

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 13(22) 6207-6474 (2025)



Cover

See Hwanyong Choi and Jinah Jang, pp. 6215–6238.

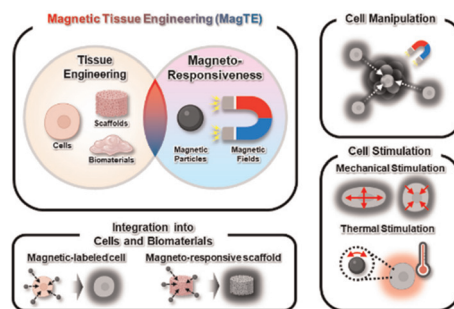
Image reproduced by permission of Jinah Jang from *Biomater. Sci.*, 2025, **13**, 6215.

REVIEWS

6215

Magnetic-based tissue engineering: principles, applications, and future prospects in biofabrication

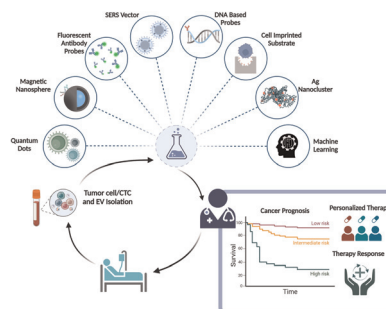
Hwanyong Choi and Jinah Jang*



6239

Functional biomaterials and machine learning approaches for phenotyping heterogeneous tumor cells and extracellular vesicles

Rutwik Joshi, Raheel Ahmad, Karl Gardner, Hesaneh Ahmadi, Chau-Chyun Chen, Shannon L. Stott* and Wei Li*



Royal Society of Chemistry approved training courses

Explore your options.
Develop your skills.
Discover learning
that suits you.

**Courses in the classroom,
the lab, or online**

Find something for every
stage of your professional
development. Search our
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit rsc.li/cpd-training



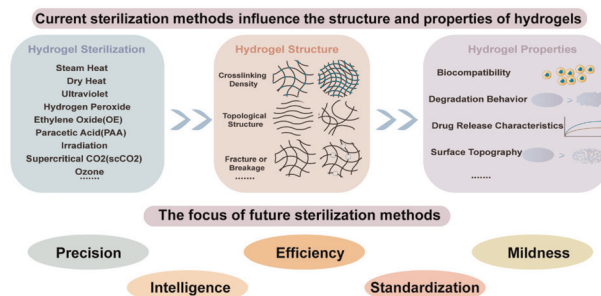
**SAVE
10%**

REVIEWS

6270

Effects of irradiation sterilization on the physicochemical and functional properties of commercial biomedical hydrogels

Yin Zhou, Yueyu Ma, Abdus Samad, Zhonghao Wang, Zhuohao Gu, Jingwei Shi, Yuwen Cui,* Yiyan He* and Zhongwei Gu

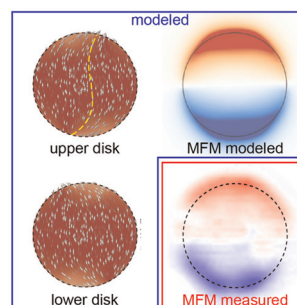


PAPERS

6285

Approaching the physical limits of specific absorption rate for synthetic antiferromagnetic nanodisks in hyperthermia applications

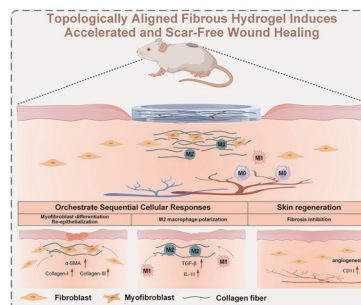
S. Scheibler, H. Wei, J. Ackers, S. Helbig, S. Koraltan, R. Peremadathil-Pradeep, M. Krupinski, M. Graeser, D. Suess,* I. K. Herrmann* and H. J. Hug*



6298

Topologically aligned fibrous biopolymeric hydrogel orchestrates sequential cellular responses for accelerated scarless wound healing

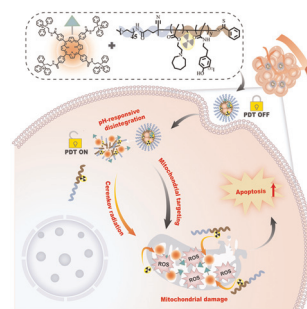
Yongjie Wu, Zenghui Jia, Kang Sun, Guangdong Zhou* and Ke Tao*



