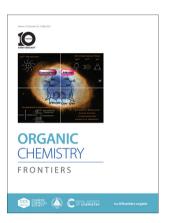
ORGANIC CHEMISTRY

FRONTIERS

rsc.li/frontiers-organic

IN THIS ISSUE

ISSN 2052-4129 CODEN OCFRA8 10(10) 2387-2606 (2023)



Cover

See Sean P. Bew et al.. pp. 2397-2404.

Image reproduced by permission of the European Southern Observatory from Org. Chem. Front., 2023, 10, 2397.



Inside cover

See Omar Boutureira et al., pp. 2405-2415.

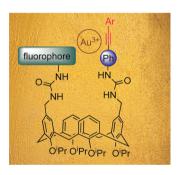
Image reproduced by permission of Omar Boutureira from Org. Chem. Front., 2023, 10, 2405.

RESEARCH ARTICLES

2397

Upper-rim functionalised calix[4] arenes for chemoselective Au³⁺ detection

Sean P. Bew,* Sunil V. Sharma and William H. Gardiner



2405

Stereoselective access to 2-deoxy-2trifluoromethyl sugar mimetics by trifluoromethyl-directed 1,2-trans glycosylation

Jordi Mestre, Isabel Bascuas, Miguel Bernús, Sergio Castillón and Omar Boutureira*



EDITORIAL STAFF

Executive Editor

Wenjun Liu

Deputy Editor

Kailin Deng

Development Editor

Cheng Du

Editorial Production Manager

Helen Saxton

Senior Publishing Editor

Becky Webb

Publishing Editors

Kirstine Anderson, Matthew Bown, Laura Cooper, Hannah Fielding, Clare Fitzgerald, Anoushka Handa, Claire Harding, Alan Holder, Charlie Palmer, Rosie Rothwell, Donna Smith, Laura Smith

Assistant Editors

Jie Gao, Yu Zhang

Publisher

Jeanne Andres

For queries about submitted papers, please contact Helen Saxton, Editorial Production Manager, in the first instance. E-mail: OrgChemFrontiersPROD@rsc.org

For pre-submission queries please contact Wenjun Liu,

Executive Editor. Email: OrgChemFrontiersED@rsc.org

Organic Chemistry Frontiers (electronic: ISSN 2052-4129) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WE.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to RSC Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 OWF, UK Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £2,182; USS3,492. 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 Royal Society of Chemistry 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 CHEMISTRY

FRONTIFRS

An international, high impact journal for cutting-edge researches from all disciplines of organic chemistry.





rsc.li/frontiers-organic

Published in collaboration with the Chinese Chemical Society and Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences

Editorial Board

Editor-in-Chief

Shengming Ma, Shanghai Institute of Organic Chemistry, China

Associate Editors

Arjan W. Kleij, Institute of Chemical Research of Catalonia, Spain Chulbom Lee, Seoul National University, Korea

Bill Morandi, ETH Zurich, Switzerland

Jennifer M. Schomaker, University of Wisconsin-Madison, USA Frank Würthner, University of Würzburg, Germany

Pei-Qiang Huang, Xiamen University, China Qian Zhang, Northeast Normal University, China

Members

Guy Bertrand, University of California, San Diego, USA Nicolai Cramer, EPFL, Switzerland Louis Fensterbank, Sorbonne Université, France

Lichang Wang, Southern Illinois University, USA

Dan Yang, Westlake University, China

Advisory Board

Ayyappanpillai Ajayaghosh, National Institute for Interdisciplinary Science and Technology, India

Lutz Ackermann, Georg-August-Universitat Gottingen, Germany

Marco Bandini, University of Bologna, Italy Matthias Beller, University of Rostock, Germany

Akkattu T. Biju, Indian Institute of Science, India

Xi Chen, University of California-Davis, USA Yiyun Chen, Shanghai Institute of Organic Chemistry, China

Yonggui Robin Chi, Nanyang Technological University, Singapore Stuart Conway, University of Oxford, UK

Shuanhu Gao, East China Normal University, China Véronique Gouverneur, University of Oxford, Technology of China, China
Masayuki Inoue, The University of Tokyo,
Japan
Guochen Jia, Hong Kong University of
Science & Technology, China
Michael Kerr, University of Western Ontario,
Canada

Frank Glorius, Westfälische Wilhelms

Zhenhua Gu, University of Science and

Universität Münster, Germany

Ohyun Kwon, University of California, Los Angeles, USA Rai-Shung Liu, National Tsing Hua University, Hsinchu

Sanzhong Luo, Tsinghua University, China Cristina Nevado, University of Zurich, Switzerland

