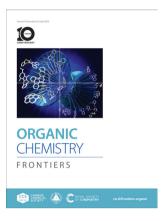
ORGANIC CHEMISTRY

FRONTIERS

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IN THIS ISSUE

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Cover

See Hideto Ito, Kenichiro Itami et al., pp. 1880-1889.

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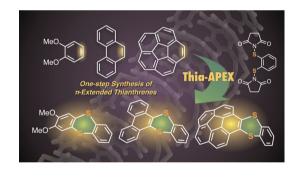
The artwork was created by Dr Issey Takahashi (Nagoya University).

RESEARCH ARTICLES

1880

One-step synthesis of polycyclic thianthrenes from unfunctionalized aromatics by thia-APEX reactions

Kou P. Kawahara, Hideto Ito* and Kenichiro Itami*



1890

Copper(ı)-catalyzed multicomponent interrupted click reaction: modular synthesis of triazole sulfides from elemental sulfur

Pengfei Sun, Weiguo Wang, Jilong Lai, Huang Yan, Chen-Ho Tung and Zhenghu Xu*



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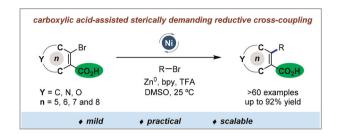
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1897

Carboxylic acid-assisted sterically demanding reductive cross-coupling between cycloalkenyl and alkyl bromides

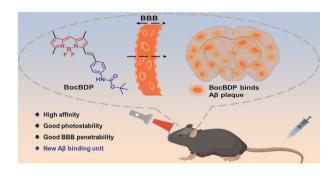
Jinglin An, Xue Zhou, Yifan Zhang, Zhenfei Ye, Qianyou Guo, Hao Song, Zhenlei Song,* Xiao-Yu Liu and Yong Qin*



1903

A BODIPY-based probe for amyloid- β imaging in vivo

Mingguang Zhu, Guoyang Zhang, Ziwei Hu, Chaofeng Zhu, Yixiang Chen, Tony D. James,* Lijun Ma* and Zhuo Wang*



1910

Asymmetric synthesis of 7-membered-ring-bridged 3,4-fused tricyclic indoles *via* Friedel-Crafts alkylation/annulation

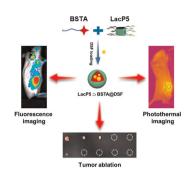
Bai-Yu Xue, Chen-Ying Hou, Xiao-Bing Wang, Ming-Sheng Xie* and Hai-Ming Guo*

1915

Synthesis of α -amino acid derived (1,2,3-triazol-4-yl)-picolinamide (tzpa) ligands and their corresponding luminescent Tb(\square) complexes

Isabel N. Hegarty, Chris S. Hawes and Thorfinnur Gunnlaugsson*

1927



A supramolecular near-infrared nanophotosensitizer from host-guest complex of lactose-capped pillar[5] arene with aza-BODIPY derivative for tumor eradication

Jiaxuan Li, Xiaomeng Lv, Jiahui Li, Wenjuan Jin, Zelong Chen, Yafei Wen, Zhichao Pei and Yuxin Pei*

1936

Synthesis of quinol-type heterobiaryls *via* an acid-catalyzed heteroannulation of alkynes and *o*-aminobenzaldehydes

Qing-Song Jian, Bo-Bo Gou, Shao-Jie Wang, Huai-Ri Sun, Atif Sharif, Yong-Qiang Wang, Ling Zhou* and Jie Chen*

1942



Transition metal-free, photocatalytic arylation and dioxygenation for vicinal diketone synthesis using alkynes and arene diazonium salts

Baoli Zhao, Xiaoting Yin, Haifeng Li, Kai Cheng* and Jie-Ping Wan*

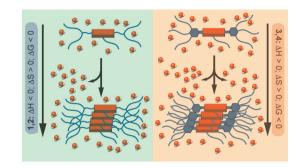
A DFT study of Ni-catalyzed (3 + 3)-annulation between donor–acceptor cyclopropanes and diaziridines

