

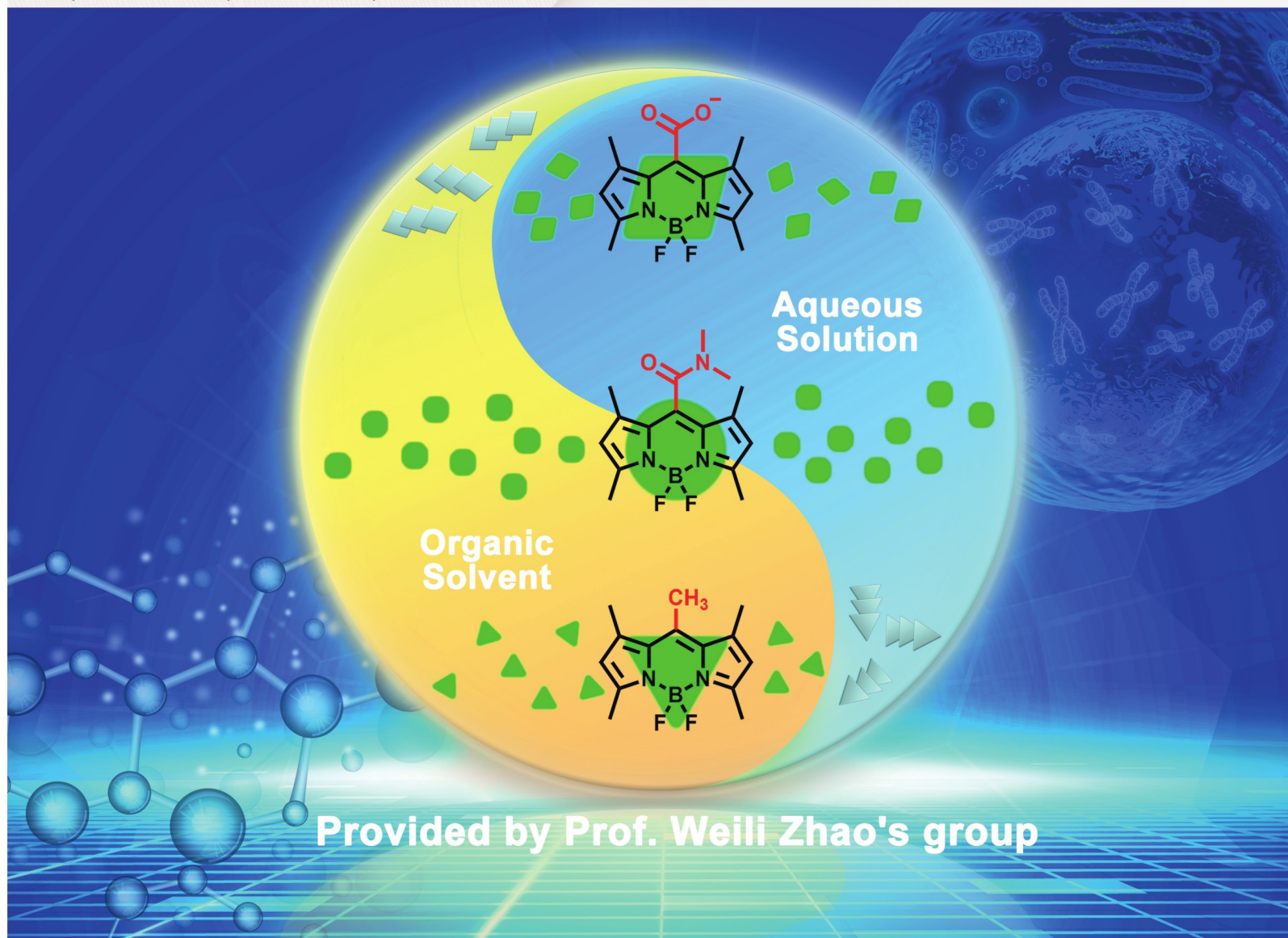
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COMMUNICATION

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Chinese Chemical Society

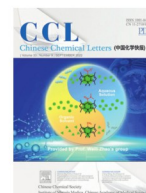
Institute of Materia Medica, Chinese Academy of Medical Sciences

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Reviews

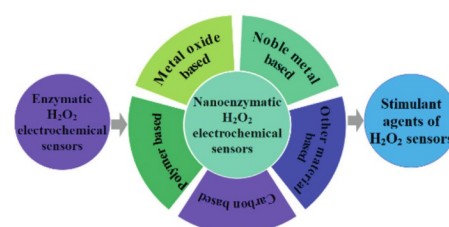
A review on recent advances in hydrogen peroxide electrochemical sensors for applications in cell detection

Yan Yu, Meng Pan, Jinrong Peng, Danrong Hu, Ying Hao, Zhiyong Qian

State Key Laboratory of Biotherapy, West China Hospital, Sichuan University, Chengdu 610065, China

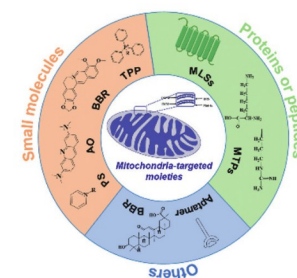
This review describes the advances in the application of H_2O_2 electrochemical sensors in cell detection.

Chinese Chemical Letters 33 (2022) 4133

**Rational design of nanocarriers for mitochondria-targeted drug delivery**Lihua Huang^a, Zonghao Sun^a, Qian Shen^a, Zhongxi Huang^a, Shuangxi Wang^a, Naidi Yang^a, Gongqiang Li^a, Qiong Wu^a, Wei Wang^b, Lin Li^a, Changmin Yu^{a,c}^aKey Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), Nanjing Tech University, Nanjing 211816, China^bInstitute of Agro-product Safety and Nutrition, Zhejiang Academy of Agricultural Sciences, Hangzhou 310021, China^cState Key Laboratory of Coordination Chemistry, Nanjing University, Nanjing 210023, China

Well-developed mitochondria-targeted nanocarriers for function regulation are highly desirable. Herein, we comprehensively introduce recent developments progress in rational design strategies of available mitochondria-targeted nanocarriers, and highlight the advantages and disadvantages of various systems that are currently in use. Finally, perspective on new generation for mitochondria-targeted delivery systems in the emerging area of drug-based therapeutics is also discussed.

Chinese Chemical Letters 33 (2022) 4146

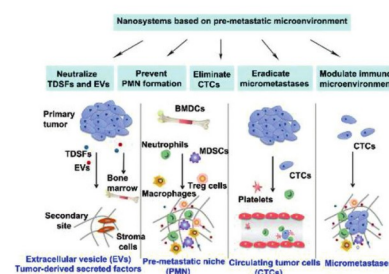
**Emerging landscapes of nanosystems based on pre-metastatic microenvironment for cancer theranostics**

Yongchao Chu, Tao Sun, Chen Jiang

Key Laboratory of Smart Drug Delivery (Ministry of Education), Minhang Hospital, State Key Laboratory of Medical Neurobiology and MOE Frontiers Center for Brain Science, Institutes of Brain Science, Department of Pharmaceutics, School of Pharmacy, Research Center on Aging and Medicine, Fudan University, Shanghai 201203, China

This review focuses on the emerging nanosystems based on pre-metastatic microenvironment and discusses the progress in the application of nanotechnology from the perspective of targeting and regulating abnormally expressed biochemical molecules and interrelated accessory cells in the early stage of cancer metastasis.

Chinese Chemical Letters 33 (2022) 4157



Radiotherapy assisted with biomaterials to trigger antitumor immunity

Xiaojun Yu^a, Haitao Ma^a, Guiying Xu^b, Zhuang Liu^c

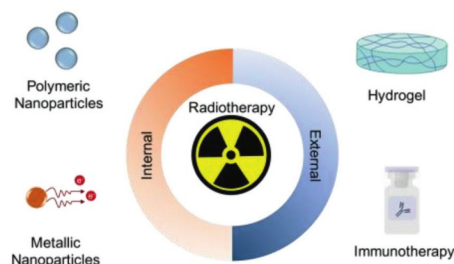
^a Department of Thoracic Surgery, Dushu Lake Hospital Affiliated to Soochow University, Suzhou 215021, China

^b Department of Cardiothoracic Surgery, Children's Hospital of Soochow University, Suzhou 215021, China

^c Institute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory for Carbon-Based Functional Materials and Devices, Soochow University, Suzhou 215123, China

In this minireview, we summarize the application of biomaterials, ranging from nanoparticles to hydrogels, to trigger the systemic anti-tumor response and augment the efficacy of radiotherapy.

