

# Organic & Biomolecular Chemistry

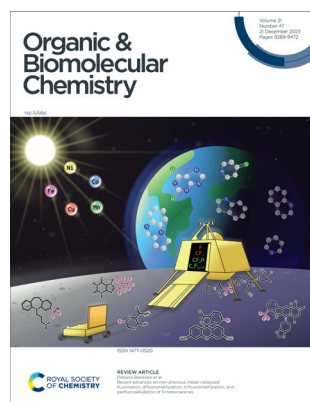
An international journal of synthetic, physical and biomolecular organic chemistry

[rsc.li/obc](http://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(47) 9289–9472 (2023)



### Cover

See Debasis Banerjee et al., pp. 9298–9315.

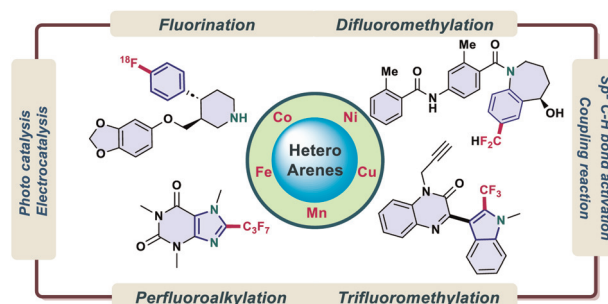
Image reproduced by permission of Debasis Banerjee from *Org. Biomol. Chem.*, 2023, **21**, 9298.

## REVIEW

9298

### Recent advances on non-precious metal-catalysed fluorination, difluoromethylation, trifluoromethylation, and perfluoroalkylation of N-heteroarenes

Purushotam, Atanu Bera and Debasis Banerjee\*

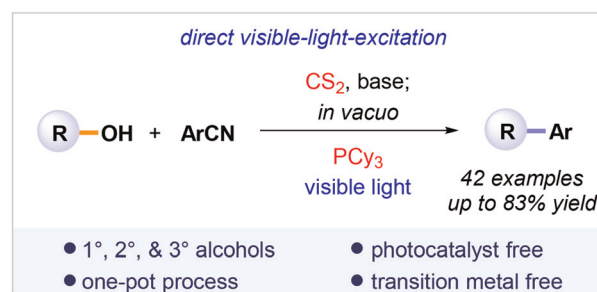


## COMMUNICATIONS

9316

### Deoxygenative coupling of alcohols with aromatic nitriles enabled by direct visible light excitation

Yanjiao Xiong and Xuesong Wu\*



## Editorial Staff

### Executive Editor

Katie Lim

### Deputy Editor

Jack Washington

### Development Editor

Daniel Robertshaw

### Editorial Production Manager

Sarah Anthony

### Publishing Editors

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

### Editorial Assistant

Amy Cook

### Publishing Assistant

Andrea Whiteside

### Publisher

Sam Keltie

For queries about submitted papers, please contact Sarah Anthony, Editorial Production Manager in the first instance. E-mail: [obc@rsc.org](mailto:obc@rsc.org)

For pre-submission queries please contact Katie Lim, 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. 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

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

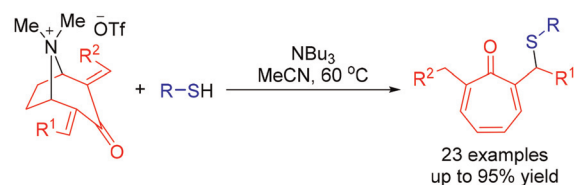


## COMMUNICATIONS

9321

**Convenient synthesis of thiolated 2,7-disubstituted tropones via double C–N bond cleavage of tropinone derivatives**

Lei Huang, Yan Wang, Xin Liu and Shi-Kai Tian\*

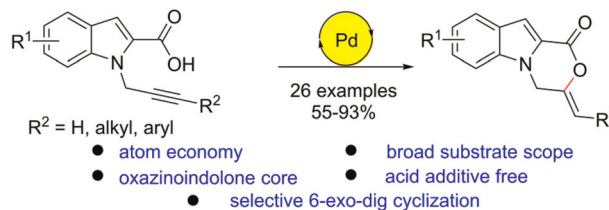


- ✓ Readily available feedstocks
- ✓ Transition-metal-free conditions
- ✓ Compatible with moisture
- ✓ Good functional group tolerance

