Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

Green Chemistry

Cutting-edge research for a greener sustainable future

rsc.li/greenchem

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

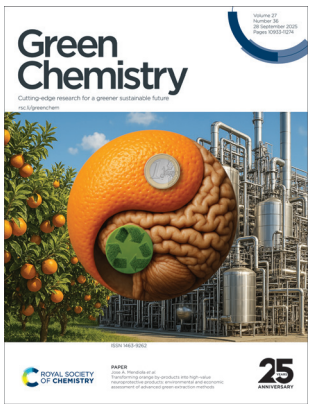
IN THIS ISSUE

ISSN 1463-9262 CODEN GRCHFJ 27(36) 10933–11274 (2025)

Cover
See Chaweewan Suwanvecho, Lenka Kujovská Krčmová *et al.*, pp. 11007–11020.

Image reproduced by permission of Chaweewan Suwanvecho from *Green Chem.*, 2025, **27**, 11007.

We kindly thank Chaweewan Suwanvecho, MSc. for the preparation of our excellent front cover image.



Inside cover
See Jose A. Mendiola *et al.*, pp. 11021–11035.

Image reproduced by permission of Jose A. Mendiola from *Green Chem.*, 2025, **27**, 11021.

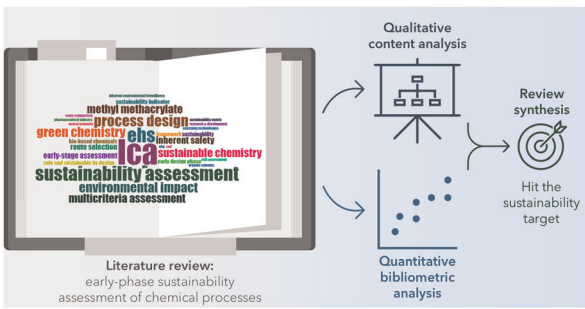
Images sourced from Pixabay.

CRITICAL REVIEW

10944

From qualitative analysis to quantitative insights: a systematic review of early phase sustainability assessments of chemical processes

Katharina Waniek, C. Oliver Kappe* and Rupert J. Baumgartner*

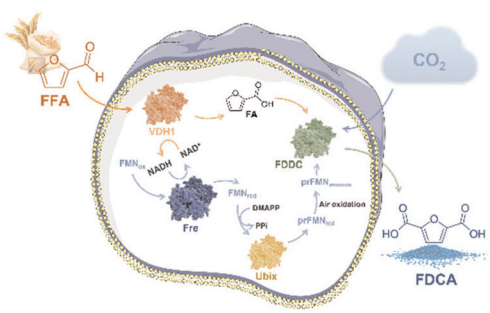


COMMUNICATIONS

10969

NAD(H) self-recycling whole-cell biocatalysis for the production of furoic acid and 2,5-furandicarboxylic acid from furfural *via* CO_2 fixation

Mingzhe Ma and Yajie Wang*



ROYAL SOCIETY OF CHEMISTRY

View Article Online

GOLD OPEN ACCESS

EES Batteries

Exceptional research on batteries and energy storage

Part of the EES family

Join in | Publish with us

rsc.li/EESBatteries

Registered charity number: 207890

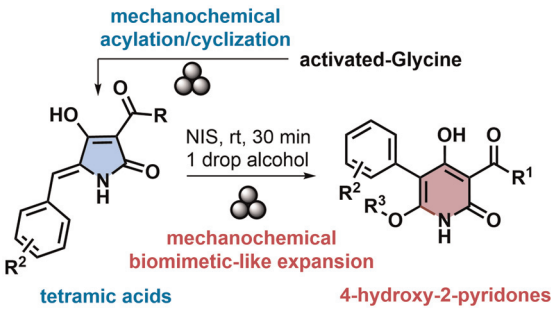
Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

COMMUNICATIONS

10974

Mechanochemical synthesis of tetramic acids and their biomimetic ring expansion to 4-hydroxy-2-pyridones