Chinese Chemical Letters 33 (2022) 4169



Communications

Development of environment-insensitive and highly emissive BODIPYs via installation of *N,N'*-dialkylsubstituted amide at *meso* position

Junping Bai^a, Junliang Zhou^a, Xin Ji^a, Nannan Wang^b, Xiaochun Dong^a, Wei Wu^a, Weili Zhao^{a,b}

^a School of Pharmacy, Institutes of Integrative Medicine, Fudan University, Shanghai 201203, China

^b Key Laboratory for Special Functional Materials of Ministry of Education, School of Materials Science and Engineering, Henan University, Kaifeng 475004, China

A novel series of BODIPY *meso* amide with high fluorescence quantum yields as well as favorable environment-insensitive property were designed and synthesized via *N,N'*-dialkylsubstituted BODIPY amides at *meso* position.

Chinese Chemical Letters 33 (2022) 4175



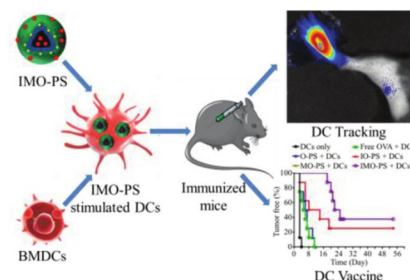
Programmed polymersomes with spatio-temporal delivery of antigen and dual-adjuvants for efficient dendritic cells-based cancer immunotherapy

Hanyong Wang, Xinyu Yang, Chunyan Hu, Chenlu Huang, Hai Wang, Dunwan Zhu, Linhua Zhang

Tianjin Key Laboratory of Biomedical Materials, Key Laboratory of Biomaterials and Nanotechnology for Cancer Immunotherapy, Institute of Biomedical Engineering, Chinese Academy of Medical Sciences and Peking Union Medical College, Tianjin 300192, China

We constructed cationic hybrid polymersomes (IMO-PS) for programmed co-delivery of OVA antigen and dual-adjuvants (IMQ and MPLA). After stimulating DCs with IMO-PS, the formulated DC vaccine significantly improved DCs homing ability and immunotherapeutic effect.

Chinese Chemical Letters 33 (2022) 4179



The effect of organic ligand modification on protein corona formation of nanoscale metal organic frameworks

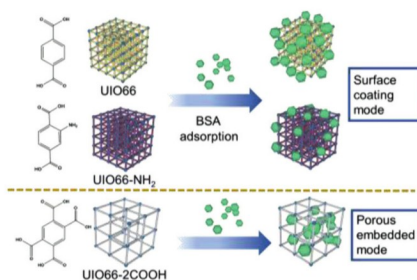
Wenhao Wang^a, Huihui Liu^a, Zhengwei Huang^b, Fangqin Fu^b, Wenhua Wang^a, Linjing Wu^b, Ying Huang^b, Chuanbin Wu^b, Xin Pan^a

^a School of Pharmaceutical Sciences, Sun Yat-sen University, Guangzhou 510006, China

^b College of Pharmacy, Jinan University, Guangzhou 511443, China

The protein corona formation in UIO66 series NMOFs with organic ligand modifications were studied, and two different porous structure mediated dominate modes were revealed.

Chinese Chemical Letters 33 (2022) 4185



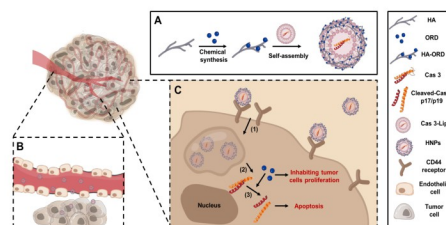
Liposome-based anchoring and core-encapsulation for combinatorial cancer therapy

Qingqing Xiao, Xiaotong Li, Chang Liu, Yi Yang, Yuqi Hou, Ying Wang, Mengxiang Su, Wei He

School of Pharmacy, China Pharmaceutical University, Nanjing 211198, China

A liposome-based anchoring and core encapsulation strategy allows targeted co-delivery of caspase 3 and cytotoxic agent oridonin for synergistic cancer treatment. The anchoring confers positively targeting ability on liposomes and strengthens liposome drug-loading capacity.

Chinese Chemical Letters 33 (2022) 4191



Microenvironment-responsive chemotherapeutic nanogels for enhancing tumor therapy via DNA damage and glutathione consumption

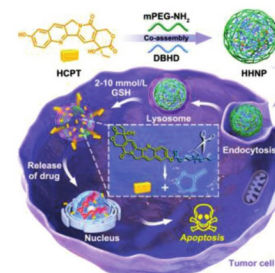
Mengjie Ye^a, Yuan Gao^a, Mengyun Liang^a, Wei Qiu^a, Xianbin Ma^a, Jiming Xu^a, Junfeng Hu^a, Peng Xue^a, Yuejun Kang^a, Zhigang Xu^{a,b}

^aKey Laboratory of Luminescence Analysis and Molecular Sensing (Southwest University), Ministry of Education, School of Materials and Energy and Chongqing Engineering Research Center for Micro-Nano Biomedical Materials and Devices, Southwest University, Chongqing 400715, China

^bKey Laboratory of Laser Technology and Optoelectronic Functional Materials of Hainan Province, College of Chemistry and Chemical Engineering, Hainan Normal University, Haikou 571158, China

In this work, we reported a microenvironment-responsive chemotherapeutic nanogels of 10-hydroxycamptothecin (HCPT) by a covalent crosslinking strategy for boosting the therapeutic treatment of cancer therapy.

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Synthesis and characterization of fluorescence active G₄-quartet and direct evaluation of self-assembly impact on emission

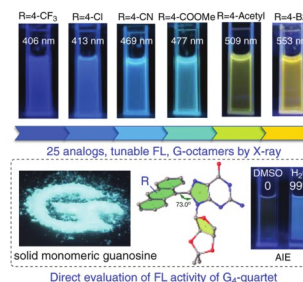
Ying He^a, Mengjia Liu^a, Shun Teng^a, Lukasz Wojtas^a, Guangxin Gu^b, Xiaodong Shi^a

^aDepartment of Chemistry, University of South Florida, Tampa, FL 33620, United States

^bDepartment of Materials Science, Fudan University, Shanghai 200438, China

Internal fluorescence active G-quadruplex as the molecular probe has great potential in biomedical research. To investigate the H-bond influence on fluorescence, we provided the first direct evaluation of FL activity of guanosine upon formation of G₄-quartet. Interesting AIE properties were observed with the 8-anthracene guanosine, suggesting the promising applications of this new FL system in chemical and biological research.

Chinese Chemical Letters 33 (2022) 4203



Selected aptamer specially combing 5-8F cells based on automatic screening instrument

Zhukang Guo^a, Baijiang Jin^a, Yile Fang^a, Yan Deng^b, Zhu Chen^b, Hui Chen^b, Song Li^b, Franklin Wang-Ngan Chow^c, Polly H.M. Leung^c, Hanming Wang^d, Lei Cai^e, Nongyue He^{a,b}

^aState Key Laboratory of Bioelectronics, School of Biological Science and Medical Engineering, Southeast University, Nanjing 210096, China

^bHunan Key Laboratory of Biomedical Nanomaterials and Devices, Hunan University of Technology, Zhuzhou 412007, China

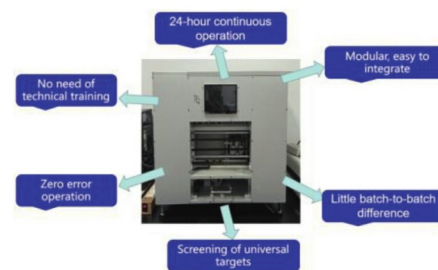
^cDepartment of Health Technology and Informatics, The Hong Kong Polytechnic University, Hong Kong, China

^dGuangzhou Wondfo Biotech Co., Ltd., Guangzhou 510641, China

^eGuangzhou Wondfo iCubate Biotech Co., Ltd., Guangzhou 510641, China

A new method for efficient and automatic aptamer screening based on instrument was developed.

