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## Chinese Chemical Letters

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**Nanorods prefer basolateral exocytosis to apical exocytosis compared to nanospheres**

Provided by Jianping Qi's group



**REVIEW**

Xijin Xu et al.  
Nickel/cobalt based materials  
for supercapacitors

**REVIEW**

Xuhong Qian et al.  
Naphthalimides and analogues as antitumor  
agents: A review on molecular design,  
bioactivity and mechanism of action

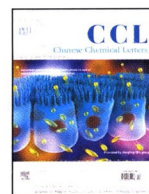
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Chinese Chemical Society

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## Graphical Abstracts/Chin Chem Lett 29 (2018) iii–xii

## Editorials

## Virtual special issue: Supramolecular/macrocyclic chemistry

Chinese Chemical Letters 29 (2018) 1703

Xiaoyu Hu<sup>a</sup>, Zhichao Pei<sup>b</sup><sup>a</sup> School of Materials Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China<sup>b</sup> College of Chemistry & Pharmacy, Northwest A&F University, Yangling 712100, China

## Virtual special issue: Organic and polymer materials for electronics

Chinese Chemical Letters 29 (2018) 1706

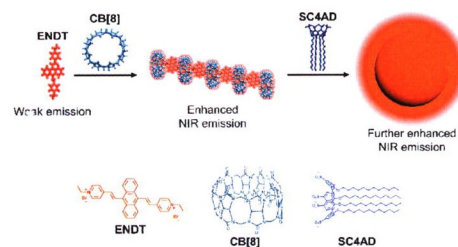
Pei Zhao, Liangliang Zhu

State Key Laboratory of Molecular Engineering of Polymers, Department of Macromolecular Science, Fudan University, Shanghai 200438, China

## Highlights

## Hierarchically self-assembled fluorescent nanoparticles for near-infrared lysosome-targeted imaging

Chinese Chemical Letters 29 (2018) 1709

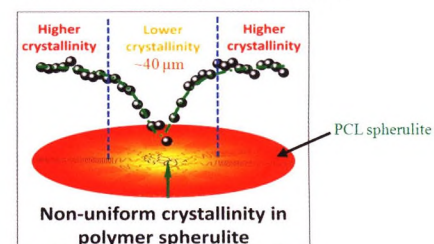
Dong-Sheng Guo<sup>a,b</sup><sup>a</sup> College of Chemistry, State Key Laboratory of Elemento–Organic Chemistry, Key Laboratory of Functional Polymer Materials, Ministry of Education, Nankai University, Tianjin 300071, China<sup>b</sup> Collaborative Innovation Center of Chemical Science and Engineering, Nankai University, Tianjin 300071, China

## The distribution of degree of crystallinity—New concept in polymer science

Pingsheng He

Department of Polymer Science and Engineering, University of Science and Technology of China, Hefei 230026, China

Chinese Chemical Letters 29 (2018) 1711



## Reviews

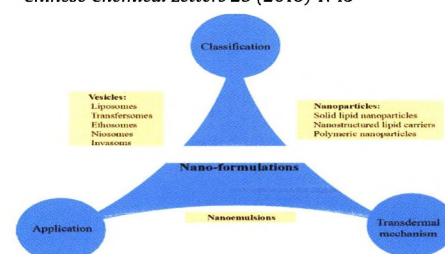
### Nano-formulations for transdermal drug delivery: A review

Xingli Zhou, Ying Hao, Liping Yuan, Sushmita Pradhan, Krista Shrestha, Ojaswi Pradhan, Hongjie Liu, Wei Li

Department of Dermatovenereology, State Key Laboratory of Biotherapy, West China Hospital, Sichuan University, Chengdu 610041, China

The different applications of nano-formulations (vesicles or nanoparticles and nanoemulsions) have been widely studied. Here, the classification, characteristics, transdermal mechanism, and application of the most popular nano-formulations in transdermal drug delivery system are reviewed.

Chinese Chemical Letters 29 (2018) 1713



### Au-Fe<sub>3</sub>O<sub>4</sub> heterostructures for catalytic, analytical, and biomedical applications

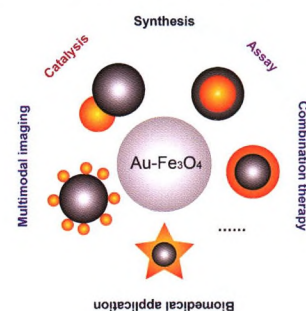
Baoling Liu<sup>a</sup>, Hongchen Zhang<sup>b</sup>, Ya Ding<sup>a</sup>

<sup>a</sup> Key Laboratory of Drug Quality Control and Pharmacovigilance, China Pharmaceutical University, Nanjing 210009, China

<sup>b</sup> Beijing Key Laboratory of Magnetoelectric Materials and Devices (BKL-MEMD), Beijing Innovation Center for Engineering Science and Advanced Technology (BIC-ESAT), Department of Materials Science and Engineering, College of Engineering, Peking University, Beijing 100871, China

Au-Fe<sub>3</sub>O<sub>4</sub> heterostructures including dumbbell-like dimer, core-shell structure, and flower-type nanoparticles (NPs), attract much attention due to their multiple modifiable surfaces and unique properties coming from either Au or Fe<sub>3</sub>O<sub>4</sub> nanoparticles. This review focuses on the preparation methods and biomedical applications of these heterogenous NPs in the fields of catalysis, assay, multimodal imaging, and combination therapy.

Chinese Chemical Letters 29 (2018) 1725



### Nickel/cobalt based materials for supercapacitors

Chenggang Wang, Pengxiao Sun, Guangmeng Qu, Jiangmei Yin, Xijin Xu

School of Physics and Technology, University of Jinan, Ji'nan 250022, China

We briefly summarize the fundamental mechanism of supercapacitors and classify them into three kinds according to the different energy storage mechanism. We further discuss the energy storage mechanism of nickel/cobalt based materials, and we suggest that these kinds of battery-type materials should be classified into hybrid supercapacitor instead of pseudocapacitors.

Chinese Chemical Letters 29 (2018) 1731



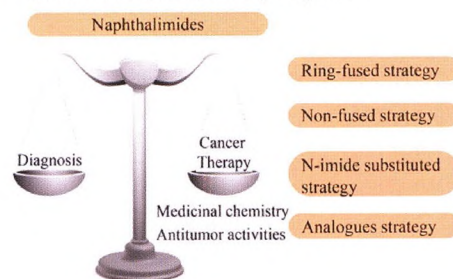
## Naphthalimides and analogues as antitumor agents: A review on molecular design, bioactivity and mechanism of action

Zhuo Chen, Yufang Xu, Xuhong Qian

State Key Laboratory of Bioreactor Engineering, Shanghai Key Laboratory of Chemical Biology, Shanghai Key Laboratory of New Drug Design, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

Our research improves the structure diversity of naphthalimide antitumor agents and distinct variances of antitumor targets and mechanism of action.

