

I 导读

评述

1 合成生物制造2025

朱华伟, 李寅

综述

79 抗生素全细胞生物传感器的设计与应用研究进展

罗宇柯, 朱怡铃, 许健萍, 刘君凤, 音建华

92 纳米孔在蛋白质单分子水平研究中的应用

武灵芝, 罗星月, 邓浩丰, 马千里, 汤丽华

117 鞭毛可视化方法及其在鞭毛功能研究中的应用

孔东洋, 王璐, 张红, 张静超

131 脲水解酶的催化混乱性研究进展

刁红娟, 林鑫凡, 郑仁朝, 郑裕国

148 生物制造技术在聚合物驱油应用中的研究进展

周俊平, 潘琪露, 黄良刚, 詹侃, 汤恒, 金利群, 郑裕国

173 外源添加剂对微藻生长和高价值生物产物积累的影响

吴亚伟, 王方忠, 陈磊, 张卫文

199 石油烃污染物降解菌株耐受性的研究进展

王珊珊, 朱肖倩, 曹志北, 王璐, 丁明珠

216 *DGAT*和*PDAT*基因在调控植物油脂合成中的作用

吴杨, 刘萌娟, 王幼宁, 李得孝, 杨玉花, 张庭军, 周会汶

工业生物技术

230 窄食单胞菌对微藻在高浓度甲酸条件下光合生长的促进作用

邢蒙蒙, 郑伟杰, 王旺银, 曹旭鹏, 李灿

242 代谢工程改造大肠杆菌高效合成L-瓜氨酸

胥琳峰, 于文文, 朱学文, 张权威, 武耀康, 李江华, 堵国成, 吕雪芹, 陈坚, 刘龙

256 代谢工程改造大肠杆菌生产O-乙酰-L-高丝氨酸

黄良刚, 高峰, 许诺然, 周俊平, 牛坤, 张博, 柳志强, 郑裕国

271 改造谷氨酸棒杆菌CmpLs转运系统促进L-谷氨酸合成

左兴涛, 钟沙沙, 蔡柠匀, 石拓, 张志丹, 刘元涛, 刘娇, 王德培, 陈久洲, 郑平

288 蒙氏假单胞菌ZMU-T06氧化脱氢芳构化合成2-取代喹啉类化合物

杨敏, 邹岚, 冉会敏, 秦磊

296 来源于异形曲霉的葡萄糖氧化酶催化活性和热稳定性改良

余尚霖, 周乔, 张宏海, 柏映国, 罗会颖, 杨小军, 姚斌

- 308 基于定向进化提高漆酶的催化活性及其在造纸制浆中的应用
倪红, 杨凡, 王磊, 李变霞, 李华南, 刘家书, 江正兵, 程万里
- 321 催化合成*R*型托伐普坦的新型羰基还原酶
刘亚辉, 王旭明, 马硕, 刘柯雨, 李玮, 张路路, 杜洁, 张红蕾
- 333 高效转化大豆低聚糖的果聚糖蔗糖酶的挖掘、表征及表达
汪斌, 应静茹, 陈媛媛, 方泽民, 肖亚中, 房伟, 姚动邦
- 352 萎缩芽孢杆菌酸碱耐受性壳聚糖酶的表达及酶学性质分析
杜文娟, 阿瓦古丽·图尔荪, 董志琴, 马惠娟, 马正海

合成生物技术

- 363 酿酒酵母中苜蓿源诱导型转录调控工具的构建与应用
冯镁琳, 史彩芳, 王颖, 李春
- 376 基于非天然叔胺辅因子的人工酶创制及应用
魏亚, 陈崇文, 童颖佳, 周志
- 385 一种基于T7核酸内切酶I纠错的病毒基因组高效组装方法
张绪伟, 文斌, 王飞, 王学军, 刘丽艳, 王淑美, 王升启

