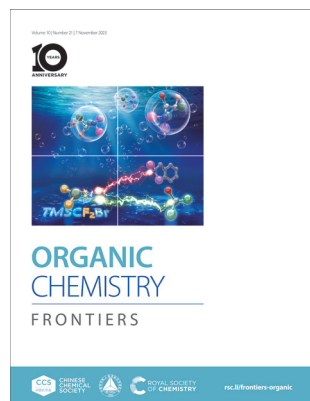
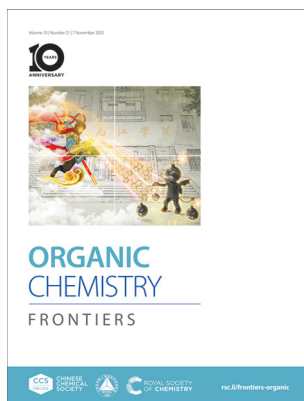


## IN THIS ISSUE

ISSN 2052-4129 CODEN OCFRA8 10(21) 5333–5540 (2023)



## Cover

See Jinbo Hu *et al.*, pp. 5343–5351.Image reproduced by permission of An Liu and Jinbo Hu from *Org. Chem. Front.*, 2023, **10**, 5343.

## Inside cover

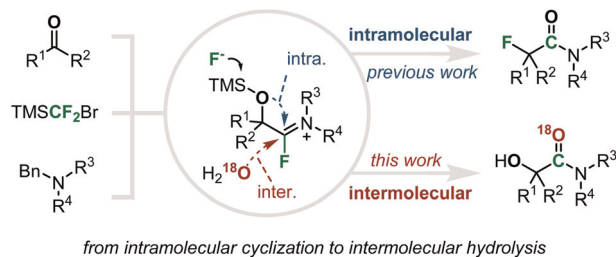
See Changlong Xu, Xiaohua Cao, Huanan Huang *et al.*, pp. 5352–5361.Image reproduced by permission of Huanan Huang from *Org. Chem. Front.*, 2023, **10**, 5352.

## RESEARCH ARTICLES

5343

From intramolecular cyclization to intermolecular hydrolysis: TMSCF<sub>2</sub>Br-enabled carbonylation of aldehydes/ketones and amines to  $\alpha$ -hydroxyamides

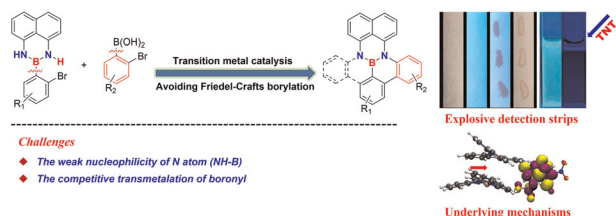
An Liu, Shuo Sun, Qiqiang Xie, Rumin Huang, Taige Kong, Chuanfa Ni and Jinbo Hu\*



5352

## NBN embedded phenalenes as a new class of zigzag type polycyclic aromatic hydrocarbons for explosive detection

Han Xu, Junxiong Yao, Wenjue Tu, Xiaomin Zheng, Huimin Fu, Qixing Xu, Shengting Zhang, Jiaqi Li, Hanbin Wang, Jie Fang, Jing Yang, Changlong Xu,\* Xiaohua Cao\* and Huanan Huang\*



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

For pre-submission queries please contact Wenjun Liu,

Executive Editor. Email: [OrgChemFrontiersED@rsc.org](mailto: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, CB4 0WF, UK

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 0WF, UK Tel +44 (0) 1223 432398; E-mail [orders@rsc.org](mailto:orders@rsc.org)

2023 Annual (electronic) subscription price: £2,182; US\$3,492. 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](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 CHEMISTRY

## FRONTIERS

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



CHINESE  
CHEMICAL  
SOCIETY



### 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-Universität Göttingen, Germany  
Marco Bandini, University of Bologna, Italy  
Matthias Beller, University of Rostock, Germany  
Akshattu 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, UK

Frank Glorius, Westfälische Wilhelms-Universität Münster, Germany  
Zhenhua Gu, University of Science and 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  
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 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](http://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