9326

**Synthesis of tricyclic oxazinoindolones via Pd-catalyzed intramolecular addition of carboxylic acids to alkynes**

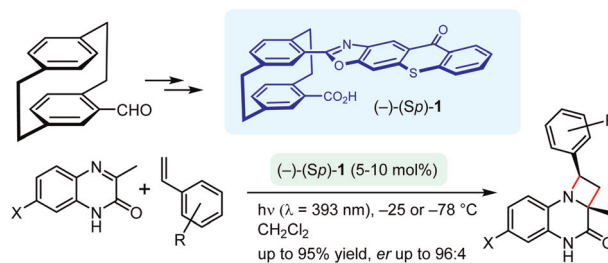
Subhamoy Mukhopadhyay, Bhavya Khaitan and Shikha Gandhi\*



9330

**The hamburger-shape photocatalyst: thioxanthone-based chiral [2.2]paracyclophane for enantioselective visible-light photocatalysis of 3-methylquinoxalin-2(1H)-one and styrenes**

Shou-Chih Huo, Ranadheer Reddy Indurmuddam, Bor-Cherng Hong,\* Chuan-Fu Lu and Su-Ying Chien



9337

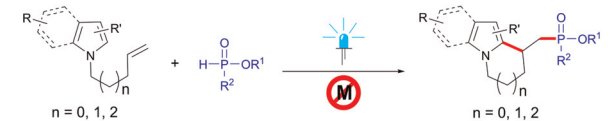
**Reductive transamidation of tertiary amides with nitroarenes enabled by magnesium and chlorosilane**

Shangru Yang, Haohao Zeng, Meiming Luo\* and Xiaoming Zeng\*



## COMMUNICATIONS

9341



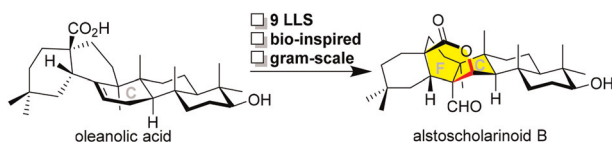
● HAT pathway ● metal-free ● cascade cyclization ● 42 examples, up to 82% yield

### Visible light-enabled synthesis of phosphorylated indolizine and pyridoindole derivatives via HAT-mediated radical cascade cyclization

Kunrong Shen, Chuan Feng, Yilei Liu, Dong Yi, Peng Lin, Huifang Li, Yimou Gong, Siping Wei,\* Qiang Fu\* and Zhijie Zhang\*

## PAPERS

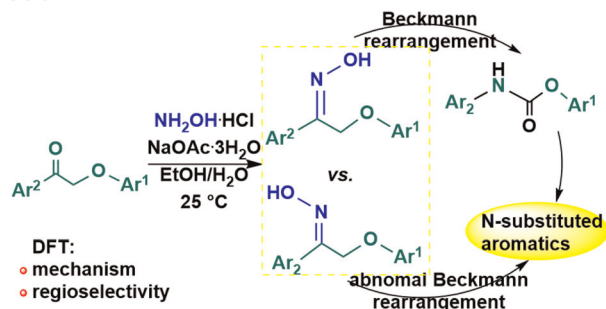
9346



### Gram-scale synthesis of alstoscholarinoid B via a bio-inspired strategy

Long He, Wenting Zhang, Xiaocheng Zhang, Xiaohui Wu, Yimeng Han, Jiahang Yan\* and Weiqing Xie\*

9356

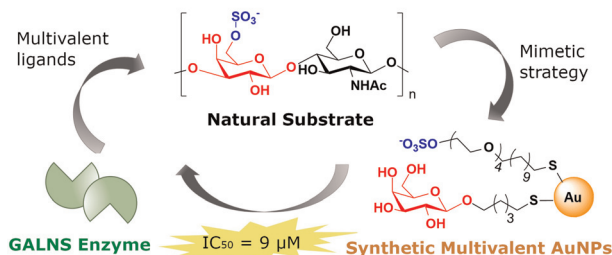


### Molecular mechanism of the transformation of oxidized lignin to N-substituted aromatics

Xueli Mu, Shijie Sun, Zhihao Li, Lingli Han,\* Kang Lv\* and Tao Liu\*

9362

Multivalent AuNPs modulate the activity of lysosomal enzyme GALNS



### Gold nanoparticles decorated with monosaccharides and sulfated ligands as potential modulators of the lysosomal enzyme N-acetylgalactosamine-6-sulfatase (GALNS)