Chinese Chemical Letters 29 (2018) 1741



## Recent advances in energy chemistry of precious-metal-free catalysts for oxygen electrocatalysis

Bin Wang<sup>a,c</sup>, Xiaoyang Cui<sup>a</sup>, Jiaqi Huang<sup>b,d</sup>, Rui Cao<sup>c</sup>, Qiang Zhang<sup>a,e</sup>

<sup>a</sup> Beijing Key Laboratory of Green Chemical Reaction Engineering and Technology, Department of Chemical Engineering, Tsinghua University, Beijing 100084, China

<sup>b</sup> Advanced Research Institute of Multidisciplinary Science, Beijing Institute of Technology, Beijing 100081, China

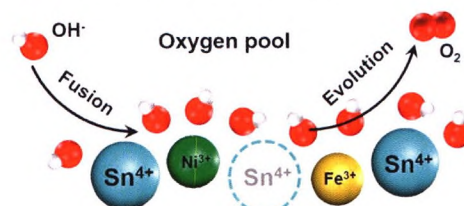
<sup>c</sup> School of Chemistry and Chemical Engineering, Shaanxi Normal University, Xi'an 710119, China

<sup>d</sup> CAS Key Laboratory of Carbon Materials, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China

<sup>e</sup> Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Nankai University, Tianjin 300071, China

The rational design and effective construction of precious-metal-free materials for OER and ORR, respectively, are reviewed in the respects of electronic structure regulation, nanostructure tailor, and freestanding electrode fabrication. This affords fresh concepts for oxygen electrocatalysis and is also enlightening for other energy catalysis with targeted optimization.

Chinese Chemical Letters 29 (2018) 1757



## Communications

### Al<sub>2</sub>O<sub>3</sub> coated LiCoO<sub>2</sub> as cathode for high-capacity and long-cycling Li-ion batteries

Zelang Jian<sup>a,b</sup>, Wentao Wang<sup>a</sup>, Maoyu Wang<sup>a</sup>, Yan Wang<sup>a</sup>, Nick AuYeung<sup>a</sup>, Miao Liu<sup>c</sup>, Zhenxing Feng<sup>a</sup>

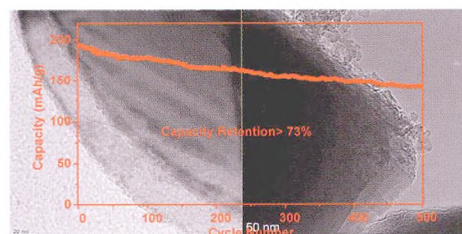
<sup>a</sup> School of Chemical, Biological, and Environmental Engineering, Oregon State University, Corvallis OR 97331, United States

<sup>b</sup> State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, School of Materials Science and Engineering, Wuhan University of Technology, Wuhan 430070, China

<sup>c</sup> Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China

In this study, we fabricated a Al<sub>2</sub>O<sub>3</sub> layer coated on the surface of LiCoO<sub>2</sub> by a facile and scale-up sol-gel method. The proper thickness coating can improve the cycling life with the cut-off potential (4.5 V), which capacity retention is ~73% after 500 cycles, and enhance the capacity, which shows ~180 mAh/g.

Chinese Chemical Letters 29 (2018) 1768



### Crosslinked carboxymethyl cellulose-sodium borate hybrid binder for advanced silicon anodes in lithium-ion batteries

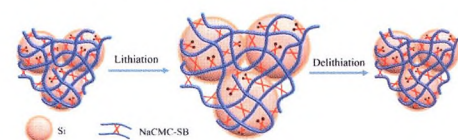
Li Zhang<sup>a</sup>, Yun Ding<sup>b</sup>, Jiangxuan Song<sup>a</sup>

<sup>a</sup> State Key Laboratory for Mechanical Behavior of Materials, Xi'an Jiaotong University, Xi'an 710049, China

<sup>b</sup> College of Mechanical and Electrical Engineering, Beijing University of Chemical Technology, Beijing 100029, China

Hybrid gel binder with deformable network and strong adhesive capability on silicon particles can effectively accommodate the large volume change of silicon anodes upon cycling, leading to an excellent cycling stability and high Coulombic efficiency.

Chinese Chemical Letters 29 (2018) 1773



## High performance lithium-sulfur batteries by facilely coating a conductive carbon nanotube or graphene layer

Yuchi Yang<sup>a</sup>, Chen Chen<sup>a</sup>, Jianhua Hu<sup>a</sup>, Yonghui Deng<sup>c,d</sup>, Yi Zhang<sup>b</sup>, Dong Yang<sup>a</sup>

<sup>a</sup> State Key Laboratory of Molecular Engineering of Polymers, Department of Macromolecular Science, Fudan University, Shanghai 200433, China

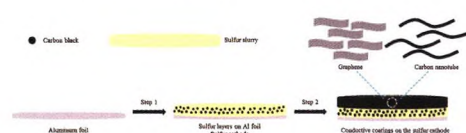
<sup>b</sup> School of Materials Science and Energy Engineering, Foshan University, Foshan 528000, China

<sup>c</sup> Department of Chemistry, State Key Laboratory of Molecular Engineering of Polymers, Shanghai Key Laboratory of Molecular Catalysis and Innovative Materials, iChEM, Fudan University, Shanghai 200433, China

<sup>d</sup> State Key Lab of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai 200050, China

A dual-layer cathode electrode is constituted by facilely coating a conductive carbon nanotube or graphene layer on the pristine sulfur cathode electrode. The conductive layer can effectively improve the conductivity and suppress the polysulfide diffusion, giving rise to an enhanced electrochemical performance for Li-S batteries.

Chinese Chemical Letters 29 (2018) 1777



## Three new bifunctional additive for safer nickel-cobalt-aluminum based lithium ion batteries

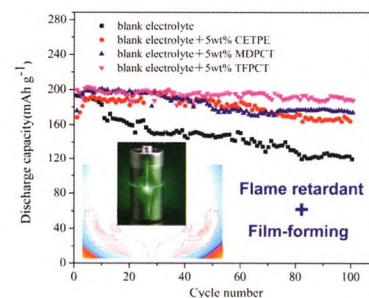
Lili Liu<sup>a</sup>, Changjiang Du<sup>a</sup>, Shili Wang<sup>a</sup>, Shimou Chen<sup>b</sup>

<sup>a</sup> School of Sciences/Key Laboratory of Cosmetic, China National Light Industry, Beijing Technology and Business University, Beijing 100048, China

<sup>b</sup> Beijing Key Laboratory of Ionic Liquids Clean Process, CAS Key Laboratory of Green Process and Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China

The phosphorus-containing additives can help for forming a stable solid electrolyte interface film on the NCA cathode, thus enhance the thermal stability of the electrolyte and cycle performance of the battery.

