

# Journal of Materials Chemistry B

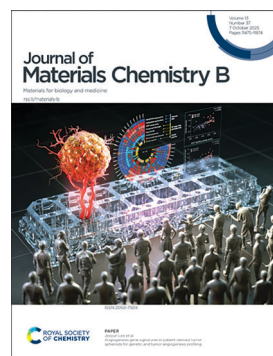
Materials for biology and medicine

[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.

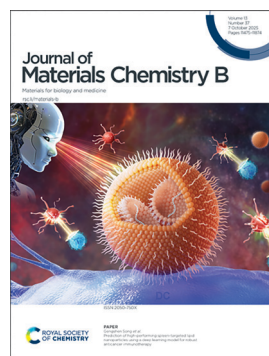
## IN THIS ISSUE

ISSN 2050-750X CODEN JMCBDV 13(37) 11475–11874 (2025)



### Cover

See Jeeyun Lee *et al.*, pp. 11597–11610. Image reproduced by permission of Sujin Hyung, Jihoon Ko, and Jeeyun Lee from *J. Mater. Chem. B*, 2025, 13, 11597.



### Inside cover

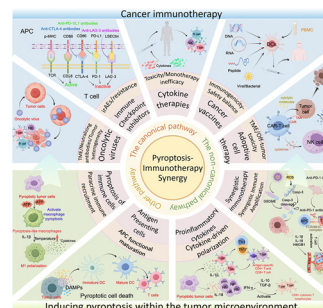
See Gengshen Song *et al.*, pp. 11611–11620. Image reproduced by permission of Beijing Youcare Kechuang Pharmaceutical Technology Co., Ltd. from *J. Mater. Chem. B*, 2025, 13, 11611.

## REVIEWS

11485

### Overcoming cancer immunotherapy barriers via nanomaterial-mediated pyroptosis

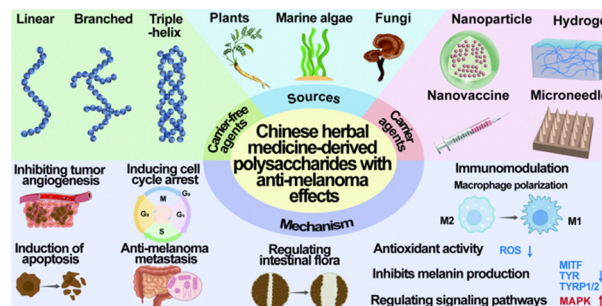
Jianlei Xie, Baoxin Peng, Yu Xiao, Xiasang Chen, Xinyin Zhang, Diqi Chen, Lijuan Song, Meiqian Xu,\* Wenjing Liao\* and Xiaowen Zhang\*



11508

### Advances of Chinese herbal medicine-derived polysaccharides as carrier-free and carrier agents in anti-melanoma therapy

Yingmin Mao, Zhiqiang Dai, Qiuyan Zhang, Fuming Peng, Quan Li,\* Hanming Cui\* and Yue Liu\*



# Advance your career in science

with professional recognition that showcases  
your **experience, expertise and dedication**

## Stand out from the crowd

Prove your commitment  
to attaining excellence in  
your field

## Gain the recognition you deserve

Achieve a professional  
qualification that inspires  
confidence and trust

## Unlock your career potential

Apply for our professional  
registers (RSci, RSciTech)  
or chartered status  
(CChem, CSci, CEnv)

## Apply now

[rsc.li/professional-development](https://rsc.li/professional-development)

