

# Journal of Materials Chemistry B

Materials for biology and medicine

[rsc.li/materials-b](https://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(38) 9039-9314 (2023)



### Cover

See Yoshihiro Ito *et al.*, pp. 9155–9162. Image reproduced by permission of Yoshihiro Ito from *J. Mater. Chem. B*, 2023, 11, 9155.



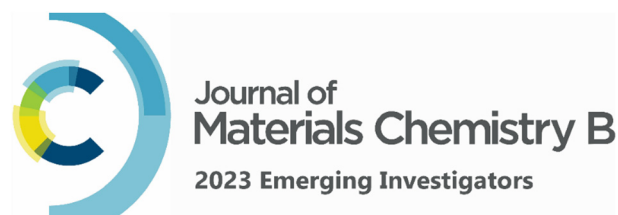
### Inside cover

See Zhaoshen Li, Jiang Chang, Haojie Huang *et al.*, pp. 9163–9178. Image reproduced by permission of Haojie Huang from *J. Mater. Chem. B*, 2023, 11, 9163.

## PROFILE

9048

Contributors to the *Journal of Materials Chemistry B* Emerging Investigators 2023 collection

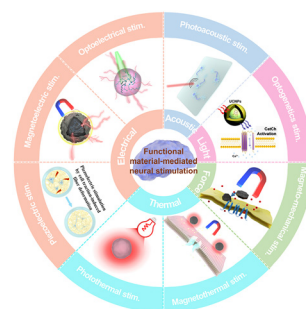


## REVIEWS

9056

Functional material-mediated wireless physical stimulation for neuro-modulation and regeneration

Jialu Li, Chengheng Wu, Mingze Zeng, Yusheng Zhang, Dan Wei, Jing Sun and Hongsong Fan\*



## Editorial Staff

### Executive Editor

Michaela Mühlberg

### Deputy Editor

Geraldine Hay

### Editorial Production Manager

Jonathon Watson

### Senior Publishing Editor

Fiona Iddon

### Development Editor

Natalie Cotterell

### Publishing Editors

Eleanor Griffiths, Francesca Jacklin, Brian Li

### Editorial Assistant

Daniel Smith

### Publishing Assistant

Jane Paterson

### Publisher

Sam Keltie

For queries about submitted papers, please contact Jonathon Watson, Editorial Production Manager in the first instance. E-mail: [materialsB@rsc.org](mailto:materialsB@rsc.org)

For pre-submission queries please contact Michaela Mühlberg, Executive Editor. E-mail: [materialsB-rsc@rsc.org](mailto: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](mailto: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](http://www.rsc.org/ip)

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

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](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# Journal of Materials Chemistry B

[rsc.li/materials-b](http://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, China

Yoshiko Miura, Kyushu University, Japan

Jessica Winter, The Ohio State University, USA

Chengzhong Yu, University of Queensland, Australia

### Member

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, China

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

C. Fan, Shanghai Jiao Tong University, China

Y. Fang, CNST, China

R. Forgan, University of Glasgow, UK

J. Fu, Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, China

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, Saudi 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 Trieste, Italy

D. Martin, University of Delaware, USA

K. Masters, University of Wisconsin-Madison, USA

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, China

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

S. Stoll, Georgetown Washington, USA

L. Stugs, University of Texas at Austin, USA

M. Takai, University of Tokyo, Japan

J. Temenoff, Georgia Institute of Technology, USA

P. Théato, Karlsruhe Institute of Technology, Germany

R. Uljin, 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](http://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

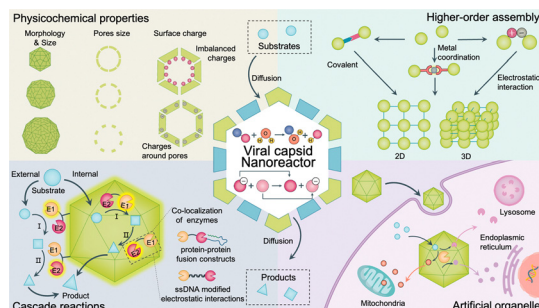


## REVIEWS

9084

**Virus-like particles nanoreactors: from catalysis towards bio-applications**

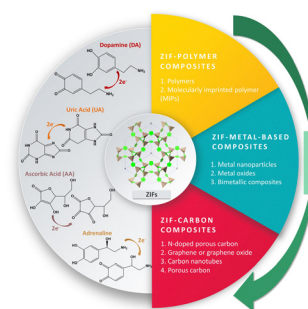
Yuqing Su, Beibei Liu, Zhenkun Huang, Zihao Teng, Liulin Yang, Jie Zhu, Shuaidong Huo\* and Aijie Liu\*



