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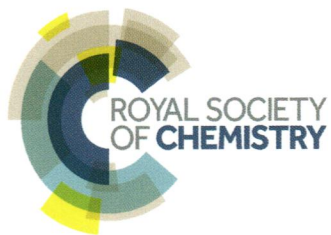
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Organic & Biomolecular Chemistry

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PAPER

Oleg V. Larionov *et al.*

Insights into the mechanistic and synthetic aspects of the Mo/P-catalyzed oxidation of N-heterocycles

Organic & Biomolecular Chemistry

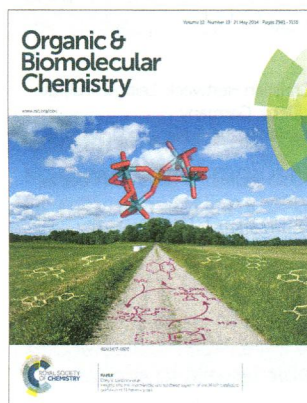
An international journal of synthetic, physical and biomolecular organic chemistry

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IN THIS ISSUE

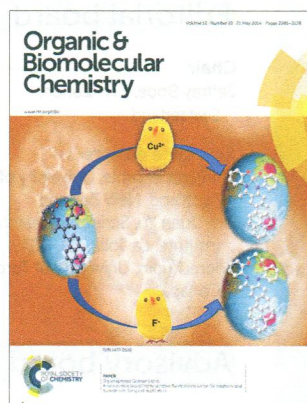
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Cover

See Oleg V. Larionov *et al.*, pp. 3026–3036.

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Inside cover

See Shyamaprosad Goswami *et al.*, pp. 3037–3044.

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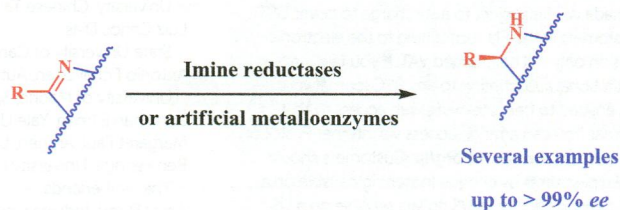
REVIEWS

2989

Enantioselective imine reduction catalyzed by imine reductases and artificial metalloenzymes

Daniela Gamenara* and Pablo Domínguez de María*

Adding value to organic synthesis. Novel imine reductases enable the enantioselective reduction of imines to afford chiral amines. Likewise, novel bioinspired artificial metalloenzymes can perform the same reaction as well. Remarkable recent examples are herein discussed.

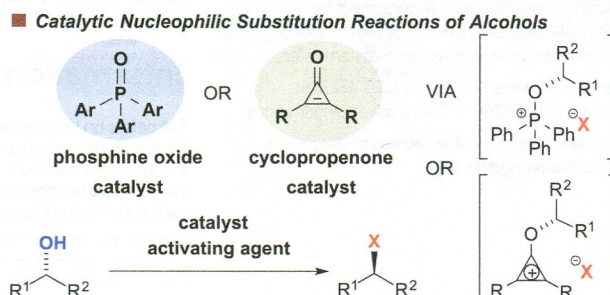


2993

The development of catalytic nucleophilic substitution reactions: challenges, progress and future directions

Jie An, Ross M. Denton,* Tristan H. Lambert* and Eric D. Nacsa

Bimolecular nucleophilic substitution reactions of alcohols are fundamentally important transformations in organic chemistry yet, to date, they are relatively underdeveloped with respect to catalysis.

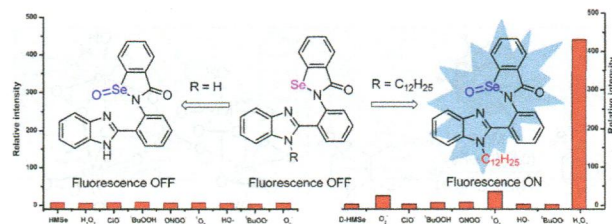


3004

A selenium-contained aggregation-induced "turn-on" fluorescent probe for hydrogen peroxide

Ye-Xin Liao, Kun Li,* Ming-Yu Wu, Tong Wu and Xiao-Qi Yu*

A novel selenium-contained aggregation-induced "turn-on" fluorescent probe was presented, which could selectively respond to hydrogen peroxide over other ROS in aqueous solution.