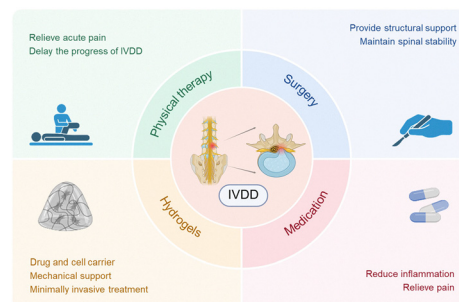


## REVIEWS

11525

### Application and prospects of polysaccharide-based hydrogels in the treatment of intervertebral disc degeneration

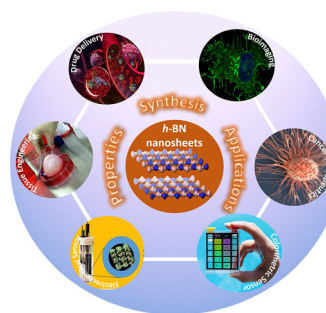
Jun-kuan Shan, Jia-qi Fang, Shu-Hao Liu, Xue-han Jin, Zhi-jie Weng, Li-ping Nan,\* Jun-jian Liu\* and Yun Qian\*



11540

### Advancements in two-dimensional boron nitride nanostructures: properties, preparation methods, and their biomedical applications

Gitashree Darabdhara,\* Priyakshree Borthakur, Purna K. Boruah, Santimoy Sen, Deepak Bharadwaj Pemmaraju and Manash R. Das\*

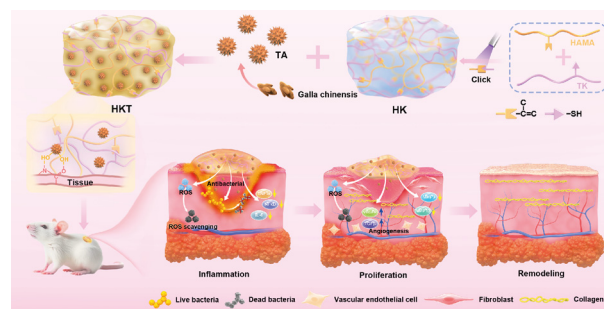


## COMMUNICATION

11582

### Click chemistry-driven adhesive hydrogel for efficient healing of infected wounds through multistage comprehensive management

Zheng Zheng, Ning Wang, Huiyu Yang, Xiaofei Gong, Jia Zheng, Yangyiyao Bai, Pengxin Tang, Shujiang Chen and Wenchuan Chen\*

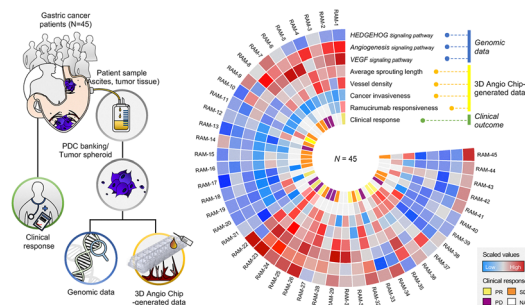


## PAPERS

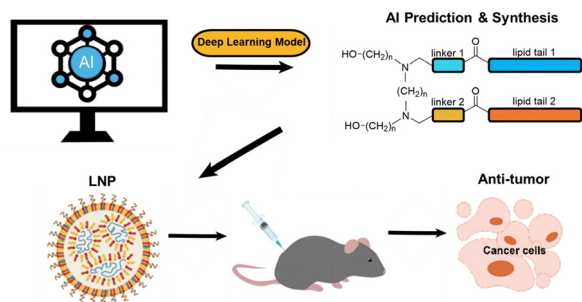
11597

### Angiogenesis gene signatures in patient-derived tumor spheroids for genetic and tumor angiogenesis profiling

Sujin Hyung, Jihoon Ko, Minae An, Seung Tae Kim, Se Hoon Park, Jung Yong Hong, Sung Hee Lim, Kyoung-Mee Kim and Jeeyun Lee\*



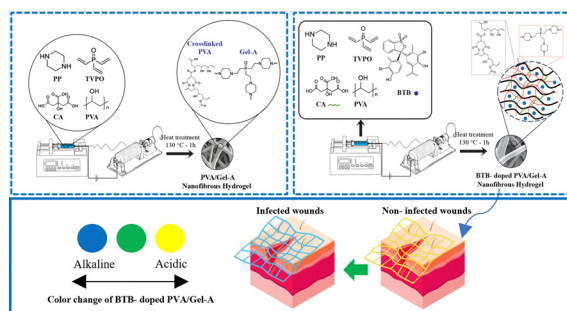
11611



### Prediction of high-performing spleen-targeted lipid nanoparticles using a deep learning model for robust anticancer immunotherapy