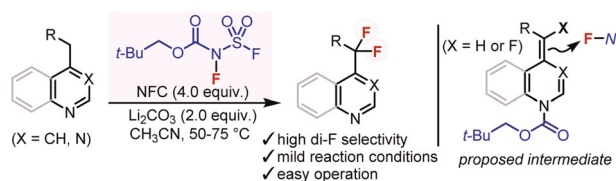


## RESEARCH ARTICLES

5362

**Difluorination of heterobenzyl C–H bonds with *N*-fluoro-*N*-(fluorosulfonyl)carbamate (NFC)**

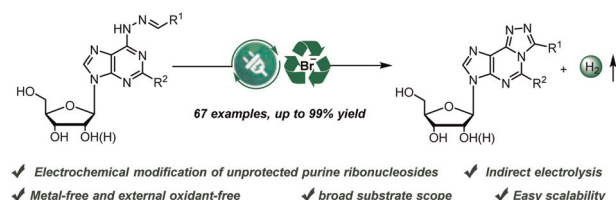
Akiya Adachi, Takuya Hashimoto,\* Kohsuke Aikawa,\* Kyoko Nozaki and Takashi Okazoe



5369

**Electrocatalytic oxidative C–H cycloamination towards tricyclic [1,2,4]triazolo-[3,4-*i*]purine nucleosides mediated by bromide ions**

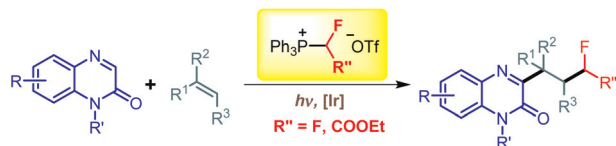
Qi-Liang Yang,\* Wan-Wan Li, Zhong-Xu Zhang, Han-Meng Zhang, Xian-Jia Li and Hai-Ming Guo\*



5375

**Direct C(sp<sup>2</sup>)–H fluoroalkylation of quinoxalin-2 (1*H*)-ones with (fluoroalkyl)triphenylphosphonium salts and alkenes**

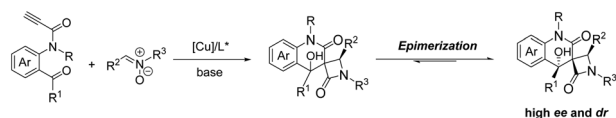
Wenwen Wang, Tonghao Zhu\* and Jie Wu\*



5383

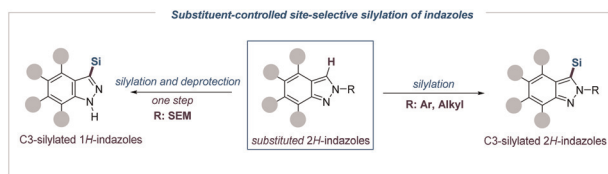
**Highly diastereo- and enantioselective synthesis of spiro  $\beta$ -lactams via copper-catalyzed Kinugasa/aldol cascade reaction**

Jie Li, Haowen Ma, Xianqiang Zhong, Shanyue Li, Jiehao Zhang, Yunlin Ao, Wei Zhou\* and Qian Cai\*



## RESEARCH ARTICLES

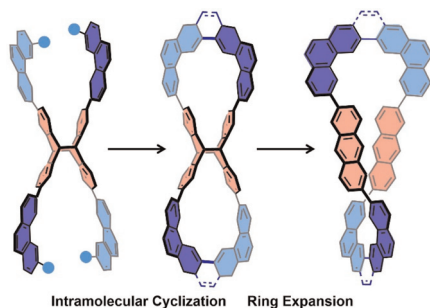
5389



### Substituent-controlled site-selective silylation of 2H-indazoles to access silylated 1H-indazoles and 2H-indazoles under transition metal-free conditions

Jia Jia, Shuai Chen, Ting Mao, Jinlan Li, Weipiao Li, An-Jun Wang, Dezhi Yang, Zhengli Liu,\* Chun-Yang He\* and Zhang Feng\*

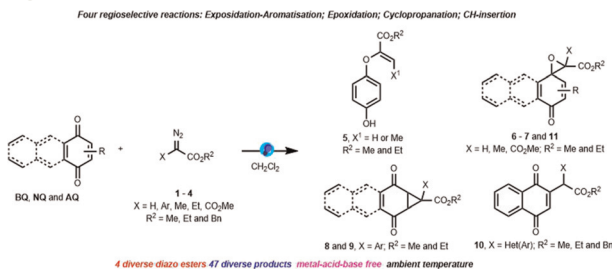
5395



### Conjugated figure-of-eight macrocycles derived from the anthracene photodimer: synthetic execution through intramolecular cyclization and topological manipulation through ring expansion

