

# Biomaterials Science

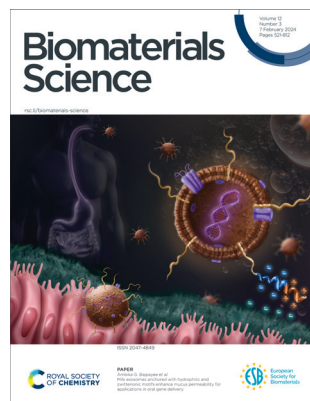
An international high impact journal exploring the underlying science behind the function, interactions and design of biomaterials

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### Cover

See Ambika G. Bajpayee *et al.*, pp. 634–649.

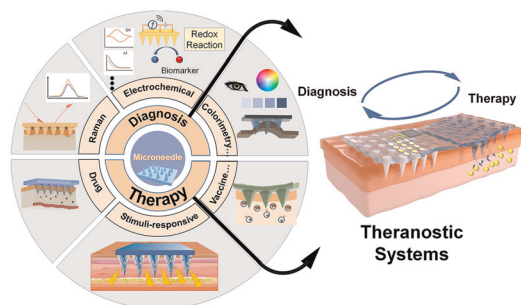
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## REVIEWS

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### Advances in biomedical systems based on microneedles: design, fabrication, and application

Xinghao Wang, Zifeng Wang, Min Xiao, Zhanhong Li and Zhigang Zhu\*



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### Covalent drugs based on small molecules and peptides for disease theranostics

Ying-Jin Zhang, Jian-Xiao Liang, Yin-Sheng Xu, Yi-Xuan Liu, Yingying Cui, Zeng-Ying Qiao\* and Hao Wang\*

Covalent bond					Application	
Type of action						
Design & Screening	Ligand-first	Electrophile-first	Available drug modification		Imaging	
Available drug	Erlotinib Afatinib Osimertinib	Sotorasib MRTX849 D-1553	Penicillin Fosfomycin omeprazole		Treatment	
Expectation	Controllability	High affinity	Long action time	Low side effects		

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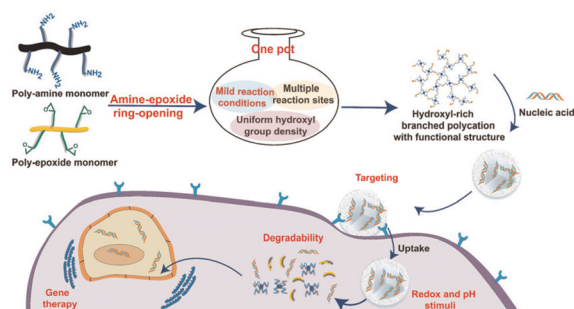


## REVIEWS

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## Hydroxyl-rich branched polycations for nucleic acid delivery

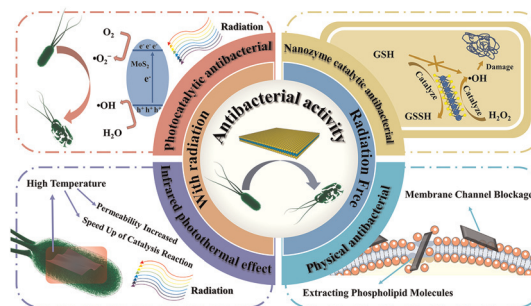
Mengrui Su, Zichen Hu, Yujie Sun, Yu Qi,\* Bingran Yu\* and Fu-Jian Xu\*



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Unveiling the antibacterial strategies and mechanisms of MoS<sub>2</sub>: a comprehensive analysis and future directions

Jiahao Shen, Junli Liu,\* Xiuyi Fan, Hui Liu, Yan Bao, AiPing Hui and Hafiz Akif Munir