Honglei Zhang, Jingxuan Ma, Fulu Pan, Yangjian Liu, Man Zhang, Yuqing Li, Chao Zhang, Huajie Huang, Wannian Zhang, Donghui Xiu, Wei Zhang and Gengshen Song\*

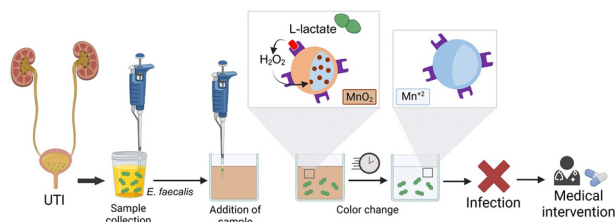
11621



### Colorimetric pH-responsive nanofibrous hydrogels for *in vitro* monitoring of wound infection

Nadia Banitorfi Hoveizavi, Farzaneh Alihosseini,\* Sandro Lehner, Philipp Meier and Sabyasachi Gaan\*

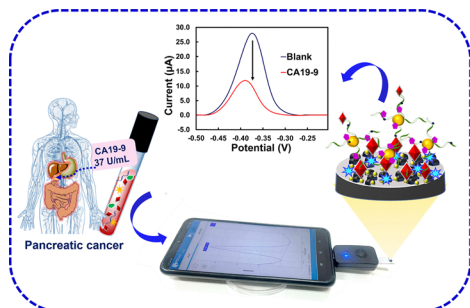
11640



### Colorimetric point-of-care diagnostic to monitor *Enterococcus faecalis* causing urinary tract infection

Maria M. Morim, Patrick Rupper, Stefanie Altenried, Adrian Meier, René M. Rossi, Qun Ren, Luciano F. Boesel and Giorgia Giovannini\*

11652



### Competitive electrochemical assay of CA19-9 on gold nanoparticles/porous carbons nanohybrid amplified by polyoxometalate/aptamer/graphene quantum dot-decorated gold nanotags

Sopit Phetsang, Cécile Jouanne, Mohamed Mallouki, Thuan-Nguyen Pham-Truong, Sébastien Peralta, Cédric Vancaeyzeele, Philippe Banet, Pierre-Henri Aubert, Jaroon Jakmunee and Kontad Ounnunkad\*

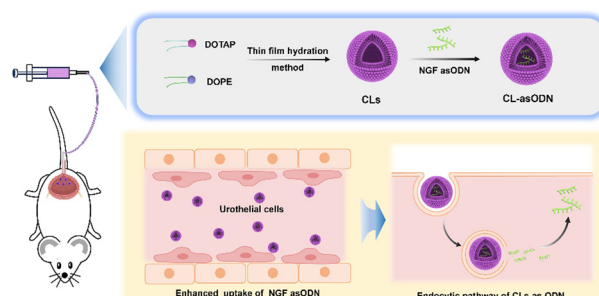


## PAPERS

11663

### Enhanced therapeutic efficacy of cationic liposome-delivered nerve growth factor antisense oligonucleotide for interstitial cystitis/bladder pain syndrome

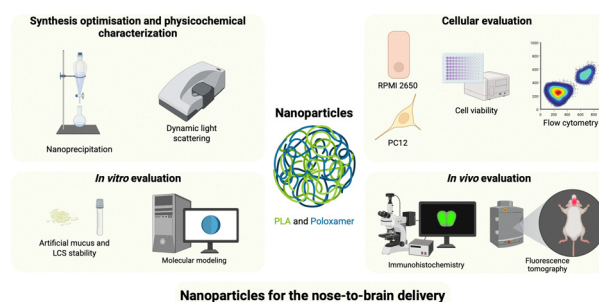
Yuan Gao, Ying Zhao, Lin Zhu, Hanwei Ke, Wenxin Li, Sulaiman Ganiu Bolaji, Huimei Wang,\* Kexin Xu\* and Lianyan Wang\*



