Journal of Materials Chemistry B

Materials for biology and medicine

rsc.li/materials-b

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 2050-750X CODEN JMCBDV 11(44) 10499-10748 (2023)



Cover

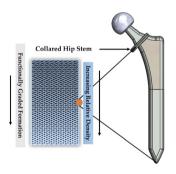
See Feigiu Wen, Gerile Oudeng, Mo Yang et al., pp. 10613-10624. Image reproduced by permission of Gerile Oudeng from J. Mater. Chem. B, 2023, 11, 10613.

REVIEWS

10507

Advancement in total hip implant: a comprehensive review of mechanics and performance parameters across diverse novelties

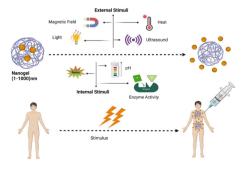
Md Mohiuddin Soliman, Mohammad Tarigul Islam,* Muhammad E. H. Chowdhury,* Abdulrahman Alqahtani, Farayi Musharavati, Touhidul Alam, Ahmed S. Alshammari, Norbahiah Misran, Mohamed S. Soliman, Sakib Mahmud and Amith Khandakar



10538

Smart stimuli-responsive polysaccharide nanohydrogels for drug delivery: a review

Fouad Damiri,* Ahmed Fatimi,* Ana Cláudia Paiva Santos, Rajender S. Varma and Mohammed Berrada*



Editorial Staff

Executive Editor

Michaela Mühlberg

Deputy Editor

Geraldine Hav

Editorial Production Manager

Ionathon Watson

Senior Publishing Editor

Fiona Iddon

Development Editor

Publishing Editors

Eleanor Griffiths, Francesca Jacklin, Brian Li

Editorial Assistant

Daniel Smith

Publishing Assistant

Iane Paterson

Publisher

Sam Keltie

For queries about submitted papers, please contact Ionathon Watson, Editorial Production Manager in the first instance. E-mail: materialsB@rsc.org

For pre-submission queries please contact

Michaela Mühlberg, Executive Editor.

E-mail: materialsB-rsc@rsc.org

Journal of Materials Chemistry B (electronic: ISSN 2050-7518) is published

48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road,

Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry,

Thomas Graham House, Science Park, Milton Road Cambridge, CB4 0WF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £2192; \$3516. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017; E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

Journal of Materials Chemistry B

rsc.li/materials-b

Journal of Materials Chemistry A, B & C cover high quality studies across all fields of materials chemistry. The journals focus on those theoretical or experimental studies that report new understanding, applications, properties and synthesis of materials, Journal of Materials Chemistry B covers materials with applications in biology and medicine.

Editorial Board

Editor-in-Chief

Jeroen Cornelissen, University of Twente, The Netherlands

Associate Editors

Kaushik Chatterjee, Indian Institute of Science, India

Elizabeth Cosgriff-Hernandez, The

University of Texas at Austin, USA Gemma-Louise Davies, University of Birmingham, UK Håkan Engqvist, Uppsala University, Sweden Jian Ji, Zhejiang University, China Shaoqin Liu, Harbin Institute of Technology,

Yoshiko Miura, Kyushu University, Japan

Jessica Winter. The Ohio State University.

Chengzhong Yu, University of Queensland,

Claus Feldmann, Karlsruhe Institute of Technology, Germany

Advisory Board

D. Benoit, University of Rochester, USA C. Bettinger, Carnegie Mellon University, USA W. Chan, University of Toronto, Canada J. Chang, Shanghai Institute of Ceramics,

H. Cölfen, University of Konstanz, Germany

T. Da Ros, Trieste University, Italy T. Davis, Monash University, Australia

T. Desai, University of California, San Francisco, USA

X. Deng, Peking University, China E. Duguet, University of Bordeaux, France

F. Forgan, Shanghai Jiao Tong University, China Y. Fang, NCNST, China R. Forgan, University of Glasgow, UK J. Fu, Ningbo Institute of Industrial

Technology, Chinese Academy of Sciences,

A. Gedanken, Bar-Ilan University, Israel M. Grunlan, Texas A&M University, USA Y. Gun'ko, Trinity College Dublin, Ireland J. van Hest, Radboud University Nijmegen,

The Netherlands K. Hamad-Schifferli, University of Massachusetts Boston, USA
B. Harley, University of Illinois, USA
A. Higuchi, National Central University,
Chinese Taipei, and Wenzhou Medical University, China S. Inal, KAUST, Saudia Arabia

