

## I 导读

## 综述

- 1601 骨化二醇及骨化三醇生物合成研究进展  
艾佳莹, 高吉凯, 殷子扬, 毛淑红
- 1620 四氢嘧啶生物合成及其关键酶生化特性研究进展  
许慧娴, 陈永涛, 黄建忠, 陶勇, 柯崇榕, 杨欣伟
- 1644 胞磷胆碱的合成策略及研究进展  
唐雅倩, 林彩宝, 柯崇榕, 陶勇, 黄建忠, 杨欣伟
- 1661 酿酒酵母中萜类化合物的生物合成与代谢调控研究进展  
邢敏钰, 冉淦侨, 谭丹
- 1694 2-苯乙醇合成研究进展  
李园子, 高靖怡, 王凤寰, 廖永红
- 1711 氨基酸高产菌株创制的关键技术  
郭亮, 高熙, 张红霞
- 1728 人工智能辅助的酶分子改造应用进展  
徐沛, 汪卫华, 宁洪伟, 曹瑞芬, 刘胜, 范培锋, 宋小平
- 1742 刺激响应型脂质体的构建策略及其生物学应用  
高欣茹, 许文涛
- 1752 嗜热蓝细菌高温适应机制及生物技术应用  
张婷, 孙绘梨, 齐凤霞, 毛绍名, 栾国栋, 吕雪峰
- 1776 菌丝形态发育: 丝状真菌细胞工厂遗传改造的新切入点  
孔维华, 尤文晋, 江贤章, 黄建忠, 秦丽娜
- 1792 基于微流控芯片集成电阻抗传感在细胞检测中的研究进展  
贡光杰, 王洁, 张腾汉, 李庆勇, 孙漩嵘
- 1806 污水脱氮人工多细胞体系的设计与应用  
柯霞, 余欢, 李一鑫, 潘婉婷, 唐素琴, 薛亚平

## 工业生物技术

- 1833 多核苷酸磷酸 $\beta$ -葡萄糖基转移酶的活性和底物特异性分析  
栗瑞杰, 胡芸, 尚尔菲, 高晓冬, 王宁
- 1845 环糊精葡萄糖基转移酶的分子改造及其在合成 $\alpha$ -熊果苷中的应用  
刘嘉琦, 谭明, 董钧, 刘以银, 刘珊珊, 吴治庆
- 1856 木葡糖酸醋杆菌运动相关基因的敲除及对细菌纤维素合成的影响  
刘嘉恒, 王旭, 彭昭君, 辛波, 钟成
- 1868 比较代谢组学分析阿维拉霉素高产突变株代谢途径  
吴江雪, 刘华华, 陈敏, 徐俊辰, 季雯艳
- 1882 酶法生产1,4-环己烷二甲胺  
韩业挺, 何志震, 魏婉清, 宋伟, 刘立明, 朱萌, 吴静
- 1895 枯草芽孢杆菌中人乳铁蛋白的表达与分泌  
张予婷, 李洋, 武耀康, 刘延峰, 李江华, 堵国成, 吕雪芹, 刘龙
- 1909 酿酒酵母转化半乳糖醇的工程菌株构建及优化  
邓连妹, 李娇, 门燕, 孙媛霞, 贾士儒, 朱玥明

## 合成生物技术

- 1924 酿酒酵母稳定整合位点鉴定及其在橘烯生物合成中的应用  
陈东莹, 朱晁谊, 陈和锋, 周靖涛, 李爽
- 1935 本氏烟草悬浮细胞NBS-1的创建及底盘特征分析  
张方晴, 史佳欣, 于静, 赵玥, 范荣, 王晓伟, 李志超

## 高校生物学教学

- 1950 “重组人红细胞生成素制造工艺虚拟仿真实验”课程的建设与实践  
冯佳, 蒋建兰, 冯远航, 朱宏吉, 余林玲, 赵广荣, 卢文玉, 史清洪
- 1963 具有发酵工程学科特色的合成生物学研究生教学改革  
徐国强, 余世琴, 周景文