Lijie Zhan, Hongyan Xiao, Jia-Nan Gao and Huan Cong\*

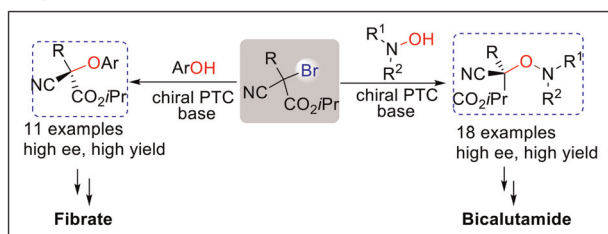
5402



### Theoretical studies to predict the utility of diazo esters in their reactions with 1,4-quinones: experimental validation via a visible light driven metal free process

Tejas Prabakar, Subhankar Bera, Shagun Singh, Anubhuti Srivastava, Manasi Chandrachood, Debajit Maiti, Naiwrit Karmodak\* and Subhabrata Sen\*

5416



### Bisguanidinium-catalyzed formation of oxygen-containing quaternary stereogenic carbon centers

Xu Ban,\* Changxing Chen, Kha Tuan Khoa, Chao Wang, Zhiyong Jiang and Choon-Hong Tan\*

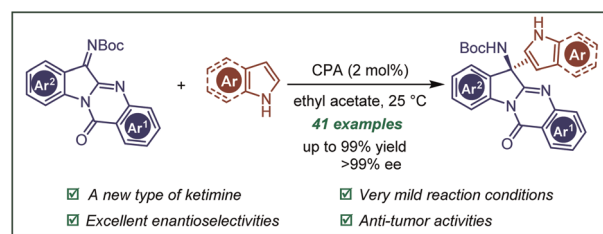


## RESEARCH ARTICLES

5421

### Enantioselective synthesis of tryptanthrin derivatives enabled by an asymmetric aza-Friedel–Crafts reaction

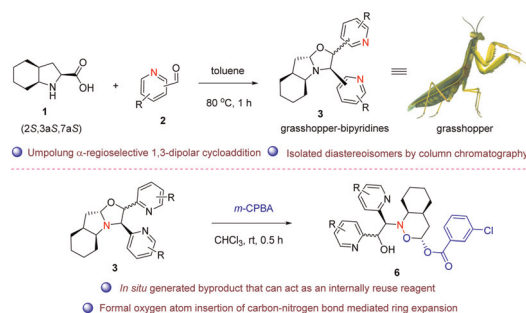
Yong You,\* Guo-Ying Gan, Si-Yang Duan, Yan-Ping Zhang, Qun Li, Zhen-Hua Wang, Jian-Qiang Zhao, Xiong-Li Liu and Wei-Cheng Yuan\*



5428

### Umpolung $\alpha$ -regioselective 1,3-dipolar cycloaddition and internal recycle of byproduct as two key strategies: access to diverse chiral bipyridines

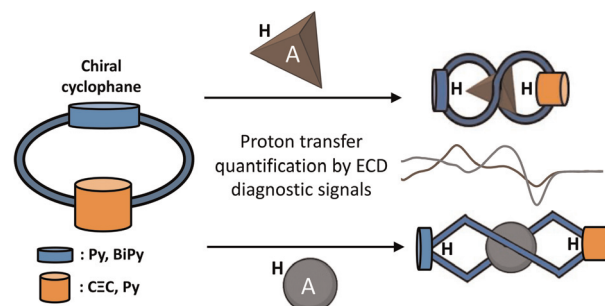
Yu-Heng Wang, Xi-Rui Wang, Ke-Lan Xu, Zi-Yue Chen, Bo-Wen Pan, Li-Jun Peng,\* Ying Zhou and Xiong-Li Liu\*



