

Organic & Biomolecular Chemistry

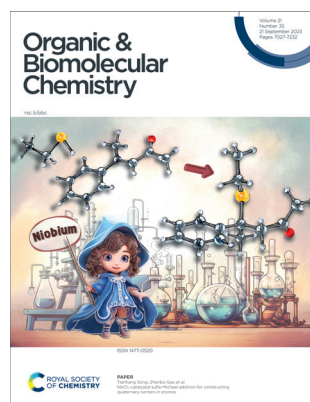
An international journal of synthetic, physical and biomolecular organic chemistry

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(35) 7027–7232 (2023)



Cover

See Tianhang Song,
Zhenbo Gao *et al.*,
pp. 7100–7105.

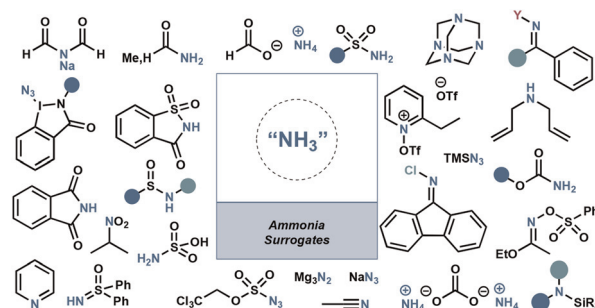
Image created and
reproduced by permission of
Tianchang Song from
Org. Biomol. Chem., 2023,
21, 7100.

REVIEWS

7036

Ammonia surrogates in the synthesis of primary amines

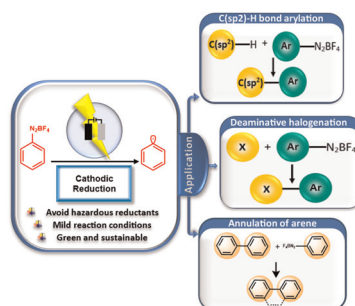
Julia Urbiña-Alvarez, Sergio Rincón-Carvajal and
Diego Gamba-Sánchez*



7052

Recent advances in electrochemical functionalization using diazonium salts

Krishna Kher, Mukesh Dhaker and
Prabhat Kumar Baroliya*



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 Krenske, 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

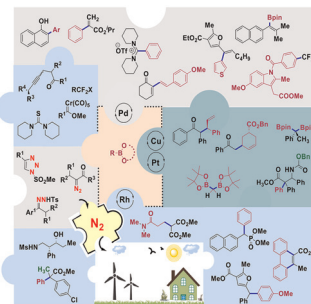


REVIEWS

7062

Transition metal-catalyzed reactivity of carbenes with boronic acid derivatives for arylation (alkylation) and beyond

Akanksha Babbar, Pokhriyal Yamini, Mohammad Saleem and Dongari Yadagiri*

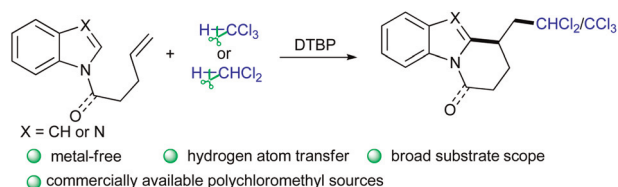


COMMUNICATIONS

7079

Metal-free polychloromethylation/cyclization of unactivated alkenes towards ring-fused tricyclic indolones and benzoimidazoles

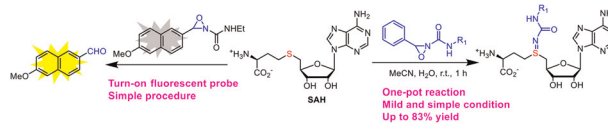
Yechun Wu, Han Liu, Lingli Liu and Jin-Tao Yu*



7085

ReACT (redox-activated chemical tagging) chemistry enables direct derivatization and fluorescence detection of S-adenosyl-L-homocysteine (SAH)

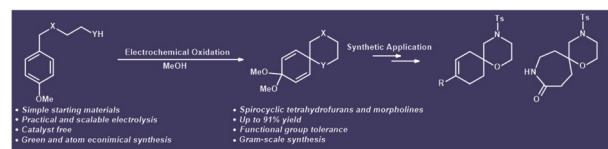
Bohong Lin, Lingling Xiang, Zhijun Yuan, Qi Hou, Yaoping Ruan and Jing Zhang*



7090

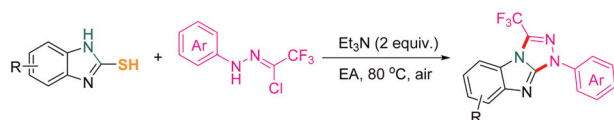
Electrochemical synthesis of spirocyclic morpholines and tetrahydrofurans via an oxidative dearomatization strategy

Davit Hayrapetyan,* Lyailya Yussupova, Almaz Kaipov and Aigerim Galyamova



COMMUNICATIONS

7095



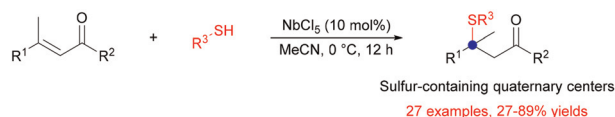
- readily available raw materials
- easy and scalable synthesis
- mild conditions
- 24 examples & up to 96% yield