11674

### Polymeric nanoparticles as a platform for nose-to-brain delivery

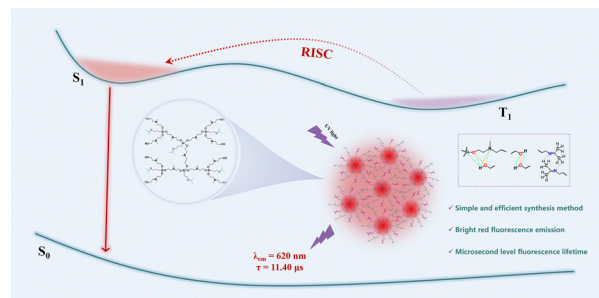
Marie Bolon, Morgane Marie, Simon Megy, Raphael Petrakis, Raphaël Terreux, Maxime Fieux, Claire Monge and Sophie Richard\*



11687

### A hyperbranched polysiloxane with imine bonds: red fluorescence emission with a long fluorescence lifetime at room temperature

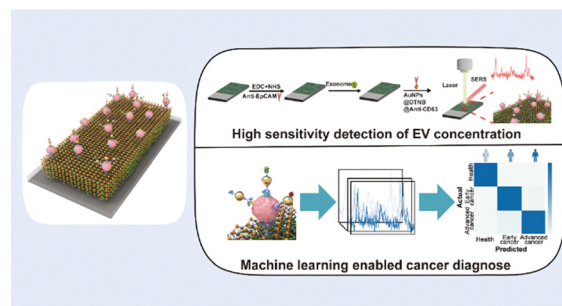
Qi Li, Yujie Qiao, Zheng Li, Rui Wu, Yekun Zhang, Yan Zhao, Wei Tian, Rumin Wang, Weixu Feng\* and Hongxia Yan\*



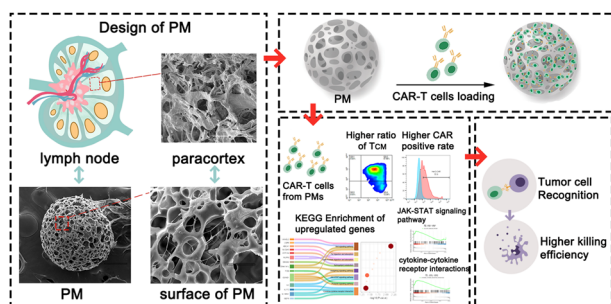
11696

### An artificial intelligence-enhanced early ovarian cancer diagnosis biosensor

Tao Hu, Haoyu Xiao, Shanling Ji, Zhihao Wu, Yunlin Quan, Wang Zhen, Xiao Li,\* Jianxiong Zhu\* and Zhonghua Ni\*



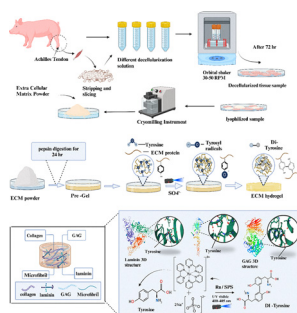
11708



### Biomimetic lymph node-like scaffolds for optimized CAR-T cell expansion and potentiated antitumor efficacy

Huajin Zhang, Fujun Liu, Junyilang Zhao, Yong Wang, Yuge Shen, Qiqi Li, Hui Luo, Yu Chen, Rong Li, Fan Zhu, Shuo Xie, Yinhao Wei, Xupeng Gou, Danling Hu, Zhengji Li and Hanshuo Yang\*

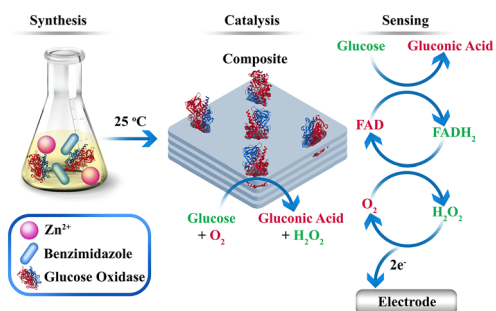
11722



### Hybrid photo-crosslinked decellularized extracellular matrix scaffold from porcine Achilles tendon: a biocompatible and non-immunogenic matrix for tissue engineering