Chinese Chemical Letters 33 (2022) 4208



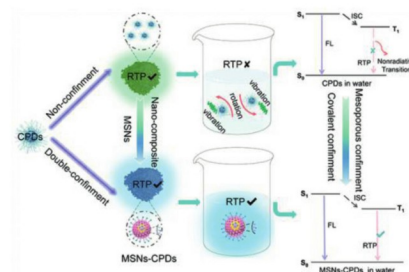
Achieving blue water-dispersed room-temperature phosphorescence of carbonized polymer dots through nano-compositing with mesoporous silica

Chengyu Zheng, Songyuan Tao, Yang Liu, Chunyuan Kang, Bai Yang

State Key Laboratory of Supramolecular Structure and Materials, College of Chemistry, Jilin University, Changchun 130012, China

A new design strategy was presented to achieve RTP in water by confining carbonized polymer dots in mesoporous silica. The triplet excited states were protected from non-radiative deactivation by covalent bonding confinement and mesoporous structure confinement, thus the MSNs-CPDs displayed blue RTP in water.

Chinese Chemical Letters 33 (2022) 4213



Real-time quantification for sulfite using a turn-on NIR fluorescent probe equipped with a portable fluorescence detector

Fei Yan^{a,b}, Jingnan Cui^c, Chao Wang^a, Xiangge Tian^a, Dawei Li^a, Yan Wang^a, Baojing Zhang^a, Lei Feng^{b,d}, Shanshan Huang^a, Xiaochi Ma^{a,b}

^a College of Pharmacy, Dalian Key Laboratory of Metabolic Target Characterization and Traditional Chinese Medicine Intervention, Academy of Integrative Medicine, Dalian Medical University, Dalian 116044, China

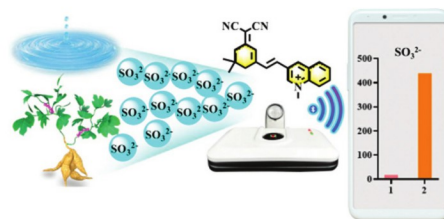
^b Second Affiliated Hospital, Dalian Medical University, Dalian 116044, China

^c State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116024, China

^d School of Chemistry and Chemical Engineering, Henan Normal University, Xinxiang 453007, China

A NIR fluorescent probe together with a portable fluorescence detector was developed for sulfite quantifying.

Chinese Chemical Letters 33 (2022) 4219



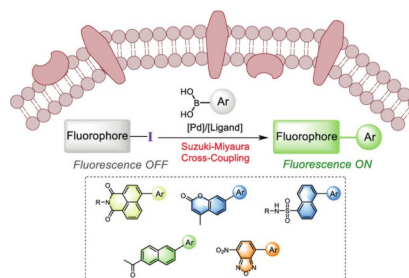
A general strategy for *in situ* assembly of light-up fluorophores via bioorthogonal Suzuki-Miyaura cross-coupling

Xiang Li, Hong Yang, Yu Teng, Yongcheng Wang, Dali Yin, Yulin Tian

Key Laboratory of Bioactive Substances and Function of Natural Medicine, Beijing Key Laboratory of Active Substances Discovery and Drugability Evaluation, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China

A general strategy for *in situ* assembly of multicolor light-up fluorophores via bioorthogonal Suzuki-Miyaura cross-coupling reaction was developed, which was applied for five different fluorophore scaffolds. This method was successfully employed for no-wash fluorogenic protein labeling and live-cell mitochondria imaging.

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Lysosome-targeting red fluorescent probe for broad carboxylesterases detection in breast cancer cells

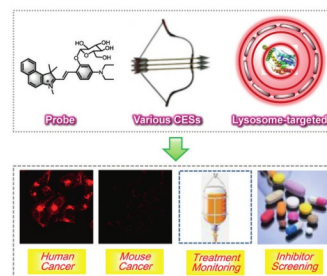
Yanyan Sun^a, Xiaonan Zhou^b, Liyuan Sun^a, Xiuxiu Zhao^a, Yongrui He^a, Ge Gao^a, Weina Han^a, Jin Zhou^a

^a School of Pharmacy, School of Rehabilitation Medicine, Weifang Medical University, Weifang 261053, China

^b Weifang Maternal and Child Health Hospital, Maternal and Child Health Hospital of Weifang Medical University, Weifang 261011, China

A lysosomes-targeted red fluorescent probe CES-Lyso was designed to broadly monitor intracellular carboxylesterase changes with high selectivity and sensitivity, which was applied to distinguish different derived breast cancer cells and monitor carboxylesterase activity in the anticancer drug treatment.

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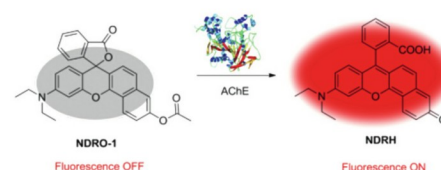
Highly selective NIR fluorescent probe for acetylcholinesterase and its application in pesticide residues detection

Shengui He, Shufang Zhang, Xin Zhao, Xinyue Zhu, Lisen Chen, Jingnan Cui

State Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116024, China

A series of near-infrared (NIR) fluorescent substrates (NDRO-1~8) derived from fluorophore NDRH with different volumes of ester groups as the recognition site were designed and synthesized for the detection of acetylcholinesterase (AChE), among which NDRO-1 with acetate group displayed highly selective and sensitive toward AChE and was further used to detect pesticide residues.

Chinese Chemical Letters 33 (2022) 4233



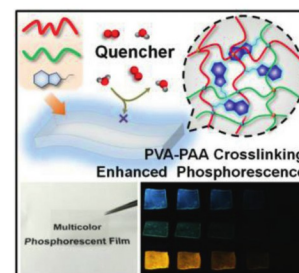
Crosslink-enhanced strategy to achieve multicolor long-lived room temperature phosphorescent films with excellent photostability

Taotao Li, Yu Zheng, Chenqin Wu, Chengyu Yan, Cheng Zhang, Hong Gao, Qian Chen, Kui Zhang

School of Chemistry and Chemical Engineering, Anhui University of Technology, Ma'anshan 243032, China

The blue, cyan and orange emissive room temperature phosphorescent polymer films with excellent photostability were successfully obtained by incorporating three different organic molecules into PVA-PAA films through crosslink-enhanced strategy.

Chinese Chemical Letters 33 (2022) 4238



An excimer 'ON-OFF' switch based on telomeric G-quadruplex and rGO for trace thrombin detection

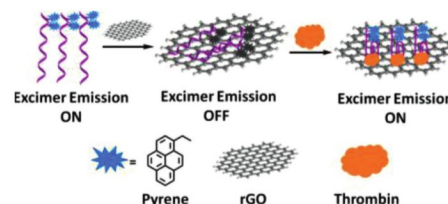
Long Zhao^{a,b}, Farid Ahmed^a, Hai Xiong^a

^aInstitute for Advanced Study, Shenzhen University, Shenzhen 518060, China

^bCollege of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, China

A novel multi-pyrene functionalized DNA probe based on the screened rGO (30 µg/mL) showed a 3.4-fold higher fluorescence quenching efficiency and excimer emission than that of universal GO, which was performed on the amplified response of thrombin detection as low as 50 units (ON-OFF).

Chinese Chemical Letters 33 (2022) 4243



Antiviral spirooliganones C and D with a unique spiro[bicyclo[2.2.2]octane-2,2'-bicyclo[3.1.0]hexane] carbon skeleton from the roots of *Illicium oligandrum*

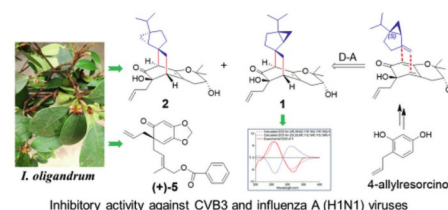
Shuanggang Ma^a, Rubing Wang^a, Rongmei Gao^b, Xiaojing Wang^a, Yunbao Liu^a, Yong Li^a, Li Li^a, Yuhuan Li^b, Jing Qu^a, Shishan Yu^a

^aState Key Laboratory of Bioactive Sub stance and Function of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China

^bInstitute of Medicinal Biotechnology, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China

Two unprecedented polycyclic spirooliganones C and D (**1** and **2**) with novel spirocarbon skeletons were isolated from the roots of *Illicium oligandrum*. A possible biosynthetic pathway for compounds **1** and **2** involving the Diels-Alder reaction was proposed. Compound **1** and (+)-illioliganone J ((+)-**5**) exhibited significant inhibitory activity against CVB3. Compounds **1** and **2** also showed moderate inhibition against influenza A (H1N1) virus.

