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## Chinese Chemical Letters

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## Graphical Abstracts/Chin Chem Lett 29 (2018) iii-vi

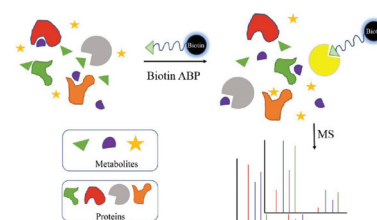
## Perspective

## Biochemical reactions in metabolite-protein interaction

Wen Wang<sup>a,b,c</sup>, Dinesh Singh Tekcham<sup>a</sup>, Min Yan<sup>a,b,c</sup>, Zhichao Wang<sup>a,b,c</sup>, Huan Qj<sup>a</sup>, Xiaolong Liu<sup>a</sup>, Hai-Long Piao<sup>a,b</sup><sup>a</sup> Scientific Research Center for Translational Medicine, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China<sup>b</sup> University of Chinese Academy of Sciences, Beijing 100049, China<sup>c</sup> CAS Key Laboratory of Separation Science for Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

An update on the recently developed chemical proteomics called activity-based protein profiling (ABPP) has been reviewed. ABPP is able to identify proteins interacted either covalently or non-covalently with metabolites significantly, which will facilitate the characterization of specific metabolite regulating proteins in human disease progression.

Chinese Chemical Letters 29 (2018) 645



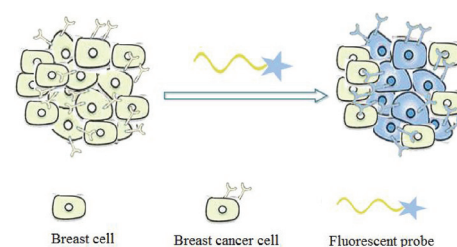
## Reviews

## Biomarker-targeted fluorescent probes for breast cancer imaging

Dongfang Yue<sup>a,b</sup>, Meiling Wang<sup>a,b</sup>, Fei Deng<sup>b,c</sup>, Wenting Yin<sup>b</sup>, Haidong Zhao<sup>a</sup>, Xiaoming Zhao<sup>b</sup>, Zhaochao Xu<sup>b</sup><sup>a</sup> The Second Affiliated Hospital of Dalian Medical University, Dalian 116023, China<sup>b</sup> Key Laboratory of Separation Science for Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China<sup>c</sup> University of Chinese Academy of Sciences, Beijing 100039, China

This review summarized fluorescent probes for breast cancer imaging according to different biomarkers probes recognized.

Chinese Chemical Letters 29 (2018) 648

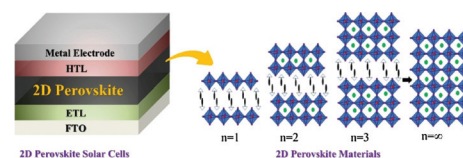


## Rapid development in two-dimensional layered perovskite materials and their application in solar cells

Sajjad Ahmad<sup>a,b</sup>, Xin Guo<sup>a</sup><sup>a</sup> State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences; Dalian National Laboratory for Clean Energy, Dalian 116023, China<sup>b</sup> University of Chinese Academy of Sciences, Beijing 100049, China

This review summarized recent research progresses of two-dimensional layered organic-inorganic hybrid perovskite materials and their photovoltaic performances in 2D perovskite solar cells.

Chinese Chemical Letters 29 (2018) 657



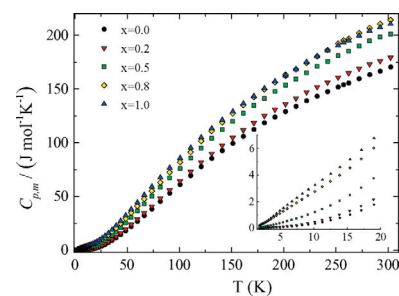
## Applications of low temperature calorimetry in material research

Xin Liu, Jipeng Luo, Nan Yin, Zhi-Cheng Tan, Quan Shi

Thermochemistry Laboratory, Liaoning Province Key Laboratory of Thermochemistry for Energy and Materials, Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

Low temperature calorimetry has been used not only to obtain heat capacity, entropy, enthalpy and Gibbs free energy, but also to investigate and understand lattice vibrations, metals, superconductivity, electronic and nuclear magnetism, dilute magnetic systems and structural transition involved in material research.

Chinese Chemical Letters 29 (2018) 664



## Species, engineering and characterizations of defects in TiO<sub>2</sub>-based photocatalyst

Beibei Dong<sup>a,b</sup>, Taifeng Liu<sup>c</sup>, Can Li<sup>a</sup>, Fuxiang Zhang<sup>a</sup>,

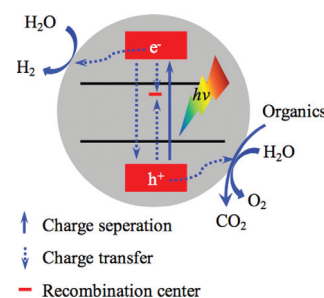
<sup>a</sup> State Key Laboratory of Catalysis, 2011-iChEM, Dalian National Laboratory for Clean Energy, Dalian Institute of Chemical Physics, Dalian 116023, China

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

<sup>c</sup> National & Local Joint Engineering Research Center for Applied Technology of Hybrid Nanomaterials, Collaborative Innovation Center of Nano Functional Materials and Applications of Henan Province, Henan University, Kaifeng 475004, China

This review gave a brief summary on the main species, engineering and characterizations of defects on the TiO<sub>2</sub>-realited model photocatalyst.

Chinese Chemical Letters 29 (2018) 671



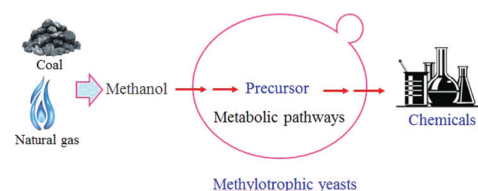
## Advances in engineering methylotrophic yeast for biosynthesis of valuable chemicals from methanol

Xingpeng Duan, Jiaqi Gao, Yongjin J. Zhou

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Methylotrophic yeasts, which can use methanol as carbon and energy source, have been widely used as microbial cell factories for biomanufacturing. Methanol derived from diverse sources could be transformed into precursor, such as pyruvate and acetyl-CoA, for the production of valuable chemicals through genetic engineering of methylotrophic yeast.

Chinese Chemical Letters 29 (2018) 681



## Non-metallic gold nanoclusters for oxygen activation and aerobic oxidation

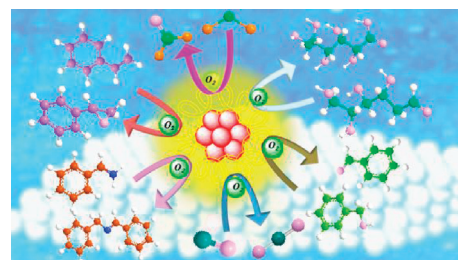
Guomei Zhang<sup>a</sup>, Ruru Wang<sup>a,b</sup>, Gao Li<sup>b</sup>

<sup>a</sup> School of Chemistry and Chemical Engineering, Shanxi University, Taiyuan 030006, China

<sup>b</sup> State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian 116023, China

In this review, oxygen activation and their aerobic oxidation over the Au nanoclusters are presented. The size-specificity, ligand engineering, and doping effects and the proposed reactions' mechanism and the structure-activity relationships at the atomic level are also discussed.

Chinese Chemical Letters 29 (2018) 687



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