Y. Ito, RIKEN, Japan B. Keselowsky, University of Florida, USA J. Khandare, MIT WPU Campus, India A. Kloxin, University of Delaware, USA

N. Kotov, University of Michigan, USA Z.-C. Li, Peking University, China E. Lipke, Auburn University, USA L. Liz-Marzan, CIC biomaGUNE, Spain D. Lynn, University of Wisconsin, USA E. D.-L. Ma, Hong Kong Baptist University,

Hong Kong G. Malliaras, University of Cambridge, UK

H.-Q. Mao, Johns Hopkins University, USA S. Marchesan, University of Triest, Italy D. Martin, University of Delaware, USA K. Masters, University of Wisconsin-Madison,

A. Miserez, Nanyang Technological

University, Singapore R. O'Reilly, University of Birmingham, UK M. in het Panhuis, University of Wollongong, Australia

A. Pannier, University of Nebraska, USA J. Park, KAIST, Korea S. Perrier, University of Warwick, UK X. Qu, Changchun Institute of Applied

Chemistry, Chinese Academy of Sciences,

M. Resmini, Queen Mary University of

London, UK K. Schenke-Layland, NMI Natural and Medical Sciences Institute, University of

Tübingen, Reutlingen, Germany C. Schmidt, University of Florida, USA

L. Segatori, Rice University, USA T. Serizawa, Tokyo Institute of Technology,

Japan Y. Shen, Zhejiang University, China S. Staniland, University of Sheffield, UK N. Steinmetz, University of California, San

Diego, USA M. Stenzel, University of New South Wales, Australia M. Stevens, Imperial College London, UK

S. Stoll, Georgetown Washington, USA L. Suggs, University of Texas at Austin, USA M. Takai, University of Tokyo, Japan J. Temenoff, Georgia Institute of Technology,

P. Théato, Karlsruhe Institute of Technology,

Germany R. Ulijn, City University of New York, US J. Zheng, University of Akron, USA

Information for Authors

Full details on how to submit material for publication in Journal of Materials Chemistry B are given in the Instructions for Authors (available from http://www.rsc.org/authors). Submissions should be made via the journal's homepage: rsc.li/materials-b. Submissions: The journal welcomes submissions of manuscripts for publication as Full Papers, Communications, Reviews, Highlights and Applications. Full Papers and Communications should describe original work of high quality and impact which must highlight the novel properties or applications (or potential properties/ applications) of the materials studied.

Additional details are available from the Editorial Office or http://www.rsc.org/authors

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of

Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890

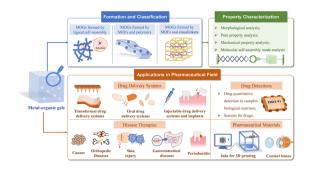


REVIEWS

10566

Metal-organic gels: recent advances in their classification, characterization, and application in the pharmaceutical field

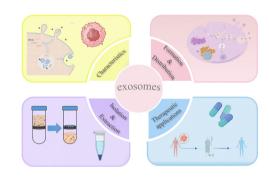
Wei Cao, Zezhi Lin, Daoyi Zheng, Jianjun Zhang, Weili Heng, Yuanfeng Wei,* Yuan Gao* and Shuai Qian*



10595

Application of exosomes as nanocarriers in cancer therapy

Jiawei Hu, Junfei Zhu, Jingjing Chai, Yudie Zhao, Jiajie Luan* and Yan Wang*

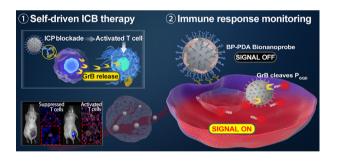


PAPERS

10613

Self-driven immune checkpoint blockade and spatiotemporal-sensitive immune response monitoring in acute myeloid leukemia using an all-in-one turn-on bionanoprobe

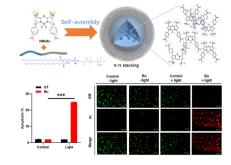
Dangui Zhang, Honglian Wu, Tianci Wang, Yuting Wang, Sixi Liu, Feiqiu Wen,* Gerile Oudeng* and Mo Yang*



10625

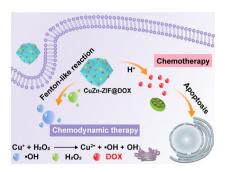
Aza-BODIPY with two efficacious fragments for NIR light-driven photothermal therapy by triggering cancer cell apoptosis

Chunyu Shao, Xiuyan Gong, Dongxiang Zhang, Xin-Dong Jiang,* Jianjun Du* and Guiling Wang*