生物技术与方法

- 397 威克汉姆西弗酵母遗传操作系统的建立及其合成四乙酰基植物鞘氨醇的应用
刘浏, 尹正安, 潘力
- 416 基于酮基荧光探针的转氨酶高通量筛选及应用
叶鸿博, 李清叶, 汤晓玲, 郑仁朝
- 427 基于Phi29 DNA聚合酶的新酶挖掘及表征
郝梦瑶, 胡玲玲, 韩明昊, 李从雨, 常宏, 骆健美, 江会锋
- 437 基于转录调节因子PuuR的1,4-丁二胺生物传感器的构建与优化
刘俊杰, 蒋敏敏, 孙彤, 孙祥祥, 赵咏灿, 顾明霞, 路福平, 黎明

生物育种与工艺优化

- 448 多层复配微胶囊的制备及其在混凝土裂缝自修复中的应用
徐建妙, 周源源, 程峰, 柳志强
- 461 双酶偶联一锅法高效合成虎杖苷
戴景莉, 闫子旭, 赵科学, 李小利, 臧永军, 徐麒麟, 朱富成
- 474 栗酒裂殖酵母来源黄素单加氧酶的性质及催化合成*S*-甲基-*L*-半胱氨酸亚砷的应用
连蒙卡, 宋兆霖, 高文静, 朱刚, 董孟君, 李玉, 刘逸寒, 王凤华, 路福平

I Briefing and introduction

Invited Review

- 1 Biomanufacturing driven by engineered organisms
ZHU Huawei, LI Yin

Reviews

- 79 Research progress in the design and application of whole-cell biosensors for antibiotics
LUO Yuke, ZHU Yiling, XU Jianping, LIU Junfeng, YIN Jianhua
- 92 Research progress and application of nanopores in single-molecule protein sensing
WU Lingzhi, LUO Xingyue, DENG Haofeng, MA Qianli, TANG Lihua
- 117 Visualization of flagella and its applications in research on flagellar functions
KONG Dongyang, WANG Lu, ZHANG Hong, ZHANG Jingchao
- 131 Advances in the catalytic promiscuity of nitrilases
DIAO Hongjuan, LIN Xinfan, ZHENG Renchao, ZHENG Yuguo
- 148 Application of biomanufacturing in polymer flooding
ZHOU Junping, PAN Qilu, HUANG Lianggang, ZHAN Kan, TANG Heng, JIN Liqun, ZHENG Yuguo
- 173 Effects of exogenous additives on growth and high-value bioproducts accumulation of microalgae
WU Yawei, WANG Fangzhong, CHEN Lei, ZHANG Weiwen
- 199 Research progress in tolerance of petroleum hydrocarbon pollutant-degrading strains
WANG Shanshan, ZHU Xiaoqian, CAO Zhibei, WANG Lu, DING Mingzhu
- 216 Regulatory roles of *DGAT* and *PDAT* genes in plant oil synthesis
WU Yang, LIU Mengjuan, WANG Youning, LI Dexiao, YANG Yuhua, ZHANG Tingjun, ZHOU Huiwen

Industrial Biotechnology

- 230 Promotion of *Stenotrophomonas* sp. on the photosynthetic growth of microalgae exposed to high concentrations of formate
XING Mengmeng, ZHENG Weijie, WANG Wangyin, CAO Xupeng, LI Can
- 242 Metabolic engineering of *Escherichia coli* for efficient biosynthesis of L-citrulline
XU Linfeng, YU Wenwen, ZHU Xuewen, ZHANG Quanwei, WU Yaokang, LI Jianghua, DU Guocheng, LV Xueqin, CHEN Jian, LIU Long
- 256 Metabolic engineering of *Escherichia coli* for the biosynthesis of O-acetyl-L-homoserine
HUANG Lianggang, GAO Feng, XU Nuoran, ZHOU Junping, NIU Kun, ZHANG Bo, LIU Zhiqiang, ZHENG Yuguo
- 271 Engineering of CmpLs enhances L-glutamate production of *Corynebacterium glutamicum*
ZUO Xingtao, ZHONG Shasha, CAI Ningyun, SHI Tuo, ZHANG Zhidan, LIU Yuantao, LIU Jiao, WANG Depei, CHEN Jiuzhou, ZHENG Ping
- 288 *Pseudomonas monteilii* ZMU-T06 produces 2-substituted quinolines by oxidative dehydroaromatization
YANG Min, ZOU Lan, RAN Huimin, QIN Lei
- 296 Improvement of catalytic activity and thermostability of glucose oxidase from *Aspergillus heteromorphus*
YU Shanglin, ZHOU Qiao, ZHANG Honghai, BAI Yingguo, LUO Huiying, YANG Xiaojun, YAO Bin