Chinese Chemical Letters 29 (2018) 1781



## Controlling the morphology, size and phase of Nb<sub>2</sub>O<sub>5</sub> crystals for high electrochemical performance

Jiaqin Liao<sup>a</sup>, Rou Tan<sup>a</sup>, Zhixiang Kuang<sup>a</sup>, Chunyu Cui<sup>a</sup>, Zengxi Wei<sup>a</sup>, Xiaolan Deng<sup>a</sup>, Zhanheng Yan<sup>a</sup>, Yuezhao Feng<sup>b</sup>, Fang Li<sup>a</sup>, Caiyun Wang<sup>c</sup>, Jianmin Ma<sup>a,b,d</sup>

<sup>a</sup> School of Physics and Electronics, Hunan University, Changsha 410082, China

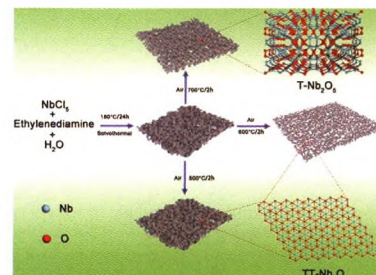
<sup>b</sup> Key Laboratory of Materials Processing and Mold (Zhengzhou University), Ministry of Education, Zhengzhou University, Zhengzhou 450002, China

<sup>c</sup> ARC Centre of Excellence for Electromaterials Science, Intelligent Polymer Research Institute, AIIIM Facility, University of Wollongong, North Wollongong, NSW 2500, Australia

<sup>d</sup> Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Nankai University, Tianjin 300071, China

Herein, the nano-sized niobium pentoxide (Nb<sub>2</sub>O<sub>5</sub>) with different morphologies and phase structures are synthesized through a very simple thermal treatment method, including the pseudo-hexagonal Nb<sub>2</sub>O<sub>5</sub> nanosheets and pseudo-hexagonal Nb<sub>2</sub>O<sub>5</sub> nanoparticles, orthorhombic Nb<sub>2</sub>O<sub>5</sub> nanoparticles. The synthesized pseudo-hexagonal Nb<sub>2</sub>O<sub>5</sub> nanosheets and orthorhombic Nb<sub>2</sub>O<sub>5</sub> nanoparticles exhibit better cycling and rate performance than the pseudo-hexagonal Nb<sub>2</sub>O<sub>5</sub> nanoparticles due to the different morphologies and phase structures.

Chinese Chemical Letters 29 (2018) 1785



## P2-type Na<sub>0.6</sub>[Mg(II)<sub>0.3</sub>Mn(IV)<sub>0.7</sub>]O<sub>2</sub> as a new model material for anionic redox reaction

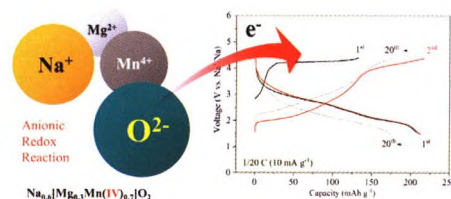
Xiaohui Rong<sup>a,b</sup>, Fei Gao<sup>a</sup>, Yaxiang Lu<sup>b</sup>, Kai Yang<sup>a</sup>, Yongsheng Hu<sup>b</sup>

<sup>a</sup> State Key Laboratory of Operation and Control of Renewable Energy and Storage Systems, China Electric Power Research Institute, Beijing 100192, China

<sup>b</sup> Key Laboratory for Renewable Energy, Beijing Key Laboratory for New Energy Materials and Devices, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing 100190, China

In this work, P2-Na<sub>0.6</sub>[Mg(II)<sub>0.3</sub>Mn(IV)<sub>0.7</sub>]O<sub>2</sub> with inoxidizable elements (Na<sup>+</sup>, Mg<sup>2+</sup> and Mn<sup>4+</sup>) except O<sup>2-</sup> was synthesized and investigated, which exhibited high reversible capacity (~210 mAh/g) with highly reversible ARR characteristic.

Chinese Chemical Letters 29 (2018) 1791



## Dual pH and glucose sensitive gel gated mesoporous silica nanoparticles for drug delivery

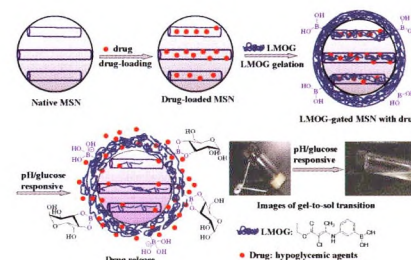
Wenxia Gao<sup>a,b</sup>, Yalong Hu<sup>b</sup>, Long Xu<sup>a</sup>, Miaochang Liu<sup>b</sup>, Huayue Wu<sup>b</sup>, Bin He<sup>a</sup>

<sup>a</sup> National Engineering Research Center for Biomaterials, Sichuan University, Chengdu 610064, China

<sup>b</sup> College of Chemistry and Materials Engineering, Wenzhou University, Wenzhou 325027, China

A low-molecular-weight gel with dual pH and glucose sensitivity was designed as the gate controller for mesoporous silica nanoparticles (MSNs) to fabricate a smart drug delivery system. The smart gel capped MSNs could control the antidiabetic drug release via the detection of glucose and pH levels.

Chinese Chemical Letters 29 (2018) 1795



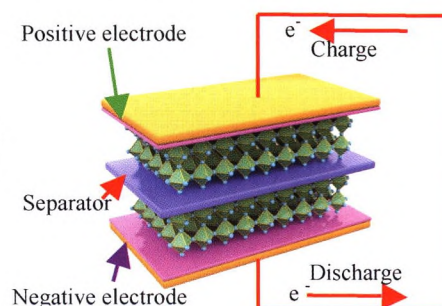
## Ternary core-shell structured transition metal chalcogenide for hybrid electrochemical capacitor

Hengqi Liu, Depeng Zhao, Pengfei Hu, Xiang Wu

School of Materials Science and Engineering, Shenyang University of Technology, Shenyang 110870, China

Herein we report a novel  $\text{CoMo}_2\text{S}_6@\text{Zn-Co-S}$  core-shell structure as the electrode materials for asymmetric supercapacitor. The as-synthesized core-shell structured electrode exhibits an overall improved electrochemical performance

Chinese Chemical Letters 29 (2018) 1799



## Synthesis of hierarchical sieve-like mesoporous silica nanoparticle aggregates via centrifugal method for drug delivery system

Qin Gao<sup>a,b</sup>, Wensheng Xie<sup>a,b</sup>, Lingyun Zhao<sup>a,b</sup>, Yu Wang<sup>a,b</sup>, Wei Zhang<sup>c</sup>, Qiang Cai<sup>a,b</sup>

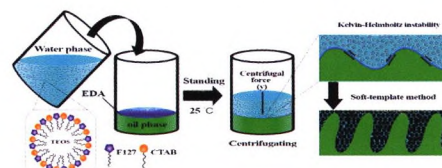
<sup>a</sup> School of Materials Science & Engineering, Tsinghua University, Beijing 100084, China

<sup>b</sup> State Key Laboratory of New Ceramics and Fine Processing, Advanced Materials of Ministry of Education of China, Tsinghua University, Beijing 100084, China

<sup>c</sup> National Center for NanoScience and Technology, Beijing 100190, China

A facile approach towards the scaled-up synthesis of a novel hierarchical sieve-like structure of mesoporous silica nanoparticle aggregates (hsMSNA) with high drug encapsulation efficiency and sustained release behaviors acting as a drug delivery system in the field of nanomedicine.