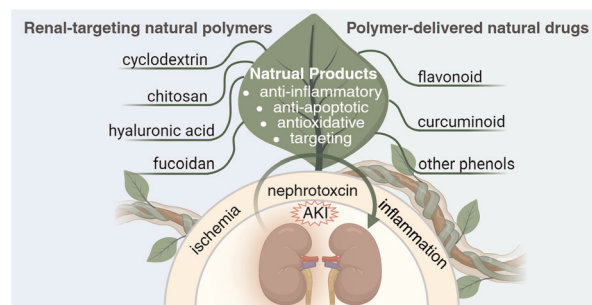


## MINIREVIEW

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## Natural products applied in acute kidney injury treatment: polymer matters

Bo Yu, Qiao Jin\* and Jian Ji\*

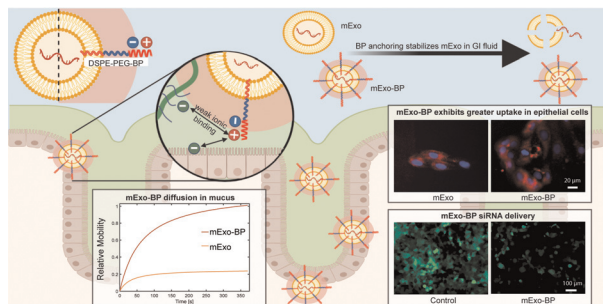


## PAPERS

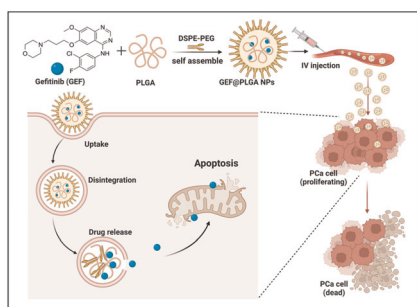
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## Milk exosomes anchored with hydrophilic and zwitterionic motifs enhance mucus permeability for applications in oral gene delivery

Chenzhen Zhang, Hengli Zhang, Héctor A. Millán Cotto, Timothy L. Boyer, Matthew R. Warren, Chia-Ming Wang, Joshua Luchan, Pradeep K. Dhal, Rebecca L. Carrier and Ambika G. Bajpayee\*



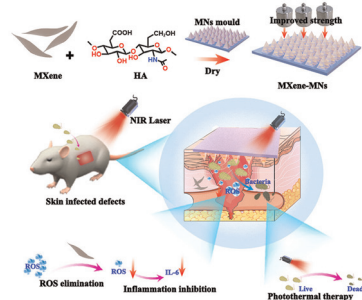
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### Delivery of gefitinib loaded nanoparticles for effectively inhibiting prostate cancer progression

Zhi Xiong, Tong Tong, Zhaoxiang Xie, Shunli Yu, Ruilin Zhuang, Qiang Jia, Shirong Peng, Bingheng Li, Junjia Xie, Kaiwen Li,\* Jun Wu\* and Hai Huang\*

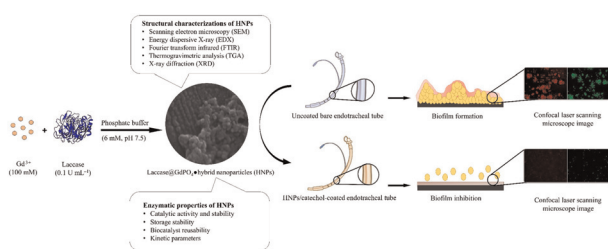
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### Multifunctional MXene-doped photothermal microneedles for drug-resistant bacteria-infected wound healing

Yongjin Zhong, Yancheng Lai, Zeru Feng, Si Huang, Yu Fu, Lirong Huang, Keng-fu Lan and Anchun Mo\*

