

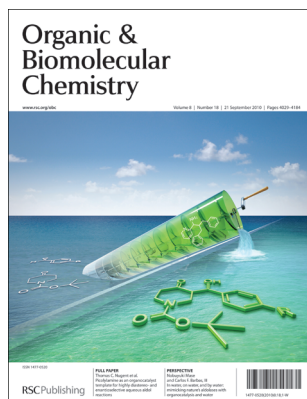
Organic & Biomolecular Chemistry

An international journal of synthetic, physical and biomolecular organic chemistry
www.rsc.org/obc

RSC Publishing is a not-for-profit publisher and a division of the Royal Society of Chemistry. Any surplus made is used to support charitable activities aimed at advancing the chemical sciences. Full details are available from www.rsc.org

IN THIS ISSUE

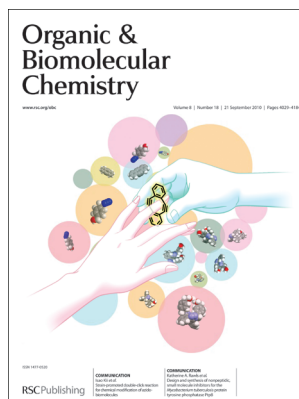
ISSN 1477-0520 CODEN OBCRAK 8(18) 4029–4184 (2010)



Cover

See Thomas C. Nugent *et al.*, pp. 4085–4089
 Archimedes' screw, an ingenious device synonymous with water transport, is depicted here as the water active 1,2-diamine catalyst converting low value starting materials into high value multifunctional aldol products. Graphic Art Credit: Michael Holt (Bremen, Germany).

Image reproduced by permission of Thomas C. Nugent from *Org. Biomol. Chem.*, 2010, **8**, 4085.



Inside cover

See Isao Kii *et al.*, pp. 4051–4055.
 The wedding ring. He is putting the Sondheimer diyne on her finger and they are covalently joined together. This wedding ring provides a novel convergent method, "strain-promoted double-click reaction" enabling us to modify azido-biomolecules with a small reporter azide.

Image reproduced by permission of Takamitsu Hosoya from *Org. Biomol. Chem.*, 2010, **8**, 4051.

PERSPECTIVE

4043

In water, on water, and by water: mimicking nature's aldolases with organocatalysis and water

Nobuyuki Mase* and Carlos F. Barbas, III*

Organocatalysis and water combine two environmentally friendly concepts in a single system. The explosive development of organocatalytic direct transformations in aqueous media without added organic solvent is reviewed.



COMMUNICATIONS

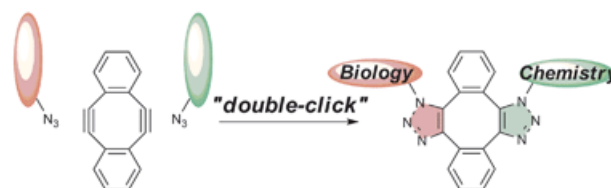
4051



Strain-promoted double-click reaction for chemical modification of azido-biomolecules

Isao Kii,* Akira Shiraishi, Toshiyuki Hiramatsu, Takeshi Matsushita, Hidehiro Uekusa, Suguru Yoshida, Makoto Yamamoto, Akira Kudo, Masatoshi Hagiwara and Takamitsu Hosoya*

The strain-promoted "double-click" (SPDC) reaction using Sondheimer diyne, a novel convergent method conjugating three molecules spontaneously, has enabled us to readily modify an azido-biomolecule with a small reporter azido-molecule.



The Sondheimer diyne acts as a matchmaker between chemistry and biology.

EDITORIAL STAFF

Editor

Richard Kelly

Deputy editor

Lorena Tomás Laudo

Senior publishing editor

Helen Saxton

Publishing editors

Nicola Burton, Bailey Fallon, Scott Gallifent-Holmes, Frances Galvin, Jonathan Gammon, Ben Merison, Roxane Owen

Publishing assistants

Anna Anderson, Jackie Cockrill

Publisher

Emma Wilson

For queries about submitted papers, please contact Helen Saxton, Senior publishing editor in the first instance. E-mail: obc@rsc.org

For pre-submission queries please contact Richard Kelly, Editor. Email: obc-rsc@rsc.org

Organic & Biomolecular Chemistry (print: ISSN 1477-0520; electronic: ISSN 1477-0539) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF. All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to RSC Distribution Services, c/o Portland Customer Services, Commerce Way, Colchester, Essex, UK CO2 8HP. Tel +44 (0)1206 226050; E-mail sales@scdistribution.org

2010 Annual (print+electronic) subscription price: £3105; US\$5796. 2010 Annual (electronic) subscription price: £2794; US\$5216. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT. If you take an institutional subscription to any RSC journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip. Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank. Periodicals postage paid at Rahway, NJ, USA and at additional mailing offices. Airfreight and mailing in the USA by Mercury Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001, USA.