Shreyash Shelar, Ujjwal Gupta, Mamta Kumari, Mohammed Shabib, Bitan Guchhait, Chandan Mandal, Santanu Kaity\* and Subhadeep Roy\*

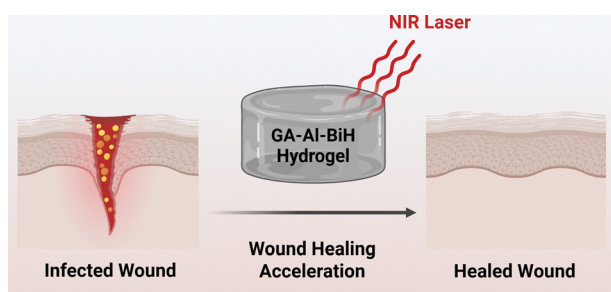
11739



### Glucose oxidase immobilized on ZIF-7-III: composite formation, optimization and integration in an electrochemical biosensor for selective glucose detection

Sahar Aghayani, Shahram Tangestaninejad,\* Norbert Stock,\* Bastian Achenbach, Mehrnaz Bahadori,\* Majid Moghadam,\* S. Fatemeh Nami-Ana, Maryam Sharifi, Valiollah Mirkhani and Iraj Mohammadpoor-Baltork

11750



### A near-infrared light absorbable hydrogel with antibacterial effect for mild photothermal regeneration of infected wounds

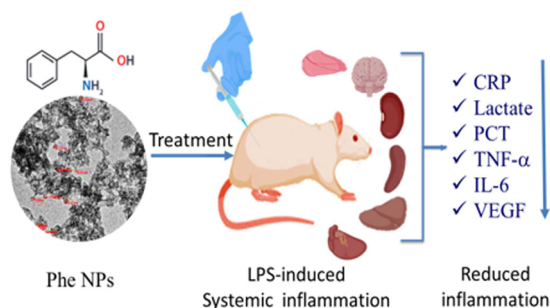
Kiyan Musaie, Mostafa Qahremani, Shima Ebadi, Hooman Haghighi, Vahideh Nosrati Siahmazgi, Samin Abbaszadeh, Mohammad Reza Eskandari, Marja Slomp, Jelly Atema-Smit, Hélder A. Santos\* and Mohammad-Ali Shahbazi\*



11767

### Poly(*N*-acryloyl-L-phenylalanine) nanoparticles for potential treatment of inflammation in selective organs

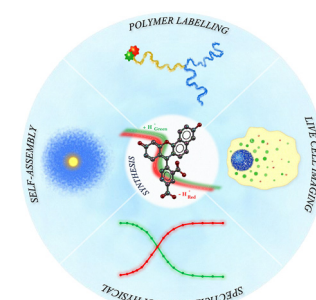
Divya Pareek, Sukanya Patra, Md. Zeyaulah, Gurmeet Singh, Taniya Das, Prakriti S. Samanta, Aman S. Kudada, Anjali Mourya, Kirti Wasnik, Rajalaxmi Pradhan, Yitzhak Mastai and Pradip Paik\*



11790

### Soft nanoparticles incorporating a benzo[*c*]xanthene fluorophore: facile synthesis and ratiometric pH sensing

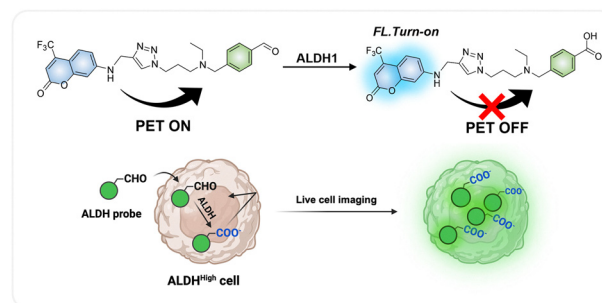
Laura McKay, Natali Joma, Dusica Maysinger\* and Ashok Kakkar\*



