

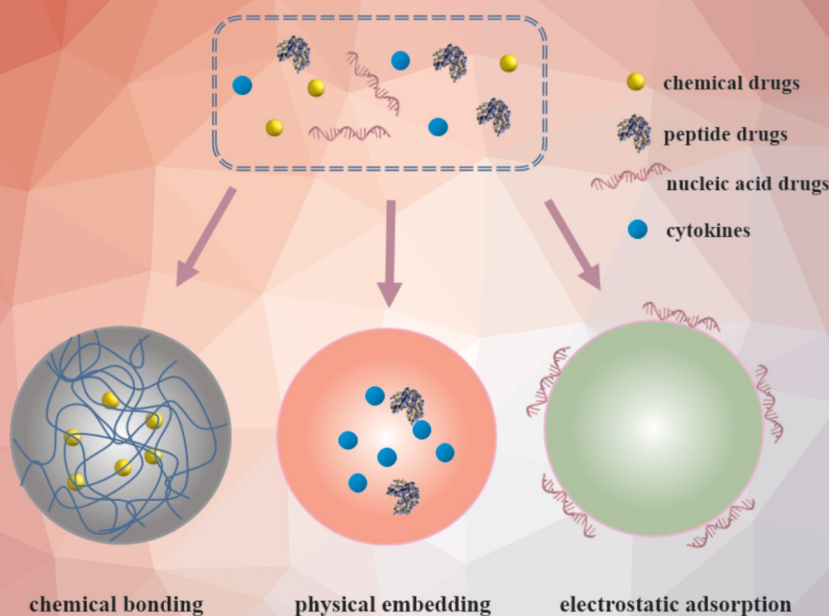
中国材料进展



MATERIALS CHINA

CN 61-1473/TG
ISSN 1674-3962
Vol.38 No.6

细胞治疗用微纳功能材料专栏



ISSN 1674-3962



9 771674 396195

西北有色金属研究院
中国材料研究学会
化学工业出版社

主办
出版





**INTERNATIONAL
UNION OF MATERIALS
RESEARCH SOCIETIES**

President

Yafang Han
Institute of Aeronautical Materials, China

Immediate Past President

Soo Wahn Lee
Sunmoon University, South Korea

First Vice President

Rodrigo Martins
FCT-UNL, Portugal

Second Vice President

Yuan Ping Feng
National University of Singapore, Singapore

Secretary

J.S. Williams
Australian National University, Australia

Treasurer

Paul Jain-Long Horng
Industrial Technology Research Institute, Taiwan

General Secretary

R.P.H. Chang
Northwestern University, USA

IUMRS ADHERING BODIES

African Materials Research Society (African-MRS)
Australian Materials Research Society (A-MRS)
Brazil Materials Research Society (B-MRS)
Chinese Material Research Society (C-MRS)
European Materials Research Society (E-MRS)
Materials Research Society of India (MRS-I)
Materials Research Society of Indonesia (MRS-Inda)
Materials Research Society of Japan (MRS-J)
Materials Research Society of Korea (MRS-Korea)
Materials Research Society of Mexico (MRS-Mexico)
Materials Research Society of Russia (MRS-R)
Materials Research Society of Singapore (MRS-S)
Materials Research Society of Taiwan (MRS-T)
Materials Research Society of Thailand (MRS-Thailand)

Edited by The Editorial Board of Materials China
Address: No.96, Weiyang Road, Xi'an City,
Shaanxi 710016, P.R. China
Website: <http://www.mat-china.com>

Editor-in-Chief: Zhou Lian
Editorial Office:
Telephone: +86-29-86226599
E-mail: rml@c-nin.com
materialschina@163.com

Overseas Distributor:
China International Book Trading Corporation
Overseas Circulation Code: M2980
Overseas Annual Subscription Rate: USD180
(Price changes due to RMB-USD exchange rate)

MATERIALS CHINA

Vol.38 No.6 Sum 450 June 2019 (Monthly)

Contents

Issue on Micro-Nano Functional Materials for Cell Therapy

- Micro-Nano Scaffolds for Stem Cells and Its Clinical Application Prospects
..... LIU Xin, SUN Jianfei, GU Ning (533)
- Application of Bioactive Nanoparticles on Mesenchymal Stem Cell Therapy
..... ZHANG Ran, LUO Wenya, ZHU Mingsheng, *et al* (542)
- 3D Bioprinting with Stem Cells Based on Collagen
..... NI Tianyu, ZHANG Yajie, LIU Min, *et al* (551)
- Magnetic Nanoparticles for Labelling and Functional Regulation of
Mesenchymal Stem Cells
..... MA Siyu, WANG Peng, YANG Yuzhi, *et al* (559)
- Research Progresses on Clinical Translation of Iron Oxide Nanoparticles in
Stem Cell Tracing
..... XIE Yuanyuan, LIU Shuo, WANG Bin (567)

Comprehensive Review

- Research Progress on Nano- Al_2O_3 Reinforced Metal Matrix Composites
..... MA Siyuan, GUO Qiang, ZHANG Di (577)
- Research Progress on Erosion Wear Resistance of Epoxy Resin in
Liquid-Solid Two-Phase Flow
..... YU Jingjing, ZHAO Wenjie, WANG Deliang, *et al* (594)
- Preparations and Applications of Copper-Silica-Based Mesoporous Materials
..... LV Weiwei, WANG Xiaozhong, CHEN Zhanlu, *et al* (602)

