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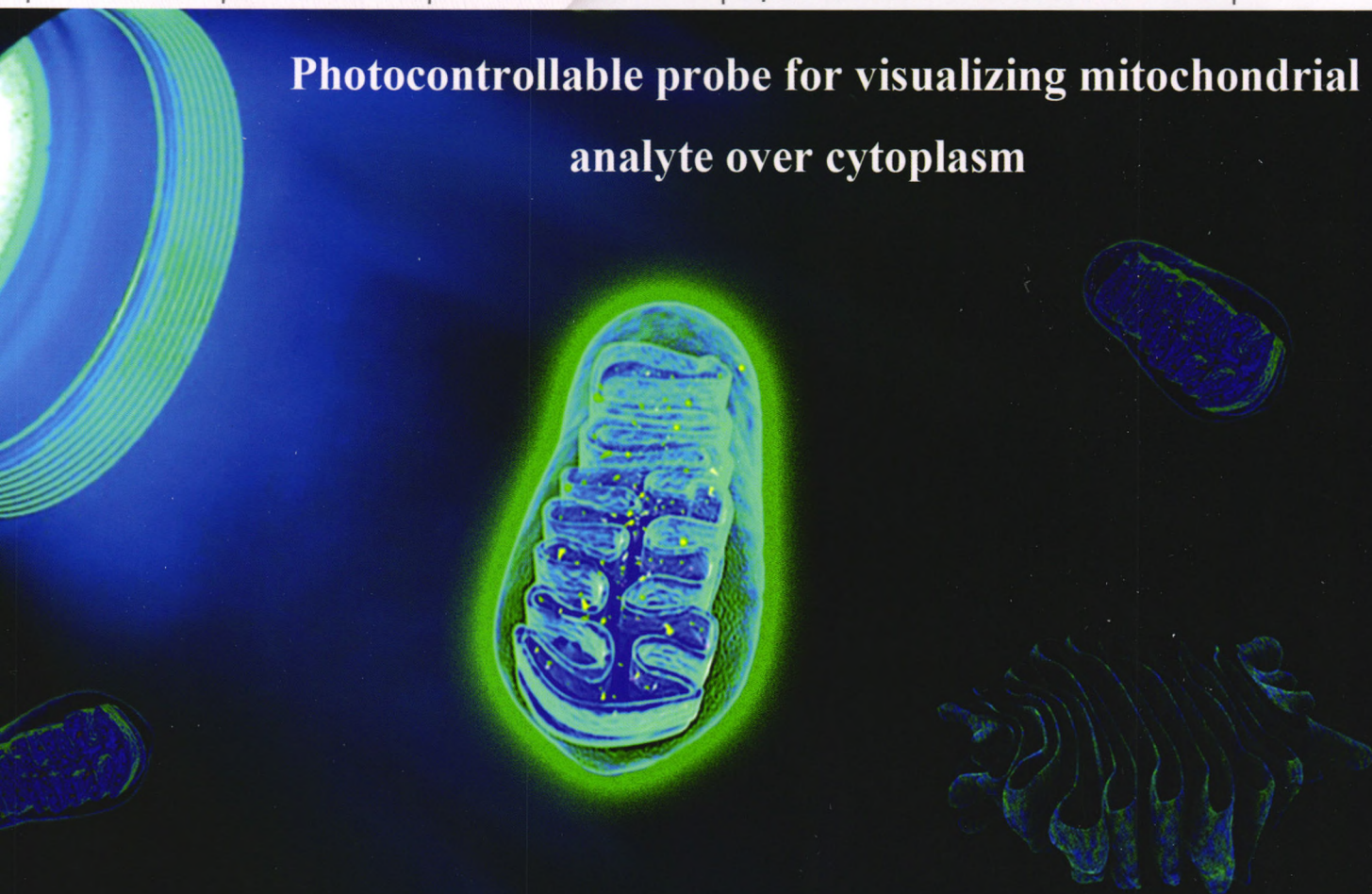


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Chinese Chemical Letters

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Photocontrollable probe for visualizing mitochondrial analyte over cytoplasm



Provided by Prof. Lin Li's group, Nanjing Tech University, China



REVIEW

Lu Miao, Wu-Guo Deng, Zhao-Chao Xu et al.
SNAP-tag Fluorogenic probes for wash free
protein labeling