Chinese Chemical Letters 33 (2022) 4248



Circularly polarized luminescence of talarolactones (+)/(–)-A and (+)/(–)-C: The application of CPL-calculation in stereochemical assignment

Guiyang Xia^a, Lingyan Wang^a, Huan Xia^a, Yuzhuo Wu^a, Yanan Wang^b, Haiyu Hu^b, Sheng Lin^{a,c}

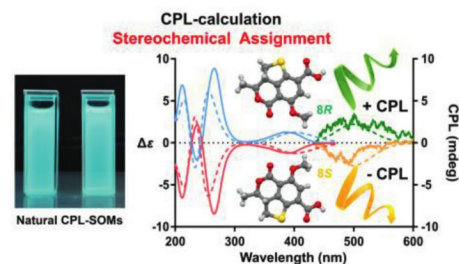
^aKey Laboratory of Chinese Internal Medicine of Ministry of Education and Beijing, Dongzhimen Hospital, Beijing University of Chinese Medicine, Beijing 100700, China

^bState Key Laboratory of Bioactive Substance and Function of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050, China

^cKey Laboratory for Qinghai-Tibet Plateau Phytochemistry of Qinghai Province, College of Pharmaceutical, Qinghai Nationalities University, Xining 810007, China

The first proofs of natural occurring CPL-SOMs with a novel fluorescent core framework were discovered. And the applying of CPL-calculation to the stereochemical studies was performed. This work might be a starting point for the discovery of CPL-SOMs from natural products and open up a new perspective for the stereochemical studies by using the CPL-calculations.

Chinese Chemical Letters 33 (2022) 4253



Chlospicenes A and B, cyclopropane cracked lindenane sesquiterpenoid dimers with anti-nonalcoholic steatohepatitis activity from *Chloranthus henryi*

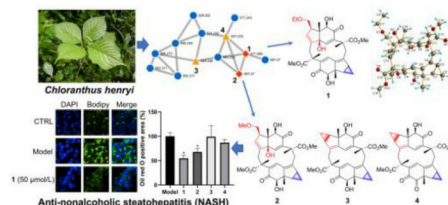
Jixin Li^{a,b}, Zhirong Cui^a, Yongyi Li^a, Chunhua Han^a, Yanqiu Zhang^a, Pengfei Tang^a, Letian Cui^a, Hao Zhang^a, Jun Luo^a, Lingyi Kong^a

^aJiangsu Key Laboratory of Bioactive Natural Product Research and State Key Laboratory of Natural Medicines, School of Traditional Chinese Pharmacy, China Pharmaceutical University, Nanjing 210009, China

^bSchool of Pharmacy, Guizhou University of Traditional Chinese Medicine, Guiyang 550025, China

Guided by MS/MS molecular networks strategy, chlospicenes A and B (**1** and **2**), the first example of cyclopropane moiety cracked lindenane sesquiterpene Michael addition dimers, along with their biogenetic analogues (**3** and **4**), were targetedly discovered from the roots of *Chloranthus henryi*. **1** and **2** showed significant anti-nonalcoholic steatohepatitis (NASH) activity in free fatty acid (FFA)-induced HepG2 cells by decreasing intracellular lipid accumulation.

Chinese Chemical Letters 33 (2022) 4257



Octacyclic and decacyclic *ent*-abietane dimers with cytotoxic activity from *Euphorbia fischeriana* steud.

Yulin Peng^{a,b}, Yibo Chang^a, Chengpeng Sun^a, Weiye Wang^c, Chao Wang^a, Yan Tian^a, Baojing Zhang^a, Sa Deng^a, Wenyu Zhao^a, Xiaochi Ma^b

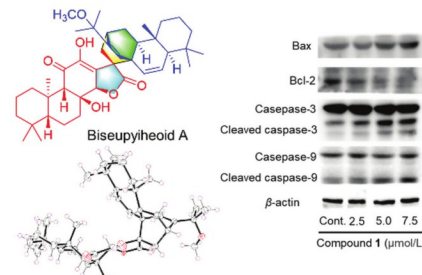
^aCollege of Pharmacy, College of Integrative Medicine, Dalian Medical University, Dalian 116044, China

^bSecond Affiliated Hospital, Dalian Medical University, Dalian 116023, China

^cKey Laboratory of Marine Biogenetic Resources, Third Institute of Oceanography, Ministry of Natural Resources, Xiamen 361005, China

An unprecedented diterpenoid dimer containing bicyclo[2.2.2]octane moiety derived from Diels-Alder addition of *ent*-abietanes into a spirocyclic skeleton was identified from *Euphorbia fischeriana*, a traditional Chinese medicine. The novel dimer exhibited promising cytotoxicity on LoVo cells.

Chinese Chemical Letters 33 (2022) 4261



Forrestiacids C and D, unprecedented triterpene-diterpene adducts from *Pseudotsuga forrestii*

Peng-Jun Zhou^{a,b}, Yi Zang^c, Cong Li^c, Lin Yuan^d, Huaqiang Zeng^e, Jia Li^c, Jin-Feng Hu^{a,b}, Juan Xiong^a

^aDepartment of Natural Medicine, School of Pharmacy, Fudan University, Shanghai 201203, China

^bSchool of Pharmaceutical Sciences, Zhejiang Provincial Key Laboratory of Plant Ecology and Conservation, Taizhou University, Taizhou 318000, China

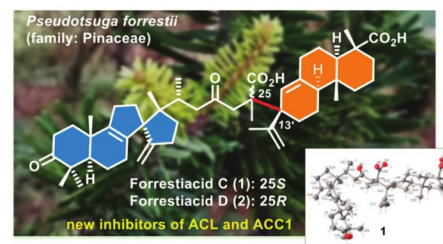
^cState Key Laboratory of Drug Research, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China

^dCollege of Chemistry and Bioengineering, Hunan University of Science and Engineering, Yongzhou 425199, China

^eFrontier Research Center for Multidisciplinary Sciences, School of Chemistry and Chemical Engineering, Northwestern Polytechnical University, Xi'an 710072, China

Forrestiacids C (**1**) and D (**2**), a pair of terpenoid heterodimeric epimers from the vulnerable conifer *Pseudotsuga forrestii*, represent an unprecedented class of Michael adducts of a rearranged 6/6/5/5-fused spiro-lanostene with an abietene. They exhibited inhibitory effects against the ATP-citrate lyase (ACL) and acetyl-CoA carboxylase 1 (ACC1), two potential drug targets for the lipogenesis-related disorders.

Chinese Chemical Letters 33 (2022) 4264



NFSI-catalyzed S–S bond exchange reaction for the synthesis of unsymmetrical disulfides

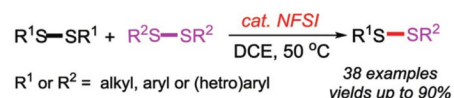
Mengjie Song^a, Qingyue Hu^a, Zheng-Yi Li^a, Xiaoqiang Sun^b, Ke Yang^a

^aJiangsu Key Laboratory of Advanced Catalytic Materials & Technology, School of Petrochemical Engineering, Changzhou University, Changzhou 213164, China

^bInstitute of Urban & Rural Mining, Changzhou University, Changzhou 213164, China

Metal-free and NFSI-catalyzed S–S bond exchange reaction of symmetrical disulfides has been established to prepare a variety of important unsymmetrical disulfides.

Chinese Chemical Letters 33 (2022) 4269



- Metal-free
- Good functional groups tolerance
- Easy to operate
- Gram-scale synthesis

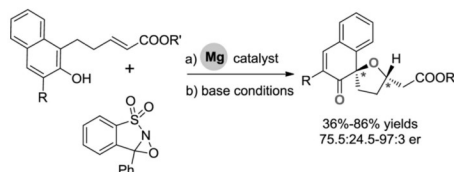
A tandem asymmetric oxidation-oxa-Michael sequence for dearomatization of β -naphthols

Linqing Wang, Haiyong Zhu, Tianyu Peng, Yingfan Xu, Yanzhe Hou, Shixin Li, Shiming Pang, Hailong Zhang, Dongxu Yang

Key Laboratory of Preclinical Study for New Drugs of Gansu Province, Institute of Drug Design & Synthesis, School of Basic Medical Sciences, Lanzhou University, Lanzhou 730000, China

A tandem asymmetric oxidative-oxa-Michael reaction is achieved by developing of combinational *in-situ* generated magnesium catalytic methods.