Christoph Schalley, Freie Universität Berlin, Germany Daniel Seidel, University of Florida, USA Feng Shi, Jiangsu Normal University, China Yian Shi, Colorado State University, USA Vinod K. Singh, IIT Kanpur, India Wenjun Tang, Shanghai Institute of Organic Chemistry, China Yong Tang, Shanghai Institute of Organic

Yong Tang, Shanghai Institute of Organi Chemistry, China Chen-Ho Tung, Technical Institute

of Physics and Chemistry, CAS, China Tao Ye, Peking University (Shenzhen), China Tomoki Ogoshi, Kanazawa University, Japan Zhaohui Wang, Tsinghua University, China Lizhu Wu, Technical Institute of Physics and Chemistry, CAS, China

Xingang Zhang, Shanghai Institute of Organic Chemistry, China

Information for Authors

Full details on how to submit material for publication in Organic Chemistry Frontiers 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/frontiers-organic

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 Partner Organisations 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



2416

Regio- and stereoselective oxidative conversion of alkynes to sulfenylated α,β -unsaturated carbonyls

Meizhong Tang, Ye-Xin Wang, Shenlin Huang* and Lan-Gui Xie*

2422

Catalytic asymmetric [4 + 1] cycloaddition to synthesize chiral pyrazoline-spirooxindoles

Kaiqi Hu, Dong Zhang, Siyuan Wang, Lili Lin* and Xiaoming Feng*

2429

2,7-Dinitrophenanthrene-9,10-dione as a photosensitizer for the dehydrogenative lactonization of 2-arylbenzoic acids

Gaochang Shi, Yi Wang, Min He, Xiaoqiang Yu* and Ming Bao

$$X = H, F, CI, OR$$

$$X = H, F, CI, OR$$

$$26 \text{ examples}$$

$$\text{up to 99% yield}$$

$$Q = \frac{Q_2N}{\sqrt{PC^{-1}}} = +2.13 \text{ V}$$

2434

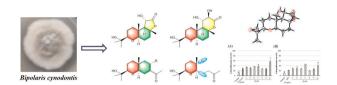
Efficient and environmentally-friendly access to 4,5-unsaturated sulfonamides through ligand-free copper-BF₃-catalyzed three-component alkene carbo-sulfonamidation

Waqar Ahmed,* Aiman Sadaf and Pil Seok Chae*

$$R^1$$
 $R^4SO_2NH_2$
 R^3
 R^2
 R^3
 $R^4SO_2NH_2$
 R^3
 $R^4SO_2NH_2$
 R^3
 $R^4SO_2NH_2$
 R^3
 $R^4SO_2NH_2$
 R^3

- Efficient and Environmentally-friendly set up
- Readily available starting materials
- Biologically and synthetically important products

2442



Bipodonines A–J, a new class of natural sesquiterpenes with a 2-(tetrahydro-2*H*-pyran-2-yl)propan-2-ol system from the fungus *Bipolaris cynodontis* DJWT-01

Yan Shu, Shi-Yu Feng, Sheng-Qi Zhang, Xun Tian, Yun-Li Zhao, Hua-Juan Yang, Jia-Xin Wang, Gui-Ling He, Hao Zhou, Jia-Peng Wang,* Le Cai* and Zhong-Tao Ding*

2453

Visible-light-induced cyclization of 2-alkenyl-1,1'-biphenyls

Kang Yan, Xingyu Yang, Jiangang Gao,* Ze Zhang and Pinhua Li*

2459

Electrochemical oxidative $C(sp^3)-H/O-H$ crosscoupling for the synthesis of α -acyloxyketones

Jiwei Wu, Haowen Shi, Jianguo Liu, Ruiyou Wang, Jie Zhou, Xiao-Lan Xu* and Hua-Jian Xu*

Ar H + Ar' + R'-X 37 examples, up to 93% yield R • Three-component • 1,2-alkylarylation • Redox-neutral

Three-component redox-neutral 1,2-alkylarylation of vinylarenes involving C-H functionalization enabled by copper catalysis

Dongyu Yang and Chengming Wang*

2471

Concise synthesis of hemigossypol via sequential palladium-catalyzed regiospecific oxygenations of the naphthalene ring

Jing Jiang, Yujian Mao, Yaoyu Lin, Jiayi Shen and Yinan Zhana*

2476

HFIP-promoted para-selective alkylation of anilines and phenols with tertiary alkyl bromides

Pengcheng Huang, Xipeng Jiang, Du Gao, Cheng Wang, Da-Qing Shi* and Yingsheng Zhao*

