

Biomaterials Science

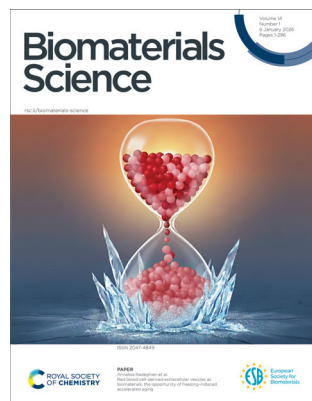
An international high impact journal exploring the underlying science behind the function, interactions and design of biomaterials

rsc.li/biomaterials-science

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 2047-4849 CODEN BSICCH 14(1) 1-296 (2026)



Cover

See Annalisa Radeghieri *et al.*, pp. 122–139.

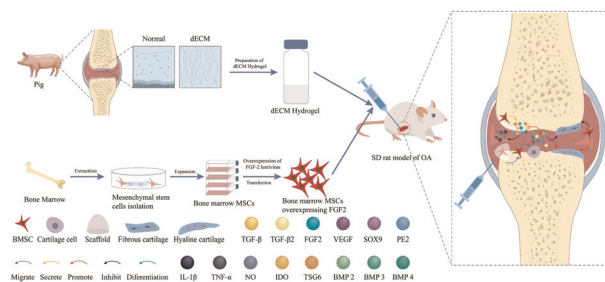
Image reproduced by permission of Annalisa Radeghieri from *Biomater. Sci.*, 2026, **14**, 122.

REVIEWS

9

Bone marrow mesenchymal stem cells overexpressing *FGF-2* loaded onto a decellularized extracellular matrix hydrogel for the treatment of osteoarthritis

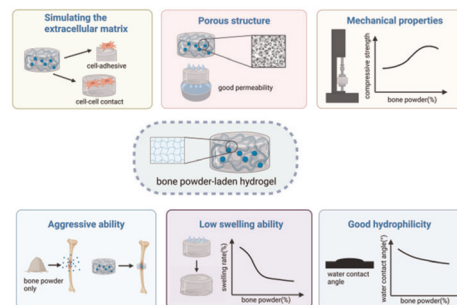
Yue Qiu, Bo Yu, Cancai Jiang, Huangyi Yin, Jinzhi Meng, Hongtao Wang, Lingyun Chen, Yang Cai, Tianyu Ren, Qingfa Qin, Jia Li* and Jun Yao*



31

Bone powder-laden hydrogel scaffolds in bone tissue engineering

Xinyi Shen, Danji Zhu, Haorui Hu, Lingkai Su,* Gang Wu, Tim Forouzanfar, Guoli Yang* and Zhiwei Jiang*



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

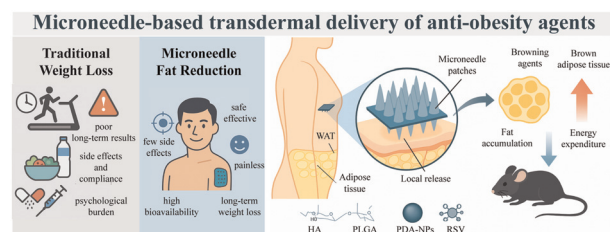


REVIEWS

56

Fabrication and application of microneedle systems for adipose tissue reduction

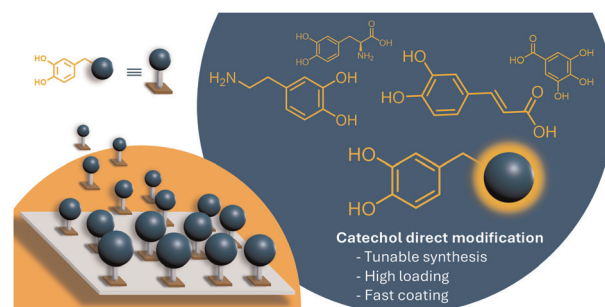
Tuling Cai, Minghao Guo, Si Qin, Dawei Sun, Xiao Yu, Chengyong Wang and Zhishan Yuan*