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P. Zou et al.
Genetically-encoded voltage indicators

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万方数据 Institute of Materia Medica, Chinese Academy of Medical Sciences



Graphical Abstracts/Chin Chem Lett 28 (2017) iii–ix

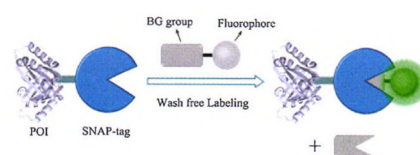
Reviews

SNAP-tag fluorogenic probes for wash free protein labeling

Shuang Leng^{a,b}, Qing-Long Qiao^{b,c}, Yue Gao^a, Lu Miao^{b,*}, Wu-Guo Deng^{a,*}, Zhao-Chao Xu^{b,*}^aInstitute of Cancer Stem Cell, Cancer Center, Dalian Medical University, Dalian 116044, China^bKey Laboratory of Separation Science for Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China^cState Key Laboratory of Fine Chemicals, Dalian University of Technology, Dalian 116012, China

In this review, we described the design strategies of SNAP-tag fluorogenic probes with turn-on fluorescence responses, which minimized the fluorescence background and allowed for direct imaging in living cells without wash-out steps. These probes can apply in real-time analysis of protein localization, dynamics, and protein–protein interactions in living cells. Furthermore, the excellent fluorescent properties made it possible to apply some of the probes in super-resolution fluorescence imaging.

Chinese Chemical Letters 28 (2017) 1911



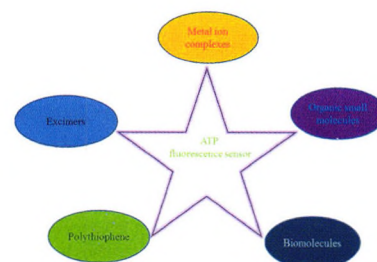
Fluorescent probes for recognition of ATP

Ying Wu, Jia Wen, Hongjuan Li, Shiguo Sun, Yongqian Xu*

Shaanxi Key Laboratory of Natural Products & Chemical Biology, College of Chemistry & Pharmacy, Northwest A&F University, Yangling 712100, China

Adenosine 5'-triphosphate (ATP) plays an important role in various physiological activities and pathological processes in living cells. Consequently, a large number of fluorescent sensors for detecting ATP have developed in recent years. In this review, we summarized these fluorescent sensors, where these sensors were divided into five typed ones according to the structure of probes used.

Chinese Chemical Letters 28 (2017) 1916

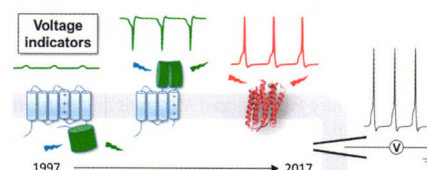


Genetically-encoded voltage indicators

Luxin Peng^{a,c,1}, Yongxian Xu^{b,c,1}, Peng Zou^{a,b,c,*}^aCollege of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China^bPeking-Tsinghua Center for Life Sciences, Peking University, Beijing 100871, China^cSynthetic and Functional Biomolecules Center, Beijing National Laboratory for Molecular Sciences, Key Laboratory of Bioorganic Chemistry and Molecular Engineering of Ministry of Education, PKU-IDG/McGovern Institute for Brain Research, Peking University, Beijing 100871, China

Voltage imaging with genetically-encoded sensors has allowed for the direct visualization of electrical signaling at high spatial resolutions. Over the history of voltage indicator development, various design strategies have been employed to harness the power of the fluctuating transmembrane electric field.

Chinese Chemical Letters 28 (2017) 1925



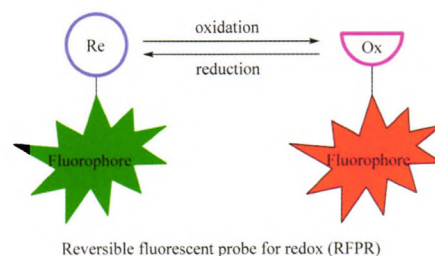
Reversible fluorescent probes for chemical and biological redox process

Biao Li, Zhaoshuai He, Hanxin Zhou, Han Zhang, Tanyu Cheng*

Key Laboratory of Resource Chemistry of Ministry of Education, Key Laboratory of Rare Earth Functional Materials, Department of Chemistry, Shanghai Normal University, Shanghai 200234, China

In this review, we discuss the recent progress of reversible fluorescent probes for chemical and biological redox process according to different active centers.

