

Journal of Materials Chemistry B

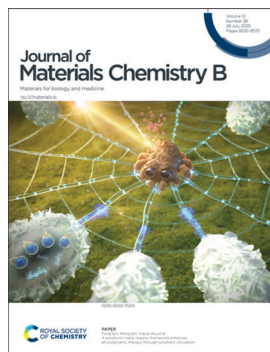
Materials for biology and medicine

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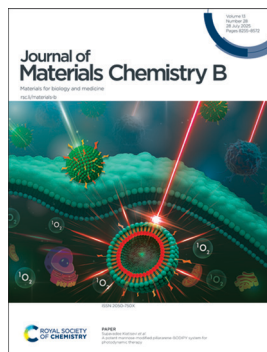
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ISSN 2050-750X CODEN JMCBDV 13(28) 8255–8572 (2025)



Cover

See Feng Qin, Meng Qin, Xiaoi Wu *et al.*, pp. 8335–8347. Image reproduced by permission of Meng Qin from *J. Mater. Chem. B*, 2025, 13, 8335.



Inside cover

See Supavadee Kiatisevi *et al.*, pp. 8348–8357. Image reproduced by permission of Supavadee Kiatisevi *et al.* from *J. Mater. Chem. B*, 2025, 13, 8348.

EDITORIAL

8265

Introduction to bioinspired functional supramolecular systems

João Borges,* Patricia Y. W. Dankers,* João F. Mano* and Sébastien Lecommandoux*

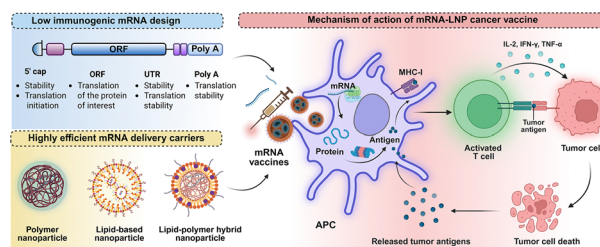


REVIEWS

8268

Harnessing dendritic cells as immunological bridges to potentiate mRNA cancer vaccines

Ruiying Wu, Huixin Li, Ziqin Li,* Kai Hao* and Huayu Tian*



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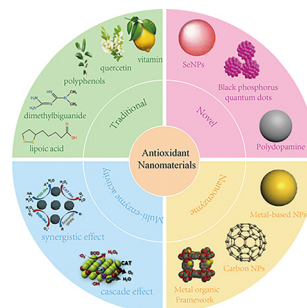


REVIEWS

8286

Nanozymes as next-generation ROS scavengers: design strategies, catalytic mechanisms, and therapeutic frontiers

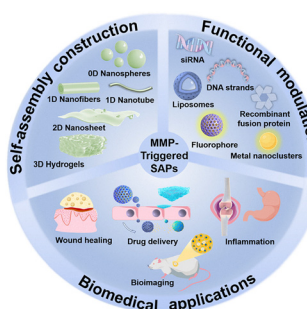
Junxue Shen, Yalong Pan, Lijun Han, Li Luo, Taolei Sun and Yao Yu*



8298

Matrix metalloproteinase-triggered self-assembling peptides for biomedical applications

Zhuyun Liu, Chunlin Yu, Zhenjia Li, Xiaorui Wang, Dejing Shang* and Weibing Dong*

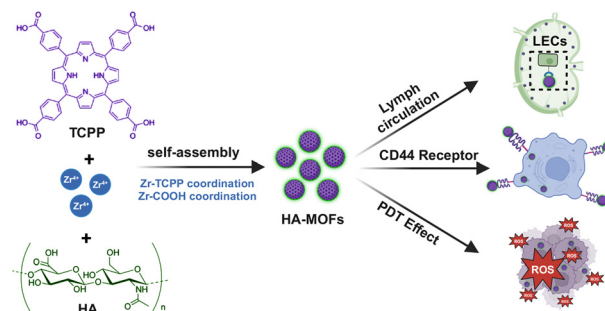


PAPERS

8335

A porphyrin metal–organic framework enhances photodynamic therapy through lymphatic circulation

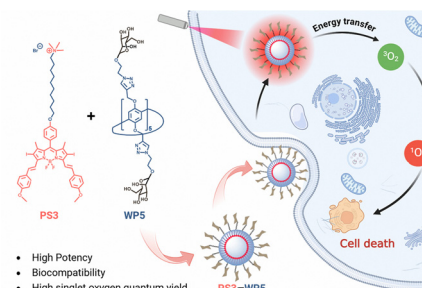
Qihong Ouyang, Xin Li, Yuechen He, Yuxin Bai, Xunhuan Song, Xinglv Chen, Yuzhou Xiao, Lili Mao, Min Chen, Xiaodan Pan, Weihong Kuang, Feng Qin,* Meng Qin* and Xiaoai Wu*