9099

**A review of zeolitic imidazolate frameworks (ZIFs) as electrochemical sensors for important small biomolecules in human body fluids**

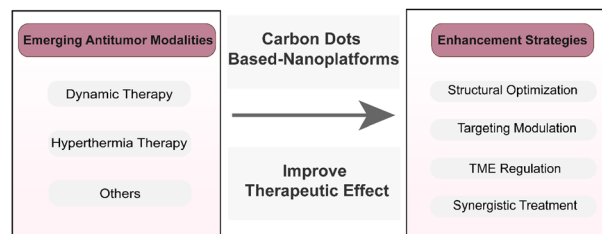
Zhou Feng, H. N. Lim,\* I. Ibrahim and N. S. K. Gowthaman



9128

**Recent strategies of carbon dot-based nanodrugs for enhanced emerging antitumor modalities**

Xu Chu, Mengdie Duan, Huaying Hou, Yujuan Zhang, Pai Liu, Hongli Chen, Yi Liu\* and Shu-Lan Li\*

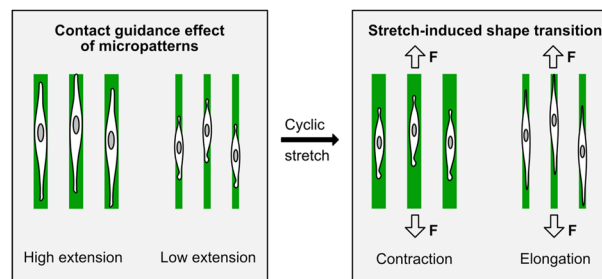


## PAPERS

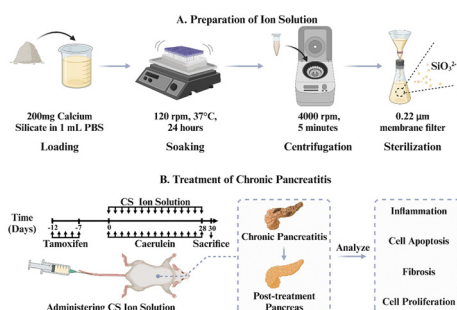
9155

**Cyclic stretch modulates the cell morphology transition under geometrical confinement by covalently immobilized gelatin**

Kun Fang, Stefan Müller, Motoki Ueda, Yasuhiro Nakagawa, Katsuko S Furukawa, Takashi Ushida, Toshiyuki Ikoma and Yoshihiro Ito\*



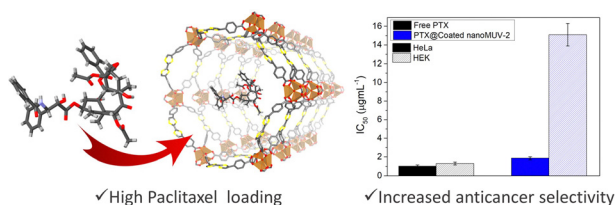
9163



### A new method for treating chronic pancreatitis and preventing fibrosis using bioactive calcium silicate ion solution

Hua Yin, Zhaowenbin Zhang, Deyu Zhang, Lisi Peng, Chuanchao Xia, Xiaoli Yang, Xinyue Wang, Zhaoshen Li,\* Jiang Chang\* and Haojie Huang\*

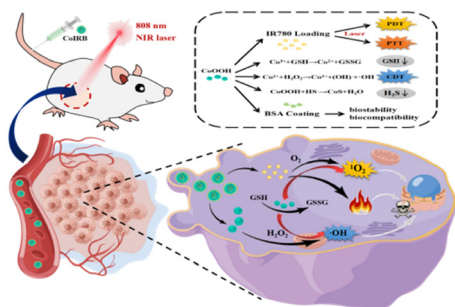
9179



### Hierarchical mesoporous NanoMUV-2 for the selective delivery of macromolecular drugs

Isabel Abánades Lázaro,\* María Vicent-Morales, Guillermo Mínguez Espallargas and Mónica Giménez-Marqués\*

