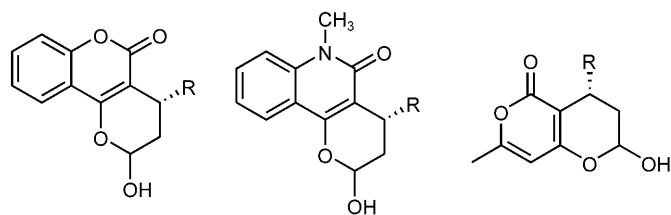
Francisco Alonso,* Daniel Sánchez, Tatiana Soler,
Miguel Yus*



Enantioselective Organocatalytic Reactions of 4-Hydroxycoumarin and 4-Hydroxypyronone with α,β -Unsaturated Aldehydes – An Efficient Michael Addition-Acetalization Cascade to Chromenones, Quinolinones and Pyranones

Adv. Synth. Catal. **2008**, 350, 2127–2131

 Magnus Rueping,* Estíbaliz Merino, Erli Sugiono



R = alkyl, aryl

more than 20 examples, up to 95% ee

2127

BOOK REVIEW

Catalysis: Concepts and Green Applications
By Gadi Rothenberg

Adv. Synth. Catal. **2008**, 350, 2133–2134

Mario Pagliaro*

2133

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

*Author to whom correspondence should be addressed.