US Postmaster: send address changes to Organic & Biomolecular Chemistry (OBC) c/o Mercury Airfreight International Ltd, 365 Blair Road, Avenel, NJ 07001. All despatches outside the UK by Consolidated Airfreight.

The Royal Society of Chemistry takes reasonable care in the preparation of this publication but does not accept liability for the consequences of any errors or omissions. Inclusion of an item in this publication does not imply endorsement by The Royal Society of Chemistry of the content of the original documents to which that item refers.

Advertisement sales: Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017; E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

Organic & Biomolecular Chemistry

An international journal of synthetic, physical and biomolecular organic chemistry

www.rsc.org/obc

Organic & Biomolecular Chemistry brings together molecular design, synthesis, structure, function and reactivity in one journal. It publishes fundamental work on synthetic, physical and biomolecular organic chemistry as well as all organic aspects of: chemical biology, medicinal chemistry, natural product chemistry, supramolecular chemistry, macromolecular chemistry, theoretical chemistry, and catalysis.

EDITORIAL BOARD

Chair

Professor Jay Siegel, Zürich, Switzerland

Professor Jeffrey Bode, Philadelphia, USA

Professor Margaret Brimble, Auckland, New Zealand

Professor Ben Davis, Oxford, UK

Dr Veronique Gouverneur, Oxford, UK

Professor Stefan Matile, Geneva, Switzerland

Professor Paolo Scrimin, Padova, Italy

Professor Brian Stoltz, Pasadena, USA

Professor Keisuke Suzuki, Tokyo, Japan

ADVISORY BOARD

Roger Alder, Bristol, UK
Helen Blackwell, Madison, USA

John S Carey, Tonbridge, UK

Barry Carpenter, Cardiff, UK

Michael Crimmins, Chapel Hill, USA

Antonio Echavarrén, Tarragona, Spain

Jonathan Ellman, New Haven, USA

Kurt Faber, Graz, Austria

Ben Feringa, Groningen, The Netherlands

Nobutaki Fujii, Kyoto, Japan

Jan Kihlberg, Umeå, Sweden

Philip Kocienski, Leeds, UK

Steven V Ley, Cambridge, UK

Stephen Loeb, Ontario, Canada

Ilan Marek, Haifa, Israel

Manuel Martín Lomas, San Sebastián, Spain

Keiji Maruoka, Kyoto, Japan

Heather Maynard, Los Angeles, USA

E.W.'Bert' Meijer, Eindhoven, The Netherlands

The Netherlands

Eiichi Nakamura, Tokyo, Japan

Ryoji Noyori, Nagoya, Japan

Mark Rizzacasa, Melbourne, Australia

Oliver Seitz, Berlin, Germany

Bruce Turnbull, Leeds, UK

Chris Welch, Rahway, USA

Peter Wipf, Pittsburg, USA

Henry N C Wong, Hong Kong, China

Sam Zard, Ecole Polytechnique, France

France

Zhang Li-He, Beijing, China

INFORMATION FOR AUTHORS

Full details on how to submit material for publication in *Organic & Biomolecular Chemistry* are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: <http://www.rsc.org/obc>.

Authors may reproduce/republish portions of their published contribution without seeking permission from the RSC, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of The Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2010. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

The Royal Society of Chemistry takes reasonable care in the preparation of this publication but does not accept liability for the consequences of any errors or omissions.

Ⓢ The paper used in this publication meets the requirements of ANSI/NISO Z39.48–1992 (Permanence of Paper).

Royal Society of Chemistry: Registered Charity No. 207890.

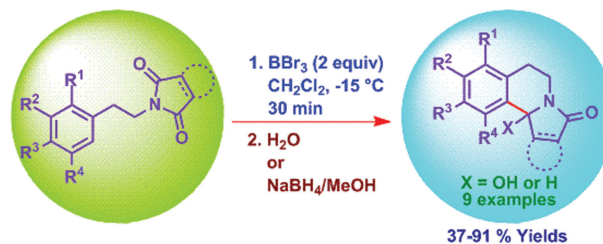
COMMUNICATIONS

4056

An unusual reactivity of BBr_3 : Accessing tetrahydroisoquinoline units from *N*-phenethylimides

Jayaraman Selvakumar, Alexandros Makriyannis and Chinnasamy Ramaraj Ramanathan*

A simple methodology to construct the tetrahydroisoquinoline containing skeleton through electrophilic activation of imide carbonyl group of *N*-phenethylimides using BBr_3 as Lewis acid is developed.