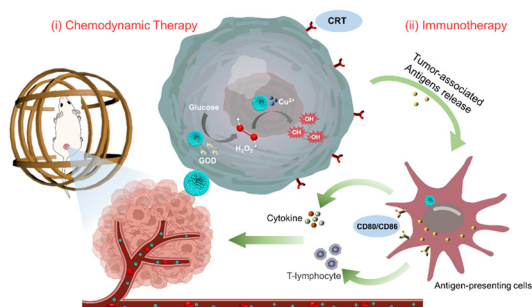
9185



### Protein-coated cobalt oxide–hydroxide nanospheres deliver photosensitizer IR780 iodide for near-infrared light-triggered photodynamic/photothermal/chemodynamic therapy against colon cancer

Han Hu, Shijie Yao, Qi Xu, Xing Cai, Zhimin Mo, Zhe Yang, Wenqiu Chen, Qianyan He,\* Xiaofang Dai\* and Zushun Xu\*

9201



### Cascade catalysis-coordinated nanorobots toward synergistic cancer chemoimmunotherapy

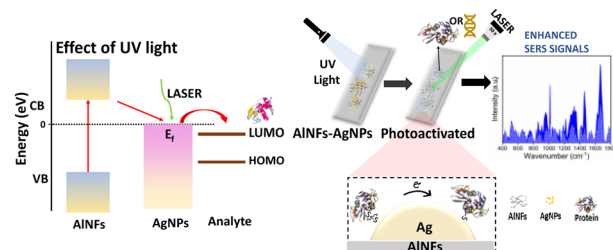
Ruirui Guo, Bin Wang, Dong Liu, Yanjie Huang and Yuan Lu\*



9212

### Photoactivated plasmonic nanohybrid fibers with prolonged trapping of excited charge carriers for SERS analysis of biomolecules

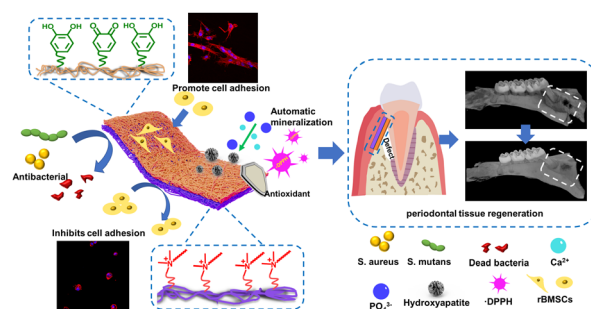
Arti Sharma, Tripti Ahuja, Jatin Yadav, Shubhangi Majumdar and Soumik Siddhanta\*



9223

### Janus functional electrospun polyurethane fibrous membranes for periodontal tissue regeneration

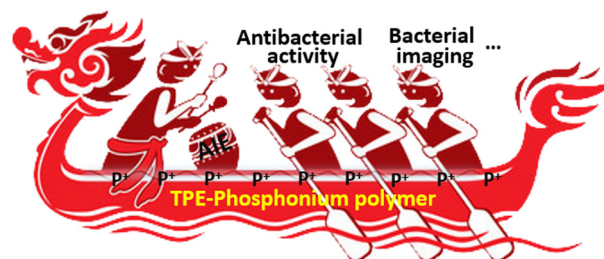
Jingjing Lin, Yushui He, Yuanyuan He, Yuan Feng, Xiao Wang, Lei Yuan, Yanchao Wang, Jie Chen, Feng Luo,\* Zhen Li, Jiehua Li and Hong Tan\*



9237

### A fluorescent quaternary phosphonium main-chain-type polymer: an opportunity to fabricate functional materials with excellent antibacterial activity and bacterial imaging capability

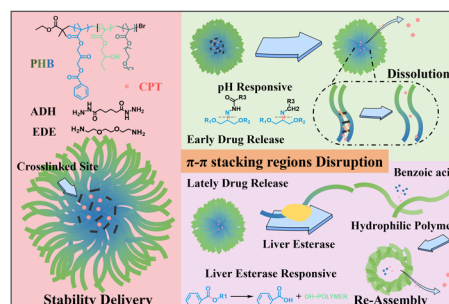
Jiawei Lv, Saicuo Wang, Chunxuan Qi, Muheman Li, Yuqing Sun, Yuan Yang, Cheng Zeng, Richao Shen and Hengchang Ma\*