CONTENTS

Chinese Journal of Biotechnology

Started in 1985; Monthly; Vol. 41 No. 1; 25 January, 2025

- 308** Directed evolution improves the catalytic activity of laccase in papermaking
NI Hong, YANG Fan, WANG Lei, LI Bianxia, LI Huanan, LIU Jiashu, JIANG Zhengbing, CHENG Wanli
- 321** A novel carbonyl reductase for the synthesis of (*R*)-tolvaptan
LIU Yahui, WANG Xuming, MA Shuo, LIU Keyu, LI Wei, ZHANG Lulu, DU Jie, ZHANG Honglei
- 333** Mining, characterization, and expression of a fructan sucrose for efficient conversion of soybean oligosaccharides
WANG Bin, YING Jingru, CHEN Yuanyuan, FANG Zemin, XIAO Yazhong, FANG Wei, YAO Dongbang
- 352** Expression and enzymatic characterization of a chitosanase with tolerance to a wide range of pH from *Bacillus atrophaeus*
DU Wenjuan, Tursun Awagul, DONG Zhiqin, MA Huijuan, MA Zhenghai

Synthetic Biotechnology

- 363** Construction and application of an inducible transcriptional regulatory tool from *Medicago truncatula* in *Saccharomyces cerevisiae*
FENG Meilin, SHI Caifang, WANG Ying, LI Chun
- 376** Enzymatic MBH reaction catalyzed by an artificial enzyme designed with the introduction of an unnatural tertiary amine cofactor
WEI Ya, CHEN Chongwen, TONG Yingjia, ZHOU Zhi
- 385** An efficient assembly method for a viral genome based on T7 endonuclease I-mediated error correction
ZHANG Xuwei, WEN Bin, WANG Fei, WANG Xuejun, LIU Liyan, WANG Shumei, WANG Shengqi

Methods in Biotechnology

- 397** Establishment and application of a genetic operating system in *Wickerhamomyces ciferrii* for the synthesis of tetraacetyl phytosphingosine
LIU Liu, YIN Zheng'an, PAN Li
- 416** Transaminases: high-throughput screening *via* a ketone-fluorescent probe and applications
YE Hongbo, LI Qingye, TANG Xiaoling, ZHENG Renchao
- 427** Mining and characterization of new enzymes based on Phi29 DNA polymerase
HAO Mengyao, HU Lingling, HAN Minghao, LI Congyu, CHANG Hong, LUO Jianmei, JIANG Huifeng
- 437** Construction and optimization of 1,4-butanediamine biosensor based on transcriptional regulator PuuR
LIU Junjie, JIANG Minmin, SUN Tong, SUN Xiangxiang, ZHAO Yongcan, GU Mingxia, LU Fuping, LI Ming

Biotechnological Breeding and Process Optimization

- 448** Preparation of multi-layer compound microcapsules and their application in self-healing of concrete cracks
XU Jianmiao, ZHOU Yuanyuan, CHENG Feng, LIU Zhiqiang
- 461** Efficient synthesis of polydatin by a two-enzyme coupled with one-pot method
DAI Jingli, YAN Zixu, ZHAO Kexue, LI Xiaoli, ZANG Yongjun, XU Qilin, ZHU Fucheng
- 474** A flavin-containing monooxygenase from *Schizosaccharomyces pombe*: characterization and application in the synthesis of *S*-methyl-L-cysteine sulfoxide
LIAN Mengka, SONG Zhaolin, GAO Wenjing, ZHU Gang, DONG Mengjun, LI Yu, LIU Yihan, WANG Fenghua, LU Fuping