Song-Shan Dai, Xiao-jiao Yang, Ran Fang,* Alexander M. Kirillov and Lizi Yang*

1959

Thermodynamics of the self-assembly of *N*-annulated perylene bisimides in water. Disentangling the enthalpic and entropic contributions

Manuel A. Martínez, Daniel Aranda, Enrique Ortí, Juan Aragó* and Luis Sánchez*



1968

Photochemical difluoromethylation of alkynes: synthesis of CF₂H-substituted seven-membered dioxodibenzothiazepines and dibenzazepines

Xiaoyu Chen, Yang Geng, Bo Liu, Yu Zhu, Dapeng Zou,* Yangjie Wu* and Yusheng Wu*

1975

Preparation of benzoyl fluorides and benzoic acids from phenols *via* a dearomatization—rearomatization strategy

Meixian Yang, Xinyue Huang, Wenjun Miao, Lan Yi, Jiajing Cai, Zhenghuan Zhao, Jia He* and Dachuan Qiu*

$$R_1$$
 R_2 R_3 t -BuOK, DMF R_1 R_1 R_2 R_3 t -BuOK, DMF R_1 R_2 R_3 R_4 R_4 R_5 R_6 R_7 R_8 R_8

1981

Visible-light-promoted defluorinated alkylation of trifluoromethyl alkenes initiated by radical [1,2]-Brook rearrangement: facile synthesis of *gem*-difluoro homoallylic alcohol derivatives

Tao Qin, Chunlu Xu, Ge Zhang* and Qian Zhang

1988

TBHP-promoted multicomponent reaction to access 2-aminobenzoxazinones using sodium chlorodifluoroacetate as the C1 synthon

Huijuan Li, Yongfeng Wang, Cheng Xu,* Jingwen Zou, Yaxuan Wu and Guodong Yin*

1994 one-pot | 1) [IrCl(COE)₂]₂ (cat.), | Et₂SiH₂, toluene, r.t. | 2) Acyl chloride, Et₃N, r.t. | R⁴ OR² | R⁴ OR²

good compatibility

Broad substrate scope

- readily accessible reagents
- mild conditions scalable
- la, m=1, 32 examples, up to 97% yield lb. m=2, 12 examples, up to 89% yield

Monocyclic II

Bicyclic I

II, 2 examples, 84% and 91% yield

One-pot synthesis of 1,3-oxazin-4-ones through an Ir-catalyzed mild formal condensation reaction of secondary amides with acyl chlorides

Si-Jia Yu, Jie Li, Jian-Liang Ye* and Pei-Qiang Huang*

2002

■ Merging Ullmann coupling and ring-expansion reaction ■ Dicyclization using amidine hydrochlorides as a dual synthon
■ Simple catalytic system and Functional group tolerance ■ Formation of four C-N bonds and cleavage of one C-C bond

Merging Ullmann-type cyclization and ring-expansion: a facile assembly of pyrimidine-fused quinazolinones by copper catalysis

Zhen-Wei Sun, Na Luo, Xiang Zhang, Wen-Jun Tuo, Xiao-Qiang Hu* and Feng-Cheng Jia*

2007 R3 Fe N-R1 + Br R4 = silyl, aryl Weakly coordinating amides Ru(II) catalyst Monosubstituted products A wide scope of aryl-substituted alkynyl bromides Easily accessible alkynyl bromides

Ru(II)-catalyzed C-H alkynylation of ferrocenes with bromoalkynes directed by carboxamide groups

Ru-Yuan Zhao, Jing Zhang, Rui-Han Niu, Jin-Heng Li* and Bo Sun*

2013

Transition-metal free oxidative carbocarboxylation of alkenes with formate in air

Pei Xu, Hui Xu, Sai Wang, Tian-Zi Hao, Si-Yi Yan, Dong Guo* and Xu Zhu*

- ✓ no organo (pseudo)halides needed
- ✓ transition-metals free
- ✓ air as a "green" oxidant
- ✓ high synthetic utility