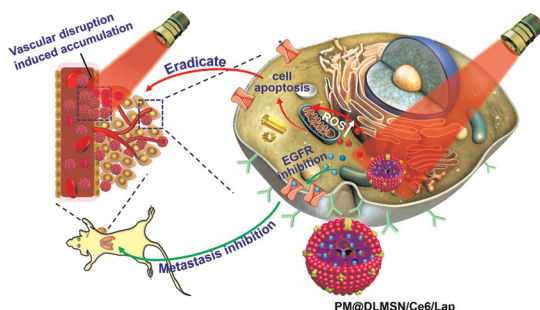
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### Surface functionalization of endotracheal tubes coated with laccase–gadolinium phosphate hybrid nanoparticles for antibiofilm activity and contrasting properties

Anita Azmi, Somayeh Mojtavavi, Seyed Ali Asghar Fakhrmousavi, Mehrdad Faizi, Hamid Forootanfar, Nasrin Samadi and Mohammad Ali Faramarzi\*

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### Platelet membrane-based biochemotactic-targeting nanoplatform combining PDT with EGFR inhibition therapy for the treatment of breast cancer

Guoyun Wan, Xuheng Chen, Ruiling Gou, Chenguang Guan, Jiayu Chen, Qian Wang, Wenjie Wu, Hongli Chen,\* Qiqing Zhang\* and Haijiao Wang\*



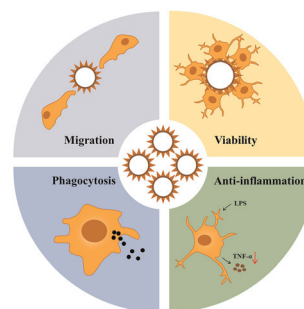


## PAPERS

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**Sporopollenin exine capsules modulate the function of microglial cells**

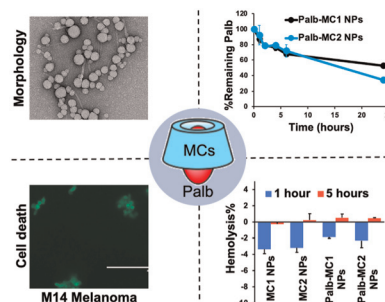
Mengwei Li, Banglian Hu, Zhaojie Wu, Ziwei Wang, Jian Weng,\* Honghua Zheng\* and Liping Sun\*



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**Enhancing drug delivery with supramolecular amphiphilic macrocycle nanoparticles: selective targeting of CDK4/6 inhibitor palbociclib to melanoma**

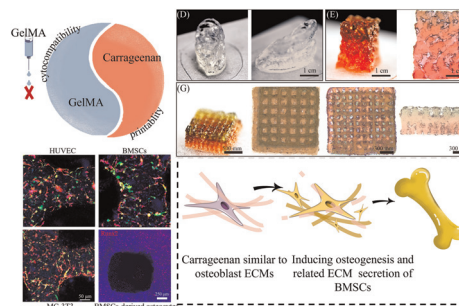
Mohamed F. Attia,\* Edikan A. Ogunnaiké, Megan Pitz, Nancy M. Elbaz, Dillip K. Panda, Angela Alexander-Bryant, Sourav Saha,\* Daniel C. Whitehead and Alexander Kabanov\*



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**3D bioprinting of GelMA with enhanced extrusion printability through coupling sacrificial carrageenan**

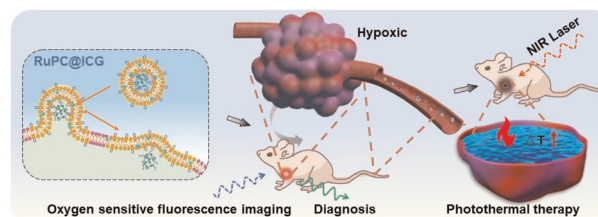
Xueping Wang, Jinhong Jiang, Chenhui Yuan, Lin Gu, XinYu Zhang, Yudong Yao and Lei Shao\*