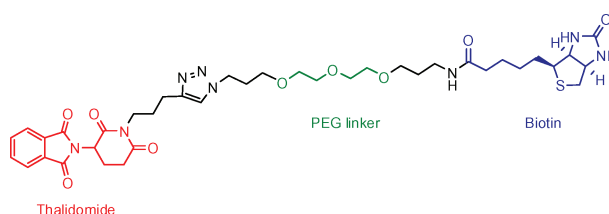


4059

Efforts toward elucidating Thalidomide's molecular target: an expedient synthesis of the first Thalidomide biotin analogue

Scott G. Stewart,* Carlos J. Braun, Marta E. Polomska, Mahdad Karimi, Lawrence J. Abraham and Keith A. Stubbs

The synthesis of the first Thalidomide–biotin analogue is described *via* a Huisgen 1,3-dipolar cycloaddition (click reaction) as the key synthetic step. This compound will help unlock investigations into the as yet unknown molecular mode of action of Thalidomide.

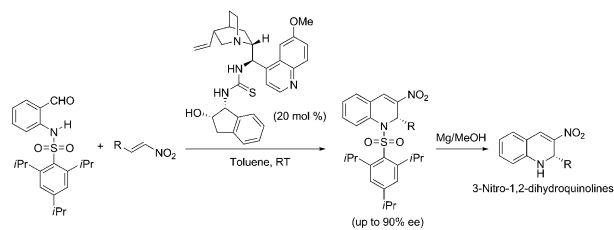


4063

Bifunctional thiourea-promoted cascade aza-Michael-Henry-dehydration reactions: asymmetric preparation of 3-nitro-1,2-dihydroquinolines

Xiaoqian Liu and Yixin Lu*

A cascade aza-Michael-Henry-dehydration reaction led to a one-step preparation of 3-nitro-1,2-dihydroquinolines in high yields and up to 90% ee.

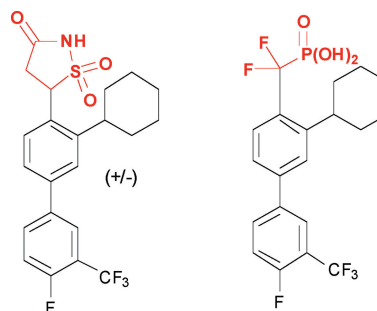


4066

Design and synthesis of nonpeptidic, small molecule inhibitors for the *Mycobacterium tuberculosis* protein tyrosine phosphatase PtpB

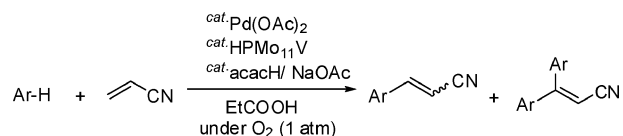
Katherine A. Rawls, Christoph Grundner and Jonathan A. Ellman*

The design and synthesis of small molecules with low micromolar inhibition of *Mycobacterium tuberculosis* protein tyrosine phosphatase PtpB is described.



COMMUNICATIONS

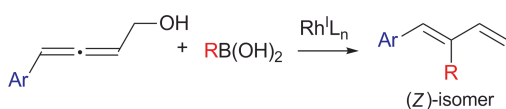
4071

**Direct oxidative coupling of benzenes with acrylonitriles to cinnamionitriles catalyzed by Pd(OAc)₂/HPMoV/O₂ system**

Yasushi Obora,* Yoshihisa Okabe and Yasutaka Ishii*

A facile direct synthesis of cinnamionitriles from acrylonitriles and benzenes is successfully achieved by using Pd(OAc)₂/HPMoV/O₂ catalyst system *via* the direct C–H bond activation of benzenes using molecular oxygen as a terminal oxidant.

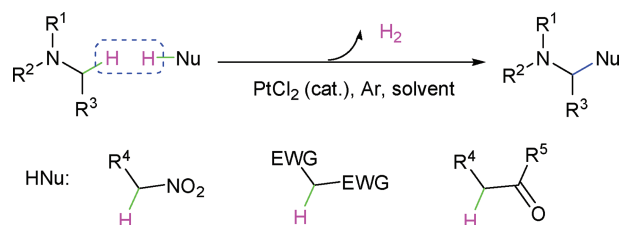
4074

**Stereoselective synthesis of vinyl-substituted (Z)-stilbenes by rhodium-catalysed addition of arylboronic acids to allenic alcohols**

Tomoya Miura, Hiroshi Shimizu, Tomohiro Igarashi and Masahiyo Murakami*

The reaction of 4-arylbuta-2,3-dien-1-ols with arylboronic acids in the presence of a rhodium(I) catalyst gave vinylsubstituted (Z)-stilbenes stereoselectively.

