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

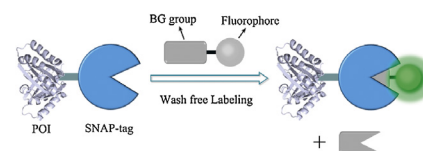
Reviews

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



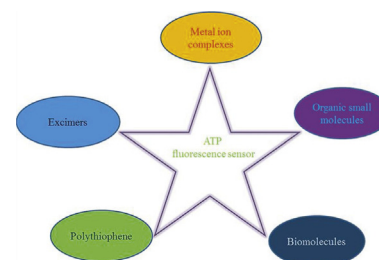
Fluorescent probes for recognition of ATP

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

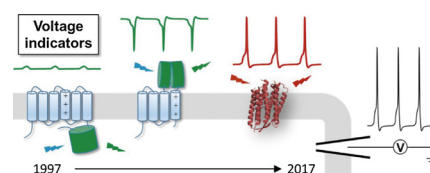


Genetically-encoded voltage indicators

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



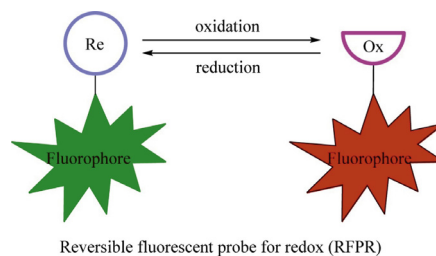
Reversible fluorescent probes for chemical and biological redox process

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,**}

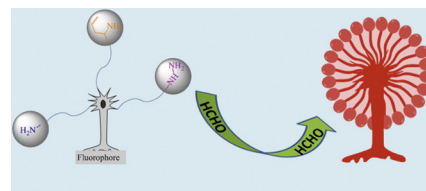
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Formaldehyde is one of the simplest reactive carbonyl species. In view of the harmfulness of formaldehyde in nature and humans, it is of great significance to further elucidate roles and functions of formaldehyde by a noninvasive detection approach. 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



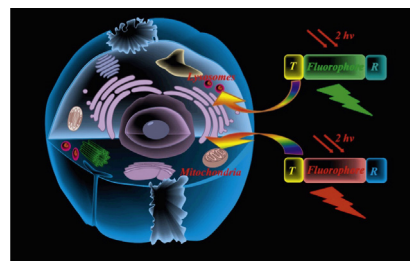
Recent advances in mitochondria- and lysosomes-targeted small-molecule two-photon fluorescent probes

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

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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

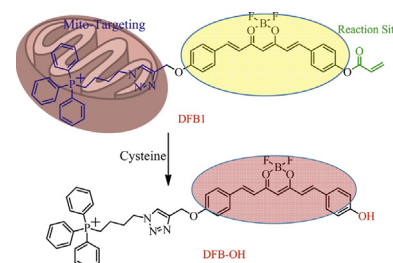
Peng Zhang^a, Zhi-Qian Guo^{a,b,*}, Chen-Xu Yan^a, Wei-Hong Zhu^a

^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

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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



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