Chinese Chemical Letters 28 (2017) 1929



Recent advances in formaldehyde-responsive fluorescent probes

Zhiqiang Xu^c, Jianhua Chen^c, Lin-Li Hu^{a,*}, Ying Tan^{b,*}, Sheng-Hua Liu^c, Jun Yin^{b,c,**}

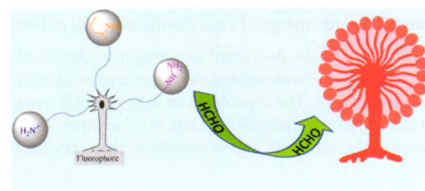
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^bThe State Key Laboratory Breeding Base-Shenzhen Key Laboratory of Chemical Biology, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China

^cKey Laboratory of Pesticide and Chemical Biology, Ministry of Education, College of Chemistry, Central China Normal University, Wuhan 430079, China

Formaldehyde is one of the simplest reactive carbonyl species. In view of the harmfulness of formaldehyde in nature and humans, it is of great significance to further elucidate roles and functions of formaldehyde by a noninvasive detection approach. Fluorescent probes have become a popular tool to track and detect formaldehyde *in vitro* and *in vivo*, which have attracted more and more interest recently. This review focuses on various reaction mechanisms to design the fluorescent probes for detecting formaldehyde.

Chinese Chemical Letters 28 (2017) 1935



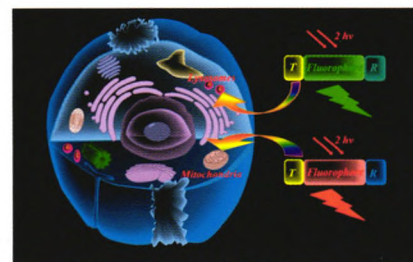
Recent advances in mitochondria- and lysosomes-targeted small-molecule two-photon fluorescent probes

Peng Ning, Wenjuan Wang, Man Chen, Yan Feng*, Xiangming Meng*

School of Chemistry and Chemical Engineering & Center for Atomic Engineering of Advanced Materials & Anhui Province Key Laboratory of Chemistry for Inorganic/Organic Hybrid Functionalized Materials, Anhui University, Hefei 230601, China

This review summarized the recent advances in small-molecule two-photon fluorescent probes for monitoring a wide variety of biomolecules and changes inside micro-environment in mitochondria and lysosomes, or served as mitotracker and lysotracker with the assistance of two-photon microscopy.

Chinese Chemical Letters 28 (2017) 1943



Communications

Near-infrared mitochondria-targeted fluorescent probe for cysteine based on difluoroboron curcuminoid derivatives

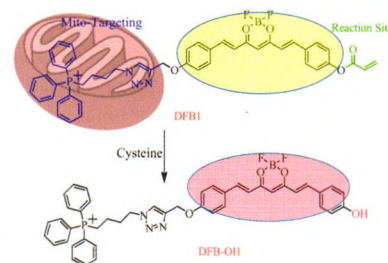
Peng Zhang^a, Zhi-Qian Guo^{a,b,*}, Chen-Xu Yan^a, Wei-Hong Zhu^a

^aKey Laboratory for Advanced Materials and Institute of Fine Chemicals, Shanghai Key Laboratory of Functional Materials Chemistry, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

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

A highly selective dual-channel NIR fluorescent probe (DFB1) based on curcuminoid difluoroboron is developed for discrimination Cys over GSH, Hcy and other amino acids in mitochondria of living cells.

Chinese Chemical Letters 28 (2017) 1952



A mitochondria-targeted fluorescent probe for ratiometric detection of hypochlorite in living cells

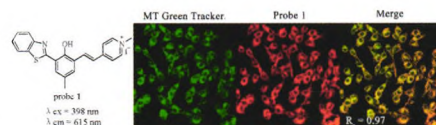
Yahui Chen^a, Tingwen Wei^a, Zhijie Zhang^a, Wei Zhang^a, Jing Lv^a, Tiantian Chen^a, Bo Chi^b, Fang Wang^{a,*}, Xiaoqiang Chen^{a,*}

^aState Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemical Engineering, Jiangsu National Synergetic Innovation Center for Advanced Materials (SICAM), Nanjing Tech University, Nanjing 210009, China

^bCollege of Food Science and Light Industry, Nanjing Tech University, Nanjing 211816, China

A new fluorescent probe **1** was designed for mitochondrial localization and ratiometric detection of hypochlorite in living cells. It is noteworthy that a high Pearson's co-localization coefficient (R_r) we have obtained was calculated to be 0.97.