5435

### Deciphering the degree of proton-transfer in pyrido-cyclophanes by chiroptical outcomes in non-aqueous solvents

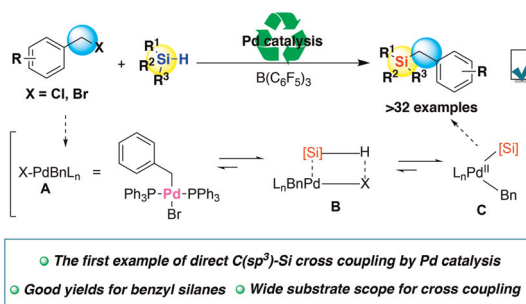
Jonathan Álvarez-García, Víctor Rubio-Pisabarro, Luis García-Río and María Magdalena Cid\*



5443

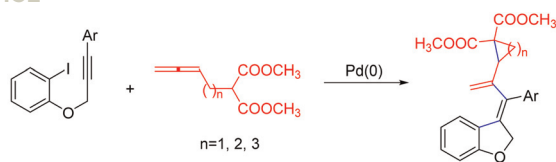
### Palladium-catalyzed $C(sp^3)$ –Si cross-coupling silylation of benzyl halides with hydrosilanes

Xiao-Hua Zhou, Jun-Hui Zhu, Guang-Ao Song, Xin-Li Jiang, Xiao-Jun Fang, Zheng Xu and Li-Wen Xu\*



## RESEARCH ARTICLES

5451

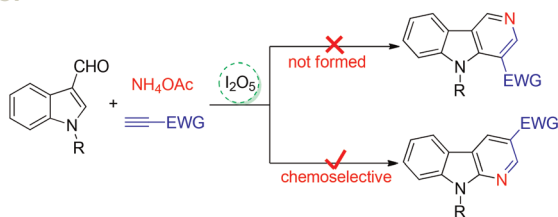


- 39 Examples up to 87% yield
- High regio- and stereoselectivity
- General substrate scope
- Three new C-C bond and two ring formation

### Palladium-catalyzed bicyclization of alkynyl aryl iodide with allenyl malonates

Ping-Xin Zhou,\* Yang Liu, Xueyan Du, Ning Liu, Kexin Li, Yuji Wu, Wang Feng, Xu Liu and Yingying Kong\*

5457

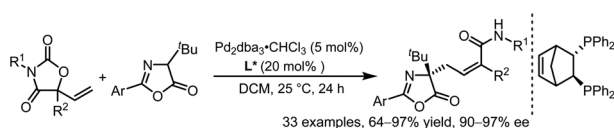


- Chemoselective synthesis
- Metal- and additive-free conditions
- Readily available starting materials
- Gram scale synthesis
- Significant synthetic application
- 37 examples, up to 93%

### Chemoselective three-component synthesis of $\alpha$ -carbolines under metal-free conditions

Wei Feng, Chao Zhang, Xinlin Zhou, Kuiyi You,\* Guo-Jun Deng\* and Shanping Chen\*

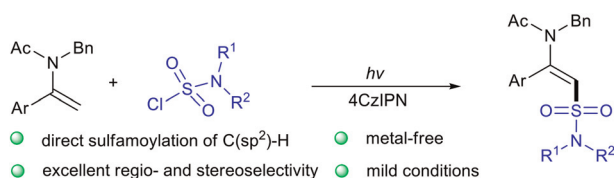
5463



### Palladium-catalyzed regio- and stereoselective allylic alkylation of 5-vinylloxazolidine-2,4-diones with azlactones: synthesis of chiral (Z)-trisubstituted allylic amino acid derivatives

Kuan Li, Lan Wang, Shuo Zhen, Lihan Zhu, Songcheng Yu, Yongjun Wu and Hongchao Guo\*

5470



### Photocatalytic C(sp<sup>2</sup>)-H sulfamoylation of enamides: regio- and stereoselective construction of (E)- $\beta$ -sulfamoyl enamides

Lingli Liu, Yechun Wu, Xian Wu, Jin-Tao Yu\* and Changduo Pan\*



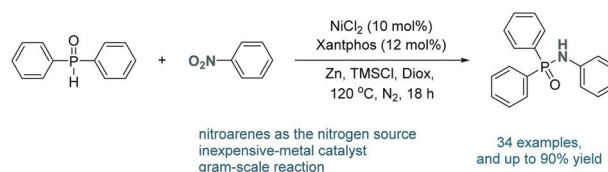


## RESEARCH ARTICLES

5478

**Nickel-catalyzed reductive coupling of nitroarenes and phosphine oxides to access phosphinic amides**

Meixia Liu, Huimin Hu, Runbo Sun, Haoyuan Li, Anjun Ding, Xiaoyong Liu, Zhengjiang Fu, Shengmei Guo\* and Hu Cai\*