Chinese Chemical Letters 29 (2018) 1804



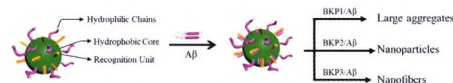
## KLVFF peptide functionalized nanoparticles capture $\text{A}\beta_{42}$ by co-assembly for decreasing cytotoxicity

Peipei Yang, Chao Yang, Kuo Zhang, Lei Wang, Hao Wang

CAS Center for Excellence in Nanoscience, CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety, National Center for Nanoscience and Technology (NCNST), Beijing 100190, China

The bis(pyrene)-Lys-Leu-Val-Phe-Phe-Gly-poly ethylene glycol (BP-KLVFFG-PEG) based nanoparticles capture  $\text{A}\beta_{42}$  by recognition and co-assembly, the length of PEG chain in which leads to different morphologies of co-assemblies and capture efficiency. The co-assembly strategy shows a decrease of cytotoxicity, potentially for Alzheimer's disease treatment.

Chinese Chemical Letters 29 (2018) 1811



## The influence of nanoparticle shape on bilateral exocytosis from Caco-2 cells

Jie Zhuang<sup>a,d</sup>, Dandan Wang<sup>a,b,c</sup>, Dong Li<sup>b</sup>, Yinqian Yang<sup>b</sup>, Yi Lu<sup>b</sup>, Wei Wu<sup>b</sup>, Wei Wu<sup>c</sup>, Jianping Qi<sup>b</sup>

<sup>a</sup> School of Pharmacy, Institute of Nanotechnology and Health, Shanghai University of Medicine & Health Sciences, Shanghai 201318, China

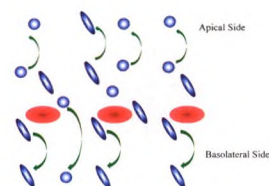
<sup>b</sup> School of Pharmacy, Fudan University, Key Laboratory of Smart Drug Delivery of MOE, Shanghai 201203, China

<sup>c</sup> School of Pharmacy, Guilin Medical College, Guilin 541000, China

<sup>d</sup> Health School Attached to Shanghai University of Medicine & Health Sciences, Shanghai 200237, China

Nanoparticles are able to be excreted from both apical and basolateral sides after taken up by cells. Compared to nanospheres, nanorods preferred basolateral exocytosis to apical exocytosis.

Chinese Chemical Letters 29 (2018) 1815



## Camptothecin@HMSNs/thermosensitive hydrogel composite for applications in preventing local breast cancer recurrence

Jing Wu<sup>a</sup>, Ying Qu<sup>a</sup>, Kun Shi<sup>a</sup>, Bingyang Chu<sup>a</sup>, Yanpeng Jia<sup>a</sup>, Xue Xiao<sup>b,c</sup>, Qianjun He<sup>d</sup>, Zhiyong Qian<sup>a</sup>

<sup>a</sup> Department of Hematology and Research Laboratory of Hematology, State Key Laboratory of Biotherapy, West China Hospital, Sichuan University and Collaborative Innovation Center, Chengdu 610041, China

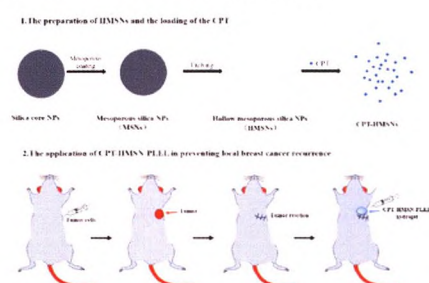
<sup>b</sup> Department of Gynecology and Obstetrics, West China Second University Hospital, Sichuan University, Chengdu 610041, China

<sup>c</sup> Key Laboratory of Birth Defects and Related Diseases of Women and Children, Sichuan University, Ministry of Education, Chengdu 610041, China

<sup>d</sup> National-Regional Key Technology Engineering Laboratory for Medical Ultrasound, Guangdong Key Laboratory for Biomedical Measurements and Ultrasound Imaging, School of Biomedical Engineering, Shenzhen University, Shenzhen 518060, China

The CPT was loaded into the HMSNs with the high loading capacity. Then the CPT@HMSNs were loaded into the PLEL thermosensitive hydrogels for local therapy to prevent the recurrence of breast cancer after the tumor was resected.

Chinese Chemical Letters 29 (2018) 1819



## Spermine increases bactericidal activity of silver-nanoparticles against clinical methicillin-resistant *Staphylococcus aureus*

Chang Liu<sup>a</sup>, Han Shen<sup>a</sup>, Su Wang<sup>c</sup>, Xiaoli Cao<sup>a</sup>, Hongpan Xu<sup>a</sup>, Yanyan Xia<sup>a</sup>, Tingting Bai<sup>b</sup>, Yufeng Liu<sup>c</sup>, Lijun Peng<sup>a</sup>, Chuchu Li<sup>d</sup>, Zhirui Guo<sup>b</sup>, Zhiyang Li<sup>a</sup>

<sup>a</sup> Department of Clinical Laboratory, The Affiliated Drum Tower Hospital of Nanjing University Medical School, Nanjing 210008, China

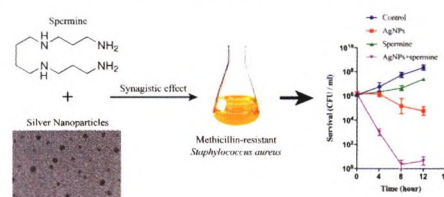
<sup>b</sup> Department of Geriatrics, The Second Affiliated Hospital, Key Laboratory for Aging & Disease, Nanjing Medical University, Nanjing 210011, China

<sup>c</sup> College of Life Science, Yangtze University, Jingzhou 434025, China

<sup>d</sup> Department of Technical Services, Jiangsu Provincial Center for Disease Prevention and Control, Nanjing 210009, China

Spermine can effectively reinforce the antibacterial activity of AgNPs.

