

# Organic & Biomolecular Chemistry

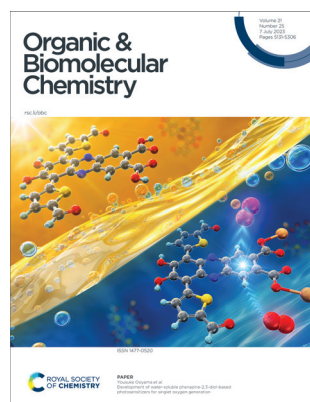
An international journal of synthetic, physical and biomolecular organic chemistry

[rsc.li/obc](https://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(25) 5131–5306 (2023)



### Cover

See Yousuke Ooyama *et al.*,  
pp. 5194–5202.

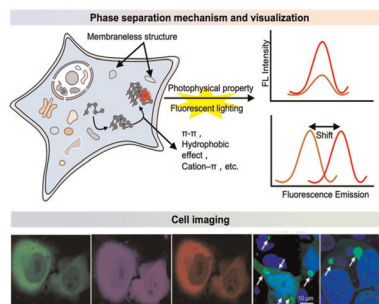
Image reproduced  
by permission of  
Yousuke Ooyama from  
*Org. Biomol. Chem.*,  
2023, **21**, 5194.

## REVIEWS

5140

### Fluorogenic methodology for visualization of phase separation in chemical biology

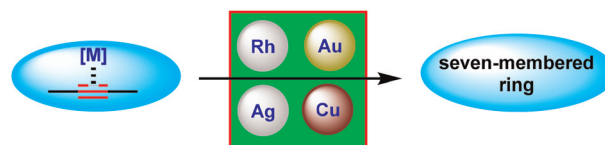
Jiabao Fang, Yubo Huang, Jichun Wu, Baoxing Shen,\*  
Yaqiong Yang\* and Minzi Ju\*



5150

### Recent advances in transition-metal-catalyzed Büchner reaction of alkynes

Guang Ma, Kua-Fei Wei, Man Song, Yu-Li Dang,  
Yang Yue, Bing Han,\* Hui Su\* and Wen-Bo Shen\*



## 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](mailto:obc@rsc.org)

For pre-submission queries please contact Rebecca Garton, Executive Editor. Email: [obc-rsc@rsc.org](mailto: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](mailto: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](http://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](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# Organic & Biomolecular Chemistry

Rapid publication of high quality organic chemistry research

[rsc.li/obc](http://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. Ramasastri, 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](http://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

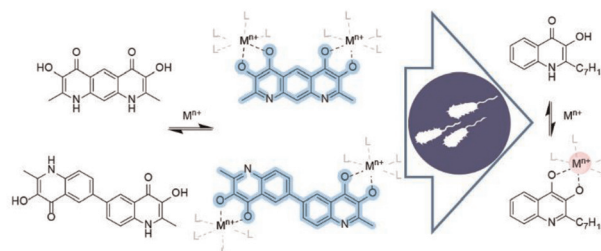


## COMMUNICATIONS

5158

Beyond iron: metal-binding activity of the *Pseudomonas* quinolone signal-motif

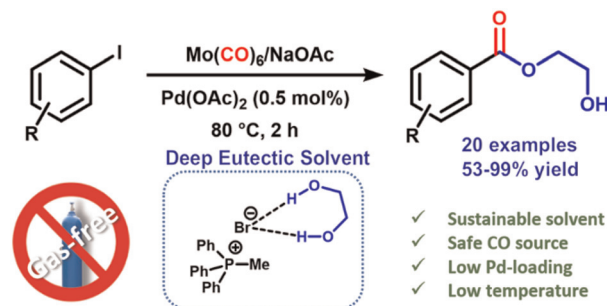
Dávid Szamosvári, Viktoriia Savchenko, Natalie Badouin and Thomas Böttcher\*



5164

Gas-free alkoxy carbonylation of aryl iodides in a phosphonium-based deep eutectic solvent with  $\text{Mo(CO)}_6$  as a solid CO source

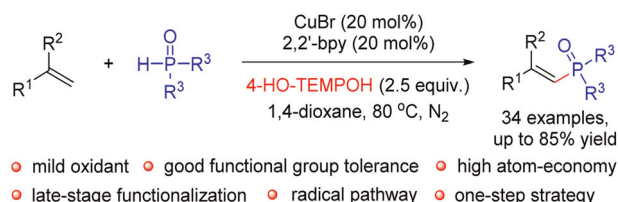
Francesco Messa, Andrea Nicola Paparella, Serena Perrone\* and Antonio Salomone\*



