

Journal of Materials Chemistry B

Materials for biology and medicine

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(23) 6563–6886 (2025)



Cover

See Ming Zhao, Shiqi Peng
et al., pp. 6679–6688.

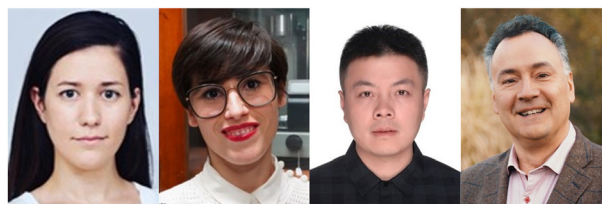
Image reproduced
by permission of
Shiqi Peng from
J. Mater. Chem. B,
2025, 13, 6679.

EDITORIAL

6572

Bioelectronics: Emerging trends and applications

Anna-Maria Pappa, Eleonora Macchia, Hong Liu and
George Malliaras

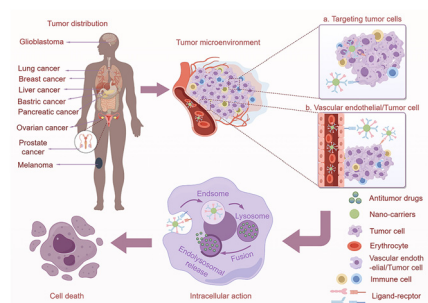


REVIEWS

6574

A superior method for antitumor therapy and application: dual-ligand nanomedicines

Ailing Wang, Xuejun Wang, Dan Li, Aixue Li,
Mengyuan He, Yingying Yuan, Li Ye* and Jiyong Liu*



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%**

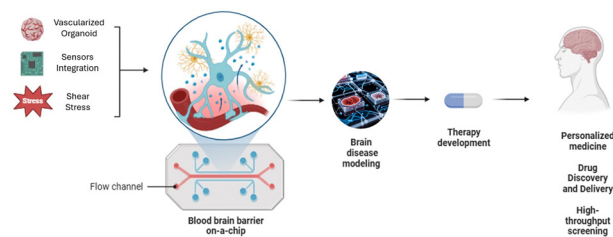


REVIEWS

6597

Recent advances in 3D models for multiparametric blood–brain barrier detection in microfluidic systems

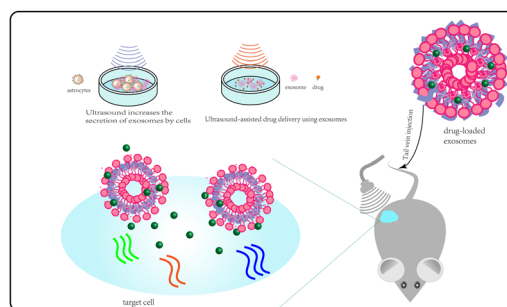
Chiara Boncristiani, Alessia Di Gilio,* Federica De Castro, Alessandra Nardini, Jolanda Palmisani, Rebeca Martínez Vázquez, Gianluigi de Gennaro, Francesco Paolo Fanizzi, Giuseppe Ciccarella and Viviana Vergaro*



6626

The combined application of exosomes/exosome-based drug preparations and ultrasound

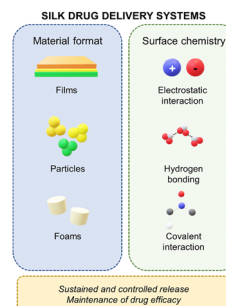
Xiuli Wen and Yi Hao*



6638

Influence of material format and surface chemistry for the sustained delivery and efficacy of silk drug delivery systems *in vivo*

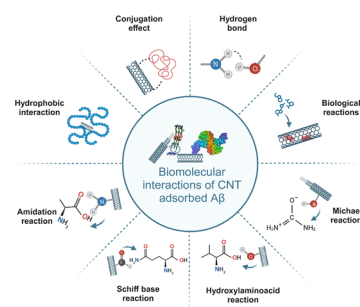
Christine Jurene O. Bacal, Benjamin J. Allardyce* and Filippo Valente*