Chinese Chemical Letters 29 (2018) 1824



## Effects of surface modifications on the physicochemical properties of iron oxide nanoparticles and their performance as anticancer drug carriers

Lingling Guo<sup>a</sup>, Hong Chen<sup>c</sup>, Nongyue He<sup>a,b</sup>, Yan Deng<sup>a,b</sup>

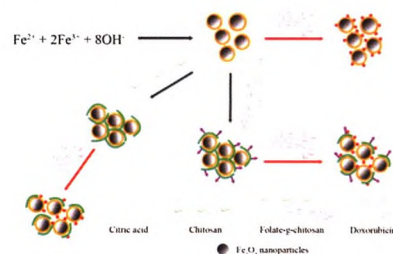
<sup>a</sup> State Key Laboratory of Bioelectronics, National Demonstration Center for Experimental Biomedical Engineering Education, School of Biological Science and Medical Engineering, Southeast University, Nanjing 210096, China

<sup>b</sup> Economical Forest Cultivation and Utilization of 2011 Collaborative Innovation Center in Hunan Province, Hunan Key Laboratory of Biomedical Nanomaterials and Devices, Hunan University of Technology, Zhuzhou 412007, China

<sup>c</sup> School of Materials Science and Energy Engineering, Foshan University, Foshan 528000, China

Surface of iron oxide nanoparticles were modified with citric acid (CA), chitosan (CS) and folic acid conjugated chitosan (FA-g-CS), respectively. Their physicochemical properties, doxorubicin loading capacity, drug release patterns and in vitro cytotoxicity were comparatively studied.

Chinese Chemical Letters 29 (2018) 1829



## Permeation into but not across the cornea: Bioimaging of intact nanoemulsions and nanosuspensions using aggregation-caused quenching probes

Dailei Liu<sup>a</sup>, Bo Wan<sup>a</sup>, Jianping Qi<sup>a,b</sup>, Xiaochun Dong<sup>a</sup>, Weili Zhao<sup>a,b</sup>, Wei Wu<sup>a,b</sup>, Yikang Dai<sup>c</sup>, Yi Lu<sup>a,b</sup>, Zhongjian Chen<sup>b</sup>

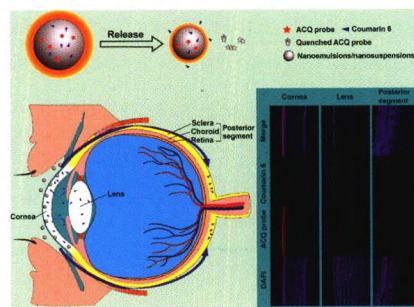
<sup>a</sup> School of Pharmacy, Fudan University, Key Laboratory of Smart Drug Delivery of MOE and PLA, Shanghai 201203, China

<sup>b</sup> Shanghai Dermatology Hospital, Shanghai 200443, China

<sup>c</sup> Department of Ophthalmology, Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai 200001, China

Nanoemulsions and nanosuspensions are two representative nanoparticles with great potential to enhance ocular bioavailability. However, they can permeate into but not across the cornea. The cargo molecules can reach the anterior chamber or back of the eye by diffusing across the cornea and through the conjunctiva-scleral route, respectively.

Chinese Chemical Letters 29 (2018) 1834



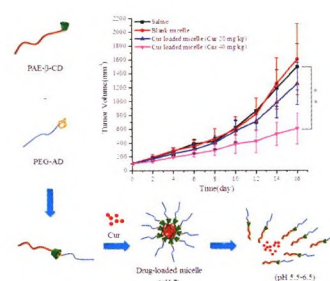
## pH-Responsive supramolecular micelle based on host-guest interaction of poly( $\beta$ -amino ester) derivatives and adamantyl-terminated poly(ethylene glycol) for cancer inhibition

Zhuting Yang, Yan Peng, Liyan Qiu

Ministry of Educational (MOE) Key Laboratory of Macromolecular Synthesis and Functionalization, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China

A pH-responsive supramolecular micelle consisting of  $\beta$ -cyclodextrin-contained poly( $\beta$ -amino ester) and adamantyl-terminated poly(ethylene glycol) was prepared through host-guest interaction. The micelle can encapsulate curcumin to achieve significant inhibition effect against sarcoma 180 *in vivo*.

Chinese Chemical Letters 29 (2018) 1839



## A sensitive and rapid UV-vis spectrophotometry for organophosphorus pesticides detection based on Ytterbium (Yb<sup>3+</sup>) functionalized gold nanoparticle

Yuan Li<sup>a</sup>, Qingjiao Luo<sup>a</sup>, Rong Hu<sup>b</sup>, Zongbao Chen<sup>c</sup>, Ping Qiu<sup>a</sup>

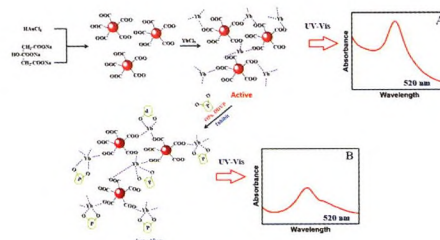
<sup>a</sup> Department of Chemistry, Nanchang University, Nanchang 330031, China

<sup>b</sup> Jiangxi Medical Device Testing Center, Nanchang 330047, China

<sup>c</sup> School of Chemistry and Environmental Science, Shangrao Normal University, Shangrao 334001, China

AuNPs possess oxygen-containing functional groups and strong complexation reaction with Yb<sup>3+</sup>. While oxygen-containing thiophosphate in the OPs molecule can combine with Yb<sup>3+</sup> as a cross-linking molecule to produce insoluble ytterbium phosphate, resulting in the aggregation of AuNPs and great decrease in ultraviolet absorbance strength at 520 nm by ultraviolet visible (UV-vis) spectrophotometer.

Chinese Chemical Letters 29 (2018) 1845



## Effect of mesopores on solidification of sirolimus self-microemulsifying drug delivery system

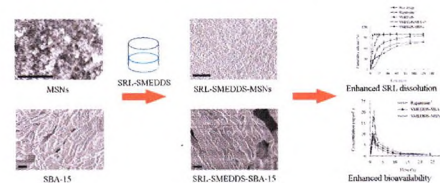
Chun Tao<sup>a</sup>, Yue Yu<sup>a,b</sup>, Zhenzhen Chen<sup>a,b</sup>, Minxin Zhang<sup>a</sup>, Linlin Liu<sup>a</sup>, Zhihong Liu<sup>a</sup>, Jialiang Zhang<sup>a</sup>, Qian Zhang<sup>b</sup>, Hongtao Song<sup>a</sup>

<sup>a</sup> Department of Pharmacy, Fuzong Clinical Medical College of Fujian Medical University (Fuzhou General Hospital), Fuzhou 350025, China

<sup>b</sup> College of Pharmacy, Fujian Medical University, Fuzhou 350108, China

The mesoporous silica materials had a high loading efficiency of sirolimus-SMEDDS. The length of the mesopores played a more important role than the pore diameter in drug dissolution and *in vivo* absorption.