## I Briefing and introduction

## Reviews

- 1601** Biosynthesis of calcifediol and calcitriol: a review  
AI Jiaying, GAO Jikai, YIN Ziyang, MAO Shuhong
- 1620** Advances in ectoine biosynthesis and biochemical characteristics of key enzymes  
XU Huixian, CHEN Yongtao, HUANG Jianzhong, TAO Yong, KE Chongrong, YANG Xinwei
- 1644** Advances in the synthesis of cytidine-5'-diphosphate choline  
TANG Yaqian, LIN Caibao, KE Chongrong, TAO Yong, HUANG Jianzhong, YANG Xinwei
- 1661** Advances in the biosynthesis and metabolic regulation of terpenoids in *Saccharomyces cerevisiae*  
XING Minyu, RAN Ganqiao, TAN Dan
- 1694** Advances in synthesis of 2-phenylethanol  
LI Yuanzi, GAO Jingyi, WANG Fenghuan, LIAO Yonghong
- 1711** Engineering of microorganisms for high production of amino acids  
GUO Liang, GAO Xi, ZHANG Hongxia
- 1728** Progress in the application of artificial intelligence-assisted molecular modification of enzymes  
XU Pei, WANG Weihua, NING Hongwei, CAO Ruifen, LIU Sheng, FAN Peifeng, SONG Xiaoping
- 1742** Construction strategy of stimuli-responsive liposome and its biological application  
GAO Xinru, XU Wentao
- 1752** High-temperature adaptation mechanisms and biotechnological potentials of thermophilic cyanobacteria  
ZHANG Ting, SUN Huili, QI Fengxia, MAO Shaoming, LUAN Guodong, LÜ Xuefeng
- 1776** Filamentous morphology: a new frontier for genetic modification of filamentous fungal cell factories  
KONG Weihua, YOU Wenjin, JIANG Xianzhang, HUANG Jianzhong, QIN Lina
- 1792** Research progress of integrating electrical impedance sensors with microfluidic chips in cell detection  
GONG Guangjie, WANG Jie, ZHANG Tenghan, LI Qingyong, SUN Xuanrong
- 1806** Design and application of artificial multicellular systems for nitrogen removal from wastewater  
KE Xia, YU Huan, LI Yixin, PAN Wanting, TANG Suqin, XUE Yaping

## CONTENTS

# Chinese Journal of Biotechnology

Started in 1985; Monthly; Vol. 40 No. 6; 25 June, 2024

### Industrial Biotechnology

- 1833** Analysis of enzyme activity and substrate specificity of dolichyl-phosphate  $\beta$ -glucosyltransferase  
LI Ruijie, HU Yun, SHANG Erfei, GAO Xiaodong, WANG Ning
- 1845** Molecular modification of cyclodextrin glucosyltransferase and its application in the synthesis of  $\alpha$ -arbutin  
LIU Jiaqi, TAN Ming, DONG Jun, LIU Yiyin, LIU Shanna, WU Qiaqing
- 1856** Knockdown of motility-related genes of *Komagataeibacter xylinus* and its effect on bacterial cellulose synthesis  
LIU Jiaheng, WANG Xu, PENG Zhaojun, XIN Bo, ZHONG Cheng
- 1868** Comparative metabolomics analysis of metabolic pathways in the high-yielding mutant strain of avilamycin  
WU Jiangxue, LIU Huahua, CHEN Min, XU Junchen, JI Wenyan
- 1882** Enzymatic production of 1,4-cyclohexanedimethylamine  
HAN Yeting, HE Zhizhen, WEI Wanqing, SONG Wei, LIU Liming, ZHU Meng, WU Jing
- 1895** The expression and secretion of human lactoferrin in *Bacillus subtilis*  
ZHANG Yuting, LI Yang, WU Yaokang, LIU Yanfeng, LI Jianghua, DU Guocheng, LV Xueqin, LIU Long
- 1909** Construction and culture condition optimization of a *Saccharomyces cerevisiae* strain for production of galactitol  
DENG Lianmei, LI Jiao, MEN Yan, SUN Yuanxia, JIA Shiru, ZHU Yueming

### Synthetic Biotechnology

- 1924** Stable integration sites in *Saccharomyces cerevisiae*: identification and application in the biosynthesis of valencene  
CHEN Dongying, ZHU Chaoyi, CHEN Hefeng, ZHOU Jingtao, LI Shuang
- 1935** Development and characterization of tobacco suspension cell chassis NBS-1  
ZHANG Fangqing, SHI Jiabin, YU Jing, ZHAO Yue, FAN Rong, WANG Xiaowei, LI Zhichao

### Education

- 1950** Development and implementation of the course entitled "Virtual Simulation Experiment of Recombinant Human Erythropoietin Manufacturing Process"  
FENG Jia, JIANG Jianlan, FENG Yuanhang, ZHU Hongji, YU Linling, ZHAO Guangrong, LU Wenyu, SHI Qinghong
- 1963** Graduate teaching reform on synthetic biology featuring the discipline of fermentation engineering  
XU Guoqiang, YU Shiqin, ZHOU Jingwen