8348

A potent mannose-modified pillararene-BODIPY system for photodynamic therapy

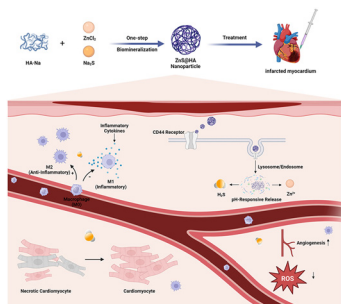
Pitiphoom Sangiamkittikul, Sopon Nuchpun, Kanlaya Prapainop Katewongsa, Tawinan Cheiwchanchamnangij, Korawit Khamphaijun, Thanthapatra Bunchuay, Nattapon Panupinthu, Worakrit Saiyasombat, Sitthivut Charoensutthivarakul and Supavadee Kiatisevi*



- High Potency
- Biocompatibility
- High singlet oxygen quantum yield



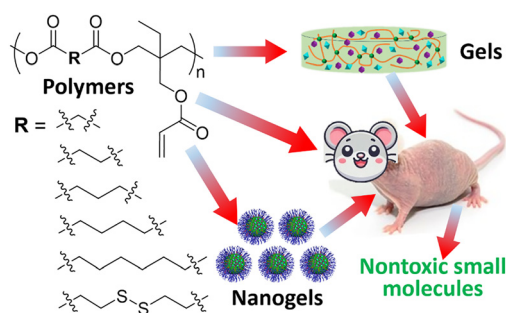
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Alleviation of myocardial infarction by hydrogen sulfide-releasing nanoparticles: mechanisms and therapeutic effects

Yujia Zhan, Xueshan Zhao, Ruiqi Liu, Siwei Bi, Yuxuan Ge, Yin Wang, Haibo Wang, Lisha Jiang* and Jun Gu*

8368



Biodegradable hyperbranched polyesters of trimethylolpropane with acrylate side chains enabling sustainable gel materials and nanomaterials for drug delivery applications

Binglin Sui,* Safiya Nisar and M. D. I. H. Seneviratne

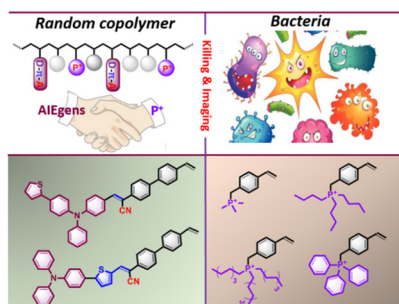
8380



Boosting anti-tumor immunity with boron-based nanosheets via photodynamic-elicited pyroptosis and adjuvant delivery

Xinran Xie, Shuaiyin Zhang, Ming Liu, Yang Ye, Yongxin Huang, Zhixin Li, Junyan Lin, Jie Liu, Jingchun Zhou,* Changyi Xu* and Zhaoxu Tu*

8395



Compiling modules of photosensitizers and quaternary phosphonium blocks into material networks via a co-polymerization strategy: an effective way to fabricate antimicrobial agents against drug resistance

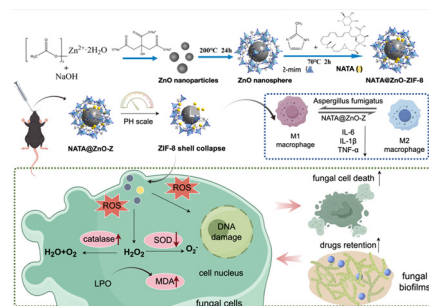
Jiawei Lv, Cheng Zeng, Richao Shen, Shuangyu Dong, Yong Li, Sanbao Wang, Hongting Fan, Haowen Huang, Zhiwang Yang, Ziqiang Lei* and Hengchang Ma*



8406

ZIF-8-coated ZnO with pH-responsive natamycin release boosting the antifungal and anti-inflammation activity to treat fungal keratitis

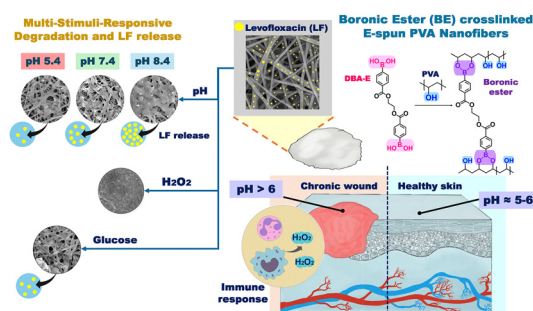
Ziyi Wang, Jing Lin, Qian Wang, Lina Zhang, Bing Yu, Menghui Chi, Xueyun Fu, Daohao Li,* Guiqu Zhao* and Cui Li*