Chinese Chemical Letters 29 (2018) 1849





## A new quality control method for lateral flow assay

Li Huang<sup>a,b,c</sup>, Di Zhang<sup>a,b</sup>, Lirong Jiao<sup>a,b,c</sup>, Enben Su<sup>c</sup>, Nongyue He<sup>a,b</sup>

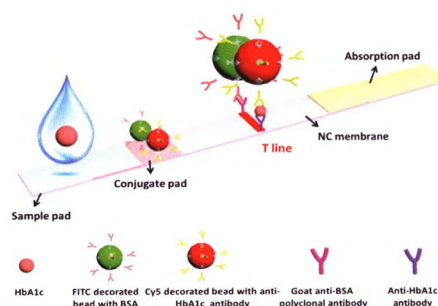
<sup>a</sup> State Key Laboratory of Bioelectronics, School of Biological Science and Medical Engineering, Southeast University, Nanjing 210096, China

<sup>b</sup> National Demonstration Center for Experimental Biomedical Engineering Education, Southeast University, Nanjing 210096, China

<sup>c</sup> Getein Biotechnology Co., Ltd., Nanjing 210000, China

We proposed a lateral flow assay (LFA) based on internal quality control microspheres to realize the accurate diagnosis of HbA1c in human body. This method can improve the precision and accuracy of HbA1c detection.

Chinese Chemical Letters 29 (2018) 1853



## Ultrasensitive electrochemical immunosensor of carcinoembryonic antigen based on gold-label silver-stain signal amplification

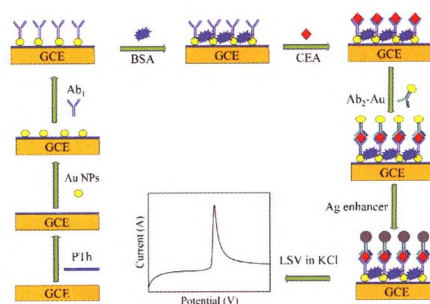
Gaojian Yang<sup>a</sup>, Yuxuan Lai<sup>a</sup>, Ziqi Xiao<sup>a</sup>, Congli Tang<sup>a</sup>, Yan Deng<sup>a,b</sup>

<sup>a</sup> Hunan Key Laboratory of Biomedical Nanomaterials and Devices, Hunan University of Technology, Zhuzhou 412007, China

<sup>b</sup> State Key Laboratory of Bioelectronics, Southeast University, Nanjing 210096, China

A novel gold-label silver-stain electrochemical immunosensor based on polythionine-gold nanoparticles (PTh-Au NPs) modified glassy carbon electrode (GCE) as a platform and secondary antibody labeled Au NPs (Ab<sub>2</sub>-Au NPs) as immunoprobe for carcinoembryonic antigen (CEA) detection. The sandwich-type biosensor adopted anodic stripping voltammetry to detect silver stripping signal when the Ab<sub>2</sub>-Au NPs of the formed immunocomplexes were stained with silver.

Chinese Chemical Letters 29 (2018) 1857



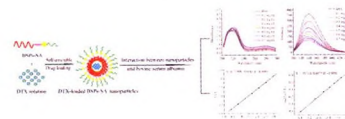
## Effects of degree of substitution on stearic acid-modified *Bletilla striata* polysaccharides nanoparticles and interactions between nanoparticles and bovine serum albumin

Guangyuan Zhang, Ji Wu, Yuran Liu, Long Huang, Jin Qiao, Xin Liu, Jingyan Wei, Qingxiang Guan

School of Pharmacy, Jilin University, Changchun 130021, China

A stearic acid-modified *Bletilla striata* polysaccharides nanoparticle was fabricated. The effects of degree of substitution on its characteristic properties, the interactions of nanoparticles with bovine serum albumin and cell toxicity were assessed.

Chinese Chemical Letters 29 (2018) 1861



## Superoxide dismutase mimetic ability of Mn-doped ZnS QDs

Xiangling Ren<sup>a,e</sup>, Mingqian Wang<sup>a,c</sup>, Xing He<sup>a,c</sup>, Zheng Li<sup>a,c</sup>, Jing Zhang<sup>a,d</sup>, Wei Zhang<sup>b</sup>, Xudong Chen<sup>b</sup>, Hong Ren<sup>d</sup>, Xianwei Meng<sup>a,e</sup>

<sup>a</sup> Laboratory of Controllable Preparation and Application of Nanomaterials, Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China

<sup>b</sup> First Affiliated Hospital of Southern University of Science and Technology, Shenzhen People's Hospital & Shenzhen Interventional Medical Engineering Research and Development Center, Shenzhen 518020, China

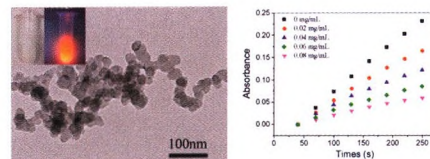
<sup>c</sup> Beijing University of Chemical Technology, Beijing 100029, China

<sup>d</sup> Beijing Technology & Business University, Beijing Higher Institution Engineering Research Center of Food Additives and Ingredients, Beijing Key Laboratory of Flavor Chemistry, Beijing Laboratory for Food Quality and Safety, Beijing 100048, China

<sup>e</sup> University of Chinese Academy of Sciences, Beijing 100049, China

The Mn-doped ZnS QDs were synthesized by a facile and one-pot method and possess intrinsic superoxide dismutase-like activity.

Chinese Chemical Letters 29 (2018) 1865



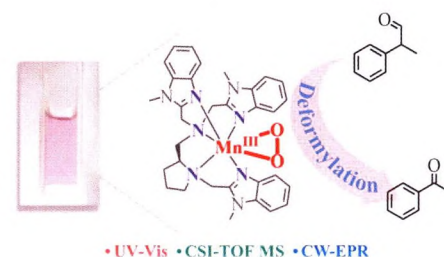
## A novel manganese(III)-peroxo complex bearing a proline-derived pentadentate aminobenzimidazole ligand

Junyi Du<sup>a,b</sup>, Chengxia Miao<sup>a</sup>, Chungu Xia<sup>a</sup>, Wei Sun<sup>a</sup>

<sup>a</sup> State Key Laboratory for Oxo Synthesis and Selective Oxidation, Suzhou Research Institute of LICP, Lanzhou Institute of Chemical Physics (LICP), Chinese Academy of Sciences, Lanzhou 730000, China  
<sup>b</sup> University of Chinese Academy of Sciences, Beijing 100049, China

A novel nonheme manganese(III)-peroxo complex bearing a proline-derived pentadentate aminobenzimidazole ligand was synthesized and spectroscopically characterized, and its reactivity in aldehyde deformylation was investigated.