Chinese Chemical Letters 28 (2017) 1957



Simultaneous extraction of level 2 and level 3 characteristics from latent fingerprints imaged with quantum dots for improved fingerprint analysis

Yuqin Li^a, Chaoying Xu^b, Chang Shu^{c,*}, Xiandeng Hou^a, Peng Wu^{a,*}

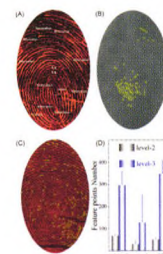
^aAnalytical & Testing Center, Sichuan University, Chengdu 610064, China

^bDepartment of Forensic Medicine, North Sichuan Medical College, Nanchong 637000, China

^cSchool of Communication and Information Engineering, University of Electronic Science and Technology of China, Chengdu 610054, China

The numbers of level 2 and level 3 features that can be mapped by CdTe QDs are significantly larger than those obtained by cyanoacrylate fuming (a standard technique being adopted at the forensic crime scene for examination of invisible fingerprints) and inkpad imaging.

Chinese Chemical Letters 28 (2017) 1961



Fluorescence imaging mitochondrial copper(II) via photocontrollable fluorogenic probe in live cells

Liulin Wang^a, Buxiang Chen^a, Pingping Peng^a, Wenbo Hu^a, Zhipeng Liu^a, Xiaohua Pei^b, Weihong Zhao^b, Chengwu Zhang^a, Lin Li^{a,*}, Wei Huang^{a,c,*}

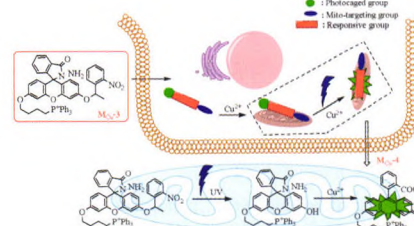
^aKey Laboratory of Flexible Electronics (KLOFE) & Institute of Advanced Materials (IAM), Jiangsu National Synergetic Innovation Center for Advanced Materials (SICAM), Nanjing Tech University (Nanjing Tech), Nanjing 211816, China

^bDivision of Nephrology, Department of Geriatrics, The First Affiliated Hospital of Nanjing Medical University, Nanjing 210009, China

^cKey Laboratory for Organic Electronics and Information Displays & Institute of Advanced Materials (IAM), Nanjing University of Posts & Telecommunications, Nanjing 210023, China

Aberrant homeostasis of mitochondrial copper(II) is implicated in the pathogenesis of various diseases. Monitoring mitochondrial derived copper(II) in live cells is highly demanded, but accurately detecting is unmet due to the interference with cytoplasmic copper(II). Herein, we present a photo-controlled fluorogenic probe, M_{Cu-3} , which could perfectly avoid this interference.

Chinese Chemical Letters 28 (2017) 1965



Ratiometric fluorescent detection of acidic pH in lysosome with carbon nanodots

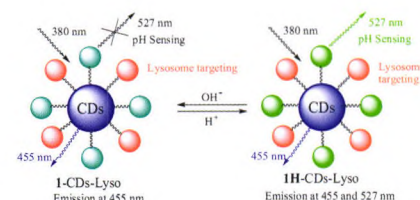
Yangyang He^a, Zhanxian Li^{a,*}, Qingyan Jia^b, Bingjie Shi^a, Hongyan Zhang^{b,*}, Liuhe Wei^a, Mingming Yu^{a,*}

^aCollege of Chemistry and Molecular Engineering, Zhengzhou University, Zhengzhou 450001, China

^bKey Laboratory of Photochemical Conversion and Optoelectronic Materials, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China

Under mild condition, through the electrostatic interaction between carbon nanodots (CDs) and organic molecules, two novel ratiometric fluorescence hybrid nanosensors were fabricated for sensing acidic pH. The ability to target lysosome, with one of the nanosensor, stimulated pH change has been successfully tracked in a ratiometric manner via fluorescence imaging.