Synthesis of fused 3-trifluoromethyl-1,2,4-triazoles via base-promoted [3 + 2] cycloaddition of nitrile imines and 1H-benzo[d]imidazole-2-thiols

Kaili Cen, Jiahao Wei, Yuting Feng, Yuan Liu, Xinye Wang, Yangyu Liu, Yalin Yin, Junhong Yu, Dahan Wang* and Jinhui Cai*

PAPERS

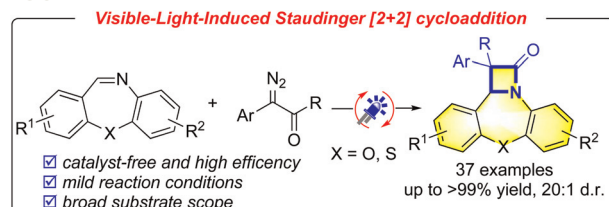
7100



NbCl₅-catalyzed sulfa-Michael addition for constructing quaternary centers in enones

Mingxia Ye, Yingying Xu, Tianhang Song* and Zhenbo Gao*

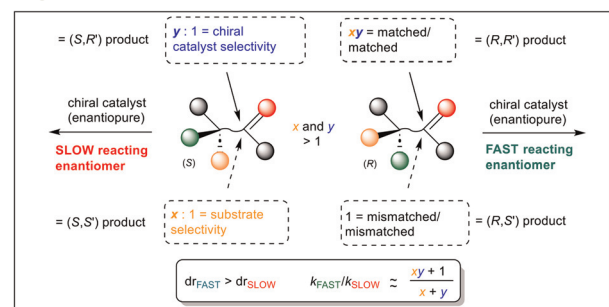
7106



Synthesis of tetracyclic dibenzo[b,f][1,4]oxazepine-fused β -lactams via visible-light-induced Staudinger annulation

Jiao-Mei Wang, Yu Zhao, Wen-Ping Li, Xiang-Jun Kong, Chang-Sheng Yao* and Kai Zhang*

7115



Double asymmetric synthesis: faster reactions are more selective and a model to estimate relative rate

Christopher J. Richards* and O. Stephen Ojo

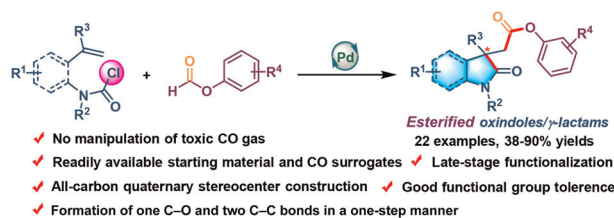


PAPERS

7129

Palladium-catalyzed Heck-carbonylation of alkene-tethered carbamoyl chlorides with aryl formates

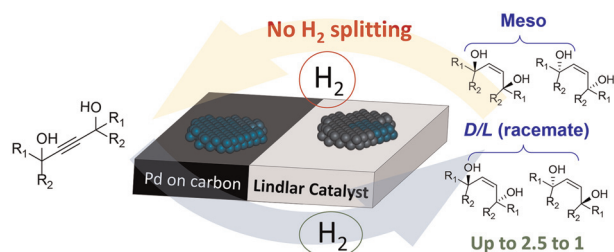
Chen Chen,* Liying Liu, Jin-Ping Liu, Jie Ding, Chang Ni, Chunjie Ni* and Bolin Zhu*



7136

Diastereoisomeric enrichment of 1,4-enediols and H₂-splitting inhibition on Pd-supported catalysts

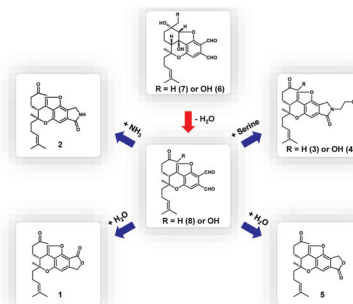
Jordi Ballesteros-Soberanas, Marta Mon and Antonio Leyva-Pérez*



7141

Identification of new bisabosqual-type meroterpenoids reveals non-enzymatic conversion of bisabosquals into seco-bisabosquals

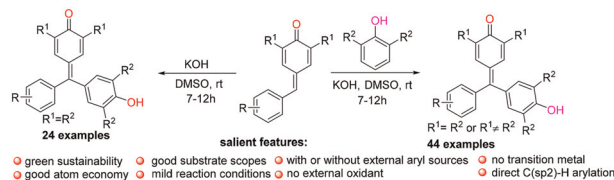
Meng-Xi Tong, Yong-Xia Duan, Ying-Dong Zhang, Wan-Yi Ye, Sheng-Ying Qin, Xing-Zhong Liu, Guo-Dong Chen, Jian-Ming Lv,* Dan Hu* and Hao Gao