Chinese Chemical Letters 33 (2022) 4273



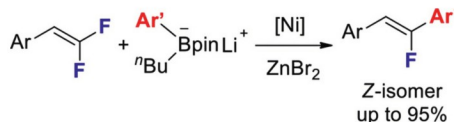
Stereoselective formation of Z-monofluoroalkenes by nickel-catalyzed defluorinative coupling of gem-difluoroalkenes with lithium organoborates

Yisa Xiao, Weichen Huang, Qilong Shen

Key Laboratory of Organofluorine Chemistry, Shanghai Institute of Organic Chemistry, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Shanghai 200032, China

A method for stereoselective construction of Z-monofluoroalkenes by nickel-catalyzed defluorinative coupling of gem-difluoroalkenes in mild conditions was described. The combination of lithium organoborate $ZnBr_2$ generated *in situ* lithium aryl zincates, which facilitates the transmetalation step of the nickel-catalyzed cross coupling reaction.

Chinese Chemical Letters 33 (2022) 4277



Mechanistic investigation of zwitterionic MOF-catalyzed enyne annulation using UNLPF-14-Mn^{III} as catalyst

Taotao Liu^{a,b,c}, Ruihong Duan^a, Yanyan Wang^a, Shijun Li^a, Lingbo Qu^a, Jinshuai Song^a, Qiang Liu^b, Yu Lan^{a,d}

^aGreen Catalysis Center, and College of Chemistry, Zhengzhou University, Zhengzhou 450001, China

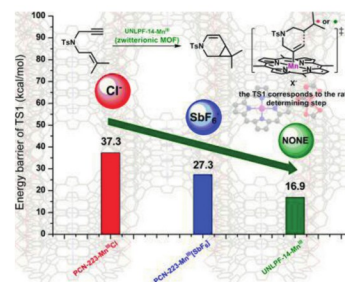
^bCenter of Basic Molecular Science (CBMS), Department of Chemistry, Tsinghua University, Beijing 100084, China

^cCollege of Chemistry and Chemical Engineering, Henan Institute of Science and Technology, Xinxiang 453000, China

^dSchool of Chemistry and Chemical Engineering, and Chongqing Key Laboratory of Theoretical and Computational Chemistry, Chongqing University, Chongqing 400030, China

The “pure cationic active center” of $[Mn^{III}porphyrin]^+$ -based zwitterionic MOFs can effectively decrease the energy barrier of transition state, which corresponds to the rate-determining step of enyne annulation. The linear relationship between energy barrier of transition state and NPA charge of counterion (Cl^-) further proving the importance of “pure cationic active center” to the catalytic performance.

Chinese Chemical Letters 33 (2022) 4281



Nickel-catalyzed reductive cross-coupling of polyfluoroarenes with alkyl electrophiles by site-selective C–F bond activation

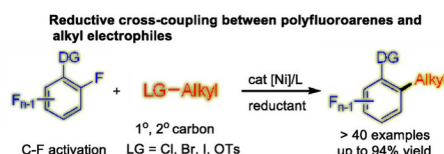
Longlong Xi^a, Liting Du^b, Zhuangzhi Shi^a

^a State Key Laboratory of Coordination Chemistry, Chemistry and Biomedicine Innovation Center (ChemBIC), School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, China

^b Advanced Analysis and Testing Center, Nanjing Forestry University, Nanjing 210037, China

A reductive cross-coupling between polyfluoroarenes and alkyl electrophiles proceeds through nickel-catalyzed chelation-assisted C–F bond activation.

Chinese Chemical Letters 33 (2022) 4287



Deuterated *N*-difluoromethylthiophthalimide: A stable, scalable reagent for radical and electrophilic deuteriodifluoromethylthiolations

Chunyang Hu^a, Fangming Chen^a, Guo-Ping Lu^a, Wen-Bin Yi^{a,b}

^a School of Chemistry and Chemical Engineering, Nanjing University of Science and Technology, Nanjing 210094, China

^b Key Laboratory of Organofluorine Chemistry, Shanghai Institute Organic Chemistry, Chinese Academy of Sciences, Shanghai 200032, China

We have disclosed a new, stable and scalable deuterated difluoromethylthio reagent: deuterated *N*-difluoromethylthiophthalimide, which can be applied for both electrophilic and radical deuteriodifluoromethylthiolations with broad substrate scope (52 examples) and high deuteriation rate (>96% D).

Chinese Chemical Letters 33 (2022) 4293



Visible-light-induced *N*-heterocyclic carbene mediated cascade transformation of *N*-alkenoxypyridinium salts

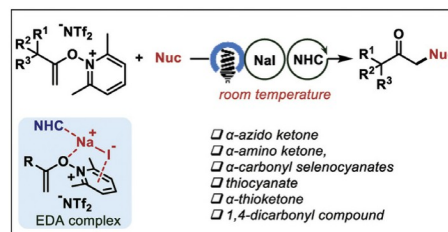
He Sheng^a, Qiang Liu^a, Fei Chen^{a,b}, Zhixiang Wang^a, Xiangyu Chen^a

^a School of Chemical Sciences, University of Chinese Academy of Sciences, Beijing 100049, China

^b Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Molecular Recognition and Function, Institute of Chemistry, Chinese Academy of Sciences (CAS), Beijing 100190, China

A photoinduced *N*-heterocyclic carbene-mediated functionalization of *N*-alkenoxypyridinium salts with various nucleophiles was developed for the synthesis of a variety of α -functionalized ketones, including α -azido ketones, α -amino ketone, α -carbonyl selenocyanates, thiocyanates and α -thioketones.

Chinese Chemical Letters 33 (2022) 4298



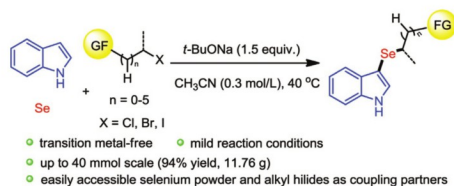
Access to 3-alkylselenindoles by multicomponent reaction of indoles, selenium powder and unactivated alkyl halides under transition-metal-free conditions

Huan Liu, Zhong-Jian Cai, Shun-Jun Ji

Key Laboratory of Organic Synthesis of Jiangsu Province, College of Chemistry, Chemical Engineering and Materials Science & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215123, China

Herein, we reported a convenient and efficient multicomponent reaction of indoles, selenium powder and unactivated alkyl halides. This protocol provides a practical, and facile approach for the synthesis of 3-alkylselenindole derivatives. The advantages of this strategy include mild and transition-metal-free conditions, broad functional group tolerance, the use of simple and easily accessible selenium powder and alkyl halides as coupling partners. More importantly, the reaction proceeded smoothly with a large scale (>10 g, >90% yield), which further highlighted the potential application of this selenation strategy.

Chinese Chemical Letters 33 (2022) 4303

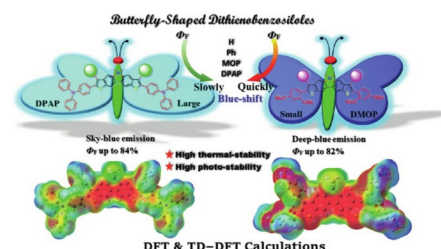


Synthesis, optical properties and self-organization of blue-emitting butterfly-shaped dithienobenzosiloles

Gaozhang Gou, Zhaoling Zhang, Tao Fan, Lei Fang, Mingxian Liu, Liangchun Li
Shanghai Key Lab of Chemical Assessment and Sustainability, School of Chemical Science and Engineering, Tongji University, Shanghai 200092, China

Ten butterfly-shaped dithienobenzosilole-cored luminogens have been readily synthesized to show high blue emission and outstanding thermal- and photo-stability.

Chinese Chemical Letters 33 (2022) 4306

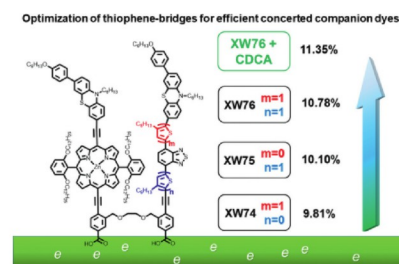


Efficient dye-sensitized solar cells based on concerted companion dyes: Systematic optimization of thiophene units in the organic dye components

Jiaxin Luo, Zhengli Xie, Jiazhi Zou, Xinyan Wu, Xueqing Gong, Chengjie Li, Yongshu Xie
Key Laboratory for Advanced Materials and Institute of Fine Chemicals, Centre for Computational Chemistry and Research Institute of Industrial Catalysis, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

Efficient solar cells based on concerted companion dyes have been developed by optimizing the position and number of hexylthiophene-bridges in their organic dye components.