Francesca Bucu, Camilla Matassini,\* Costanza Vanni, Francesca Clemente, Paolo Paoli, Cosimo Carozzini, Alice Beni, Francesca Cardona, Andrea Goti, Sergio Enrique Moya, Maria Grazia Ortore, Patrizia Andreozzi, Amelia Morrone and Marco Marradi\*

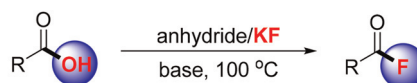


## PAPERS

9372

### Synthesis of acyl fluorides through deoxyfluorination of carboxylic acids

Mengjie Cen, Xi Yang, Shanshan Zhang, Liguang Gan, Long Liu\* and Tieqiao Chen\*

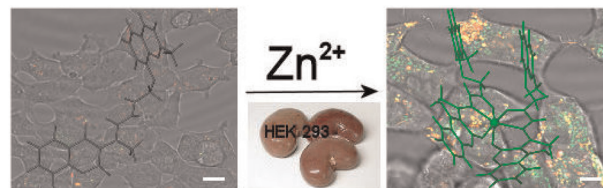


- Readily available materials
- Safe inorganic F<sup>-</sup> source
- Broad scope
- Scalable under solvent free conditions

9379

### A molecular chemodosimeter to probe “closed shell” ions in kidney cells

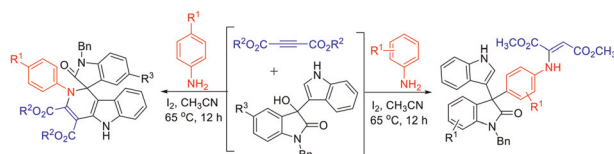
Amine Assel, Meagan M. Stanley, Rashid Mia, Besma Boulila, Peter J. Cragg, Iyanuoluwani Owolabie, Meredith Hetrick, Alex Flynt, Karl J. Wallace\* and Hichem Ben Jannet



9392

### Construction of diverse spirooxindoles via a domino reaction of arylamines, but-2-ynedioates and 3-hydroxy-3-(indol-3-yl)indolin-2-ones

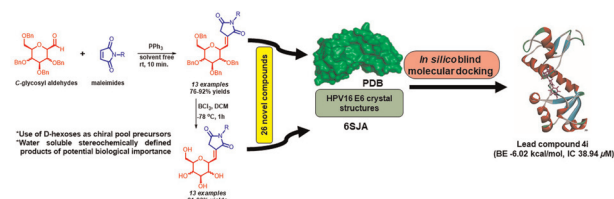
Ling-Yun Zhu, Jing Sun,\* Dan Liu and Chao-Guo Yan\*



9398

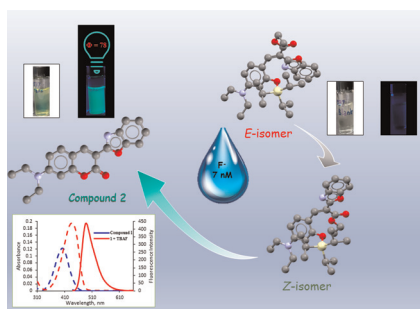
### Solvent-free synthesis and *in-silico* molecular docking study of (*E*)-3-(β-*C*-glycosylmethylidene)-*N*-aryl/alkyl succinimides

Bhawani Shankar,\* Tejveer Singh, Banty Kumar, Aditi Arora, Sumit Kumar and Brajendra K. Singh



## PAPERS

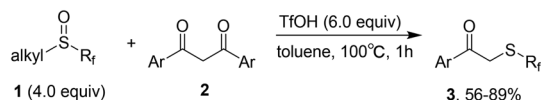
9410



### Shining light on fluoride detection: a comprehensive study exploring the potential of coumarin precursors as selective turn-on fluorescent chemosensors

