

Organic & Biomolecular Chemistry

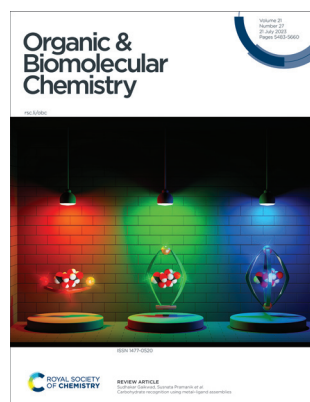
An international journal of synthetic, physical and biomolecular organic chemistry

rsc.li/obc

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1477-0520 CODEN OBCRAK 21(27) 5483–5660 (2023)



Cover

See Sudhakar Gaikwad,
Susnata Pramanik *et al.*,
pp. 5492–5505.

Image designed by
Anandkumar Anbazhagan
and reproduced by
permission of
Dr Sudhakar Gaikwad from
Org. Biomol. Chem., 2023,
21, 5492.

REVIEW

5492

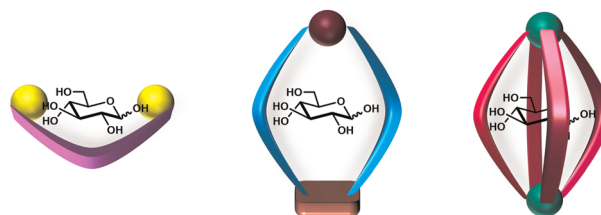
Carbohydrate recognition using metal–ligand assemblies

Rafiq Ahamed, Jayashree Venkatesh, Rakshantha Srithar,
Sudhakar Gaikwad* and Susnata Pramanik*

• Self-Assembled Structures

• Modular Synthesis
• Tunability

• Defined Cavity

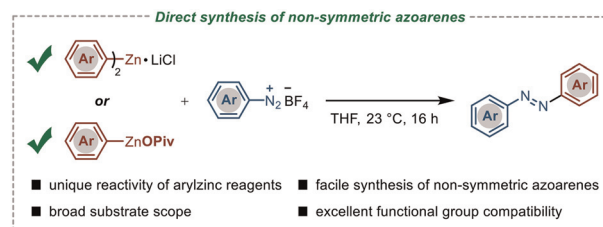


COMMUNICATIONS

5506

Organozincs for versatile synthesis of non-symmetric azoarenes

Zhili Duan, Shoucheng Dong and Jie Li*



Editorial Staff

Executive Editor

Rebecca Garton

Deputy Editor

Jack Washington

Development Editor

Daniel Robertshaw

Editorial Production Manager

Sarah Whitehouse

Publishing Editors

Nicola Burton, Tom Cozens, Katie Fernandez, Ryan Kean, Roxane Owen, Alex Rowles

Editorial Assistant

Amy Cook

Publishing Assistant

Andrea Whiteside

Publisher

Sam Keltie

For queries about submitted papers, please contact Sarah Whitehouse, Editorial Production Manager in the first instance. E-mail: obc@rsc.org

For pre-submission queries please contact Rebecca Garton, Executive Editor. Email: obc-rsc@rsc.org

Organic & Biomolecular Chemistry (electronic: ISSN 1477-0539) is published 48 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 the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £5164; US\$9267.

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.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

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

Rapid publication of high quality organic chemistry research

rsc.li/obc

Organic & Biomolecular Chemistry is a weekly journal for the publication of highly significant original research and reviews in all areas of organic chemistry, including organic synthesis, physical organic chemistry, and organic aspects of supramolecular chemistry and chemical biology.