Chinese Chemical Letters 33 (2022) 4313



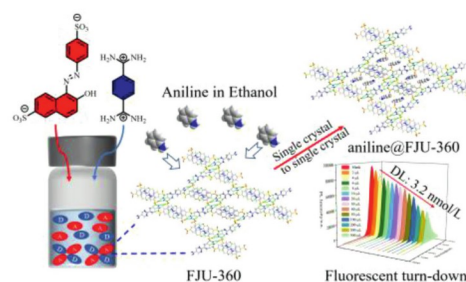
Amidinium sulfonate hydrogen-bonded organic framework with fluorescence amplification function for sensitive aniline detection

Zhiwen Fan, Shihe Zheng, Hao Zhang, Kexin Chen, Yunbin Li, Chulong Liu, Shengchang Xiang, Zhangjing Zhang

Fujian Provincial Key Laboratory of Polymer Materials, College of Chemistry and Materials Science, Fujian Normal University, Fuzhou 350007, China

Disodium 6-hydroxy-5-[(4-sulfophenyl)azo]-2-naphthalenesulfonate (SSY) and terephthalimidamide self-assembled hydrogen-bonded organic framework material FJU-360 exhibits ultra-high fluorescence response to aniline with a detection line as low as 3.2 nmol/L.

Chinese Chemical Letters 33 (2022) 4317



A novel corneal adhesive based on functionally coupled PEG-lysozyme hydrogel for wound closure after surgical eye surgery

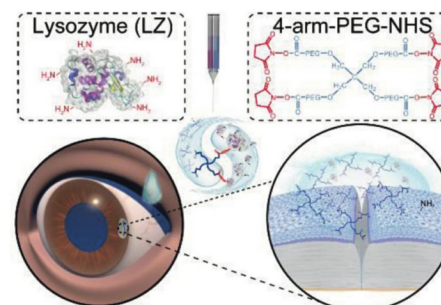
Shaohua Zhang^a, Hang Zhou^b, Chang Huang^a, Jianguo Sun^a, Xue Qu^b, Yi Lu^a

^aEye Institute and Department of Ophthalmology, NHC Key Laboratory of Myopia (Fudan University), Key Laboratory of Myopia, Chinese Academy of Medical Sciences, Shanghai Key Laboratory of Visual Impairment and Restoration, Eye & ENT Hospital, Fudan University, Shanghai 200031, China

^bKey Laboratory for Ultrafine Materials of Ministry of Education, School of Material Science and Engineering, East China University of Science and Technology, Shanghai 200237, China

A novel corneal adhesive is successfully developed based on functionally coupled PEG-lysozyme hydrogel for wound closure after surgical eye surgery. Wound sealant by PEG-lysozyme hydrogel presents a superior therapeutic effect compared with the conventional methods of stromal hydration and suture, in terms of the wound closure percent, the mean corneal thickness, the percent of wound gaping and Descemet membrane detachment, without inducing any ocular hypertension and obvious tissue toxicity.

Chinese Chemical Letters 33 (2022) 4321



Polymerization-induced microphase separation of polymer-polyoxometalate nanocomposites for anhydrous solid state electrolytes

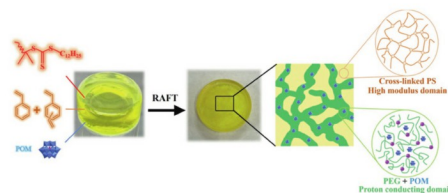
Lu Liu^a, Zicheng Wu^a, Zhao Zheng^a, Qianjie Zhou^a, Kun Chen^{a,b}, Panchao Yin^{a,b}

^aSouth China Advanced Institute for Soft Matter Science and Technology, School of Molecular Science and Engineering, South China University of Technology, Guangzhou 510640, China

^bGuangdong Provincial Key Laboratory of Functional and Intelligent Hybrid Materials and Devices, South China University of Technology, Guangzhou 510640, China

We report a facile one-pot synthetic approach to prepare robust solid-state electrolytes of polymer-polyoxometalate nanocomposites with bi-continuous microphases via polymerization-induced microphase separation (PIMS). This protocol is scalable and can be generally applied in electrolytes for both proton and lithium ion conduction, projecting their applications in fuel cells and lithium-ion batteries under high temperature and low humidity.

Chinese Chemical Letters 33 (2022) 4326



Dendritic cells maturation facilitated by group-adjustable lipopolysaccharide analogues synthesized via RAFT polymerization

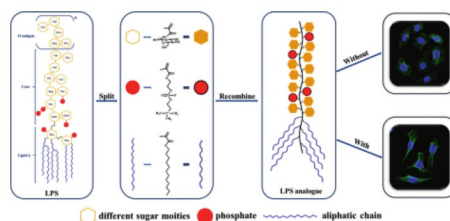
Xingyu Heng^{a,b}, Ruyan Feng^a, Lijuan Zhu^a, Liyin Yu^a, Gaojian Chen^b, Hong Chen^a

^aCollege of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, China

^bCenter for Soft Condensed Matter Physics and Interdisciplinary Research, Soochow University, Suzhou 215006, China

The structure of LPS is split into three units, which are replaced by MAG, MPC and LMA, respectively. By RAFT polymerization, we have obtained LPS analogues with adjustable structure ratio and stronger effect of promoting DCs maturation than LPS.

Chinese Chemical Letters 33 (2022) 4331



Kinetic characterization of a slow chemical exchange between two sites in *N,N*-dimethylacetamide by CEST NMR spectroscopy

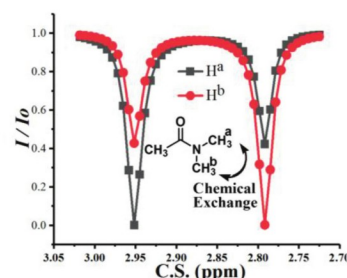
Lixia Wang^a, Jikun Li^a, Junfeng Xiang^{a,b}, Jie Cui^a, Yalin Tang^{a,b}

^aBeijing National Laboratory for Molecular Sciences (BNLMS), Center for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

^bUniversity of Chinese Academy of Sciences, Beijing 100049, China

Based on CEST technique, the kinetics of the slow chemical exchange between the two *N*-methyl protons of *N,N*-dimethylacetamide (DMA) were investigated. Two methods, QUantifying Exchange using Z-Spectrum (QUEZS) and QUantifying Exchange using Saturation Time (QUEST), could both provide accurate kinetic data.

Chinese Chemical Letters 33 (2022) 4335



Cell-penetrating riboflavin conjugate for antitumor photodynamic therapy

Chunlei Wu^a, Yanyan Li^{a,b}, Zhehong Cheng^a, Pengxin Wang^a, Zhilong Ma^a, Ke Liu^a, Yulian Cheng^a, Yimin Zhou^a, Xian Lin^a, Ximing Shao^a, Yong Yang^c, Hongchang Li^{a,b}, Lijing Fang^{a,b}

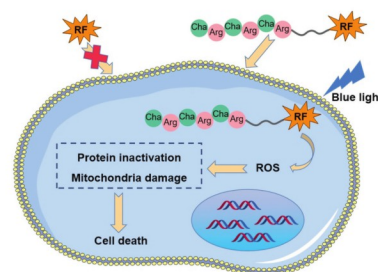
^aGuangdong Key Laboratory of Nanomedicine, Institute of Biomedicine and Biotechnology, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen 518055, China

^bUniversity of Chinese Academy of Sciences, Beijing 100049, China

^cDepartment of Biomedical Engineering, Southern University of Science and Technology (SUSTech), Shenzhen 518055, China

Using cell-penetrating peptides Arg₈, (Cha-Arg)₃ and small molecule triphenylphosphine (TPP) as delivery compounds, three riboflavin (RF) conjugates were prepared and evaluated. Among them, (Cha-Arg)₃-RF exhibited better cell internalization and stronger cytotoxicity against HeLa cells upon exposure to blue light, which is a promising photosensitizer for photodynamic therapy.