5171

## Copper-catalyzed 4-HO-TEMPOH mediated phosphorylation of alkenes

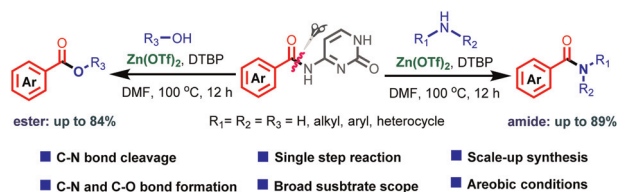
Jun-Long Zhan,\* Bing-Jie Wang, Chen-Xi Wang, Xin-Ming Zhao, Sai-Nan Zhou, Zao-Zao Dou, Xin-Xin Yang, Lin Zhu\* and Wei Ren



5176

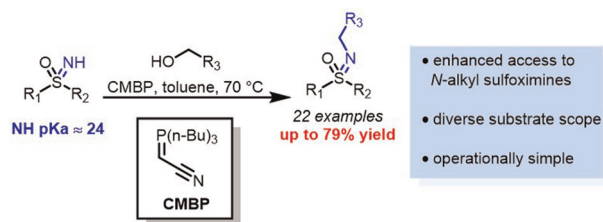
Zinc-catalyzed transamidation and esterification of *N*-benzoyl cytosine via C–N bond cleavage

Sujeet Gaware, Rana Chatterjee, Anant R. Kapdi and Rambabu Dandela\*



## COMMUNICATIONS

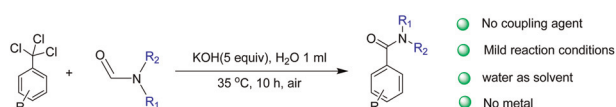
5181



## Alkylation of NH-sulfoximines under Mitsunobu-type conditions

Cayden J. Dodd, Daniel C. Schultz, Jinming Li, Craig W. Lindsley and Aaron M. Bender\*

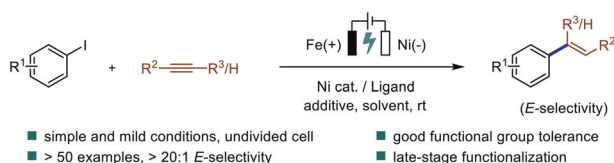
5185



## KOH-promoted cascade C–Cl bond activation and amidation of trichloromethyl aromatic compounds with formamides in water

Chenyu Wang, Yan Wang, Jianglong Wu, Qian Hu, Hui Luo, Zhongjie Wang, Yingxin Wang, Dianjun Li,\* Jun Liang\* and Jinhui Yang\*

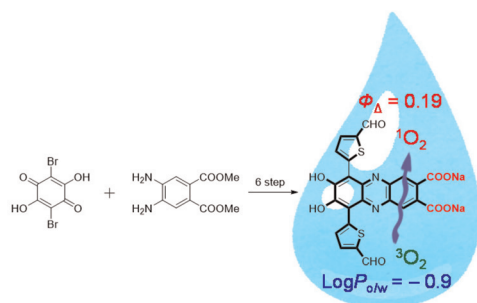
5189

Highly stereoselective synthesis of *trans*-alkenes via electrochemical Ni-catalyzed hydroarylation of alkynes with aryl iodides

Haoxiang Zhang, Lin Guo, Chao Yang\* and Wujiong Xia\*

## PAPERS

5194



## Development of water-soluble phenazine-2,3-diol-based photosensitizers for singlet oxygen generation

Kazunori Yagi, Kazuki Ohira, Keita Yamana, Keiichi Imato, Riku Kawasaki, Atsushi Ikeda and Yousuke Ooyama\*