Editorial Board

Chair

Anthony Davis, University of Bristol, UK

Associate Editors

Christian Hackenberger, Leibniz-Institut für Molekulare Pharmakologie and Humboldt Universität zu Berlin, Germany
Katrina Jolliffe, University of Sydney, Australia
Motomu Kanai, University of Tokyo, Japan

Lei Liu, Tsinghua University, China

Xiaohua Liu, Sichuan University, China
Santanu Mukherjee, Indian Institute of Science, Bangalore, India

Scott Silverman, University of Illinois at Urbana-Champaign, USA

Cristina Trujillo, University of Manchester, UK

Members

Ivan Huc, Ludwig-Maximilian University of Munich, Germany

S.S.V. Ramasastry, Indian Institute of Science Education and Research Mohali, India

Corinna Schindler, University of Michigan, USA

Judy I-Chia Wu, University of Houston, USA

Advisory Board

Kyo Han Ahn, Pohang University of Science and Technology, Korea

Igor Alabugin, Florida State University, USA
Gonçalo Bernardes, University of Cambridge, UK

Shunsuke Chiba, Nanyang Technological University, Singapore

Andre Cobb, Kings College London, UK

Steven Cobb, Durham University, UK

Ratmir Derda, University of Alberta, Canada

Antonio Echavarren, Institute of Chemical Research of Catalonia, Spain

Ben Feringa, University of Groningen, The Netherlands

Amar Flood, Indiana University Bloomington, USA

Carmen Galan, University of Bristol, UK

Jason Harper, University of New South Wales, Australia

Elizabeth Krensk, University of Queensland, Australia

Maresh Lakshman, The City College of New York, USA

Shih-Yuan Liu, Boston College, USA

Geraldine Masson, Institut de Chimie des Substances Naturelles (CNRS), France

Elizabeth New, University of Sydney, Australia

Dhevalapally B. Ramachary, University of Hyderabad, India

Paolo Scrimin, University of Padova, Italy

Oliver Seitz, Humboldt University of Berlin, Germany

Jay Siegel, University of Zürich, Switzerland

Corey Stephenson, University of Michigan, USA

Dean Tantillo, University of California Davis, USA

Mark Taylor, University of Toronto, Canada

Georgios Vassilikogiannakis, University of Crete, Greece

Helma Wennemers, ETH Zürich, Switzerland

Peter Wipf, University of Pittsburgh, USA

Shuli You, Shanghai Institute of Organic Chemistry, China

Jian Zhou, East China Normal University, 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: rsc.li/obc

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, 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 2023.

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.

Registered charity number: 207890

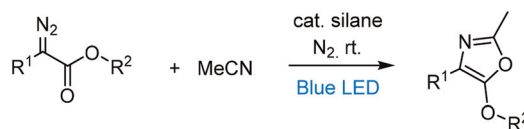


COMMUNICATIONS

5511

Visible light-induced synthesis of polysubstituted oxazoles from diazo compounds

Jinrui Bai, Dan Qi, Zhuoheng Song, Bin Li, Lin Guo, Chao Yang* and Wujiong Xia*

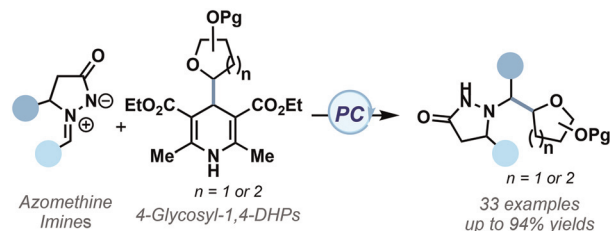


- Synthesis of phenyloxazoles
- Metal-free catalyst
- Gram-scale reaction in flow
- Operationally simple conditions

5516

Synthesis of non-anomeric C-glycosyl pyrazolidinone derivatives via visible-light photoredox catalysis

Renan. O. Gonçalves, Pedro H. R. Oliveira, Iva S. de Jesus, Natalí P. Debia, Diogo S. Lüdtkke* and Márcio W. Paixão*



- Good functional group tolerance
- Metal-free
- Mild conditions and scalable
- Broad substrate scope

5521

I₂/TBHP-mediated oxidative cascade cyclization of vinyl azide and benzylamine to construct 2,5-disubstituted oxazoles

Mohanreddy Pothireddy, Rana Chatterjee, Vijaya Babu Penke and Rambabu Dandela*

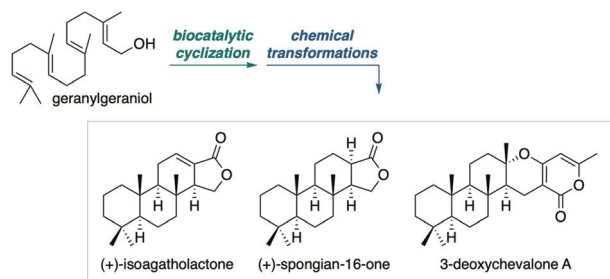


- C-N & C-O bond formation
- Metal-free reaction
- Oxidative cyclization
- Aerobic conditions