Chinese Chemical Letters 28 (2017) 1969



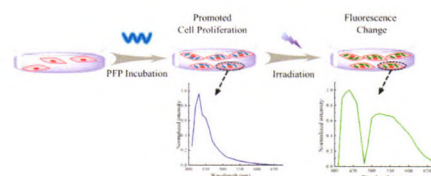
Selective biocompatibility and responsive imaging property of cationic conjugated polyelectrolyte to cancer cells

Bing Wang, Chenyao Nie, Libing Liu*, Fengting Lv, Shu Wang*

Beijing National Laboratory for Molecular Sciences, Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

Herein, we bring novel insights into a water-soluble conjugated polyelectrolyte by deeply studying its properties in cells and observe fluorescence enhancement of blue emission and turn-on of long-wavelength emission of PFP in HepG2 cells.

Chinese Chemical Letters 28 (2017) 1975



Naphthalimide-modified near-infrared cyanine dye with a large stokes shift and its application in bioimaging

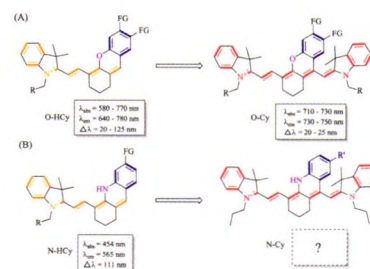
Di Wu^a, Yuanzhi Shen^b, Jianhua Chen^a, Guotao Liu^a, Haiyan Chen^{b,*}, Jun Yin^{a,*}

^aKey Laboratory of Pesticide and Chemical Biology, Ministry of Education, College of Chemistry, Central China Normal University, Wuhan 430079, China

^bDepartment of Biomedical Engineering, School of Engineering, China Pharmaceutical University, Nanjing 210009, China

A naphthalimide-modified near-infrared cyanine dye (emission at 785 nm) with a large Stokes shift (up to 165 nm) has been synthesized and had favorable lysosome-targeting property.

Chinese Chemical Letters 28 (2017) 1979



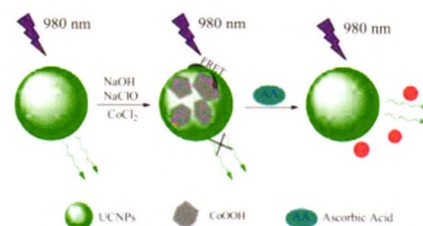
A highly selective and instantaneous upconversion fluorescent nanoprobe for ascorbic acid detection in biological samples

Yuanyuan Chen, Tingting Zhang, Xiaonan Gao, Wei Pan, Na Li*, Bo Tang

College of Chemistry, Chemical Engineering and Materials Science, Collaborative Innovation Center of Functionalized Probes for Chemical Imaging in Universities of Shandong, Key Laboratory of Molecular and Nano Probes, Ministry of Education, Institute of Molecular and Nano Science, Shandong Normal University, Ji'nan 250014, China

A novel turn-on fluorescent nanoprobe using lanthanide-doped up-conversion nanoparticles (UCNPs) and hexagonal cobalt oxyhydroxide (CoOOH) nanoflakes were prepared for monitoring ascorbic acid in fruit samples.

Chinese Chemical Letters 28 (2017) 1983



A new fluorescent probe with ultralow background fluorescence for imaging of endogenous cellular selenol under oxidative stress

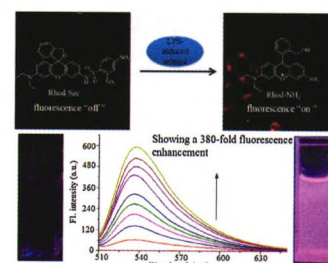
Dan Cheng^a, Yue Pan^a, Bin-Cheng Yin^b, Lin Yuan^{a,*}, Xiao-Bing Zhang^a

^aState Key Laboratory of Chemo/Biosensing and Chemometrics, College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, China

^bLab of Biosystem and Microanalysis, State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology, Shanghai 200237, China

A new fluorescent probe (Rhod-Sec) for selenol detection with ultralow background fluorescence have been developed in this paper, which showed a 380-fold off-on fluorescence response, and can be applied to visualize the fluctuation of selenol in HepG2 cells through LPS-induced cells oxidation resistance.