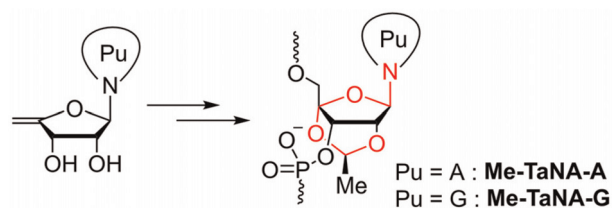


## PAPERS

5203

### Synthesis of purine derivatives of Me-TaNA and properties of Me-TaNA-modified oligonucleotides

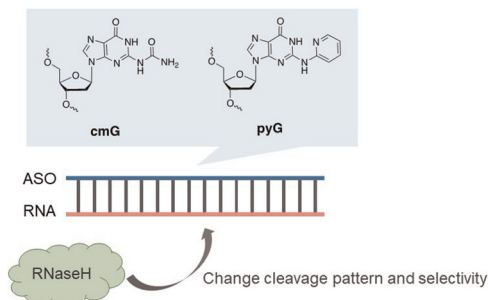
Yasufumi Fuchi, Kouki Watanabe, Misa Shoji, Yuta Ito and Yoshiyuki Hari\*



5214

### Alteration of target cleavage patterns and off-target reduction of antisense oligonucleotides incorporating 2-*N*-carbamoyl- or (2-pyridyl) guanine

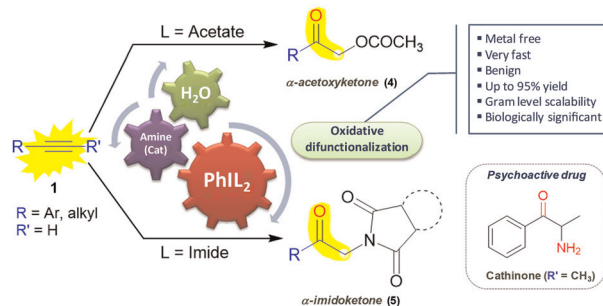
Takayuki Kanagawa, Aya Koyoma, Yoshiaki Masaki\* and Kohji Seio\*



5225

### Water-based efficient alkyne transformation towards $\alpha$ -acetoxy/imido-ketones via oxidative coupling reactions using an alkylamine catalyst

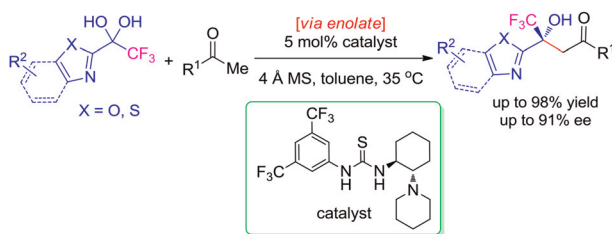
Debasish Ghosh, Aniruddha Ganguly and Saikat Khamarui\*



5234

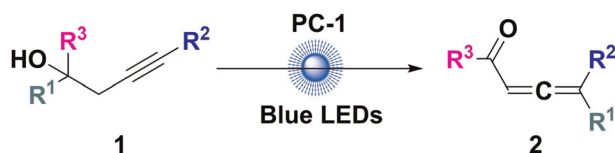
### Organocatalytic enantioselective cross-aldol reaction of aryl ketones with heteroaromatic trifluoromethyl ketone hydrates for the synthesis of $\alpha$ -trifluoromethyl tertiary alcohols

Wei Wang, Zhaoliang Qin, Ze Tan\* and Wen Yang\*



## PAPERS

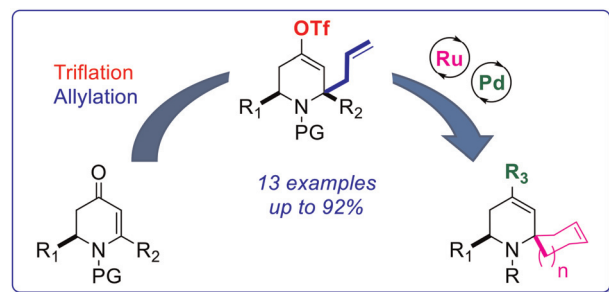
5240



### Synthesis of $\alpha$ -allenic aldehydes/ketones from homopropargylic alcohols using a visible-light irradiation system

Dong-Fang Jiang,\* Xing-Xing Zeng, De-Feng Li, Si-Miaomiao Wen and Ming-Hua Hu\*

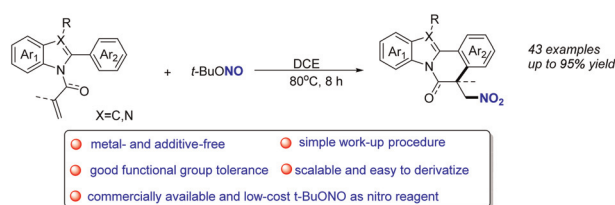
5245



### Accessing spiropiperidines from dihydropyridones through tandem triflation–allylation and ring-closing metathesis (RCM)