5527

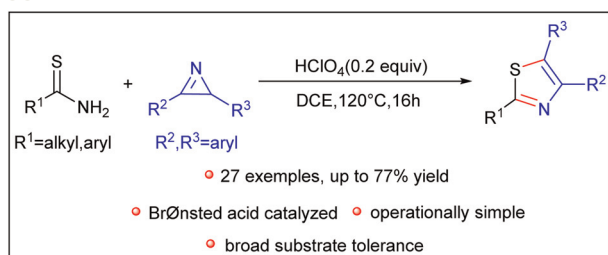
Chemoenzymatic synthesis of (+)-isoagatholactone, (+)-spongian-16-one, and 3-deoxychavalone A via biocatalytic polyene cyclization

Wen Xiao, Su-Jing Wang, Ming-Zhu Yu, Xue-Jie Zhang and Zheng Xiang*



COMMUNICATIONS

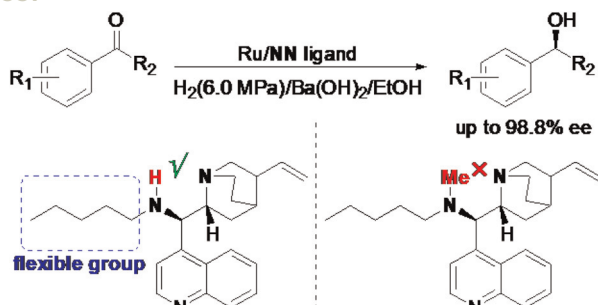
5532



Brønsted acid-promoted ring-opening and annulation of thioamides and 2*H*-azirines to synthesize 2,4,5-trisubstituted thiazoles

Meng Wang, Jingyi Ma, Hesong Wang, Fangpeng Hu, Bo Sun, Taiyan Tan, Minglang Li and Guosheng Huang*

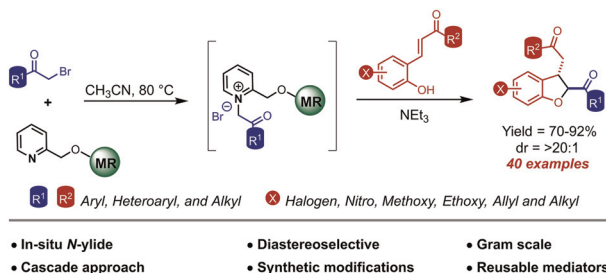
5537



Cinchona-alkaloid-derived NN ligands for ruthenium catalyzed asymmetric hydrogenation of ketones

Hao Sun, Pinli Dai, Jie Tian, Qian Xu, Qian Chen, Linlin Li, Xin Meng, Lin Zhang* and Chun Li*

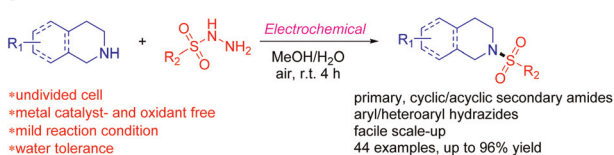
5542



A reusable polymer anchored pyridine mediated formal [4 + 1] annulation reaction for the diastereoselective synthesis of 2,3-dihydrobenzofurans

Akanksha Kumari, Anshul Jain, Khyati Shukla, Ranjan Patra and Nirmal K. Rana*

5547



Catalyst-free electrochemical sulfonylation of amines with sulfonyl hydrazide in aqueous medium

Wei Chen,* Haojian Xu, Run Wu, Yang Chen, Pingbing Yu and Yanxi Jin

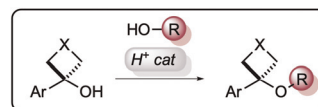


PAPERS

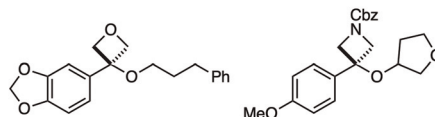
5553

Synthesis of oxetane and azetidine ethers as ester isosteres by Brønsted acid catalysed alkylation of alcohols with 3-aryl-oxetanols and 3-aryl-azetidinols