4077

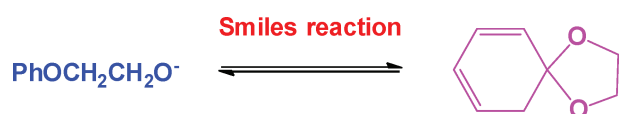
**Platinum-catalyzed cross-dehydrogenative coupling reaction in the absence of oxidant**

Xing-Zhong Shu, Yan-Fang Yang, Xiao-Feng Xia, Ke-Gong Ji, Xue-Yuan Liu and Yong-Min Liang*

A third strategy for cross-dehydrogenative coupling reaction has been reported *via* platinum catalysis in the absence of oxidant.

PAPERS

4080

**The gas phase Smiles rearrangement of anions PhO(CH₂)_nO[−] (n = 2–4). A joint theoretical and experimental approach**

Tianfang Wang, Nico M. M. Nibbering and John H. Bowie*

A combination of theory and experiment shows that energized PhOCH₂CH₂O[−] exclusively undergoes the Smiles rearrangement.

Pharma-Bio-Med™ 2010

Seville, Spain
8-10 November 2010
(Optional workshops 7 and 11 November)



For Information Specialists, Library
and Knowledge Management Professionals

Best practices in Pharmaceutical, Biotechnology,
Biomedical, Medical and Competitor Information
through all stages of a drug's progression:

- R&D discovery research
- Pre-clinical, clinical, regulatory, safety
- Pipeline, business & competitor information
- Post market surveillance
- Medical & health information

Featuring presentations from practitioners in
industry, plus vendor exhibits and workshops:

- SciTech, medical & business information
- Publications, journals, databases
- Software tools & enabling technologies
-Integration, text mining, visualisation
- Searching techniques, tips & tricks

Please visit the conference website for Programme
and Registration Details

www.Pharma-Bio-Med.com



Pharma-Bio-Med™
International Institute for Information Professionals



Recognition starts here



Chemical Science

A new global impact journal for exceptional research from across the chemical sciences

What's different about *Chemical Science*, you might ask? Firstly, we know that current approaches to selecting and publishing articles aren't always as effective as they might be. Secondly, we appreciate the challenges you face in getting your work published, noticed and recognised.

We want to change this. So *Chemical Science* will make it easier for you to get the recognition that your work deserves.

A hand-picked team of dynamic Associate Editors, led by Editor-in-Chief David MacMillan, will ensure that every article has a fair review. And as active researchers, they will guarantee that the journal represents the best new thinking in the chemical sciences.

Submit your next article to *Chemical Science* – and step into the spotlight.

RSC Publishing

www.rsc.org/chemicalscience

Registered Charity Number 207890

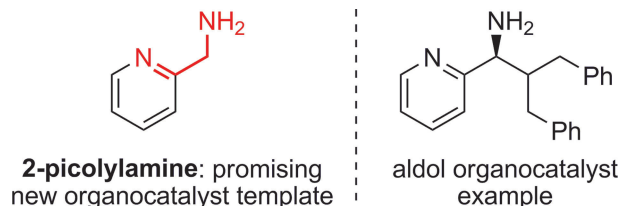
PAPERS

4085

Picolylamine as an organocatalyst template for highly diastereo- and enantioselective aqueous aldol reactions

Thomas C. Nugent,* M. Naveed Umar and Ahtaram Bibi

A pyridine based 1,2-diamine containing only one stereogenic center has been identified for fast aldol reactions. Using 2–5 mol% of (*R*)- or (*S*)-PicAm-2, cyclohexanone (3.3 equiv) readily undergoes aldol reactions with *o*-, *m*-, and *p*-substituted aromatic aldehyde partners. Furthermore, the new catalyst excels when examining functionalized cyclic ketone addition to aldehydes (Scheme 2).

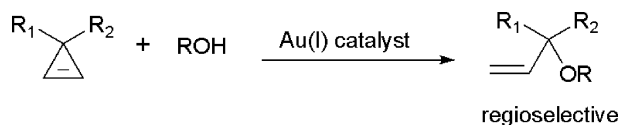


4090

Gold(I)-catalysed alcohol additions to cyclopropenes

Maximilian S. Hadfield, Jürgen T. Bauer, Pauline E. Glen and Ai-Lan Lee*

Gold(I)-catalysed addition of alcohols to 3,3-disubstituted cyclopropenes occurs in a highly regioselective and facile manner to produce alkyl *tert*-allylic ethers in good yields. The reaction is tolerant of sterically hindered substituents on the cyclopropene as well as primary and secondary alcohols as nucleophiles.