Chinese Chemical Letters 33 (2022) 4339



β -1,2-Mannan-based glycoconjugates as potential antifungal vaccines

Jun Liao^{a,b}, Bo Pan^c, Xiaobin Zhuo^b, Guochao Liao^d, Yun Gao^a, Zhenzhen Yao^a, Lianghua Wang^a, Qiuye Wu^b, Weihua Pan^c, Binghua Jiao^a, Qingjie Zhao^b

^aDepartment of Biochemistry and Molecular Biology, College of Basic Medical Sciences, Second Military Medical University, Shanghai 200433, China

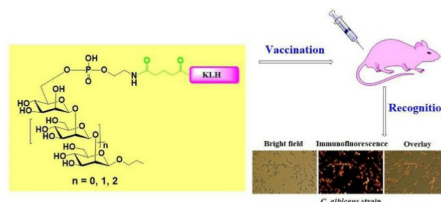
^bSchool of Pharmacy, Second Military Medical University, Shanghai 200433, China

^cDepartment of Dermatology, Changzheng Hospital, Second Military Medical University, Shanghai 200003, China

^dInternational Institute for Translational Chinese Medicine, Guangzhou University of Chinese Medicine, Guangzhou 510006, China

The synthetic β -1,2-mannan-keyhole limpet hemocyanin (KLH) conjugates immunized with or without Freund's adjuvant provoked high titers of β -1,2-mannan-specific total IgG antibodies and the antibodies elicited by β -1,2-mannotriose-KLH conjugate **1b** could recognize natural β -1,2-mannan antigen epitope on the *Candida albicans* (*C. albicans*) cell, which suggested great potential of β -1,2-mannotriose-KLH conjugate as an antifungal vaccine candidate.

Chinese Chemical Letters 33 (2022) 4345



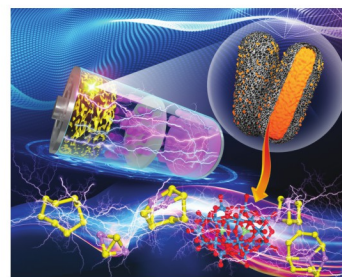
Surface modification of hollow capsule by Dawson-type polyoxometalate as sulfur hosts for ultralong-life lithium-sulfur batteries

Mingliang Wang, Di Yin, Yundong Cao, Xinyang Dong, Guanggang Gao, Xun Hu, Cheng Jin, Linlin Fan, Jian Yu, Hong Liu

School of Materials Science and Engineering, Collaborative Innovation Center of Metal Nanoclusters & Photo/Electro-Catalysis and Sensing, University of Jinan, Ji'nan 250022, China

A hollow capsule shell containing P_2W_{18} , Fe_3O_4 , and C components is designed as the sulfur host. The P_2W_{18} shows effective electrocatalytic activity and potent chemical bond on the lithium polysulfides, which is conducive to block the shuttle effect.

Chinese Chemical Letters 33 (2022) 4350



Urchin-like Nb_2O_5 hollow microspheres enabling efficient and selective photocatalytic C-C bond cleavage in lignin models under ambient conditions

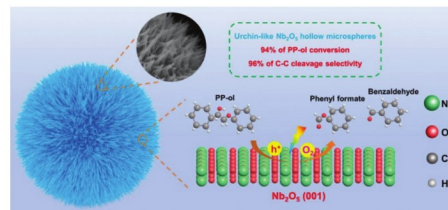
Huan Chen^a, Donghui Hong^a, Kun Wan^a, Junjie Wang^a, Bo Niu^a, Yayun Zhang^a, Donghui Long^{a,b}

^aState Key Laboratory of Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China

^bShanghai Key Laboratory of Multiphase Materials Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China

A novel urchin-like Nb_2O_5 hollow microspheres with active (001) facet was fabricated for photocatalytic cleavage of C-C bond in lignin models at room temperature via a key C_β radical intermediate.

Chinese Chemical Letters 33 (2022) 4357



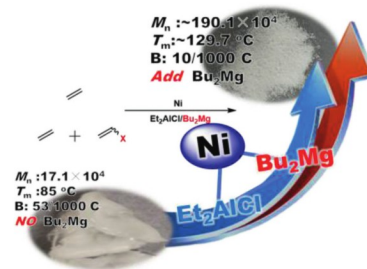
A general cocatalyst strategy for performance enhancement in nickel catalyzed ethylene (co)polymerization

Quan Wang, Zhao Zhang, Chen Zou, Changle Chen

CAS Key Laboratory of Soft Matter Chemistry, Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei 230026, China

A simple and effective cocatalyst strategy was developed that can significantly enhance catalytic properties of various nickel catalysts in ethylene polymerization and copolymerization with polar comonomers.

Chinese Chemical Letters 33 (2022) 4363



Flower-like NiCo₂S₄/NiFeP/NF composite material as an effective electrocatalyst with high overall water splitting performance

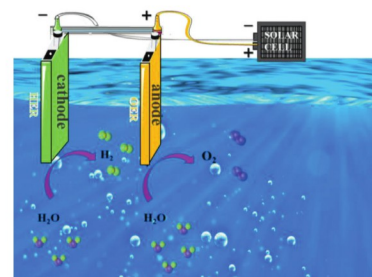
Jing Jiang^{a,b}, Fengyan Li^{a,b}, Hui Su^{a,b}, Yangqin Gao^{a,b}, Ning Li^{a,b}, Lei Ge^{a,b}

^a State Key Laboratory of Heavy Oil Processing, College of New Energy and Materials, China University of Petroleum Beijing, Beijing 102249, China

^b Department of Materials Science and Engineering, College of New Energy and Materials, China University of Petroleum Beijing, Beijing 102249, China

A facile strategy is developed to synthesize three-dimensional flower-like NiCo₂S₄/NiFeP/NF bifunctional electrocatalyst. Using commercially available solar cells (about 2 V) for NiCo₂S₄/NiFeP/NF||NiCo₂S₄/NiFeP/NF cell power supply, and the continuous evolution of H₂ and O₂ bubbles in the two electrodes.

Chinese Chemical Letters 33 (2022) 4367



Identify fine microstructure of multifarious iron oxides via O K-edge EELS spectra

Junnan Chen^{a,b}, Yujie Qi^{a,b}, Ming Lu^{a,c}, Yiming Niu^{a,b}, Bingsen Zhang^{a,b}

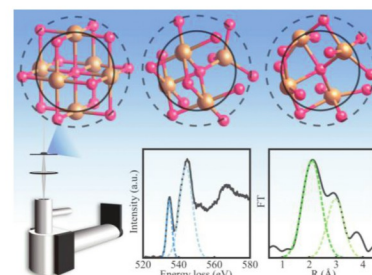
^a Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, China

^b School of Materials Science and Engineering, University of Science and Technology of China, Shenyang 110016, China

^c Key Laboratory of Functional Materials Physics and Chemistry of the Ministry of Education, Jilin Normal University, Changchun 130103, China

A method for analyzing the fine microstructure of transition metal oxides by oxygen K-edge EELS spectra is established.

Chinese Chemical Letters 33 (2022) 4375



Boosting electrocatalytic selectivity in carbon dioxide reduction: The fundamental role of dispersing gold nanoparticles on silicon nanowires

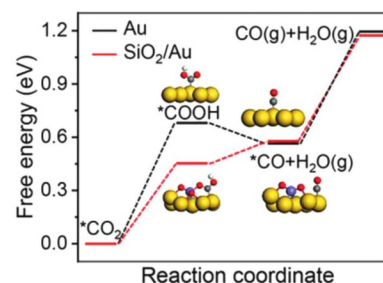
Fan Liao^a, Xing Fan^a, Huixian Shi^a, Qing Li^b, Mengjie Ma^a, Wenxiang Zhu^a, Haiping Lin^b, Youyong Li^a, Mingwang Shao^a

^a Institute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory for Carbon-Based Functional Materials & Devices, Soochow University, Suzhou 215123, China

^b School of Physics and Information Technology, Shaanxi Normal University, Xi'an 710062, China

Au-Si nanomaterials drive carbon dioxide electrochemical reduction with a carbon monoxide Faraday efficiency of 95.6% at -0.6 V vs. RHE in 0.5 mol/L KHCO₃. The spontaneously produced silicon oxide in the Au-Si not only inhibits hydrogen evolution reaction, but also stabilizes the key intermediate *COOH in CO formation.