Chinese Chemical Letters 28 (2017) 1987



A α -KA fluorescent probe for discrimination of blood cancer serum

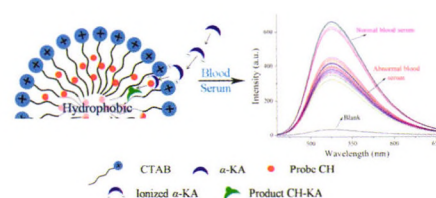
Yao Kang^a, Jiangli Fan^{a,*}, Qiang Jin^b, Chenhui Shi^a, Jianjun Du^a, Xiaojun Peng^a

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

^bDepartment of Hepatobiliary and Pancreatic Surgery, The First Affiliated Hospital of Zhengzhou University, Zhengzhou 450001, China

Probe CH can quickly detect α -KA in human serum with micelles of CTAB and could differentiate cancer from normal blood serum.

Chinese Chemical Letters 28 (2017) 1991



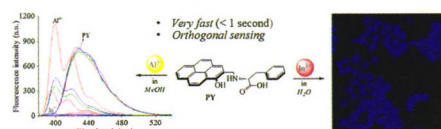
A solvent-tuning fluorescence sensor for In(III) and Al(III) ions and its bioimaging application

Ya-Wen Wang^{*}, Ying-Xi Hua, Hui-Hui Wu, Xin Sun, Yu Peng^{*}

State Key Laboratory of Applied Organic Chemistry and College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou 730000, China

A bifunctional and sensitive chemosensor for In³⁺ and Al³⁺ by switching solvent is developed.

Chinese Chemical Letters 28 (2017) 1994



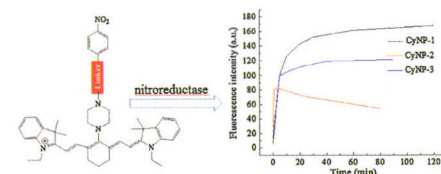
Fine-tailoring the linker of near-infrared fluorescence probes for nitroreductase imaging in hypoxic tumor cells

Fengling Song^{*}, Ri Liang, Jundie Deng, Zhiwei Liu, Xiaojun Peng

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

Fine-tailoring the linker of nitroreductase fluorescence probes with a given recognition unit and reporting unit is found to be able to achieve the best sensing performance.

Chinese Chemical Letters 28 (2017) 1997



A novel chromogenic and fluorogenic scaffold for detection of oxidative radicals

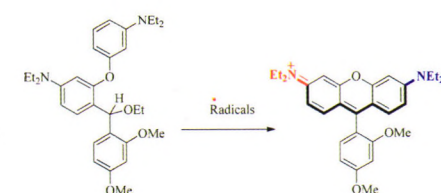
Zuhai Lei^b, Zhenhua Zeng^b, Xuhong Qian^{a,b}, Youjun Yang^{a,b,*}

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

^bShanghai Key Laboratory of Chemical Biology, School of Pharmacy, East China University of Science and Technology, Shanghai 200237, China

Radicals have profound biorelevance and their robust detections are warranted. We have devised a novel "covalent-assembly" type scaffold for sensitive detection of oxidative radicals.

Chinese Chemical Letters 28 (2017) 2001



Naphthalimide-rhodamine based fluorescent probe for ratiometric sensing of cellular pH

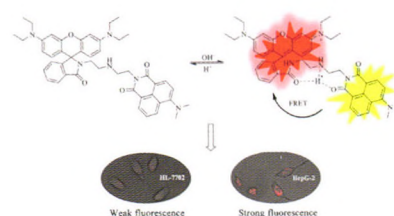
Jia Wen^{a,1}, Pengyi Xia^{a,1}, Ziming Zheng^a, Yongqian Xu^a, Hongjuan Li^a, Fengyu Liu^{b,*}, Shiguo Sun^{a,*}

^aShaanxi Key Laboratory of Natural Products & Chemical Biology, College of Chemistry & Pharmacy, Northwest A&F University, Yangling 712100, China

^bState Key Laboratory of Fine Chemicals, School of Chemistry, Dalian University of Technology, Dalian 116023, China

A naphthalimide-rhodamine based fluorescent probe was designed and synthesized for ratiometric sensing of cellular pH via fluorescent resonance energy transfer, which can be employed to distinguish cancer cells from normal cells on the basis of different fluorescent response.