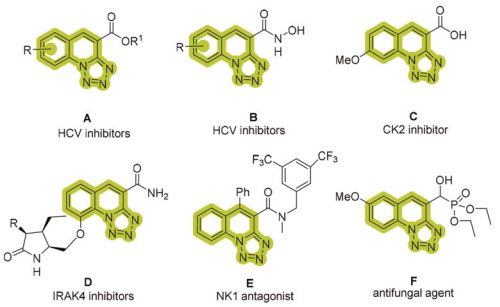
Kalliopi Mazaraki, Aimilia Eirini Tsirozidou, Basil Kakarikas and Alexandros L. Zografos*



10980

A PASE synthesis of tetrazoloquinolines and its applications in the syntheses of bioactive compounds

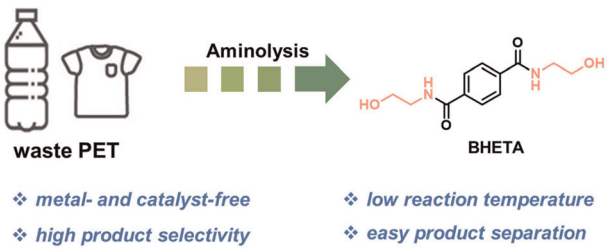
Xiaofeng Zhang,* Sashirekha Nallapati, Shea Johnson, Xian Chen and Jongwon Lim



10988

Solvent-promoted catalyst-free aminolytic upcycling of waste polyethylene terephthalate under low-temperature conditions

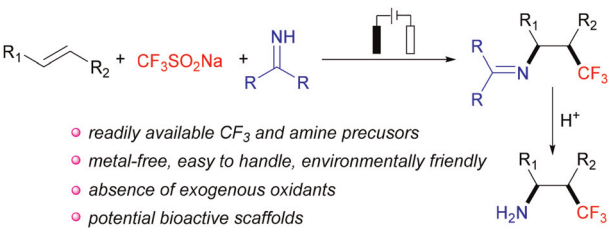
Zan Yang,* Meihua Chen, Anqi Huang, Jundong Xu, Congshan Zhou and Yongbing Yuan*



10994

Electrochemical intermolecular trifluoromethylimination of alkenes

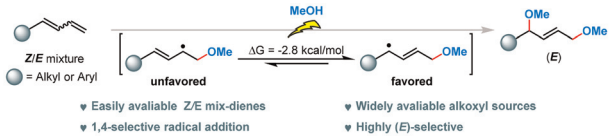
Meiqun Lu,* Kailun Chen and Hu Cai*



Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

COMMUNICATIONS

11000

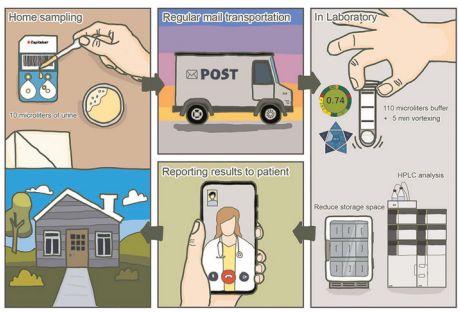


Electrochemical radical 1,4-dialkoxylation of 1,3-dienes to access (*E*)-1,4-diether alkenes

Chenlei Ji, Yuhe Cheng, Zhiwei Jiang and Yang'en You*

PAPERS

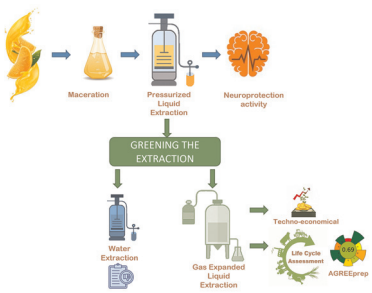
11007



Dried urine spot as a stable, green, and practical microsampling tool in clinical practice for quantification of neopterin and creatinine

Chaweewan Suwanvecho, Lea Vyleťalová, Nikola Přívratská, Pakanan Laolertworakul, Dorota Turoňová, Milan Vošmik, Lenka Kujovská Krčmová* and Frantisek Svec