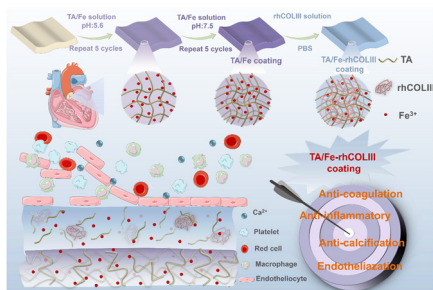
9246

### Exploring release mechanisms by disrupting $\pi$ - $\pi$ stacking regions in stable micelles

Fusheng Zhang, Gongcui Pei, Baihao Huang, Jianchang Xu and Lijuan Zhang\*



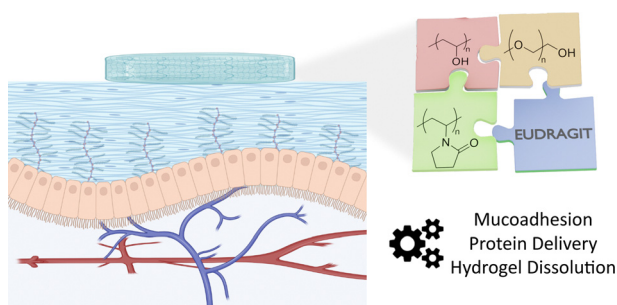
9260



### Postfunctionalization of biological valve leaflets with a polyphenol network and anticoagulant recombinant humanized type III collagen for improved anticoagulation and endothelialization

Haoshuang Wu, Kaiyang Huang, Mengyue Hu, Nuoya Chen, Yumei Qin, Jian Wang, Rifang Luo, Li Yang\* and Yunbing Wang

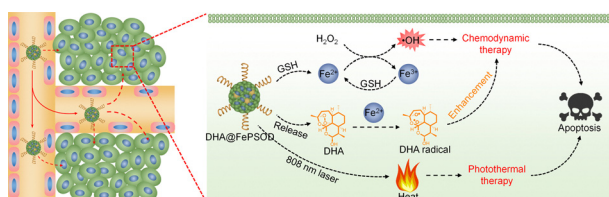
9276



### The role of Eudragit® as a component of hydrogel formulations for medical devices

David Esporrin-Ubieto, Ana Sofia Sonzogni, Mercedes Fernández, Arantxa Acera, Eider Matxinandiarena, Juan F. Cadavid-Vargas, Itxaso Calafel, Ruth N. Schmarsow, Alejandro J. Müller, Aitor Larrañaga and Marcelo Calderón\*

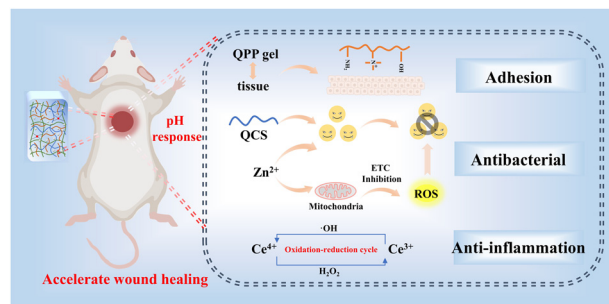
9290



### Iron-chelated semiconducting oligomer nanoparticles for NIR-II fluorescence imaging-guided enhanced chemodynamic/photothermal combination therapy

Shanchao Diao, Wenheng Shi, Yaxin Liu, Tingting Liang, Zhiwei Xu, Wen Zhou,\* Chen Xie\* and Quli Fan\*

9300



### A pH-responsive ZC-QPP hydrogel for synergistic antibacterial and antioxidant treatment to enhance wound healing

Ziwen Zhang, Jinxia Wang, Yu Luo,\* Chunlin Li, Yangang Sun, Kaiyang Wang, Guoying Deng, Linjing Zhao, Chunping Yuan, Jie Lu, Ying Chen, Jian Wan\* and Xijian Liu\*



## RETRACTION

9311

**Retraction: A novel TMTP1-modified theranostic nanoplatform for targeted *in vivo* NIR-II fluorescence imaging-guided chemotherapy for cervical cancer**

Nuernisha Alifu,\* Rong Ma, Lijun Zhu, Zhong Du, Shuang Chen, Ting Yan, Gulinigaer Alimu, Linxue Zhang and Xueliang Zhang\*