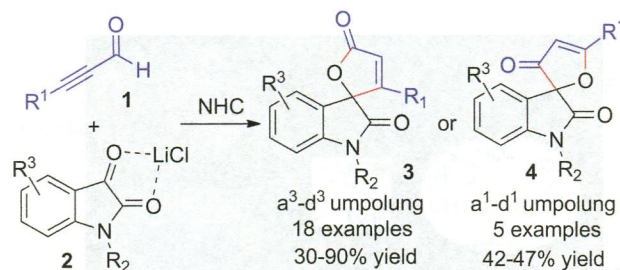


3009

Cooperative *N*-heterocyclic carbene (NHC)–Lewis acid-mediated regioselective umpolung formal [3 + 2] annulations of alkynyl aldehydes with isatins

Yu Zhang, Yingyan Lu, Weifang Tang, Tao Lu* and Ding Du*

A novel synthesis of spirooxindoles has been developed by cooperative NHC–Lewis acid-mediated formal [3 + 2] annulations of alkynyl aldehydes with isatins.

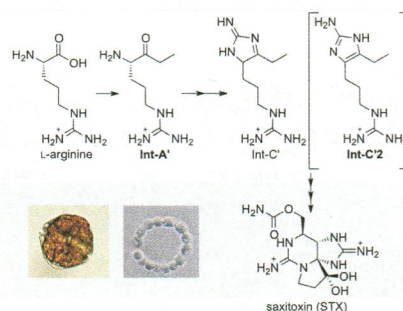


3016

Synthesis and identification of proposed biosynthetic intermediates of saxitoxin in the cyanobacterium *Anabaena circinalis* (TA04) and the dinoflagellate *Alexandrium tamarense* (Axat-2)

Shigeki Tsuchiya, Yuko Cho, Keiichi Konoki, Kazuo Nagasawa, Yasukatsu Oshima and Mari Yotsu-Yamashita*

We synthesized the genetically predicted biosynthetic intermediates of saxitoxin (STX) (**1**), **2**, **6** and **7**, and identified **2** and **6** in microorganisms.

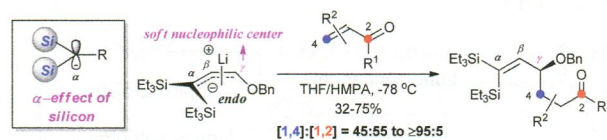


3021

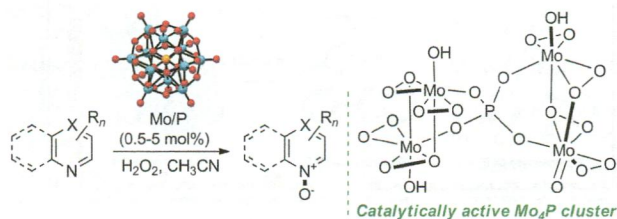
Regioselective 1,4- over 1,2-addition of 3,3-bis(silyl) allyloxy lithium to enals, enones and enoates. The remarkable α -effect of silicon

Xincui Ye, Xianwei Sun, Zhenggang Huang, Na Yang, Zhishan Su, Changwei Hu and Zhenlei Song*

The remarkable α -effect of silicon leads to a regioselective 1,4- over 1,2-addition of 3,3-bis(silyl) allyloxy lithium to α,β -unsaturated carbonyl compounds.



3026

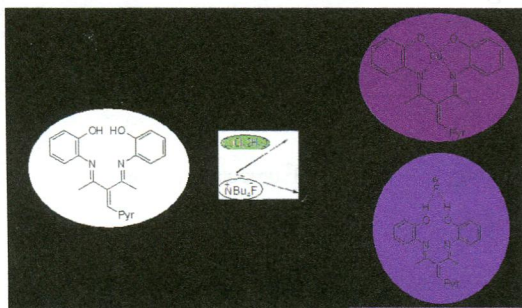


Insights into the mechanistic and synthetic aspects of the Mo/P-catalyzed oxidation of N-heterocycles

Oleg V. Larionov,* David Stephens, Adelphe M. Mfuh, Hadi D. Arman, Anastasia S. Naumova, Gabriel Chavez and Behije Skenderi

Mechanistic and synthetic studies of the Mo/P-catalyzed N-oxidation of N-heterocycles with hydrogen peroxide shed light on the role and nature of the catalytically active species.

3037

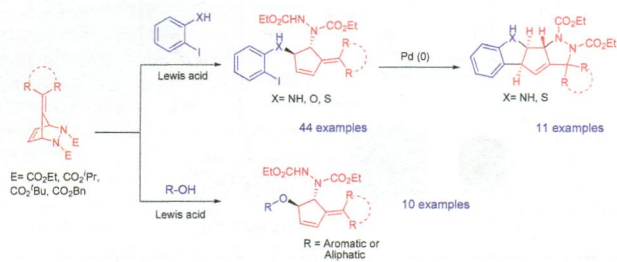


A new pyrene based highly sensitive fluorescence probe for copper(II) and fluoride with living cell application

Shyamaprosad Goswami,* Shampa Chakraborty, Sima Paul, Sandipan Halder, Sukanya Panja and Subhra Kanti Mukhopadhyay

A new pyrene based fluorescence probe has been synthesized for fluorogenic detection of Cu²⁺ in acetonitrile-aqueous media (7:3 CH₃CN–HEPES buffer v/v, pH 7.5) with the bioimaging in both prokaryotic and eukaryotic living cells.