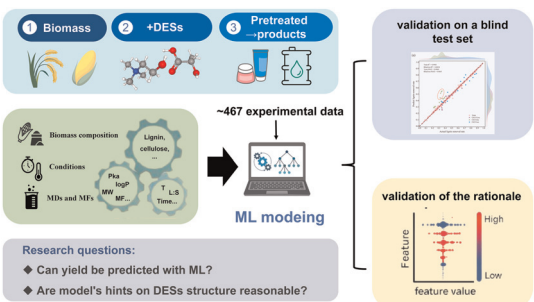
11021



Transforming orange by-products into high-value neuroprotective products: environmental and economic assessment of advanced green extraction methods

Brenda L. S. Porto, Berenice Acevedo-García, Ayla Elmi Kashtiban, Tulio Miranda Sepulveda, Miguel Herrero, Alejandro Cifuentes, Jose A. Mendiola* and Elena Ibáñez

11036



Predicting lignin removal efficiency in deep eutectic solvent-based biomass fractionation: an explainable machine learning approach

Zijing Zhong, Babbiker Mohammed Taher Gorish, Yue Bai, Waha Ismail Yahia Abdelmula, Wenqian Dang and Daochen Zhu*

This journal is © The Royal Society of Chemistry 2025

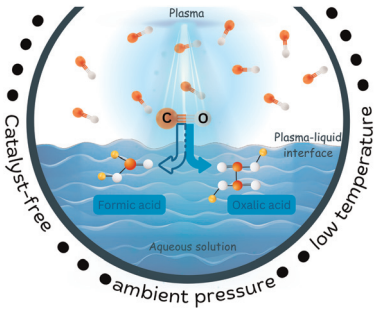
Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

11055

Non-thermal atmospheric pressure plasma–liquid synthesis of organic acids in aqueous solution from carbon monoxide

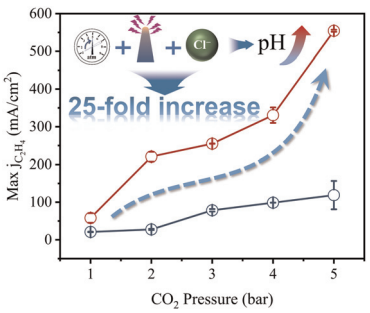
Alcina Johnson Sudagar,* Piper Drebes and Elijah Thimsen



11065

Breaking the C–C coupling barrier in pressurized CO_2RR: local alkalinity control against buffering of CO_2 species at industrial current densities

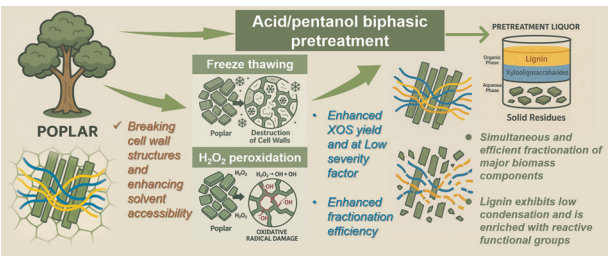
Shilei Zhang, Hang Wang, Yang Wang, Min Zhang, Weimin Wang, Liang Zhang, Jun Li, Xun Zhu, Qian Fu* and Qiang Liao*



11075

Hydrogen peroxide pre-oxidation breaks down the recalcitrance of poplar biomass during acid/pentanol biphasic fractionation

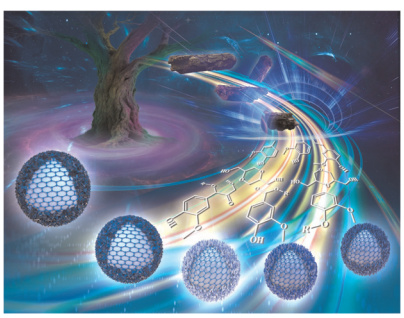
Hong Liao, Yimeng Wang, Huayou Chen, Fubao Sun and Junhua Zhang*



11093

Structural and functional divergence of lignin-derived carbon dots and their nucleation pathways under varying alcohol-solvothermal treatments