8419

Multi-stimuli-responsive degradable boronic ester-crosslinked e-spun nanofiber wound dressings

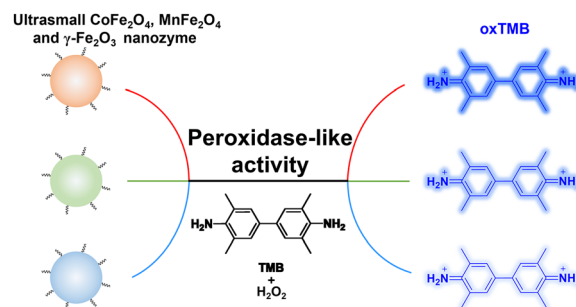
Sofia Nieves Casillas-Popova, Nishadi Dilkushi Lokuge, Prerna Singh, Arianna Cirillo, Anna Thinphang-Nga, Cameron D. Skinner, Dajana Vuckovic, Brandon L. Findlay and Jung Kwon Oh*



8434

Parallel comparative studies on composition-dependent peroxidase-like catalytic activity of ultrasmall ferrite nanoparticles

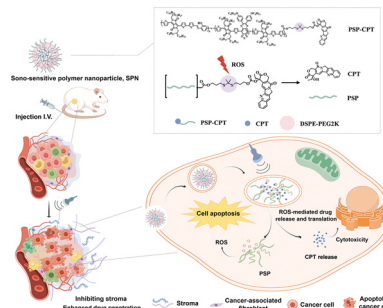
Chunchao Xia, Huan Zhang,* Mengmeng Xie, Jiaying Che, Quanqing Feng, Yihan Zhang, Guohang Ma, Minrui Liu, Sixian Hu, Yuan He, Xiaoli Liu, Zhenlin Li* and Haiming Fan*



8446

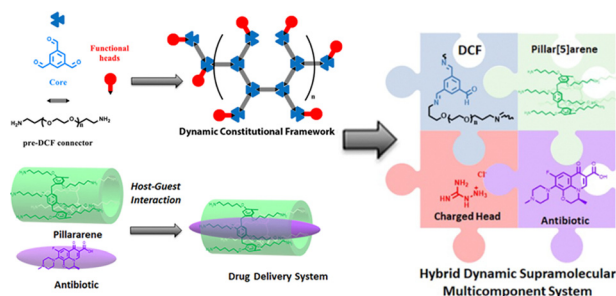
ROS-responsive conjugated polymer nanoparticles triggered by ultrasound for camptothecin release in breast cancer combination therapy

Yipiao Zhang, Tian Tian, Zhaokui Zeng, Chuanpin Chen,* Rongrong Wang,* Suhong Chen* and Hongliang Zheng*



PAPERS

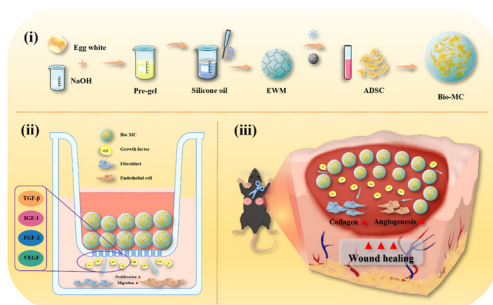
8461



Synergistic approaches for combating the pathogen *Acinetobacter baumannii*: dynamic constitutional frameworks and pillararene-based self-assembled drug delivery systems

Dmytro Strilets, Steven Van Meerbeek, Anke Breine, Charles Van der Henst, Tom Coenye and Stéphane P. Vincent*

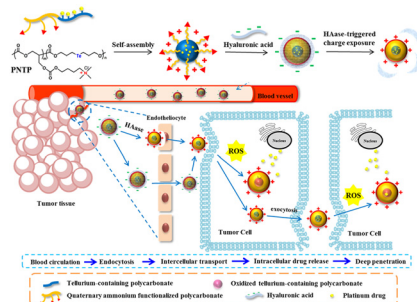
8470



Synergistic integration of ADSCs and egg white hydrogel microspheres for accelerated wound regeneration