81

Catechol modification as a platform for functional coatings

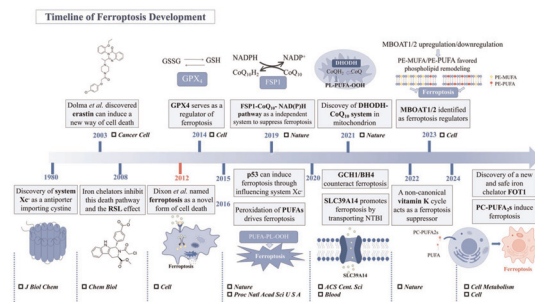
Banibrata Maiti, Erik V. Van der Eycken and Guglielmo A. Coppola*



100

Advances and therapeutic potential of ferritin-involved drug delivery systems for ferroptosis-targeted therapy

Yupeng Zhang, Xiu Han, Ruixuan Long, Zhenghong Wu* and Xiaole Qi*

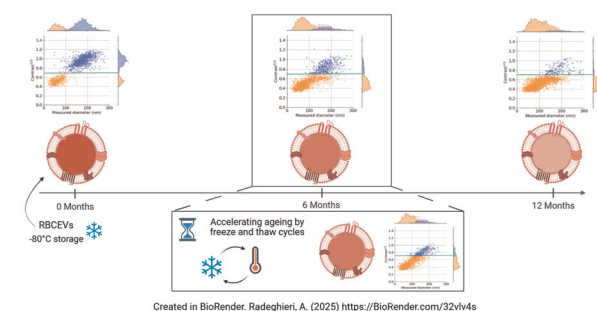


PAPERS

122

Red blood cell-derived extracellular vesicles as biomaterials: the opportunity of freezing-induced accelerated aging

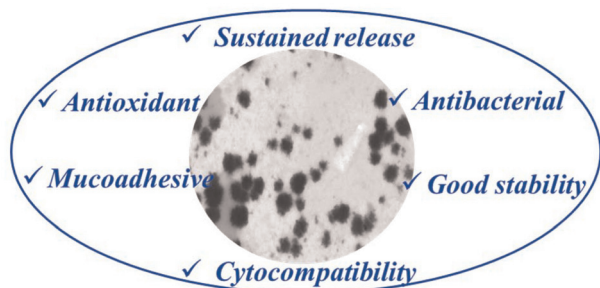
Lucia Paolini, Miriam Romano, Valentina Mangolini, Selene Tassoni, Shuhan Jiang, Elena Laura Mazzoldi, Angelo Musicò, Andrea Zandrini, Anna Kashkanova, Vahid Sandoghdar, Anna C. Berardi, Silvia Clara Giliani, Paolo Bergese and Annalisa Radeghieri*



Created in BioRender. Radeghieri, A. (2025) <https://BioRender.com/32rv4v4s>



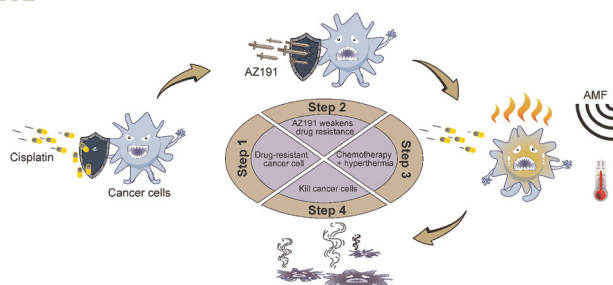
140



Multifunctional erythromycin-loaded liposomes: a methodological optimization for enhanced mucoadhesion, antioxidant activity, and biocompatibility

Vera-Maria Platon, Anda Mihaela Craciun, Irina Rosca, Natalia Simionescu and Luminita Marin*