Chinese Chemical Letters 29 (2018) 1869



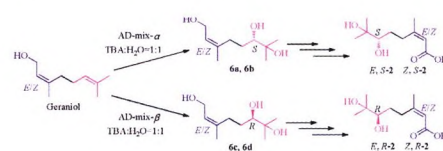
## Divergent synthesis of four isomers of 6,7-dihydroxy-3,7-dimethyloct-2-enoic acid, esters and evaluation for the antifungal activity

Weiwei Wang, Xiaoteng Zhang, Yu Zhao, Xinlei Liu, Zhenhua Zhang, Ming'an Wang

Department of Applied Chemistry, China Agricultural University, Beijing 100193, China

The four isomers of 6,7-dihydroxy-3,7-dimethyloct-2-enoic acid 2 and esters 4 were synthesized and their antifungal activities were evaluated.

Chinese Chemical Letters 29 (2018) 1872



## One-step synthesis of Fe-Ni hydroxide nanosheets derived from bimetallic foam for efficient electrocatalytic oxygen evolution and overall water splitting

Lili Zeng<sup>a</sup>, Linjing Yang<sup>a</sup>, Jia Lu<sup>b</sup>, Jin Jia<sup>a</sup>, Jiayuan Yu<sup>a</sup>, Yunqie Deng<sup>a</sup>, Mingfei Shao<sup>c</sup>, Weijia Zhou<sup>a</sup>

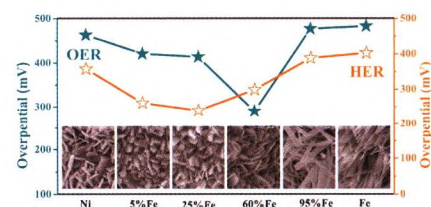
<sup>a</sup> Guangzhou Key Laboratory for Surface Chemistry of Energy Materials, New Energy Research Institute, School of Environment and Energy, South China University of Technology, Guangzhou Higher Education Mega Center, Guangzhou 510006, China

<sup>b</sup> Xinhua College of Sun Yat-sen University, Guangzhou 510520, China

<sup>c</sup> State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, China

For the first time, the Fe-Ni LDH nanosheets were prepared through simple one-step hydrothermal treatment of Fe-Ni bimetallic foam both as the substrate and Fe/Ni sources. The ratio of Ni/Fe elements played the important role in realizing the optimal catalytic activities for oxygen evolution reaction (OER) and hydrogen evolution reaction (HER). An alkaline water electrolyzer was constructed with the Fe-Ni hydroxide nanosheets/Fe-Ni alloy foam-60% Fe as anode and Ni(OH)<sub>2</sub>/Fe-Ni alloy foam-25% Fe as cathode, which displays superior electrolytic performance (affording 10 mA/cm<sup>2</sup> at 1.62 V) and lasting durability.

Chinese Chemical Letters 29 (2018) 1875



## Sensitive detection of thyroid stimulating hormone by inkjet printed microchip with a double signal amplification strategy

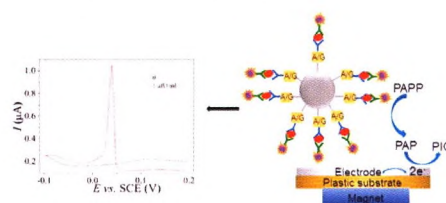
Beibei Yang<sup>a</sup>, Dongmei Liu<sup>b</sup>, Lina Zhu<sup>a</sup>, Yun Liu<sup>a</sup>, Xiaoning Wang<sup>b</sup>, Liang Qiao<sup>a</sup>, Weijia Zhang<sup>a</sup>, Baohong Liu<sup>a</sup>

<sup>a</sup> Department of Chemistry, Shanghai Stomatological Hospital, Collaborative Innovation Center of Chemistry for Energy Materials, Fudan University, Shanghai 200433, China

<sup>b</sup> Department of Pharmacy, Qingdao Municipal Hospital, Qingdao 266001, China

In this paper, we reported a sensitive electrochemical immunosensor coupling protein A/G@ magnetic beads and an ALP-based enzymatic-electrochemical reaction on the inkjet printing microchips for the determination of thyroid stimulating hormone.

Chinese Chemical Letters 29 (2018) 1879



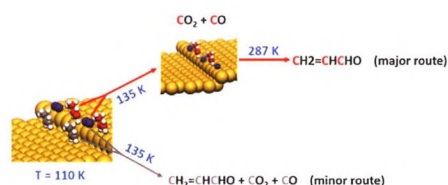
## Site- and surface species-dependent propylene oxidation with molecular oxygen on gold surface

Guanghui Sun, Yuekang Jin, Zhengming Wang, Hong Xu, Peng Chai, Weixin Huang

Hefei National Laboratory for Physical Sciences at the Microscale, CAS Key Laboratory of Materials for Energy Conversion, and Department of Chemical Physics, University of Science and Technology of China, Hefei 230026, China

A complete fundamental understanding of propylene oxidation with molecular O<sub>2</sub> on Au surface is achieved, in which site- and surface species-dependent reaction behaviors are revealed.

Chinese Chemical Letters 29 (2018) 1883



## Case synthesis of a $\beta$ -chloro bulky bis-pocket corrole: Crystallographic characterization and photophysical properties

Atif Ali<sup>a</sup>, Fan Cheng<sup>a</sup>, Wei-Hong Wen<sup>a</sup>, Xiao Ying<sup>b</sup>, Jaipal Kandhadi<sup>c</sup>, Hui Wang<sup>c</sup>, Hai-Yang Liu<sup>a</sup>, Chi-Kwong Chang<sup>d</sup>

<sup>a</sup> Department of Chemistry, Key Laboratory of Functional Molecular Engineering of Guangdong Province, South China University of Technology, Guangzhou 510641, China

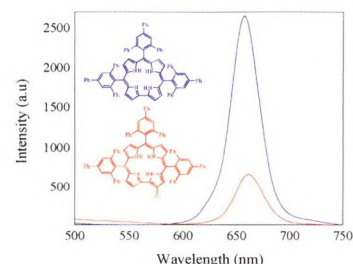
<sup>b</sup> Department of Applied Physics, South China University of Technology, Guangzhou 510641, China

<sup>c</sup> State Key Laboratory of Optoelectronics Materials and Technologies, Sun Yat-sen University, Guangzhou 510275, China

<sup>d</sup> Department of Chemistry, Michigan State University, E. Lansing, MI 48824, United States

A new bulky 2-chloro-5,10,15-tris(2,4,6-triphenylphenyl)-corrole was casually synthesized and the effect of mono- $\beta$ -chlorination on its photophysical, electrochemical properties and light-induced singlet oxygen generation was investigated.