Chinese Chemical Letters 33 (2022) 4380



Au nanoparticles loaded on hollow BiOCl microstructures boosting CO₂ photoreduction

Siwen Gong^a, Fei Rao^a, Weibin Zhang^b, Qadeer-Ul Hassan^a, Zhaoqing Liu^c, Jianzhi Gao^a, Jiangbo Lu^a, Mirabbos Hojamberdiev^d, Gangqiang Zhu^a

^a School of Physics and Information Technology, Shaanxi Normal University, Xi'an 710062, China

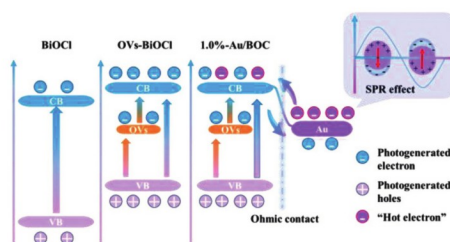
^b School of Physics and Optoelectronic Engineering, Yangtze University, Jingzhou 434023, China

^c School of Chemistry and Chemical Engineering, Institute of Clean Energy and Materials, Guangzhou University, Guangzhou 510006, China

^d Institute of Chemistry, Technical University of Berlin, Berlin 10623, Germany

The synergistic effect of oxygen vacancies and Au nanoparticles has a great effect on improving carbon dioxide photoreduction performance for BiOCl, and its mechanism of action has been deeply explored.

Chinese Chemical Letters 33 (2022) 4385



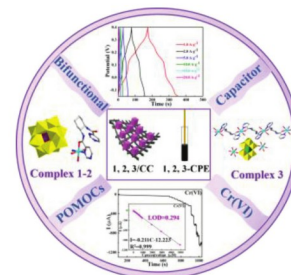
Polyoxometalate-based metal-organic complexes constructed from a new bis-pyrimidine-amide ligand with high capacitance performance and selectivity for the detection of Cr(VI)

Qianqian Liu, Junjun Lu, Hongyan Lin, Xiuli Wang, Zhihan Chang, Yongzhen Chen, Yuchen Zhang

College of Chemistry and Materials Engineering, Professional Technology Innovation Center of Liaoning Province for Conversion Materials of Solar Cell, Bohai University, Jinzhou 121013, China

Three polyoxometalate-based copper complexes were synthesized with a new semi-rigid *N,N'*-bis(4-pyrimidinecarboxamido)-1,2-cyclohexane ligand, which can be used as dual-functional electrode materials with excellent capacitance performance and electrochemical sensing performance for the detection of Cr(VI).

Chinese Chemical Letters 33 (2022) 4389



Two transition-metal-modified Nb/W mixed-addendum polyoxometalates for visible-light-mediated aerobic benzylic C-H oxidations

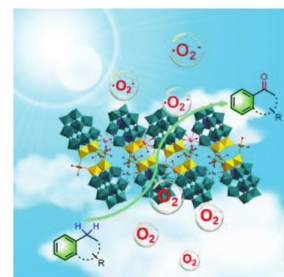
Yubin Ma^a, Fan Gao^b, Wanru Xiao^a, Na Li^a, Shujun Li^a, Bing Yu^b, Xuenian Chen^{a,b}

^aSchool of Chemistry and Chemical Engineering, Henan Key Laboratory of Boron Chemistry and Advanced Energy Materials, Henan Normal University, Xinxiang 453007, China

^bCollege of Chemistry, Zhengzhou University, Zhengzhou 450001, China

Two POMs dimers were obtained by the reactions of Nb/W mixed-addenda POM and transition metal ions (Fe^{3+} and Cr^{3+}). POM[Fe] was proved to be a highly effective photocatalyst for the oxidation of benzylic C-H bonds with oxygen as oxidant under visible light. A superoxide radical involved mechanism was proposed for the catalytic reaction.

Chinese Chemical Letters 33 (2022) 4395



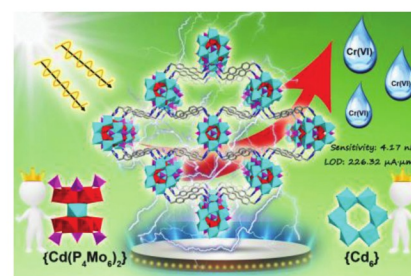
Unusual hexa-nuclear cadmium cluster functionalized phosphomolybdate as effective photoelectrochemical sensor for trace Cr(VI) detection

Wenting An, Xiujuan Zhang, Jiaqi Niu, Yuanyuan Ma, Zhangang Han

Hebei Key Laboratory of Organic Functional Molecules, National Demonstration Center for Experimental Chemistry Education, College of Chemistry and Materials Science, Hebei Normal University, Shijiazhuang 050024, China

Photo-active hexa-nuclear cadmium clusters cooperated with electrocatalytic-active hourglass-type phosphomolybdate achieve highly efficient photo-assisted electrochemical detection towards trace Cr(VI).

Chinese Chemical Letters 33 (2022) 4400



Paper-based fluorescent devices for multifunctional assays: Biomarkers detection, inhibitors screening and chiral recognition

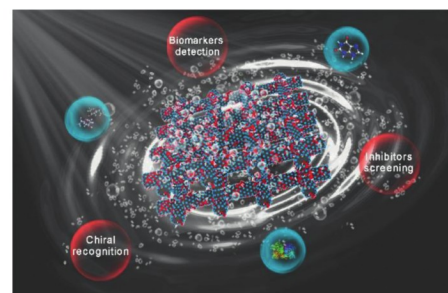
Wang Li^{a,b}, Xiaoyue Zhang^{a,b}, Siqi Chen^{a,b}, Yibing Ji^{a,b}, Ruijun Li^{a,b}

^aDepartment of Analytical Chemistry, China Pharmaceutical University, Nanjing 210009, China

^bKey Laboratory of Drug Quality Control and Pharmacovigilance, Ministry of Education, Nanjing 210009, China

In this study, a carbon dots (CDs) and MnO_2 nanosheets (MnO_2 NS) functionalized paper-based device was fabricated and developed for multifunctional fluorescent assays. Biomarkers detection, inhibitors screening and chiral recognition have been achieved on the proposed platform.

Chinese Chemical Letters 33 (2022) 4405



Tip-assisted ambient electric arc ionization mass spectrometry for rapid detection of trace organophosphorus pesticides in strawberry

Zihan Ma^a, Yuanji Gao^{a,b}, Fengjian Chu^c, Yunli Tong^d, Yuwen He^a, Yuan Li^a, Zhan Gao^a, Weiwei Chen^a, Shuheng Zhang^a, Yuanjiang Pan^a

^aDepartment of Chemistry, Zhejiang University, Hangzhou 310027, China

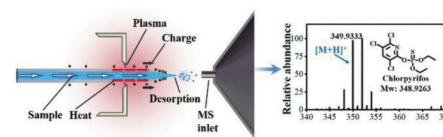
^bCollege of Chemistry and Materials Science, Sichuan Normal University, Chengdu 610068, China

^cCollege of Information Science and Electronic Engineering, Zhejiang University, Hangzhou 310027, China

^dZhejiang East Asia Pharmaceutical Co., Ltd., Taizhou 317108, China

In this study, an ambient mass spectrometry (AMS) based method was developed for rapid detection of organophosphorus pesticides in strawberry. This method combines an electric arc and a microsyringe tip to realize tip-assisted ambient electric arc ionization (TAAEI).

Chinese Chemical Letters 33 (2022) 4411



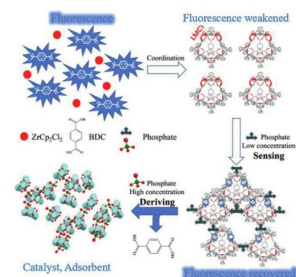
Zirconium metal organic cages: From phosphate selective sensing to derivate forming

Ziyuan Gao, Jia Jia, Wentong Fan, Tong Liao, Xingfeng Zhang

College of Material and Chemistry & Chemical Engineering, Chengdu University of Technology, Chengdu 610059, China

Zr-MOC was used as a fluorescent probe for the phosphate sensing with high selectivity, good linearity and low detection limits. The phosphate binding to Zr not only blocked the LMCT, but also agglomerated the cages. When the phosphate concentration continued to increase, Zr-MOC and phosphate formed derivatives with Lewis acid catalysis and rare earth ion adsorption.

Chinese Chemical Letters 33 (2022) 4415



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