Peerawat Saejong, Juan J. Rojas, Camille Denis, Andrew J. P. White, Anne Sophie Voisin-Chiret, Chulho Choi and James A. Bull*



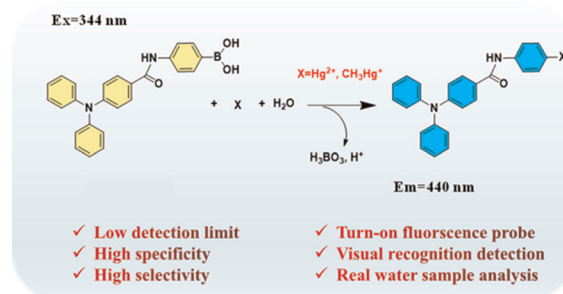
- Oxetane and azetidine ethers
- Avoids alkyl halides
- Conformational analysis
- Chemical stability studies



5560

A triphenylamine-based fluorescent probe with phenylboronic acid for highly selective detection of Hg^{2+} and CH_3Hg^+ in groundwater

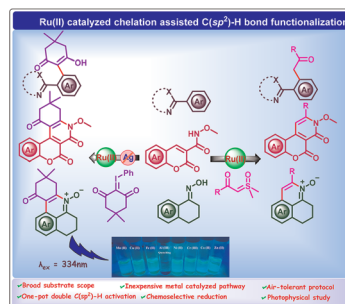
Lin Li, Hao Ouyang, Zhiqing Long, Qinpeng Zhang, Yunqi Jiang, Meng Cai, Shenglun Xiong, Sangshan Peng, Guangyu Xu* and Qing He*



5567

Ru(II) catalyzed chelation assisted $\text{C}(\text{sp}^2)\text{--H}$ bond functionalization along with concomitant (4 + 2) annulation

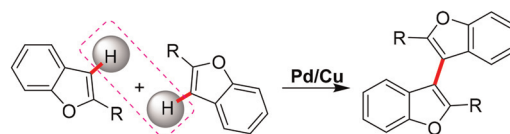
Anindita Sarkar, Moumita Saha and Asish R. Das*



5587

Pd-catalyzed homo-coupling of benzofurans: one-pot synthesis of diverse 3,3'-bisbenzofurans

Kishan Gugulothu, Ramanna Jatoth, Ramakrishna Gudipati, Nampally Rajitha, Rambabu Dandela and K. Shiva Kumar*

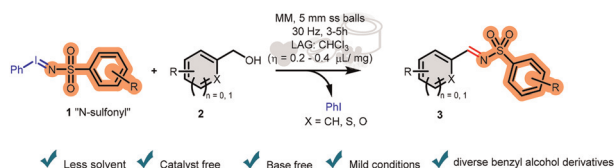


- atom and step economy
- broad substrate scope
- practical reaction conditions
- gram-scale synthesis



PAPERS

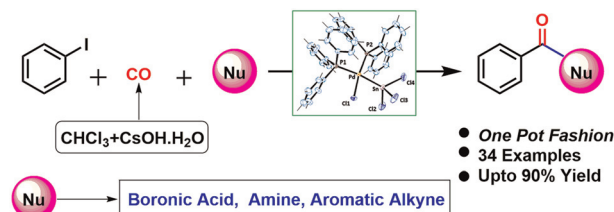
5592



Metal-free synthesis of *N*-sulfonyl imines from benzyl alcohol derivatives and iminoiodinanes via mechanochemistry