Chinese Chemical Letters 29 (2018) 1888



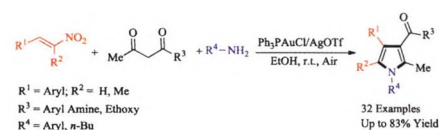
## Synthesis of polysubstituted pyrroles via a gold(I)-catalyzed tandem three-component reaction at room temperature

Li Li, Qi Chen, Xiaonan Xiong, Chuang Zhang, Jingjing Qian, Jie Shi, Qiong An, Ming Zhang

Kangda College of Nanjing Medical University, Lianyungang 222000, China

A gold(I)-catalyzed three-component reaction of  $\beta$ -nitrostyrenes with 1,3-dicarbonyl compounds and primary amines to form polysubstituted pyrroles has been developed at room temperature in ethanol. The key advantages of the three-component reaction are the mild reaction conditions and environmentally safer solvent.

Chinese Chemical Letters 29 (2018) 1893



## Synthesis, biochemical evaluation and computational simulations of new cytochrome *bc*<sub>1</sub> complex inhibitors based on *N*-(4-aryloxyphenyl) phthalimides

Hua Cheng<sup>a</sup>, Yan Fu<sup>a</sup>, Qing Chang<sup>a</sup>, Ni Zhang<sup>c</sup>, Mengwei Bu<sup>a</sup>, Yan Niu<sup>c</sup>, Qiongyou Wu<sup>c</sup>, Cheng Chen<sup>b</sup>, Francis Verpoort<sup>b,d</sup>

<sup>a</sup> Department of Chemical Engineering and Food Science, Hubei University of Arts and Science, Xiangyang 441053, China

<sup>b</sup> State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China

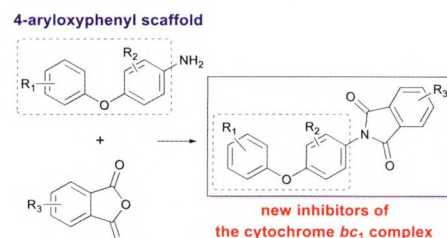
<sup>c</sup> Key Laboratory of Pesticide & Chemical Biology, Ministry of Education, College of Chemistry, Central China Normal University, Wuhan 430079, China

<sup>d</sup> National Research Tomsk Polytechnic University, Tomsk 634050, Russian Federation

<sup>e</sup> Hubei University of Technology Engineering and Technology College, Wuhan 430068, China

A series of *N*-(4-aryloxyphenyl)phthalimides were synthesized and identified as new inhibitors of the cytochrome *bc*<sub>1</sub> complex. Furthermore, results obtained from computational simulations indicated that 3e' should bind to the Q<sub>i</sub> site of the *bc*<sub>1</sub> complex.

Chinese Chemical Letters 29 (2018) 1897





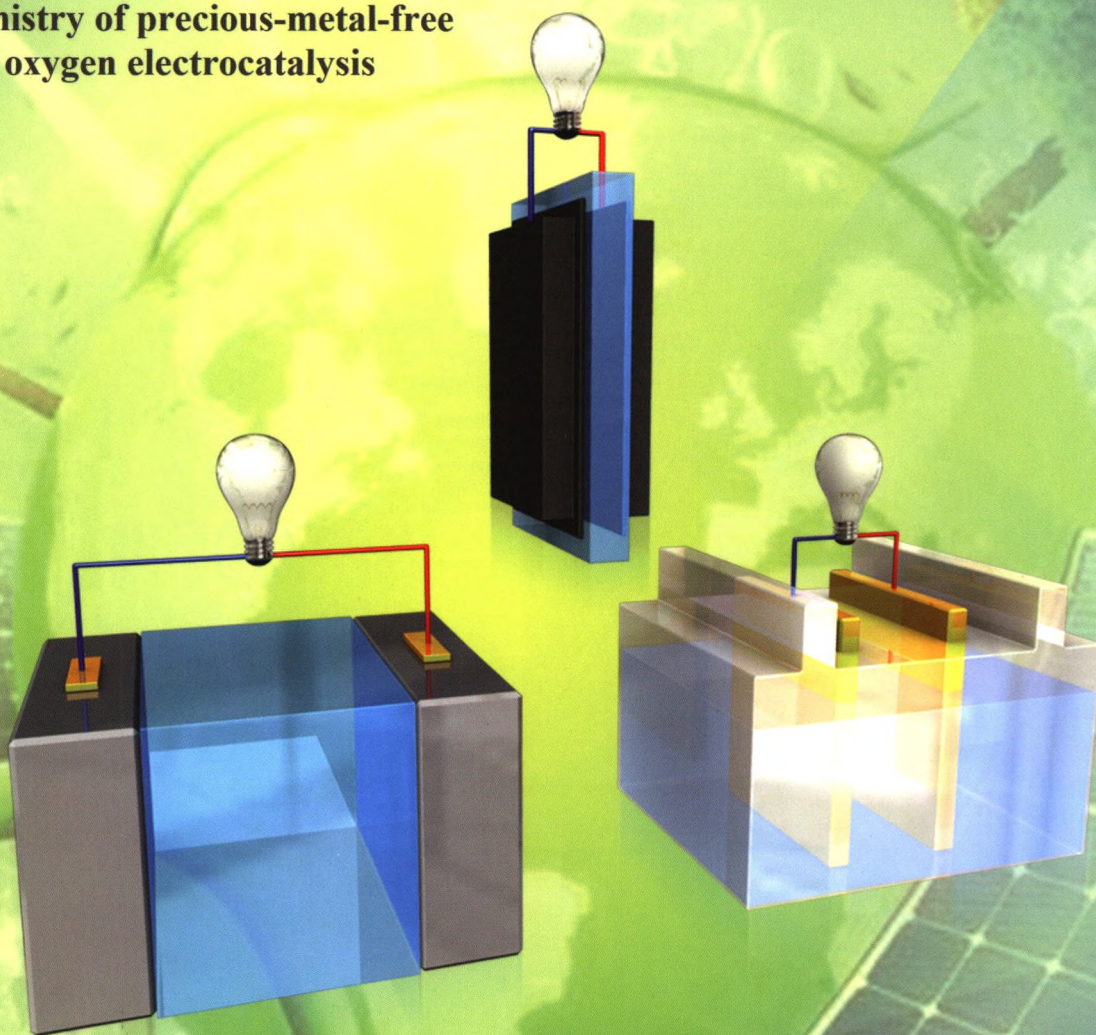
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