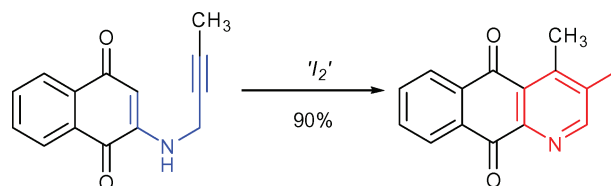


4096

Azaanthraquinone assembly from *N*-propargylamino quinone via iodine-induced 6-*endo-dig* electrophilic cyclization

Na Fei, Qiwen Hou, Shaozhong Wang,* Huaqin Wang and Zhu-Jun Yao

A metal-free protocol taking advantage of the excellent nucleophilicity of aminoquinone to assemble the azaanthraquinone framework was developed by employing an iodine-induced 6-*endo-dig* electrophilic cyclization.

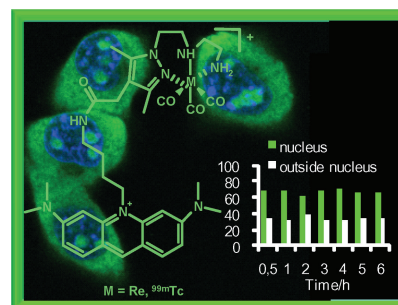


4104

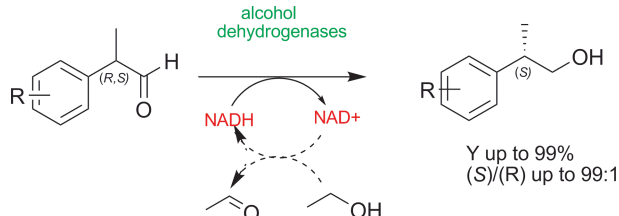
Tricarbonyl M(I) (M = Re, ^{99m}Tc) complexes bearing acridine fluorophores: synthesis, characterization, DNA interaction studies and nuclear targeting

Teresa Esteves, Catarina Xavier, Sofia Gama, Filipa Mendes, Paula D. Raposinho, Fernanda Marques, António Paulo, João Costa Pessoa, José Rino, Giampietro Viola and Isabel Santos*

Nuclear-targeting and DNA intercalation of Re and ^{99m}Tc-tricarbonyl complexes.



4117

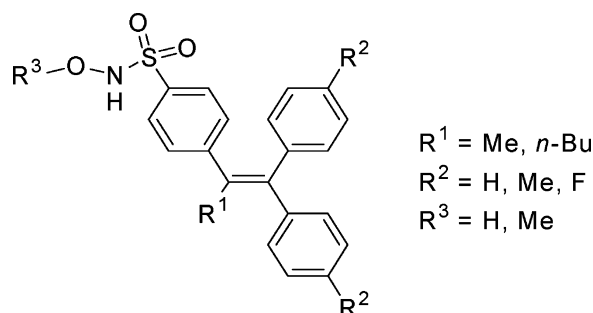


Chemoenzymatic synthesis of (2*S*)-2-arylpropanols through a dynamic kinetic resolution of 2-arylpropanals with alcohol dehydrogenases

Paola Galletti,* Enrico Emer, Gabriele Gucciardo, Arianna Quintavalla, Matteo Pori and Daria Giacomini*

(2*S*)-2-Arylpropanols, useful intermediates in the synthesis of Profens, were obtained by means of a dynamic kinetic resolution (DKR) of racemic 2-arylpropanals. The DKR process combines an enzymatic reduction with a chemical base-racemization of the unreacted aldehyde.

4124

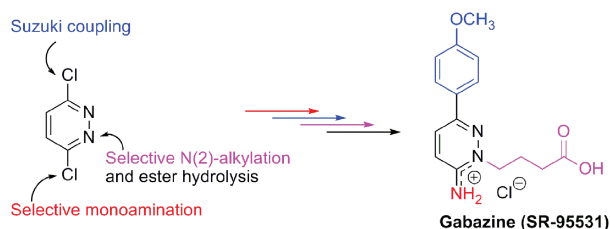


Acyclic triaryl olefins possessing a sulfohydroxamic acid pharmacophore: synthesis, nitric oxide/nitroxyl release, cyclooxygenase inhibition, and anti-inflammatory studies

Zhangjian Huang, Carlos Velázquez, Khaled Abdellatif, Morshed Chowdhury, Sarthak Jain, Julie Reisz, Jenna DuMond, S. Bruce King and Edward Knaus*

A group of sulfohydroxamic acids were synthesized and evaluated as COX isozyme inhibitors, NO and HNO donors, and anti-inflammatory agents.