Souvik Guha, Ritwik Bhattacharya, Jesni Jacob, Mahesh Ravva and Subhabrata Sen*

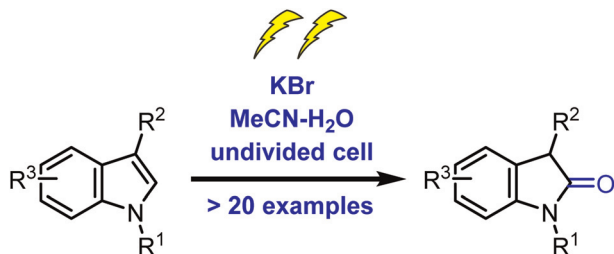
5601



A Pd–Sn heterobimetallic catalyst for carbonylative Suzuki, Sonogashira and aminocarbonylation reactions using chloroform as a CO surrogate

Anuradha Mohanty, Mukesh Kumar Nayak and Sujit Roy*

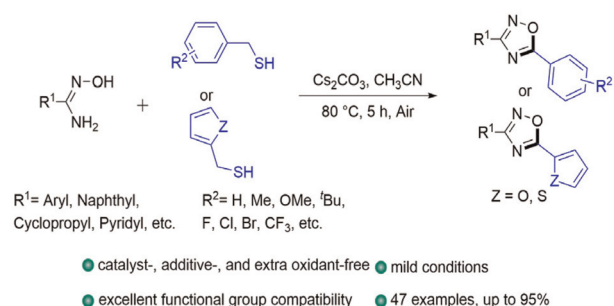
5609



Electrochemical oxidation of 3-substituted indoles

Juan J. Arteaga Giraldo, Ashley C. Lindsay, Rachel Chae-Young Seo, Paul A. Kilmartin and Jonathan Sperry*

5616



Thiol-promoted intermolecular cyclization to synthesize 1,2,4-oxadiazoles including tioxazafen under transition metal-free conditions

Congcong Yan, Min Zhang, Jiaxin Li, Jinli Zhang* and Yangjie Wu

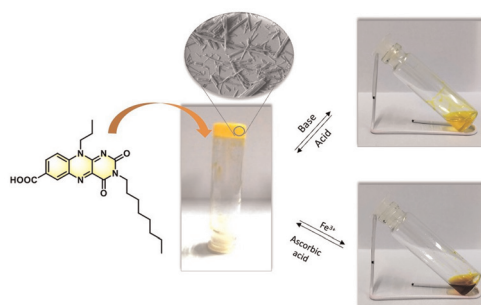


PAPERS

5622

Flavin based supramolecular gel displaying multi-stimuli triggered sol–gel transition

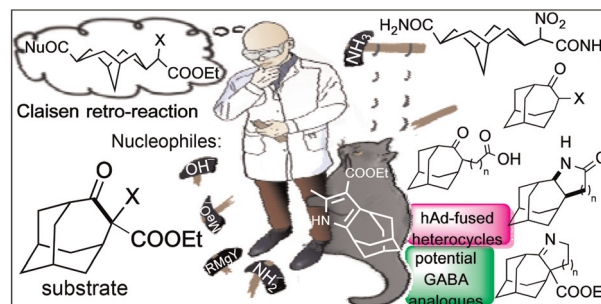
M. S. S. Vinod Mouli and Ashutosh Kumar Mishra*



5629

Towards a qualitative understanding of carbonyl reactivity of α -substituted ethyl 5-oxohomoadamantyl-4-carboxylates

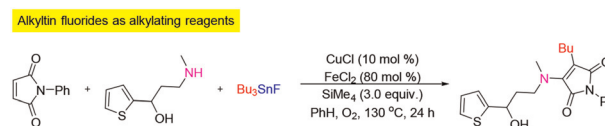
Ilya M. Tkachenko,* Vadim A. Shiryayev and Yuri N. Klimochkin



5643

Alkyltin fluorides as alkylating reagent in aminoalkylation of maleimides

Jingjing Wang, Lin Zhao, Yafei Zhang, Peisen Zheng, Peng Zou* and Ge Wu*



5648

Photo-induced crosslinking uncovers an antiparallel strand orientation in heterodimeric (EIAALEK)₃/(KIAALKE)₃ and (EIAALEK)₃/(RIAALRE)₃ coiled-coil systems

D. Aerssens, L. Miret-Casals,* D. Gomez, D. Sousa-Neves, Y. Levy, M. De Vleeschouwer, A. Manicardi* and A. Madder*