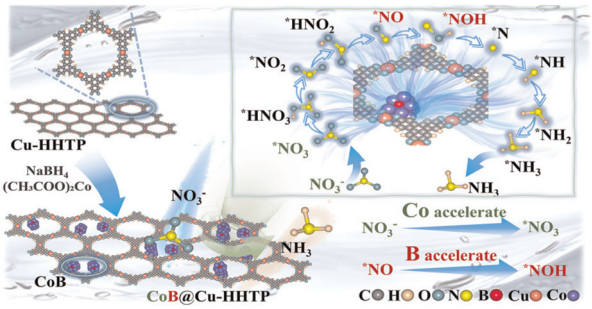
Wenhao Hu, Siyu Zhao, Chihe Sun,* Xueping Song, Meysam Madadi, Elahe Chiani, Abdolreza Samimi, Alireza Ashori and Fubao Sun*



Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

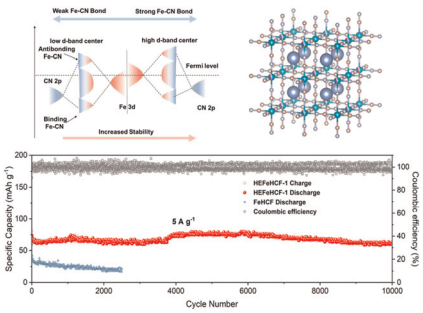
11107



Integration of B-doped Co nanoclusters within Cu metal–organic frameworks for highly efficient electrocatalytic nitrate reduction

Ran Li, Hui Li, Yuxin Liu, Jing Luo, Qi Sui, Keke Wang,* Jiarui Xia* and Yi Jiang*

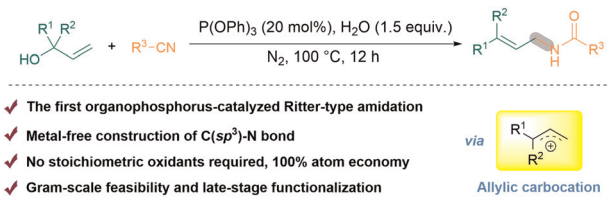
11115



D-band center modulation of Prussian blue analogues through a high-entropy strategy for aqueous potassium-ion batteries

Fuping Min, Qi Zhang,* Usman Ali, Maoyu Sun, Fayin Liu, Yueqi Xu, Lu Li,* Chungang Wang and Bingqiu Liu*

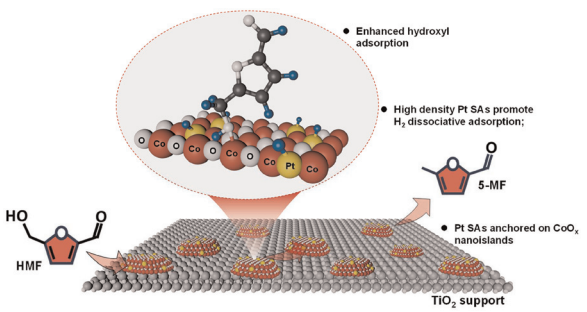
11125



Metal-free triphenyl phosphite-catalyzed Ritter-type amidation of allylic alcohols

Longzhi Zhu,* Furong Guo, Weiwei Luo, Shuangjiao Xie, Tingyuan Zhu, Zihe Liao, Biquan Xiong,* Yu Liu, Ke-Wen Tang and Renhua Qiu*

11133



Pt single atoms anchored on CoO_x nanoislands for efficient biomass-derived 5-methylfurfural production

Xiongxin Liang, Zidong Huang, Xin Luo, Xu Yang,* Dai Dang, Xu Li* and Hongliang Peng

This journal is © The Royal Society of Chemistry 2025

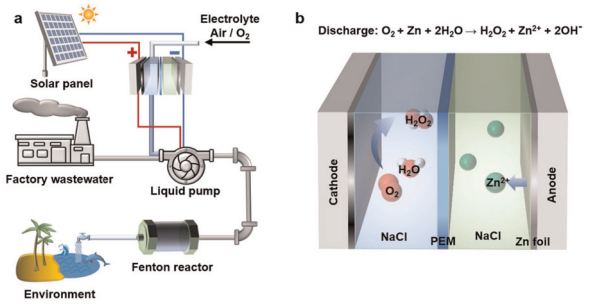
Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

11144

High-performance neutral Zn–air batteries: revolutionizing energy storage with concurrent hydrogen peroxide electrosynthesis