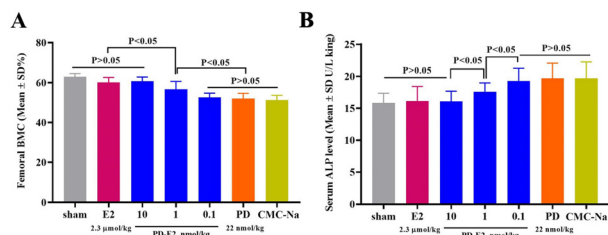
6664

Biomolecular interactions of carbon nanotubes with amyloid- β proteins

Jinxia Cai, Bowen Li, Guoqing Feng, Jie Zhang, Haojun Fan* and Bin Zheng*



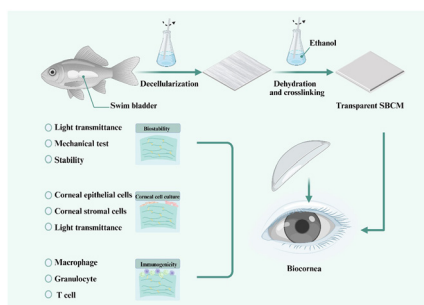
6679



PD-E2: a nano-scaled delivery for estradiol to decrease uterus damage and increase bone mineral density

Qiqi Feng, Hao Gong, Haimei Zhu, Xiaoyi Zhang, Yaonan Wang, Yifan Yang, Jianhui Wu, Ming Zhao* and Shiqi Peng*

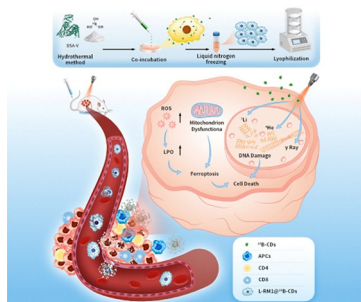
6689



Highly transparent and elastic acellular swim bladder with potential application in cornea implantation

Yue Yin, Linyu Long, Ningxin Wang, Ran Wei, Mengna Guo, Daihua Fu, Fanju Zhang, Ke Ma,* Li Yang* and Yunbing Wang

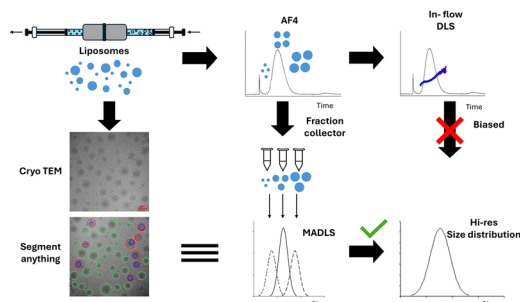
6701



Lyophilized tumour cell-loaded ^{10}B -doped carbon dots for simultaneous boron neutron capture therapy and enhancement of antitumor immunity of prostate cancer

Yongjin Yang, Zhiyi Zhao, Chengyu You, Miao Pang, Tianyuan Zhong, Qingchao Li, Shiwei Jing, Yanxin Qi,* Yubin Huang* and Zhilong Dong*

6712



Going hi-res in bulk: flowless multiangle dynamic light scattering for detection on asymmetric flow field flow fractionation

Lavinia Rita Doveri, Giorgia Dal Pan, Giovanni Tomaselli, Tomás Muñoz Santoro, Piersandro Pallavicini, Carlos Ortiz de Solorzano and Yuri Antonio Diaz Fernandez*

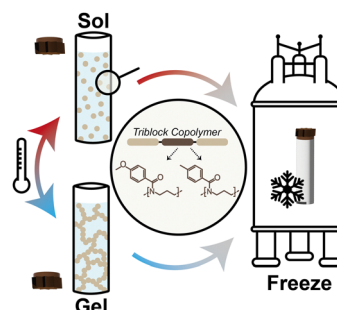


PAPERS

6727

Capturing the sol and gel states of thermoresponsive poly(2-oxazoline)/-(2-oxazine) hydrogels by ambient and subambient solid-state NMR