2018

Visible-light-induced alkoxycarbonylation/cyclization of 1,7-enynes: synthesis of dihydropyranones containing all-carbon quaternary centers

Jian-Qiang Chen, Qi Chen, Baofu Chen* and Jie Wu*

2024

Mechanism and origins of ligand-controlled regioselectivity of copper-catalyzed borocarbonylation of imines with B₂pin₂ and alkyl iodides: a computational study

Xinyi Song, Hongli Wu, Jinjin Yang, Wentao Zhao* and Genping Huang*

2033

Palladium-catalyzed allylic allenylation of homoallyl alcohols with propargylic carbonates

Ping-Xin Zhou,* Murong Wang, Xiang Li, Xueyan Du, Xiaozhe Yang, Han Wang, Tangqiang Sun,* Feng Ren* and Yong-Min Liang

2039

R¹
$$\stackrel{\times}{\underset{R^3}{\longrightarrow}}$$
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Indirect electrochemical reductive cyclization of o-halophenylacrylamides mediated by phenanthrene

Xue-Qi Zhou, Pei-Bo Chen, Qiang Xia, Ting-Kai Xiong, Xue-Jun Li, Ying-Ming Pan, Mu-Xue He* and Ying Liang*

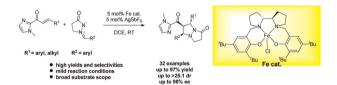
2045



Integration of CO₂ capture, activation, and conversion with a ternary acetylglucosyl 2-methylimidazolium modified Pd catalyst

Zhong-Gao Zhou,* Peng He, Jing Li, Jia Zhang, Guo-Hai Xu, Shi-Yong Zhang, Xiao-Xiao Deng, Zi-Yi Du, Guo-Tian Luo, Hong-Yu Zhen, Yi-Wang Chen and Chun-Ting He*

2054



Fe-BPsalan complex-catalyzed asymmetric 1,3-dipolar [3 + 2] cycloaddition reaction of N,N'-cyclic azomethine imines with α,β -unsaturated acyl imidazoles

Hao Lu, Kai-Ge Chen, Gong-Xin Li, Kun Zhan, Hao-Yang Wang, Zhen-Jiang Xu* and Chi-Ming Che*

2061

$$Ar^{1} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} R \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} R \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} R \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} Ar^{2} \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\bigcirc{}}{\underset{}} R \stackrel{\bigcirc{}}{\underset{}} NH_{2} \stackrel{\stackrel{}}{\underset{}} R \stackrel{\stackrel{}}{\underset{}} NH_{2} \stackrel{\stackrel{}}{\underset{}}$$

- high chemoselectivity = inexpensive, abundant reagents
- broad scope operatinal-simplicity

Cation-controlled chemoselective synthesis of *N*-aroylureas and imides *via* amidation of *N*-Boc arylamides

Jiamin Wang, Sujuan Shuai, Lishe Gan, Yongxin Luo, Huimin Jin, Lingfeng Chen, Dong Zou, Guang Liang,* Patrick J. Walsh* and Jie Li*

2070

Construction of alkynyl and acyl disulfides directly through thiol-modification with N-alkynylthio phthalimides under acid catalysis

Yao-Nan Xue, Kai Feng, Jun Tian, Juan Zhang, Hong-Hong Chang and Wen-Chao Gao*

2075

Transition metal-free radical trans-hydroboration of alkynes with NHC-boranes via visible-light photoredox catalysis

Ding-Chang Li, Jia-Hao Zeng, Yu-Hang Yang and Zhuang-Ping Zhan*

- ★ metal-free photoredox catalysis ★ good regio- and stereoselectivity
- ★ high atom economy
- mild conditions

REVIEWS

2081

Transition metal-catalyzed alkynylation reactions via alkynyl carbon-carbon bond cleavage

Hairui Yuan, Qi Zhou and Jianbo Wang*

2095

Selective preparative 'oxidase phase' in sesquiterpenoids: the radical approach

Maria Kourgiantaki, Georgia G. Bagkavou, Christos I. Stathakis* and Alexandros L. Zografos*