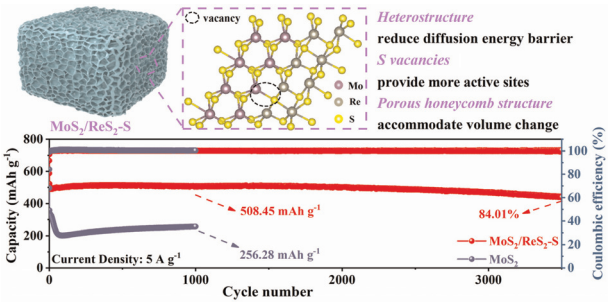
Yunlong Liu, Cairong Gong, Ruguang Wang,* Jiaxin Guo, Jisi Li, Quanlu Wang, Zheng Lv and Tao Ling*



11155

A novel carbon-free 3D porous honeycomb-like MoS_2/ReS_2 heterostructure with S vacancies as anodes for sodium-ion batteries

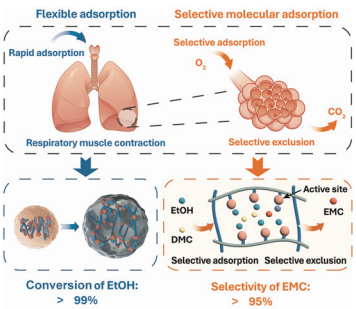
Minghui Ding, Siyi Chen, Tianyu Xue, Mingyu Xie, Junying Weng,* Dongming Liu, Lechen Diao* and Pengfei Zhou*



11167

A bioinspired heterogeneous catalyst for green and targeted transesterification of ethanol and dimethyl carbonate to ethyl methyl carbonate with high endurance

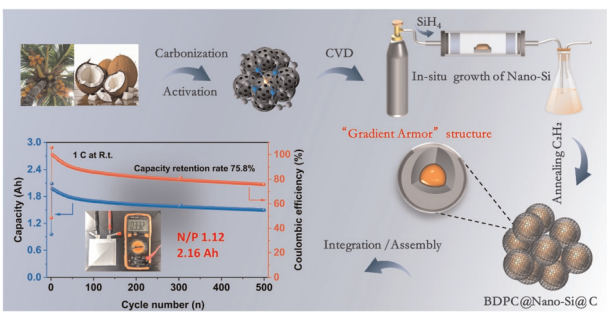
Rongkai Cui, Fengyue Yin, Wangquan Gong, Ningjing Yan, Siyao Li, Changshen Ye, Ting Qiu* and Jie Chen*



11179

"Gradient armor" design of the Si–C anode using biomass-derived porous carbon for high-stability pouch cells

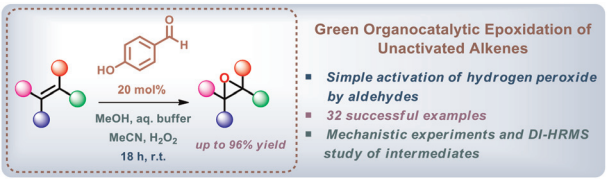
Lei Ma, Zhi Chen, Qiming Wang, Ying Lin, Lichun Zhou, Xiongbang Wei, Linnan Bi,* Sizhe Wang and Jiaxuan Liao*



Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

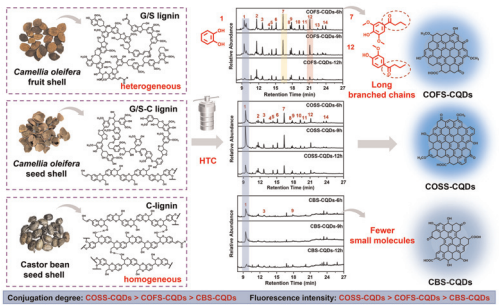
11192



Green epoxidation of unactivated alkenes *via* the catalytic activation of hydrogen peroxide by 4-hydroxybenzaldehyde

Efthymios T. Poursaitidis, Christiana Mantzourani, Ierasia Triandafillidi, Maroula G. Kokotou and Christoforos G. Kokotos*