PAPERS

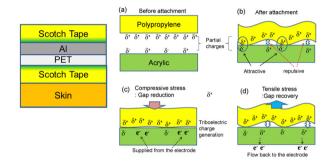
10632



Rational design of copper(ı)-doped metal-organic frameworks as dual-functional nanocarriers for combined chemo-chemodynamic therapy

Lijia Yao, Bingquan Chen, Hailong Wu, Yuanjing Cui* and Guodong Qian*

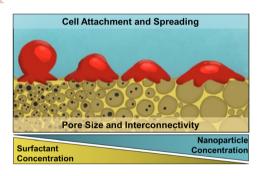
10640



Self-powered triboelectric wearable biosensor using Scotch tape

Moon-Hyung Jang, Yu Lei, Ryan T. Conners and Gang Wang*

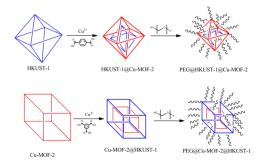
10651



Hydroxyapatite nanoparticle-modified porous bone grafts with improved cell attachment

Prachi Dhavalikar, Dana Jenkins, Natalie Rosen, Aparajith Kannapiran, Karim Salhadar, Orren Shachaf, Michael Silverstein and Elizabeth Cosgriff-Hernández*

10665



PEGylation of a shell over core-shell MOFs-a novel strategy for preventing agglomeration and synergism in terms of physicochemical and biological properties

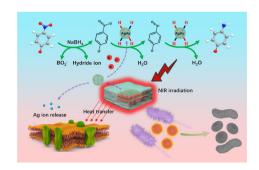
Nisha G. Pillai, Archana K., Kyong Yop Rhee* and Asif A.*

PAPERS

10678

A MXene@AgAu@PDA nanoplatform loaded with AgAu nanocages for enhancing catalytic activity and antibacterial performance

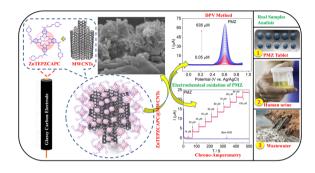
Guanghui Liu, Hongfa Wang, Chunyan Xu,* Qunling Fang, Hailong Wang,* Yunqi Xu, Min Sang, Shouhu Xuan* and Lingyun Hao*



10692

A novel MWCNT-encapsulated (2-aminoethyl)piperazine-decorated zinc(II) phthalocyanine composite: development of an electrochemical sensor for detecting the antipsychotic drug promazine in environmental samples

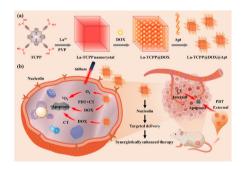
Mounesh,* K. V. Yatish, Anup Pandith,* Gaber E. Eldesoky and Bhari Mallanna Nagaraja*



10706

A metal-organic framework complex for enhancing tumor treatments through synergistic effect of chemotherapy and photodynamic therapy

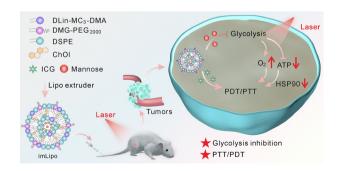
Xiang Jiang, Yuewu Zhao,* Shengkai Sun, Li Wang, Lina Sun, Wenjing Li, Zheng Wang, Jine Wang* and Renjun Pei*



10717

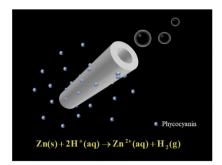
Glycolysis inhibition for synergistic phototherapy of triple-negative breast cancer

Yuqian Fu, Tingjie Bai, Panpan Xue, Qi Chen, Weili Deng, Shuanggian Yan* and Xuemei Zeng*



PAPERS

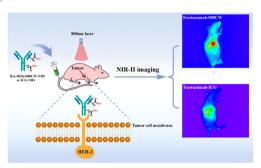
10728



Preparation of acid-driven magnetically imprinted micromotors and selective loading of phycocyanin

Guangdong Yang, Jiajing Liu, Zhong Zhang,* Li Yuan, Hongye Tian and Xingbin Yang

10738



Near-infrared dye IRDye800CW-NHS coupled to Trastuzumab for near-infrared II fluorescence imaging in tumor xenograft models of HER-2-positive breast cancer

Junhui Xiao, Siqi Qiu, Qiufeng Ma, Silan Bai, Xinrong Guo* and Lishi Wang*