11809

### PET-leveraged ALDH probe toward cancer stem cells

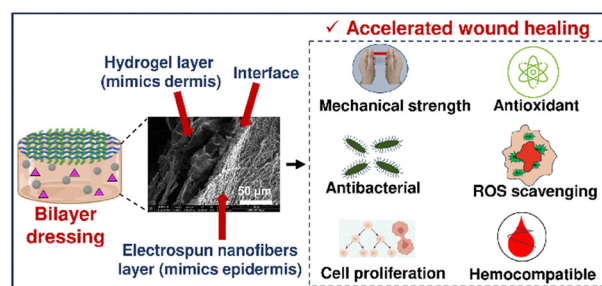
Ji Hyeon Kim, Bryan Yat Kit Hui, Jieun Lee, Kyeong-woo Lee, Jungryun Kim, Yujin Kim, Ming Hui Chua, Jianwei Xu, Min-Goo Lee,\* Xiaogang Liu\* and Jong Seung Kim\*



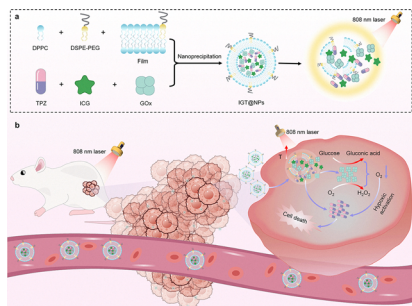
11821

### A multifunctional electrospun nanofiber/hydrogel-based pro-healing bilayer dressing as a next generation biomaterial for skin wound care

Dimpy Bhardwaj, Vatan Chawla, Vanshika Nandwani, Yashika Thakur, Yashveer Singh and Garima Agrawal\*



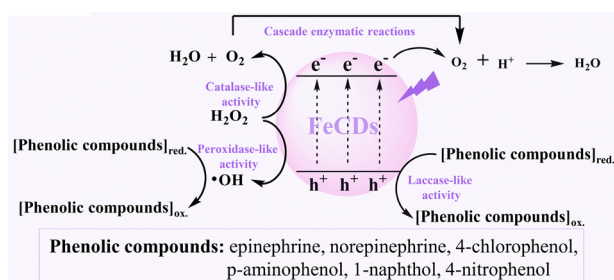
11835



### A photoactivatable nano-liposome containing tripartite therapeutics for photothermal-triggered chemotherapy

Yana Li, Yiduo Zhan, Yifang Liu, Jingyang Su, Jingchao Li,\* Yongzhi Men\* and Na Zhu\*

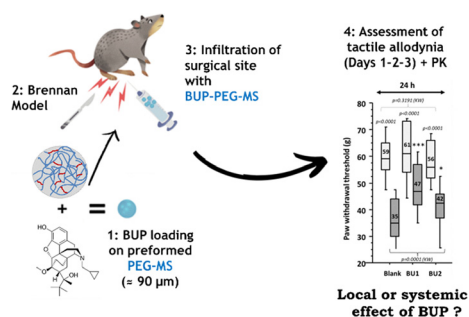
11846



### Iron-doped carbon dots with multi-enzyme activities for rapid determination of phenolic compounds

Zhanghong Guo, Lin Zhou, Chan Wang\* and Qijun Song\*

11855



### Evaluation of peripheral analgesia in a rat incisional pain model using degradable hydrophilic microspheres for sustained delivery of buprenorphine

Laurent Bédouet, Anne Beilvert, Emeline Servais, Florentina Pascale, Saida Homayra Ghegediban, Michel Wassef, Julien Namur and Laurence Moine\*

11870

### Correction: An octamolybdate-metal organic framework hybrid for the efficient adsorption of histidine-rich proteins

Qing Chen, Meng-Meng Wang, Xue Hu, Xu-Wei Chen\* and Jian-Hua Wang\*