HFIP (0.2 M)

$$X = N$$
, O

Mild reaction conditions

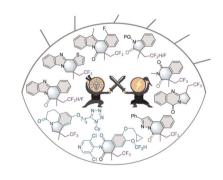
Excellent para-selectivity

No metal catalysts

2482

Electrophotocatalytic tri- or difluoromethylative cyclization of alkenes

Danna Chen, Xuege Yang, Dongyin Wang, Yanni Li, Lou Shi* and Degiang Liang*



2491

DIC-borane-catalyzed selective methylation of primary amines with CO₂ using boranes as reducing agents

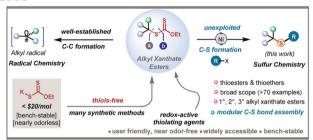
He Zhang, Yanmeng Zhang and Ke Gao*

RII | RincoDiCl₂ | RincoDiCl₃ |

Enantioselective synthesis of chiral 2,2,2-trifluoroethyl lactams *via* asymmetric hydrogenation

Chaochao Xie, Qianling Guo, Zhihong Yang, Guofu Zi, Yuping Huang* and Guohua Hou*

2505



Redox-active alkyl xanthate esters enable practical C-S cross-coupling by nickel catalysis

Lanzhu Tai, Li Chen, Yuxuan Shi and Liang-An Chen*

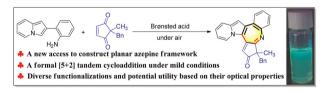
2517



Copper-catalyzed intermolecular carboesterification of unactivated aliphatic alkenes with α -carbonyl alkyl bromides via a SET process: efficient synthesis of γ -lactones

Cancan Feng, Youcai Zhu, Zhen Liu, Fan Yang* and Yangjie Wu*

2526



Formal [5 + 2] cycloaddition of *ortho*-indolizinyl anilines with cyclopentenediones: access to planar indolizine-fused azepines

Qijian Ni,* Lirong Zhang, Zhiming Zhu and Xiaoxiao Song*

2532

Enantioselective total syntheses of (-)-cephalotaxine and (-)-amathaspiramide F through a key Ir/Cu dual catalysis

Peng-Zhen Sheng, Lu-Lu Li, Hongbin Zhang, Kun Wei* and Yu-Rong Yang*

2538

Photocatalytic decarboxylative selenocyanation of 2-aryloxy and 2-aryl carboxylic acids with N-selenocyanatophthalimide

Yong Gao, Ruirui Hua, Hongguan Yin and Fu-Xue Chen*

2544

Regio- and diastereoselective construction of conjugate oxindole derivatives enabled by delayed acyl transfer of pyridinium ylides

Mengchu Zhang, Gengxin Liu, Tianyuan Zhang, Kemiao Hong, Xiangji Yang, Huang Qiu and Wenhao Hu*

2551

Introduction of seven nitro groups on the 2-azaadamantane scaffold via a two-shell arrangement strategy

Qi Zhou, Rongbin Cai, Huan Li, Yunzhi Liu, Bing Li, Tianjiao Hou, Long Zhu, Guixiang Wang, Yu Zhang* and Jun Luo*

2556

Perfectly Stereospecific Rearrangements of Silanol Epoxides

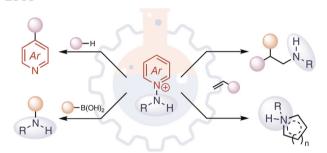
[5,5]-mechanism for silanoxy-tetrahydrofuran formation [6,5]-mechanism for silanoxy-tetrahydropyran formation

Dancing silanols: stereospecific rearrangements of silanol epoxides into silanoxy-tetrahydrofurans and silanoxy-tetrahydropyrans

Harshit Joshi, Annu Anna Thomas, Joel T. Mague and Shyam Sathyamoorthi*

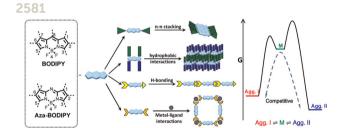
REVIEWS

2563



N-Amino pyridinium salts in organic synthesis

Pritam Roychowdhury, Samya Samanta, Hao Tan and David C. Powers*



Functional supramolecular aggregates based on BODIPY and aza-BODIPY dyes: control over the pathway complexity

Zhijian Chen* and Zhaoying Chen

CORRECTION

2603

Correction: Copper-catalysed synthesis of trifluoromethyl allenes *via* fluoro-carboalkynylation of alkenes Mengning Wang, Qiuzhu Wang, Mengtao Ma and Binlin Zhao*