4131

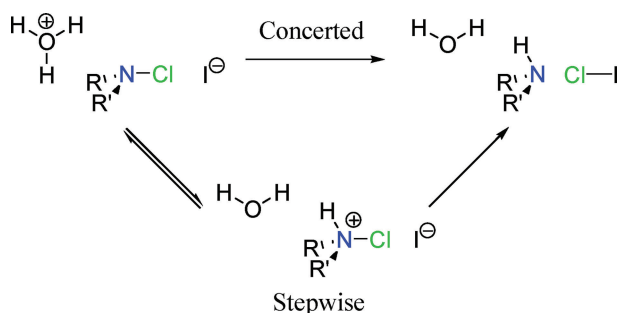


Microwave-enhanced synthesis of 2,3,6-trisubstituted pyridazines: application to four-step synthesis of gabazine (SR-95531)

Navnath Gavande, Graham A. R. Johnston, Jane R. Hanrahan* and Mary Chebib*

Microwave-enhanced, highly efficient protocols for the synthesis of synthetically and biologically important 2,3,6-trisubstituted pyridazine architectures have been developed by sequential amination/Suzuki coupling/alkylation reactions. The synthesis of gabazine (SR-95531) has been achieved in four steps and 73% overall yield.

4137



Acid-catalysed chlorine transfer from *N*-chloramines to iodide ion: experimental evidence for a predicted change in mechanism

Paula Calvo, Juan Crugeiras* and Ana Ríos

A change from a stepwise to a concerted mechanism for acid catalysis of chlorine transfer to iodide ion is observed upon decreasing the basicity of the leaving amine. This change appears to occur when the protonated chloramine ceases to have a significant lifetime in the presence of the nucleophile.

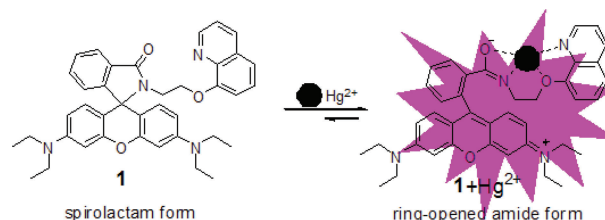
PAPERS

4143

Rhodamine-based chemosensor for Hg^{2+} in aqueous solution with a broad pH range and its application in live cell imaging

Yun Zhao, Yue Sun, Xin Lv, Yunlong Liu, Maliang Chen and Wei Guo*

A rhodamine B-based chemosensor bearing an 8-hydroxyquinoline chelating group was found to exhibit dual chromo- and fluorogenic responses toward Hg^{2+} with high selectivity and sensitivity.

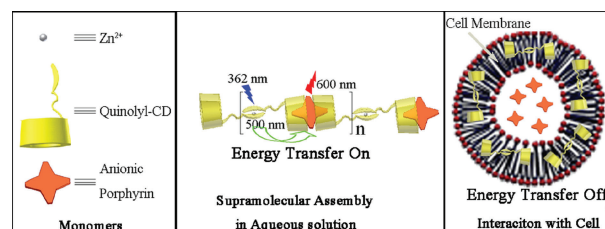


4148

Construction and transmembrane dissociation behavior of supramolecular assembly of quinolinocyclodextrin with porphyrin

Miao Yu, Yong Chen, Ning Zhang and Yu Liu*

A non-covalently constructed Zn^{2+} /cyclodextrin/porphyrin supramolecule exhibited environment-sensitive association/dissociation behaviors, which referred to a controlled transmembrane release property.

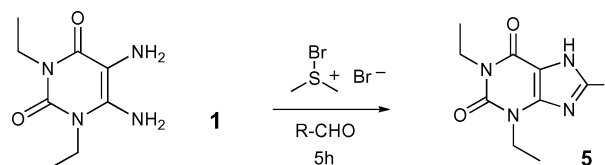


4155

An efficient route to xanthine based A_{2A} adenosine receptor antagonists and functional derivatives

Paul LaBeaume, Ma Dong, Michail Sitkovsky, Elizabeth V. Jones, Rhiannon Thomas, Sara Sadler, Amy E. Kallmerten and Graham B. Jones*

A one-pot route to 8-substituted xanthines has been developed from 5,6-diaminouracils and carboxaldehydes. Yields are good and the process applicable to a range of substrates including a family of A_{2A} adenosine receptor antagonists.

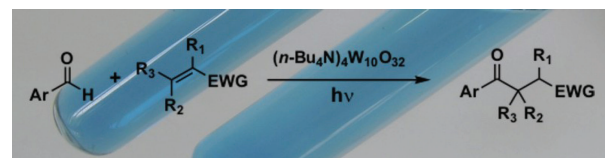


4158

Benzoyl radicals from (hetero)aromatic aldehydes. Decatungstate photocatalyzed synthesis of substituted aromatic ketones

Davide Ravelli, Michele Zema, Mariella Mella, Maurizio Fagnoni* and Angelo Albini

Benzoyl radicals are generated directly from (hetero)aromatic aldehydes upon tetrabutylammonium decatungstate ($(n\text{-Bu}_4\text{N})_4\text{W}_{10}\text{O}_{32}$), TBADT photocatalysis under mild conditions. In the presence of α,β -unsaturated esters, ketones and nitriles radical conjugate addition ensues and gives the corresponding β -functionalized aryl alkyl ketones.