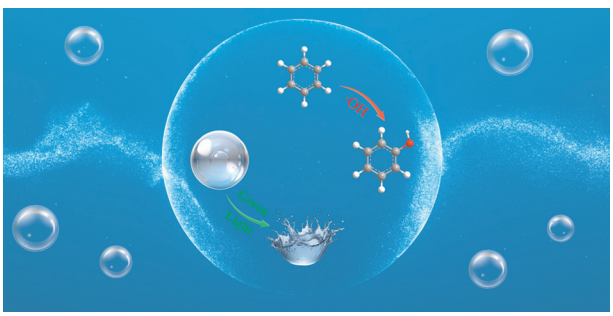
11203



The formation mechanism and properties of carbon quantum dots prepared from guaiacyl/syringyl lignin and catechyl lignin

Xingmei Tang, Wenhua Gao,* Sheng Duan, Jing Li, Jinsong Zeng, Jinpeng Li, Daxian Cao, Bin Wang, Jun Xu and Kefu Chen

11216



Catalyst-free one-step oxidation of benzene to phenol using nanobubbles

Rui Yin, Qihang Zhang, Weiqing Yang, Xinlan Hou, Mingyi Xie and Yuxi Tian*

11222

Electroreductive hydrodimerization of allylbenzenes and vinylarenes enables the diversified synthesis of 1,4-diarylbutanes

Wei Zhang,* Shilu Zhang, Wan-Jian Fan, Shu Chen, Mei Xiong and Lei Chen*

This journal is © The Royal Society of Chemistry 2025

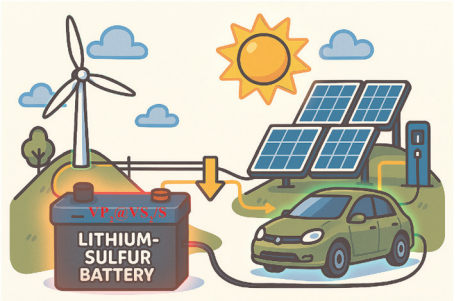
Open Access Article. Published on 15 September 2025. Downloaded on 1/10/2026 12:02:22 PM.
This article is licensed under a Creative Commons Attribution 3.0 Unported Licence.

PAPERS

11230

An *in situ* phosphorization constructed VP_2@VS_2 nanoflower heterostructure with a modulated d-band center of V for efficient polysulfide adsorption and conversion in lithium–sulfur batteries

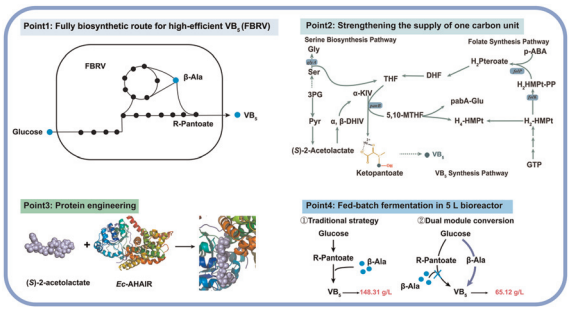
Zhidong Ye, Yaxiong He, Huasheng Gao, Heming Hu, Tao Chen and Qi Jiang*



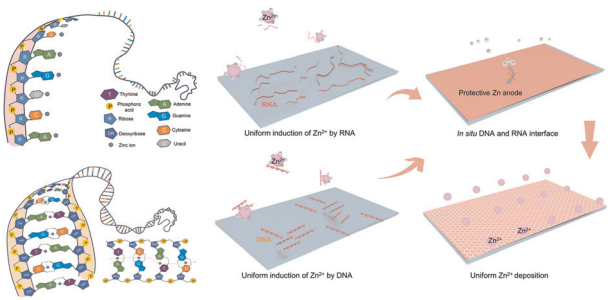
11248

Enhancing vitamin B_5 biosynthesis by multimodule optimization and protein engineering

Bo Zhang, Yunying Xiao, Yi Zhu, Chaoze Liu, Lidan Zhu, Junping Zhou, Xue Cai, Guoping Qian, Zhiqiang Liu* and Yuguo Zheng



11260

Molecular recognition interfaces driving homogeneous zinc deposition for superior Zn metal anodes

Fusheng Luo, Xin Qi, Qing Wu, Jinlong Zhang, Song Yang, Xiude Liu, Zeyu Yan and Jun Huang*