3045

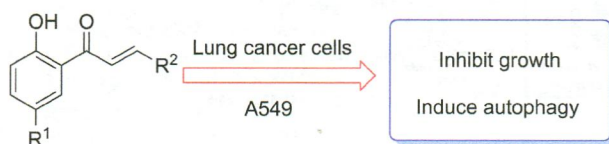


Trapping the Lewis acid generated transient species from pentafulvene derived diazaborbornenes with *ortho*-functionalized aryl iodides and aliphatic alcohols

S. Sarath Chand, S. Saranya, P. Preethanuj, B. P. Dhanya, E. Jijy, Praveen Prakash, B. S. Sasidhar, Jan Szymoniak, P. V. Santhini and K. V. Radhakrishnan*

Lewis acid catalyzed ring-opening of pentafulvene derived diazabicyclic olefins with various *ortho*-functionalized aryl iodides is described.

3062



Discovery of 2'-hydroxychalcones as autophagy inducer in A549 lung cancer cells

Fang-Wu Wang, Sheng-Qing Wang, Bao-Xiang Zhao* and Jun-Ying Miao*

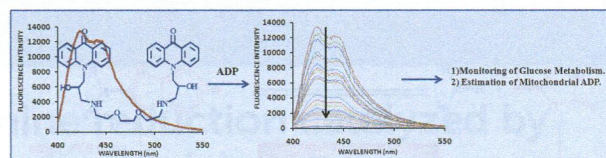
A series of 2'-hydroxychalcone derivatives was synthesized and the effects of all the compounds on growth of A549 lung cancer cell were investigated.

3071

A fluorescent probe for estimation of adenosine diphosphate and monitoring of glucose metabolism

Arun Kumar, Parteek Prasher and Palwinder Singh*

An ADP selective fluorescent probe working in aqueous medium was identified and the change in fluorescence as a function of ADP concentration was standardized.

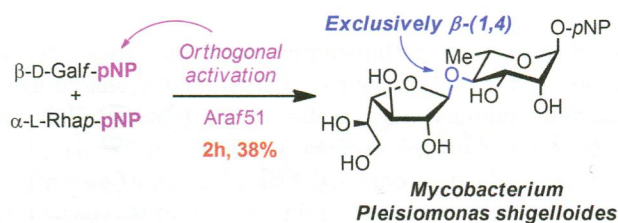


3080

The versatile enzyme Araf51 allowed efficient synthesis of rare pathogen-related β -D-galactofuranosyl-pyranoside disaccharides

Ilona Chlubnová, Blanka Králová, Hana Dvořáková, Petr Hošek, Vojtěch Spiwok, Dominik Filipp, Caroline Nugier-Chauvin,* Richard Daniellou and Vincent Ferrières*

A chemo-enzymatic approach was developed for the synthesis of galactofuranosyl-containing disaccharides. The biocatalyst Araf51 was efficient in producing various rare pathogen-related β -D-galactofuranosyl-pyranosides.

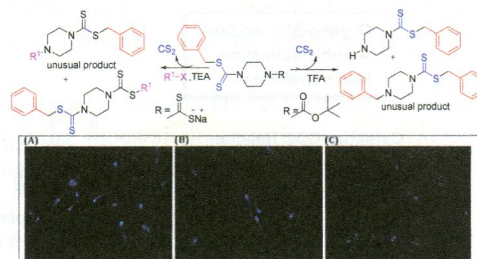


3090

A unique dithiocarbamate chemistry during design & synthesis of novel sperm-immobilizing agents

Santosh Jangir, Veenu Bala, Nand Lal, Lalit Kumar, Amit Sarswat, Lokesh Kumar, Bhavana Kushwaha, Pratiksha Singh, Praveen Kumar Shukla, Jagdamba Prasad Maikhuri, Gopal Gupta and Vishnu Lal Sharma*

Unusual loss of CS_2 observed in benzyl substituted dithiocarbamates during synthesis of double edged spermicides which acted through sulfhydryl binding.