Research Report

- Effect of Spark Plasma Sintering on Sintering Process of Filled Skutterudites
Thermoelectric Properties
..... ZHOU Zhenxing, LU Xiaofang, WANG Lianjun, *et al* (588)
- Green Preparation of Y-Type Titanyl Phthalocyanine Nanoparticles and
Their Crystal Stability Investigation
..... SUN Yuwei, WU Yifan, WANG Xuepeng, *et al* (607)
- Failure Mechanism of 12Cr1MoVG Tubes From Reheater in
an Ultra-Supercritical Boiler
..... FAN Zhidong, DU Jingsong, ZHANG Zhibo, *et al* (614)

Hot Point

- The 14th World Conference on Titanium Held in Nantes, France* (619)
- Progress of Elastomer Science and Engineering Field in 2018
..... QIN Xuan, WANG Zhao, WANG Runguo, *et al* (621)
- Summary of the Study Report "Frontiers of Materials Research: A Decadal Survey" (626)

Serial Parameters: CN61-1473/TG*1982*M*A4*98*ZH*P* ¥ 40.00*1200*12*2019-06

中国材料进展

ZHONGGUO CAILIAO JINZHAN

第38卷总第450期 2019年第6期 (月刊)

中国材料进展 6
MATERIALS CHINA



目次

细胞治疗用微纳功能材料专栏

干细胞用微纳支架及其临床应用前景

刘鑫, 孙剑飞, 顾宁 (533)

纳米活性材料在间充质干细胞治疗中的应用

张然, 罗文亚, 朱明盛, 吴瑾, 黄兴禄, 孔德领 (542)

基于胶原蛋白的干细胞3D打印研究进展

倪添雨, 张雅洁, 刘敏, 裴仁军 (551)

磁性纳米颗粒标记间充质干细胞及其功能的调控

马思雨, 王鹏, 杨玉志, 孙剑飞, 顾宁 (559)

氧化铁纳米颗粒示踪干细胞的临床转化研究进展

谢园园, 刘硕, 王斌 (567)

综合评述

纳米Al₂O₃增强金属基复合材料的研究进展

马思源, 郭强, 张获 (577)

液-固两相流环境中环氧树脂抗冲蚀磨损研究进展

于晶晶, 赵文杰, 王德亮, 吴英豪, 薛群基 (594)

铜-硅基介孔材料的制备及应用现状

吕伟伟, 王晓钟, 陈占路, 赵倩 (602)

研究报告

SPS烧结工艺对填充方钴矿热电性能的影响

周振兴, 陆晓芳, 王连军, 顾士甲 (588)

Y型酞菁氧钛纳米粒子的绿色制备及晶型稳定性研究

孙煜伟, 吴艺凡, 王雪鹏, 李祥高, 王世荣, 肖殷 (607)

超超临界锅炉再热器12Cr1MoVG管焊缝失效研究

范志东, 都劲松, 张志博, 田进, 马翼超,
牛坤, 郭卫铨, 刘承鑫 (614)

热点追踪

又一次国际钛行业的盛会—2019年世界钛会报道 (619)

2018年弹性体科学与工程领域的重要进展

秦璇, 王朝, 王润国, 张立群 (621)

《材料研究前沿: 十年调查》概要 (626)

【编者按】

干细胞因具有自我更新和定向分化的潜能, 在疾病治疗、组织修复中具有广阔的应用前景。虽然干细胞治疗已应用于组织修复、肿瘤治疗等领域, 也是组织修复领域中最有潜力的治疗方法, 但仍面临一些较为严重的体内应用问题亟待解决。离大范围实际应用还有一定距离。在干细胞治疗中, 对移植体内的干细胞的分布、活性以及分化、增殖、凋亡等行为进行精确干预和长效表征, 需要依赖本身具有生物活性或负载药物的纳米活性材料、标记颗粒等微纳功能材料。此外, 干细胞3D打印被认为是组织工程中最有潜力的技术, 这也对细胞外基质3D打印支架材料提出了新的挑战。本刊特邀东南大学顾宁教授组织了“细胞治疗用微纳功能材料专栏”, 主要涉及干细胞用微纳支架、干细胞治疗用纳米活性材料、干细胞3D打印支架、干细胞示踪用磁性纳米颗粒等方向的理论及研究进展, 以供干细胞治疗研究及相关领域的读者们了解参考、充分交流。

主办单位: 西北有色金属研究院
中国材料研究学会

主编: 周廉
副主编: 单智伟(常务) 刘建章
王爱红
社长: 杜明焕
副社长: 贾豫冬 闫果
编辑部主任: 王方
编辑: 惠琼 吴锐 朱宏康
张雨明
美术编辑: 王嘉琦 高虹
本期责任编辑: 张雨明

编辑: 《中国材料进展》杂志社
地址: 陕西省西安市未央路96号
邮编: 710016
电话: 029-86226599
传真: 029-86282362
E-mail: mjl@c-nin.com
网址: http://www.mat-china.com

北京办事处: 翁瑞 张增志 鞠臻
电话: 010-58768037
E-mail: materialschina@163.com