Naresh Gantasala, Corentin Fournet, Myriam Le Roch, Claudia Lalli,\* Srihari Pabbaraja\* and Nicolas Gouault\*

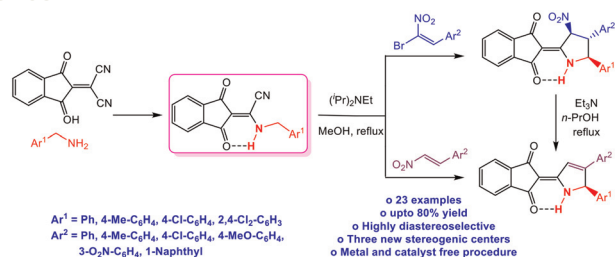
5254



### Metal- and additive-free radical-triggered nitration/cyclization to construct indolo[2,1- $\alpha$ ]isoquinoline and benzimidazo[2,1- $\alpha$ ]isoquinolin-6(5H)-one derivatives using t-BuONO as nitro reagents

Yucai Tang,\* Yiting Yang, Qian Zhou, Jinglin Duan, Biyu Yang, Changyuan Du and Yupeng He

5265



### Synthesis of pyrrolidin-2-ylidenes and pyrrol-2-ylidenes via 1,3-dipolar cycloaddition of H-bond-assisted azomethine ylides to nitrostyrenes

Issa Yavari,\* Ramin Mohsenzadeh, Parisa Ravaghi and Maryam Safaei



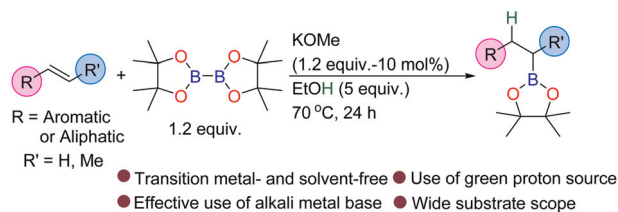


## PAPERS

5274

### Transition metal- and solvent-free *anti*-Markovnikov selective protoboration of alkenes with bis(pinacolato)diboron

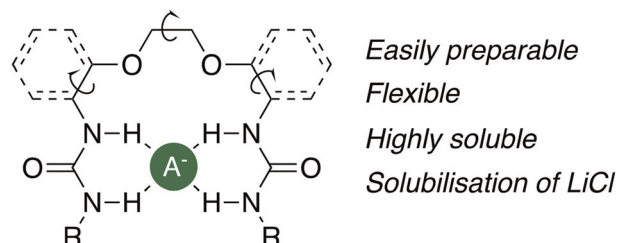
Suresh Saini, Ramesh Bhawar, Avinash Kumar Srivastava, Siri M, Kopal Garg and Shubhankar Kumar Bose\*



5281

### Highly soluble bisurea derivatives for anion recognition

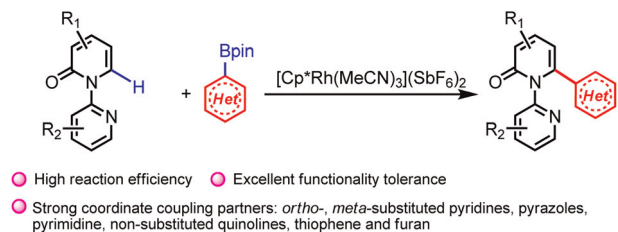
Tsubasa Mimuro, Akihiro Yoshida, Kazuyuki Kamo, Manabu Hirasawa and Shin-ichi Kondo\*



5288

### Rh<sup>III</sup>-promoted directed C–H N-heteroarylation of 2-pyridones

Rong Chi, Jia-Xue Wu, Da-Cheng Li, Jian-Min Dou and Huai-Wei Wang\*



5297

### *ortho*-Lithiation driven one-pot synthesis of quinazolines via [2 + 2 + 2] cascade annulation of halofluorobenzenes with nitriles

Jen-Chun Hsueh, Fu-En Szu, Yin-Yin Yu and Man-kit Leung\*