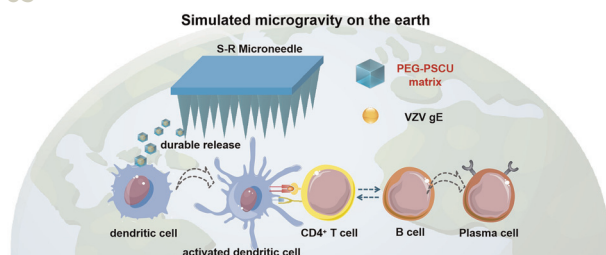
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**Oxygen and pH responsive theragnostic liposomes for early-stage diagnosis and photothermal therapy of solid tumours**

Siyi Li, Qinglin Wang, Yingying Ren, Pengfei Zhong, Pengtao Bao, Shanyue Guan,\* Xiaochen Qiu\* and Xiaozhong Qu\*



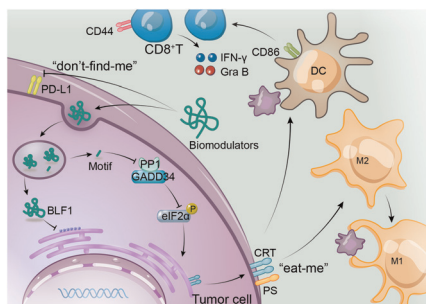
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### Enhancing cell-scale performance via sustained release of the varicella-zoster virus antigen from a microneedle patch under simulated microgravity

Yue Yin, Junyuan Yang, Ge Gao, Huaijuan Zhou, Bowen Chi, Hong Yu Yang,\* Jinhua Li\* and Yilong Wang\*

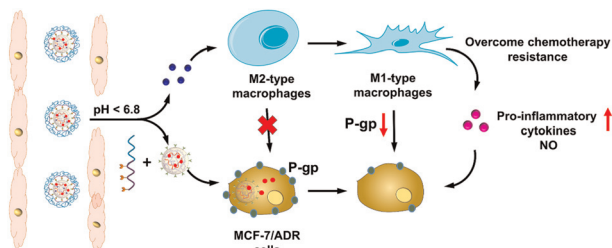
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### Improving combination cancer immunotherapy by manipulating dual immunomodulatory signals with enzyme-triggered, cell-penetrating peptide-mediated biomodulators

Guibin Pang, Piao Chen, Xuewei Cao, Huan Yu, Leshuai W. Zhang, Jian Zhao\* and Fu-Jun Wang\*

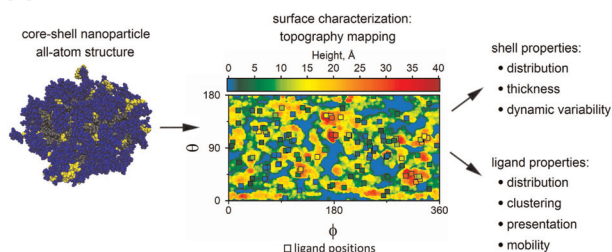
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### GSH/pH dual responsive chitosan nanoparticles for reprogramming M2 macrophages and overcoming cancer chemoresistance

Xinzhi Zhao, Chunxiong Zheng, Ying Wang, Jialei Hao and Yang Liu\*

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### Effect of ligand and shell densities on the surface structure of core-shell nanoparticles self-assembled from function-spacer-lipid constructs

Ivan Vaskan,\* Veronika Dimitreva, Maxim Petoukhov, Eleonora Shtykova, Nicolai Bovin, Alexander Tuzikov, Marina Tretyak, Vladimir Oleinikov and Anton Zalygin\*



## CORRECTIONS

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**Correction: Intracellular regulation of zinc by metal–organic framework-mediated genome editing for prostate cancer therapy**

Yanan Xue, Honglin Tang, Guangpeng Chen, Yubin Pan, Da Li\* and Yuan Ping\*

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**Correction: An E-selectin targeting and MMP-2-responsive dextran–curcumin polymeric prodrug for targeted therapy of acute kidney injury**

Jing-Bo Hu, Di Liu, Jing Qi, Kong-jun Lu, Fei-yang Jin, Xiao-Ying Ying, Jian You and Yong-Zhong Du\*