5484

**Reductive thiolation and oxidative dehydroaromatization of cyclohexanones with primary amines and sodium sulfinates to access o-sulfanylanilines**

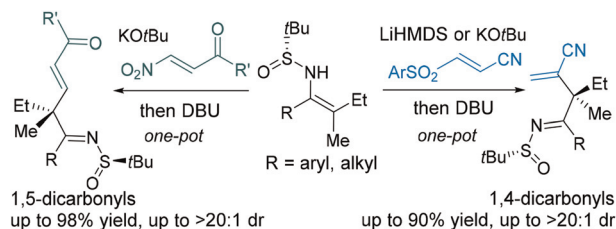
Hui Wu, Lin Zhao, Wenting Wang, Yining Yu and Ge Wu\*



5490

**Stereoselective formal alkenylation of  $\beta,\beta$ -disubstituted enesulfinamides for constructing 1,5- and 1,4-dicarbonyl derivatives bearing less-accessible acyclic  $\alpha$ -quaternary stereocenters**

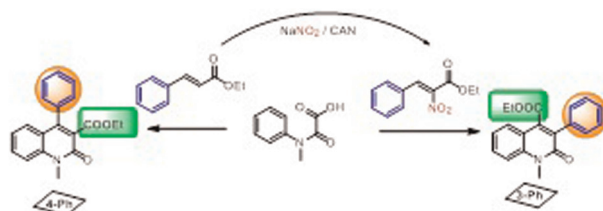
Chong-Lin Zhu and Chong-Dao Lu\*



5496

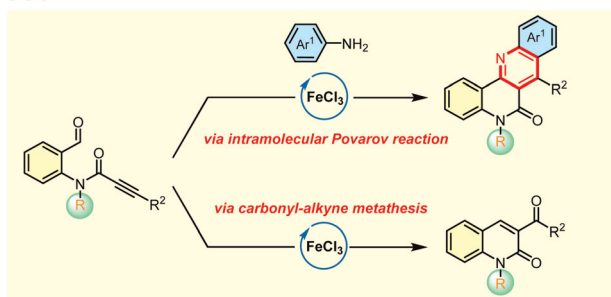
**Nitro – a traceless directing group for reversing the radical site-selectivity of styrene derivatives**

Zhenxing Zhang, Xin Zhang, Yaxin Wang, Yang Liu, Yu Wang, Xinhao Zhang,\* Junyan Ma\* and Lijuan Song\*



## RESEARCH ARTICLES

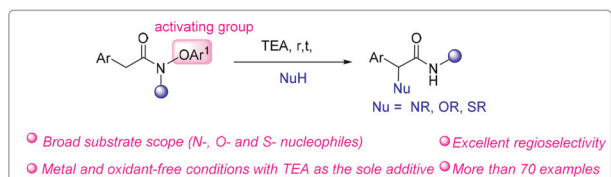
5505



### Iron-catalyzed divergent approach to naphththyridinones and quinolinones: leveraging Povarov and carbonyl-alkyne metathesis reactions of electron deficient alkynes

Jia-ming Chen, Jun-hua Li, Li-cheng Xie, Hui-ke Fan, Xia-xin Sheng, Yu-jia Du, Guo-ying Liu, Hao Hu, Yan Jiang\* and Ming Chen\*

5512

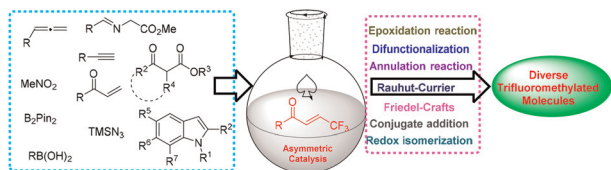


### Regioselective heterofunctionalization of alpha-aryl amides with heteroatom nucleophiles via electrophilic activation

Shuai Han, Yu Guo,\* Wei Zhang, Jinjin Chen, Zhen Wang\* and Yao-Fu Zeng\*

## REVIEW

5519



### $\beta$ -Trifluoromethylated enones as trifluoromethylated synthons in asymmetric catalysis

Xiufang Cheng, Wenjin Niu, Huamin Wang\* and Ying-Wu Lin\*