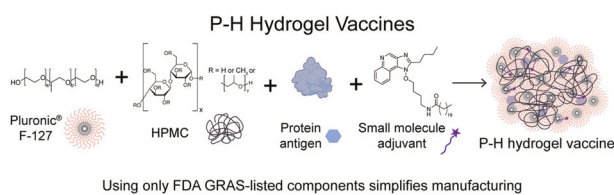
161



Core-shell hydrogel microspheres with sequential drug release and magnetothermal synergy for drug-resistant ovarian cancer

Peinan Yin, Anamaria Brozovic, Wei Zhang* and Chengwei Wu

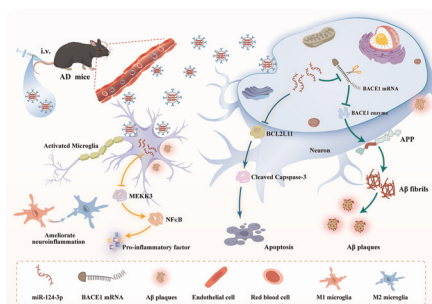
173



Enabling global access to potent subunit vaccines with a simple and scalable injectable hydrogel platform

Priya Ganesh, Alexander N. Prossnitz, Carolyn K. Jons, Noah Eckman, Alakesh Alakesh, Ye Eun Song, Samya Sen and Eric A. Appel*

186



Engineering microglial exosome-mediated microRNA-124-3p delivery for Alzheimer's disease combinational therapy

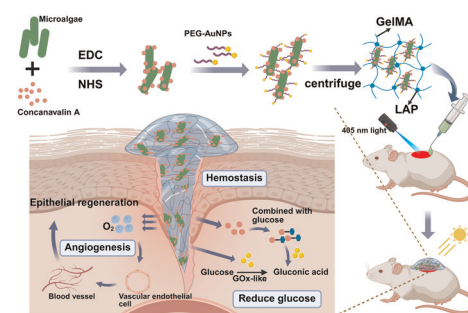
Jia Ke, Jing Ding, Yichong Xu, Caini Yu, Yiling Hong, Sufen Li, Tingting Meng, Yuan Ping, Hong Yuan and Fuqiang Hu*



198

Multi-functional intelligent drug-loaded microalgae for the repair of diabetic wounds: oxygen supply, cell proliferation promotion, and hypoglycemic effect

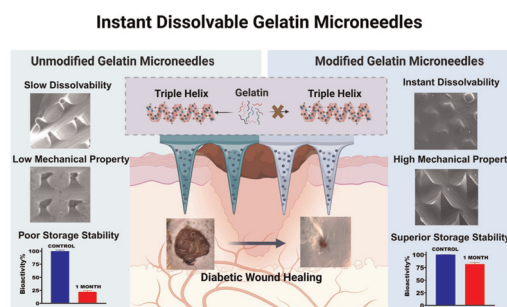
Shuming Ye, Neng Jin, Yuxin Xu, Liang Hu, Changming Guo, Xuehua Jiao,* Guiyang Zhang* and Juehua Jing*



212

Carboxylated gelatin-based instant dissolvable microneedles with robust mechanical properties and biomolecule stabilization for biomedical applications

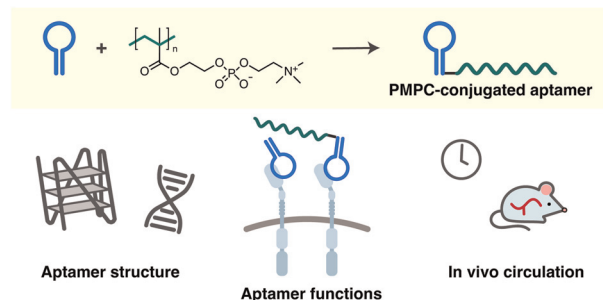
Jayakumar Rajendran, K. Jeyashree, Sujith M.S., Lalitha Devi Alluri and Jyotsnendu Giri*