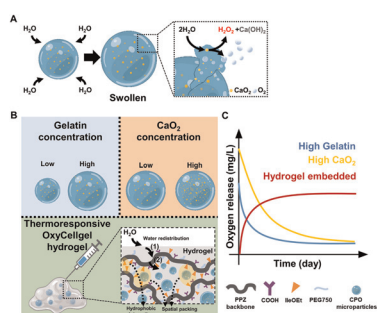
6316

An activatable self-amplifying ROS nanoplatfrom for augmented Cerenkov radiation-induced photodynamic therapy

Hehua Xiong, Yiling Ruan, Huihui Liu, Xuan Liu* and Xiaolian Sun*



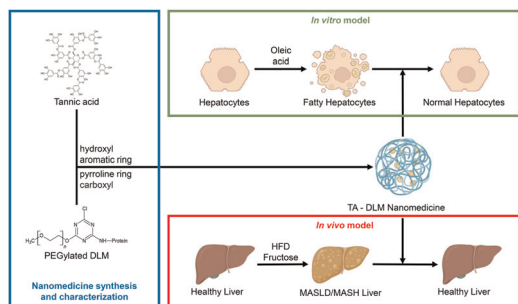
6326



Modulating oxygen release via manipulated microspheres embedded in thermoresponsive hydrogels for enhanced stem cell survival under hypoxia

Jiyeon Lee, Jisun Kim, Ki Wan Bong and Soo-Chang Song*

6350

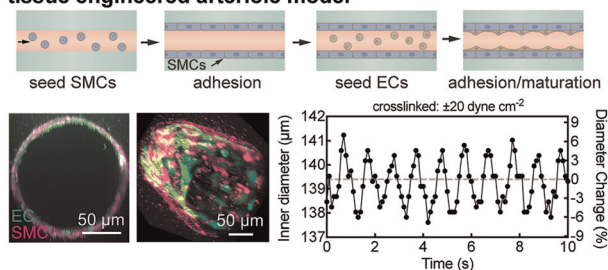


Development of a decellularized liver matrix-based nanomedicine for metabolic dysfunction-associated steatotic liver disease

Yong-Heng Lin, Huei-Fen Jheng and Yung-Te Hou*

6368

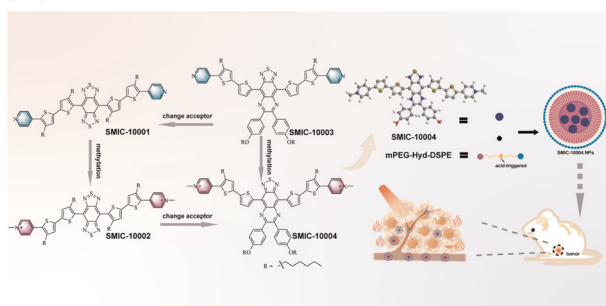
tissue engineered arteriole model



A tissue-engineered endothelial cell – smooth muscle cell arteriole-like model

Ninghao Zhu, Lily Liang, Nan Zhao, Haosong Chen and Peter C. Searson*

6378



Charge modulation in D-A-D molecules: an acid-responsive NIR-II nanoplatfor for imaging and photothermal therapy

Shu Gao, Jiahui Wang, Xiaonan Wei, Jun Wang, Yuanpeng Jiang, Boyu Tan, Yeshan Qin, Xiaoyang Zhu, Ruihu Song, Chunrong Qu,* Kun Qian* and Zhen Cheng*

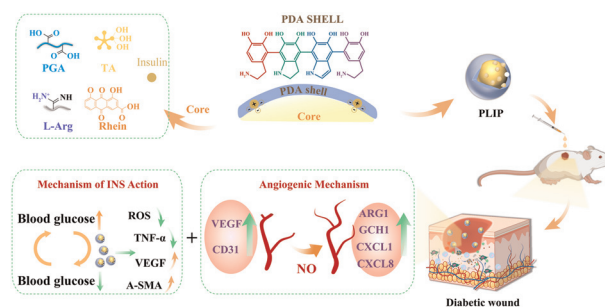


PAPERS

6388

Innovative epidermal-penetrating nanogels with microenvironment-adaptive pH responsiveness orchestrate glucose homeostasis reprogramming and spatiotemporally coordinated therapeutic cascades for precision diabetic wound therapy

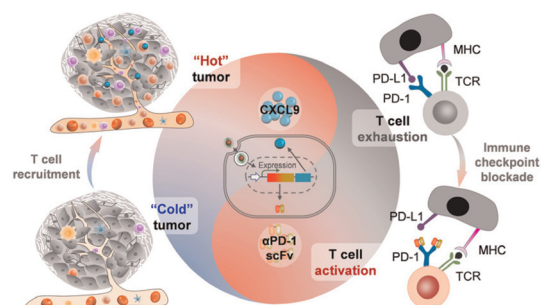
Xiangli Chen, Jiafan Bai, Linyu Wang, Hongyan Liu, Jie Shi, Wenzhen Peng, Jie Weng, Wei Zhi and Jianxin Wang*