Sara Amer, Vincent Joseph, Bat-El Oded, Vered Marks, Flavio Grynszpan\* and Mindy Levine\*

9416

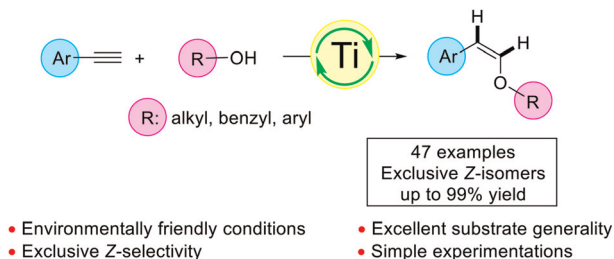


$R_f = CF_3, C_3F_7, C_4F_9, C_6F_{13}, C_8F_{17}$   
alkyl = *i*-propyl, cyclohexyl

### The perfluoroalkylthiolation/decarbonylation reaction of 1,3-diketones with perfluoroalkanesulfenic acids

Jia-Hui Li, Min Jiang and Jin-Tao Liu\*

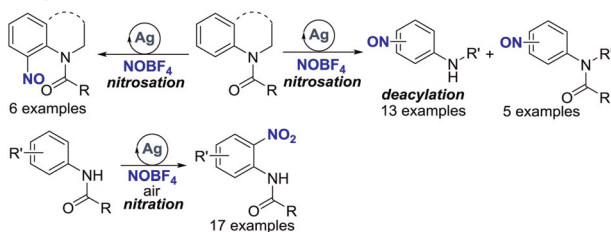
9422



### Titanium-catalyzed highly stereoselective anti-Markovnikov intermolecular hydroalkoxylation of alkynes to prepare Z-enol ethers

Yang Wang, Biao Ma, Yingning Mao, Zhihui Wang, Jinsong Peng, Chunxia Chen\* and Zhanyu Li\*

9428



### Silver-catalyzed nitrosation and nitration of aromatic amides using NOBF<sub>4</sub>

Sa Li, Wentao Liu and Xiao-Feng Xia\*





**Supramolecular complexes**

The scheme illustrates the reaction of VPI (a triphenylamine-based molecule with a central nitrogen atom) with CB[8] or CB[10] to form supramolecular complexes and polymers.

**Top Row:** VPI reacts with CB[8] or CB[10] to form a 2:2 complex (VPI<sub>2</sub>:CB<sub>2</sub>) or a 2:3 complex (VPI<sub>2</sub>:CB<sub>3</sub>).

**Bottom Row:** VPI reacts with CB[8] or CB[10] to form a 2:2 complex (VPI<sub>2</sub>:CB<sub>2</sub>) or a 2:3 complex (VPI<sub>2</sub>:CB<sub>3</sub>).

**Central Text:** supramolecular polymer or multiple equilibria

**Figure 1.** Synthesis and characterization of TS2-rot-DMSO. (A) NMR spectrum of TS-AB·3H<sub>2</sub>O(H<sub>2</sub>O) showing peaks at 14.5 ppm (9d-B), 14.0 ppm (9d-A), and 13.5 ppm (9d-C). (B) Chemical structures of TS-AB·3H<sub>2</sub>O(H<sub>2</sub>O) and TS2-rot-DMSO, showing the transition from a hydrogen-bonded dimer to a dicationic species. (C) EXSY NMR spectrum of TS2-rot-DMSO showing peaks at 13.5 ppm (B) and 14.0 ppm (C).

Reaction scheme showing the synthesis of a C<sub>60</sub> fullerene derivative. The starting material is a C<sub>60</sub> fullerene with a 2-hydroxy-1-(2,5-dihydro-2H-pyridin-2-yl) group. It reacts with MeOCH<sub>2</sub>CH<sub>2</sub>N(SF<sub>3</sub>)MeO (Deoxofluor) to form a C<sub>60</sub> fullerene with a 2-(2,5-dihydro-2H-pyridin-2-yl) group. The R group is specified as 7-Br. A single crystal X-ray structure of the product is also shown.