Yu He, Ying Zhao, Qiang Chang, Ting Li* and Zhaowei Zeng*

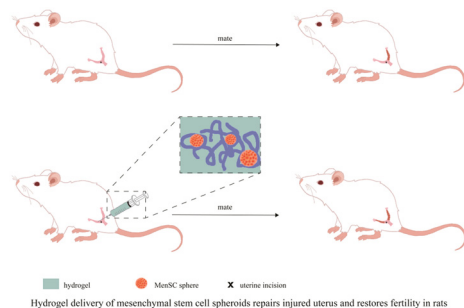
8483



pH-Independent charge-reversal strategy for enhanced tumor penetration based on hyaluronidase-responsive tellurium-containing polycarbonate nanocarriers

Jieni Hu, Wang Zhou, Yan Zhou, Haiyan Hu,* Shujun Ran* and Yan Zhang*

8496



Effective repair of endometrial injury in rats using enzyme cross-linked gelatin hydrogels with human menstrual blood-derived stem cells

Peilin Liao, Jinghe Xie, Jue Wang, Jiamin Lin, Xueyan Zhang, Changlu Qin, Hongyan Wang, Yuyou Duan* and Huiqiong Bao*

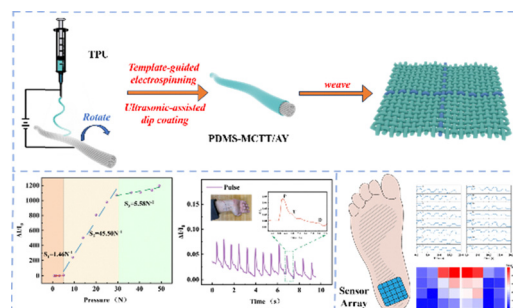


PAPERS

8510

High-performance pressure sensors based on MXene@CNT coaxial nanofiber-coated yarns for multipoint motion detection and health monitoring

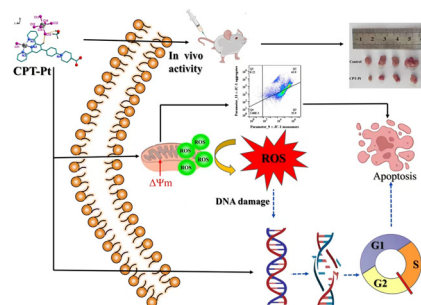
Songyue Pan, Jingqiang He, Weijie Wang, Jiatong Yan, Shan Jiang, Chuanxi Lin, Hong Tang and Ronghui Guo*



8526

Discovery of Pt(II) complexes based on a terpyridine skeleton and study of their antiproliferative activity against pancreatic cancer cells

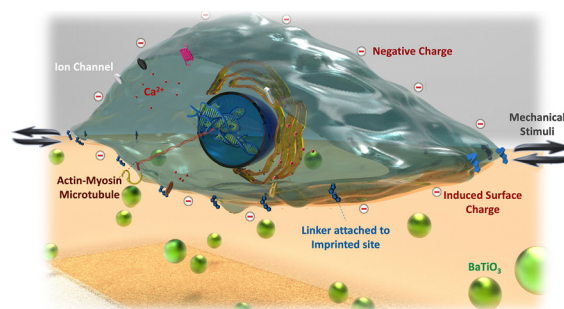
Ling Wang, Siying Chong, Shuangyan Wu, Yaguang Sun, Ying Zhang,* Chiyu Sun* and Mingchang Zhu*



8542

Bioinspired osteoblast-imprinted piezoelectric PDMS/BaTiO₃ nanocomposites accelerate the osteogenic differentiation of adipose-derived stem cells under mechanical stimulation

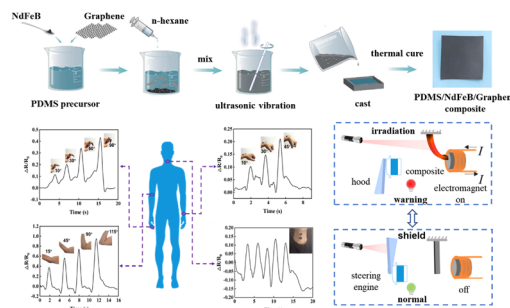
F. Pouladzadeh, Sh. Bonakdar,* N. Haghighipour, A. A. Katbab and S. Bagheri-Khoulenjani*



8558

Magnetic soft actuator with self-sensing capability

Wenjie Zhang, Shengyuan Zhang and Jingda Tang*



CORRECTION

8568

Correction: Copper nanocrystalline-doped folic acid-based super carbon dots for an enhanced antitumor effect in response to tumor microenvironment stimuli

Qing Xia, Ying Zhang, Hui Zhang, Xiong Zhang, Xiaodan Wu, Zhiqiang Wang,* Rui Yan* and Yingxue Jin*