A new journal from RSC Publishing
Free online access available

Polymer Chemistry



A new peer-reviewed journal publishing advances in polymer chemistry encompassing all aspects of synthetic and biological macromolecules, and related emerging areas.

Polymer Chemistry provides a showcase for the ongoing efforts driving polymer chemistry, highlighting the creativity of the field and previously inaccessible applications. Monthly issues contain a full mix of research articles, including Communications, Reviews and Full Papers.

Professor David Haddleton, University of Warwick, is Editor-in-Chief of *Polymer Chemistry*.

The current issue of *Polymer Chemistry* is **freely accessible** on the website until the end of 2011. Free online institutional access to previous issue content during 2010 and 2011 is available following a simple registration process at www.rsc.org/free_access_registration

Visit the website to find out more

RSC Publishing

www.rsc.org/polymers

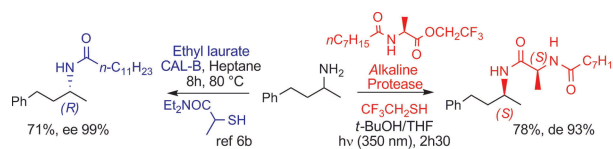
Registered Charity Number 207890

4165

Switching from (*R*)- to (*S*)-selective chemoenzymatic DKR of amines involving sulfanyl radical-mediated racemization

Lahssen El Bliidi, Nicolas Vanthuyne, Didier Siri, Stéphane Gastaldi,* Michèle P. Bertrand* and Gérard Gil*

Chemoenzymatic dynamic kinetic resolution of amines involving sulfanyl radical-induced racemization happened to be the very first switchable DKR process allowing the synthesis of either (*R*)- or (*S*)-amides.

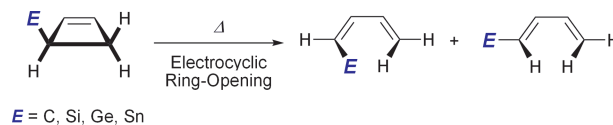


4169

Substituent effect of group 14 elements on the ring-opening reaction of cyclobutene

Munehiro Hasegawa, Ippei Usui, Soichiro Konno and Masahiro Murakami*

A series of cyclobutenes bearing group 14 elements at the 3-position were synthesized, and their rotational behaviors in the thermal ring-opening reaction are discussed.

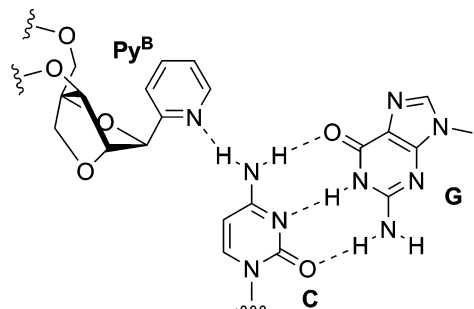


4176

2',4'-BNA bearing a 2-pyridine nucleobase for CG base pair recognition in the parallel motif triplex DNA

Yoshiyuki Hari,* Sachiko Matsugu, Hiroyasu Inohara, Yuri Hatanaka, Masaaki Akabane, Takeshi Imanishi and Satoshi Obika*

2',4'-BNA bearing a 2-pyridine nucleobase (Py^{B} , see picture) in triplex-forming oligonucleotides was able to recognize a CG base pair within dsDNA with high sequence-selectivity and strong binding affinity.