232

Investigation of the physicochemical and functional properties of poly(2-methacryloyloxyethyl phosphorylcholine)-conjugated aptamers

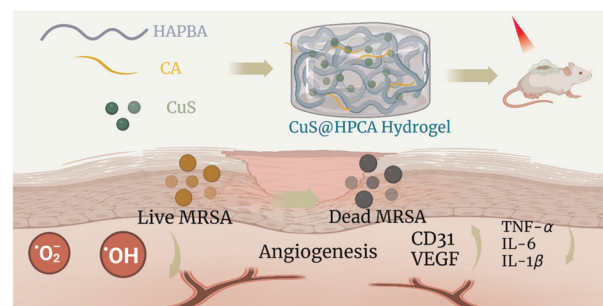
Seojung Cho, Jumpei Morimoto, Yutaro Saito, Yukiko Nagai, Asuka Sakata, Keitaro Yoshimoto, Mitsuki Tsuruta, Daisuke Miyoshi and Shinsuke Sando*



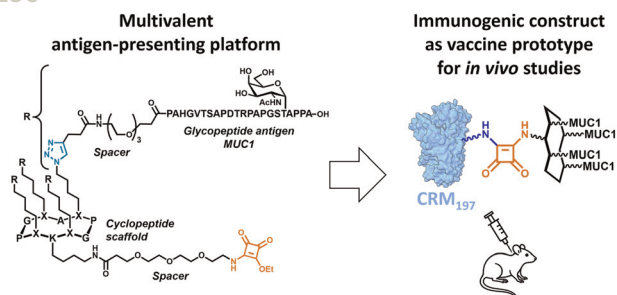
240

Anti-inflammatory and tissue regeneration effects of a chlorogenic acid/hyaluronic acid hydrogel on methicillin-resistant *Staphylococcus aureus*-infected diabetic wounds

YQ Wang, LY Jia, SH Shen, ZR Zhu, WY Cai, GJ De, MY Yang, SM Xiao, YJ Chen, Y Zhao,* S Liu* and QH Zhao*



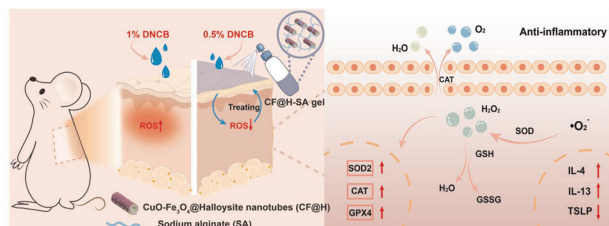
256



Design, synthesis and immunological evaluation of CRM₁₉₇-based immunogens functionalized with synthetic scaffolds displaying a tumor-associated MUC1 glycopeptide

Carlo Pifferi,* David Goyard, Leire Aguinagalde, Olivier Renaudet,* Juan Anguita* and Alberto Fernández-Tejada*

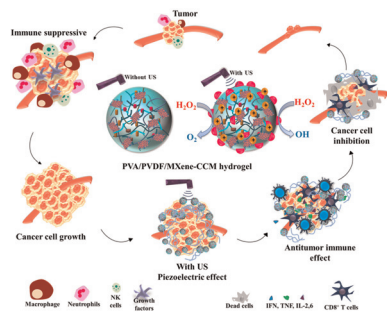
264



Cu–Fe bimetallic nanozyme@halloysite–sodium alginate composite hydrogels for the treatment of atopic dermatitis

Di Zhang, Luying Zeng, Xiangyu Chen, Shuiqing Zhou, Binghong Luo and Mingxian Liu*

279



Ultrasound-powered MXene hydrogels for enhancing tumor inhibition and immune stimulation by the piezoelectric effect

Ammavasi Chandran Ambigaibalan, Sivaraj Mehnath, Kannaiyakumar Dharshini and Murugaraj Jeyaraj*