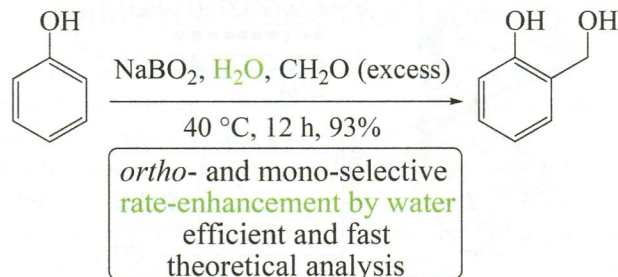
Fluorescence due to free thiols on human sperm treated with (A) control (B) compound 18 (C) compound 24

3100

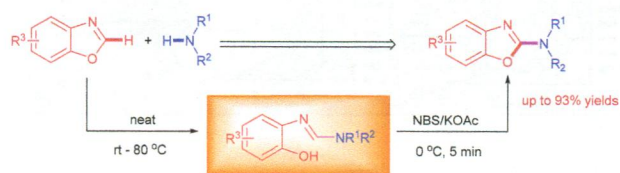
Water-promoted *ortho*-selective monohydroxymethylation of phenols in the NaBO_2 system

Hui-Jing Li,* Ying-Ying Wu, Qin-Xi Wu, Rui Wang, Chun-Yang Dai, Zhi-Lun Shen, Cheng-Long Xie and Yan-Chao Wu*

Water-promoted *ortho*-selective monohydroxymethylation of phenols in the NaBO_2 system generates salicyl alcohols in excellent yields.



3108

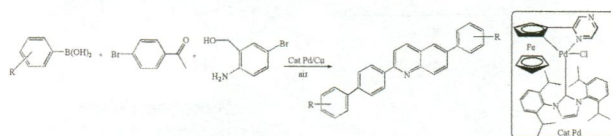


N-Bromosuccinimide as an oxidant for the transition-metal-free synthesis of 2-aminobenzoxazoles from benzoxazoles and secondary amines

Xiaoe Wang, Daqian Xu, Chengxia Miao, Qiaohong Zhang and Wei Sun*

A facile and transition-metal-free method was developed through merging the ring opening of benzoxazoles with secondary amines and *N*-bromosuccinimide mediated oxidative cyclization toward the synthesis of 2-aminobenzoxazoles.

3114

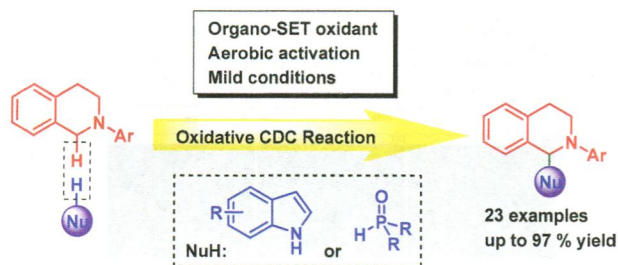


N-heterocyclic carbene (NHC)-modulated Pd/Cu cocatalyzed three-component synthesis of 2,6-diarylquinolines

Chen Xu,* Hong-Mei Li, Xiao-Er Yuan, Zhi-Qiang Xiao, Zhi-Qiang Wang, Wei-Jun Fu, Bao-Ming Ji, Xin-Qi Hao* and Mao-Ping Song

An efficient NHC-modulated Pd/Cu cocatalyzed three-component coupling reaction for the synthesis of 2,6-diarylquinolines *via* oxidation, cyclization and Suzuki reactions.

3123

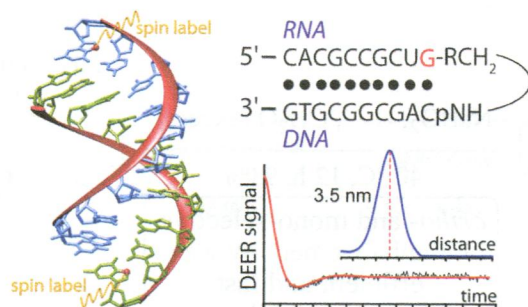


Catalytic amounts of triarylammonium salt initiated aerobic oxidative coupling of *N*-aryl tetrahydroisoquinolines

Congde Huo,* Cheng Wang, Mingxia Wu, Xiaodong Jia, Xicun Wang, Yong Yuan and Haisheng Xie

A novel, efficient in catalytic amounts, stable radical cation triarylammonium salt induced aerobic oxidative α -C–H functionalization of tertiary amines has been developed.

3129



A versatile approach for site-directed spin labeling and structural EPR studies of RNAs

Elena S. Babaylova, Anton V. Ivanov, Alexey A. Malygin, Maria A. Vorobjeva, Alia G. Venyaminova, Yuliya F. Polienko, Igor A. Kirilyuk, Olesya A. Krumkacheva, Matvey V. Fedin,* Galina G. Karpova* and Elena G. Bagryanskaya*

We propose and validate a new site-directed spin labeling approach affording EPR distance measurements in long RNAs.