6410

Nanomedicine-mediated co-expression of a PD-1 blockade agent and CXCL9 synergizes T cell infiltration and activation in solid tumors

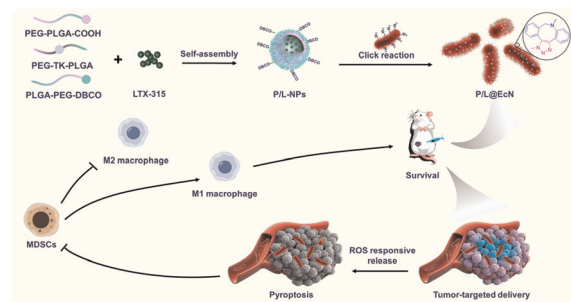
Yan Wang,* Liang Zhao, Jia-Yu Luo, Jie Li, Xin-Ya Gao, Hui-Xiao Li, Yue Zheng and Jia-Wei Liu*



6423

Bacteria biohybrids integrating anticancer peptide-loaded nanoparticles for tumor immunotherapy through pyroptosis activation

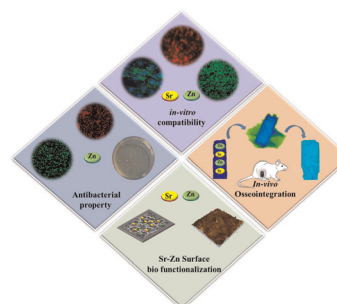
Shiyi Chen, Xunping Ouyang, Xue Wei, Gang He, Yiwen Xian, Chong Zhang* and Decheng Wu*



6433

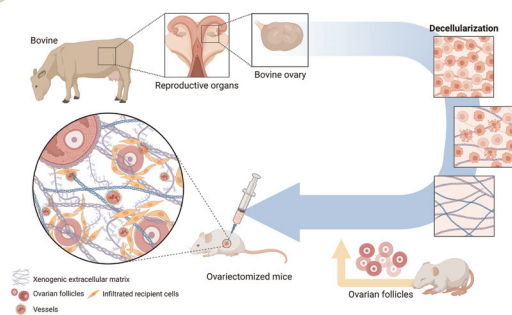
Tailoring the interfaces of titanium with strontium and zinc: a surface functionalization approach with *in vitro* and *in vivo* evaluation for bone implants

Sreya P V, Ann Mary Mathew, Kalimuthu Vignesh, Chandran Manimegalai Swathi, Balamuthu Kadalmani and Deepak K. Pattanayak*



PAPERS

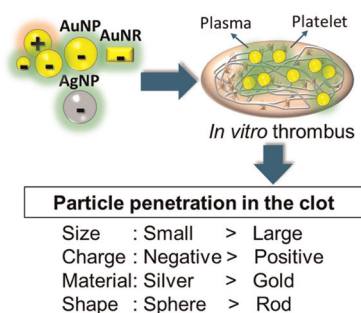
6446



A proof-of-concept study on an injectable artificial ovary using a xenogeneic ECM for fertility restoration

Chungmo Yang, Nanum Chung, Chaeyoung Song, Hyerim Kim, Jungwoo Shin, Kangwon Lee* and Jung Ryeol Lee*

6458



Impact of material characteristics on nanoparticle penetration and retention in thrombi: implications for thrombolysis

Xiangxun Chen, Haotian Cha, Shehzahdi S. Moonshi, Nam-Trung Nguyen and Hang Thu Ta*

CORRECTIONS

6470

Correction: NiFe-LDH-enhanced Ru single-atom catalysts anchored on MXenes for synergistic photothermal–nanocatalytic cancer therapy

Sharipova Gulnihol, Takhirov Yuldash, Rakhmanov Kosim, Avliyoqulova Musharraf, Lola Abduraximova, Ismailova Zukhra, Ibragimkhodjaev Bakhodir, Kuchkorova Ra'no, Abdullayev Dadaxon, Dilbar Urazbaeva, Sullieva Suluv and Monireh Faraji*

6471

Correction: Ultra-low attachment surface enabling 3D co-culture of human B cells with CD40L-expressing stromal cells for *in vitro* mimicry of secondary lymphoid organs

Ananta Kumar, Kyoung Hwan Park, Kang Moo Huh* and Kyung-Ho Roh*