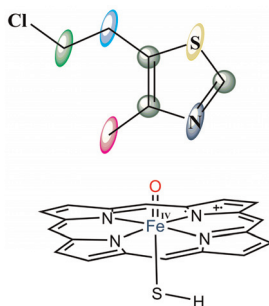
7151

DMSO-promoted direct δ -selective arylation of *p*-quinone methenylpiperidine bearinides to generate fuchsones under metal-free conditions by employing *p*-QMs themselves or substituted phenols as aryl sources

Kunpeng Wang, Jingping Li, Haoxiang Zhang, Yan Chen, Mengfan Li, Junju Xu,* Benren Liao* and Weiyin Yi*



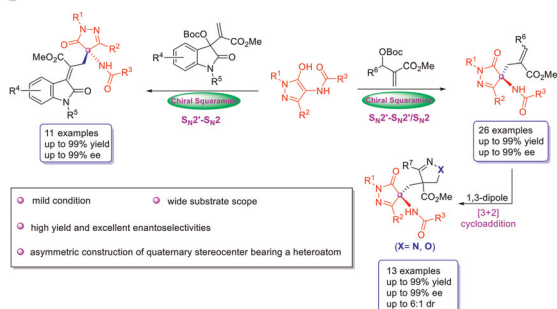
7158



Mechanistic aspects of reactive metabolite formation in clomethiazole catalyzed biotransformation by cytochrome P450 enzymes

Emadeldin M. Kamel,* Ahmed M. Tawfeek, Ashraf A. El-Bassuny and Al Mokhtar Lamsabhi

7173



Squaramide-catalyzed asymmetric regioselective allylic alkylation of 4-aminopyrazolones with Morita-Baylis-Hillman carbonates

Aiqi Xue, Shiqiang Wei, Xingfu Wei, Yue Huang, Jingping Qu and Baomin Wang*

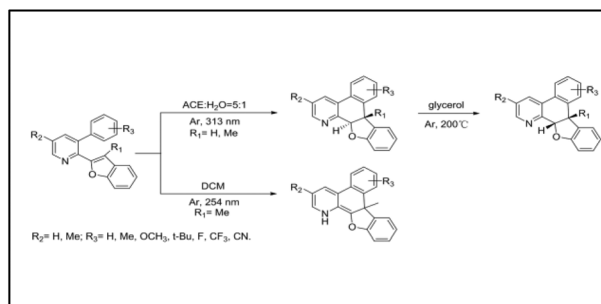
7180



Base-catalyzed diastereodivergent thia-Michael addition to chiral β -trifluoromethyl- α,β -unsaturated *N*-acylated oxazolidin-2-ones

Sasirome Racochote, Phiphob Naweephattana, Panida Surawatanawong, Chutima Kuhakarn, Pawaret Leowanawat, Vichai Reutrakul and Darunee Soorukram*

7188



Rearrangement of 2-(benzofuran-2-yl)-3-phenylpyridines via photoinduced 6 π -electrocyclization

Jin Xi, Ding Wang, Jinxia Hu, Huan Shen, Tao Wang and Zunting Zhang*

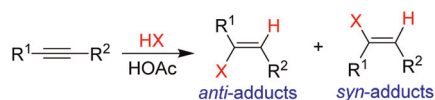


PAPERS

7194

Theoretical mechanistic insights into the electrophilic addition of hydrogen halides to alkynes

Yixiang Chen, Shi Cheng, Chongjie Su, Ning Chen* and Jiayi Xu*



$R^1, R^2 = \text{H, Alkyl, no } X^-$	Major	Minor
$R^1, R^2 = \text{H, Alkyl, } X^-$	Major	Minor
$R^1 = \text{Ar, } R^2 = \text{H, Alkyl, no } X^-$	Minor	Major
$R^1 = \text{Ar, } R^2 = \text{bulky alkyl, } X^-$	Minor	Major
$R^1 = \text{NSEWAr, } R^2 = \text{H, HCl+Cl}^-$	Minor	Major
$R^1 = \text{Ar, } R^2 = \text{H, Alkyl, } X^-$ (except for above cases)	Major	Minor

NSEWG = non strongly electron-withdrawing

7209

Rapid, room-temperature self-organization of polyarylated 1H-pyrroles from acetylenes and nitriles in the KOBu^t/DMSO system

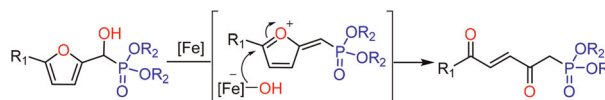
Elena Yu. Schmidt, Inna V. Tatarinova, Natal'ya A. Lobanova, Igor A. Ushakov, Irina Yu. Bagryanskaya and Boris A. Trofimov*



7219

Furan ring opening reaction for the synthesis of 2,5-dicarbonyl-3-ene-phosphates

Abdul Wahab, Guanghai Cheng, Hang Su, Lihua Yang,* Ziwei Gao and Binxun Yu*



7224

1,1'-Carbonyldiimidazole-mediated transformation of allomaltol containing hydrazides into substituted 3-acetyltetronic acids

Andrey N. Komogortsev,* Boris V. Lichitskii and Valeriya G. Melekhina