Chinese Chemical Letters 28 (2017) 2005



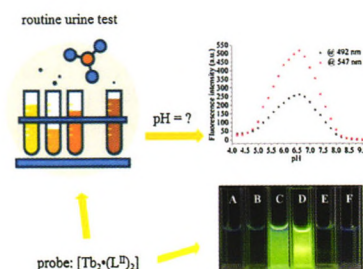
Syntheses of three terbium complexes as fluorescent probes and their application on the pH detection of routine urine test

Ai-Min Luo, Yongliang Shao, Ke-Jia Zhang, Ya-Wen Wang*, Yu Peng*

State Key Laboratory of Applied Organic Chemistry and College of Chemical Engineering, Lanzhou University, Lanzhou 730000, China

Terbium complexes were synthesized as probes for the recognition of proton in aqueous solution via fluorescence mode, and it was successful used in the pH detection of routine urine test.

Chinese Chemical Letters 28 (2017) 2009



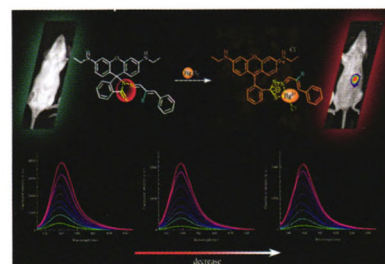
Synthesis and application of highly sensitive fluorescent probe for Hg²⁺ regulated by sulfur

Siyue Ma¹, Linyang Li¹, Mengyao She, Yan Mo, Shengyong Zhang, Ping Liu, Jianli Li*

Ministry of Education Key Laboratory of Synthetic and Natural Functional Molecule Chemistry, College of Chemistry & Materials Science, Northwest University, Xi'an 710127, China

Three probes with different electron withdrawing effect showed regular performance changes, and have been applied in living mice imaging for Hg²⁺. This research could provide promising tool for quantitative Hg²⁺ imaging in living organism and construct a systematic design and regulation strategy for this kind of probe.

Chinese Chemical Letters 28 (2017) 2014



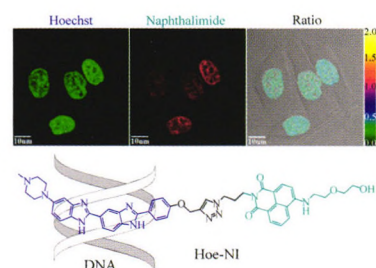
Hoechst-naphthalimide dyad with dual emissions as specific and ratiometric sensor for nucleus DNA damage

Fu Yang¹, Chao Wang¹, Lu Wang, Zhi-Wei Ye, Xin-Bo Song, Yi Xiao*

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

A ratiometric fluorescent sensor (Hoe-NI) was developed for high specific nucleus labeling and monitoring of nuclear DNA damage in living cells.

Chinese Chemical Letters 28 (2017) 2019



A selective coumarin-based “turn-on” fluorescent sensor for the detection of cysteine and its applications for bioimaging

Yan Yang^a, Huan Wang^b, Yu-Lin Wei^c, Jie Zhou^a, Jun-Feng Zhang^{b,*}, Ying Zhou^{a,*}

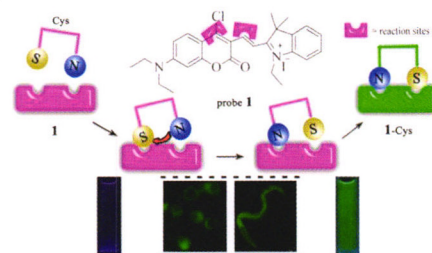
^aCollege of Chemical Science and Technology, Yunnan University, Kunming 650091, China

^bCollege of Chemistry and Chemical Engineering, Yunnan Normal University, Kunming 650500, China

^cDepartment of Safety Evaluation, Technology Center of China Tobacco Yunnan Industrial Co., Ltd., Kunming 650106, China

A coumarin-based compound (**1**) was designed and synthesized as a new turn-on fluorescent probe for the detection of cysteine. The *in vivo* imaging of Hi5 cell and *Caenorhabditis elegans* had further confirmed the cysteine detection by compound **1**.

Chinese Chemical Letters 28 (2017) 2023



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