AUTHOR INDEX

- Abdellatif, Khaled, 4124
 Abraham, Lawrence J., 4059
 Akabane, Masaaki, 4176
 Albin, Angelo, 4158
 Barbas, III, Carlos F., 4043
 Bauer, Jürgen T., 4090
 Bertrand, Michèle P., 4165
 Bibi, Ahtaram, 4085
 Bowie, John H., 4080
 Braun, Carlos J., 4059
 Calvo, Paula, 4137
 Chebib, Mary, 4131
 Chen, Maliang, 4143
 Chen, Yong, 4148
 Chowdhury, Morshed, 4124
 Crugeiras, Juan, 4137
 Dong, Ma, 4155
 DuMond, Jenna, 4124
 El Blidi, Lahssen, 4165
 Ellman, Jonathan A., 4066
 Emer, Enrico, 4117
 Esteves, Teresa, 4104
 Fagnoni, Maurizio, 4158
 Fei, Na, 4096
 Galletti, Paola, 4117
 Gama, Sofia, 4104
 Gastaldi, Stéphane, 4165
 Gavande, Navnath, 4131
 Giacomini, Daria, 4117
 Gil, Gérard, 4165
 Glen, Pauline E., 4090
 Grundner, Christoph, 4066
 Gucciardo, Gabriele, 4117
 Guo, Wei, 4143
 Hadfield, Maximilian S., 4090
 Hagiwara, Masatoshi, 4051
 Hanrahan, Jane R., 4131
 Hari, Yoshiyuki, 4176
 Hasegawa, Munehiro, 4169
 Hatanaka, Yuri, 4176
 Hiramatsu, Toshiyuki, 4051
 Hosoya, Takamitsu, 4051
 Hou, Qiwen, 4096
 Huang, Zhangjian, 4124
 Igarashi, Tomohiro, 4074
 Imanishi, Takeshi, 4176
 Inohara, Hiroyasu, 4176
 Ishii, Yasutaka, 4071
 Jain, Sarthak, 4124
 Ji, Ke-Gong, 4077
 Johnston, Graham A. R., 4131
 Jones, Elizabeth V., 4155
 Jones, Graham B., 4155
 Kallmerten, Amy E., 4155
 Karimi, Mahdad, 4059
 Kii, Isao, 4051
 King, S. Bruce, 4124
 Knaus, Edward, 4124
 Konno, Soichiro, 4124
 Kudo, Akira, 4051
 LaBeaume, Paul, 4155
 Lee, Ai-Lan, 4090
 Liang, Yong-Min, 4077
 Liu, Xiaoqian, 4063
 Liu, Xue-Yuan, 4077
 Liu, Yu, 4148
 Liu, Yunlong, 4143
 Lu, Yixin, 4063
 Lv, Xin, 4143
 Makriyannis, Alexandros, 4056
 Marques, Fernanda, 4104
 Mase, Nobuyuki, 4043
 Matsugu, Sachiko, 4176
 Matsushita, Takeshi, 4051
 Mella, Mariella, 4158
 Mendes, Filipa, 4104
 Miura, Tomoya, 4074
 Murakami, Masahiro, 4074, 4169
 Nibbering, Nico M. M., 4080
 Nugent, Thomas C., 4085
 Obika, Satoshi, 4176
 Obora, Yasushi, 4071
 Okabe, Yoshihisa, 4071
 Paulo, António, 4104
 Pessoa, João Costa, 4104
 Polomska, Marta E., 4059
 Pori, Matteo, 4117
 Quintavalla, Arianna, 4117
 Ríos, Ana, 4137
 Ramanathan, Chinnasamy
 Ramaraj, 4056
 Raposinho, Paula D., 4104
 Ravelli, Davide, 4158
 Rawls, Katherine A., 4066
 Reisz, Julie, 4124
 Rino, José, 4104
 Sadler, Sara, 4155
 Santos, Isabel, 4104
 Selvakumar, Jayaraman, 4056
 Shimizu, Hiroshi, 4074
 Shiraiishi, Akira, 4051
 Shu, Xing-Zhong, 4077
 Siri, Didier, 4165
 Sitkovsky, Michail, 4155
 Stewart, Scott G., 4059
 Stubbs, Keith A., 4059
 Sun, Yue, 4143
 Thomas, Rhiannon, 4155
 Uekusa, Hidehiro, 4051
 Umar, M. Naveed, 4085
 Usui, Ippei, 4169
 Vanthuyne, Nicolas, 4165
 Velázquez, Carlos, 4124
 Viola, Giampietro, 4104
 Wang, Huaqin, 4096
 Wang, Shaozhong, 4096
 Wang, Tianfang, 4080
 Xavier, Catarina, 4104
 Xia, Xiao-Feng, 4077
 Yamamoto, Makoto, 4051
 Yang, Yan-Fang, 4077
 Yao, Zhu-Jun, 4096
 Yoshida, Suguru, 4051
 Yu, Miao, 4148
 Zema, Michele, 4158
 Zhang, Ning, 4148
 Zhao, Yun, 4143

FREE E-MAIL ALERTS AND RSS FEEDS


Contents lists in advance of publication are available on the web *via* www.rsc.org/obc – or take advantage of our free e-mail alerting service (www.rsc.org/ej_alert) to receive notification each time a new list becomes available.

 Try our RSS feeds for up-to-the-minute news of the latest research. By setting up RSS feeds, preferably using feed reader software, you can be alerted to the latest Advance Articles published on the RSC web site. Visit www.rsc.org/publishing/technology/rss.asp for details.

ADVANCE ARTICLES AND ELECTRONIC JOURNAL

Free site-wide access to Advance Articles and the electronic form of this journal is provided with a full-rate institutional subscription. See www.rsc.org/ejs for more information.

* Indicates the author for correspondence: see article for details.

 Electronic supplementary information (ESI) is available *via* the online article (see <http://www.rsc.org/esi>) for general information about ESI).