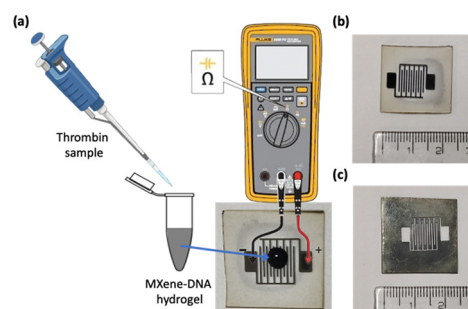
Theresa Zorn, Stephanie Bachmann, Lando Polzin, Johannes Greiner, Robert Luxenhofer and Ann-Christin Pöpller*



6742

A functional 2D MXene–DNA hybrid hydrogel for portable detection of blood disorder biomarker thrombin in human plasma

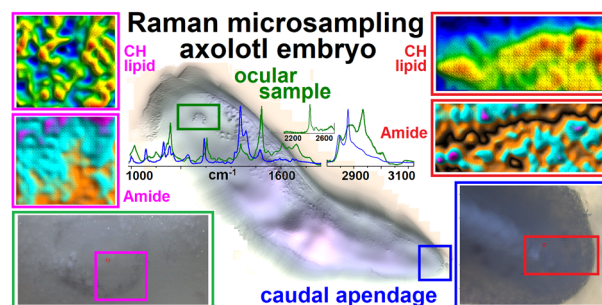
Vinod Morya, Dhiraj Bhatia, Chinmay Ghoroi* and Amit K. Yadav*



6755

Raman microscopy as a tool to study changes in chemical composition upon structural differentiation of *Ambystoma* embryo

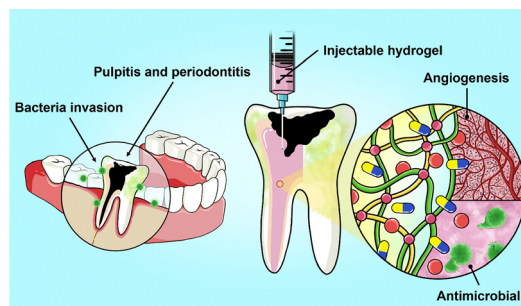
Victor V. Volkov and Carole C. Perry*



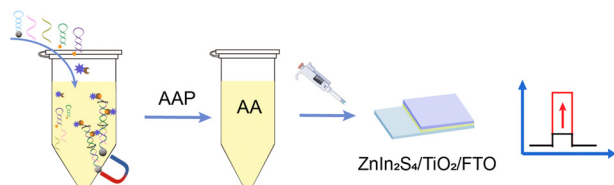
6765

Dual-functional injectable hydrogels as antimicrobial and angiogenic therapeutics for dental pulp regeneration

Nhu-Quynh Thi Nguyen, Cuong Hung Luu, Ngoc-Dan Ho Nguyen, Duy Quoc Vo, Ngoc Hong T. Luu, Nhu-Y Ngoc Ha, Thanh-Truc Ngoc Vo, Que-Phuong Le Huynh, Thavasyappan Thambi, Chau T. T. Ngo* and Giang V. H. Phan*



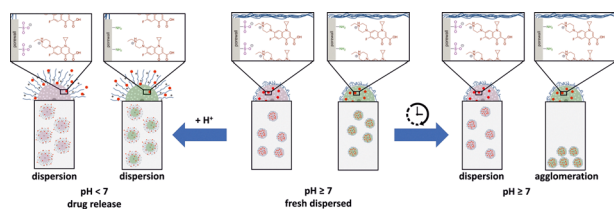
6784



Split-type photoelectrochemical biosensing for miRNA-144 assay based on a ZnIn₂S₄/TiO₂ heterojunction

Ying Zheng, Fan Mo, Qian Sun, Xinzhou Huang, Yijie Du, Xiaomei An, Haoning Ma, Guoqiu Wu, Yuanjian Zhang and Yanfei Shen*

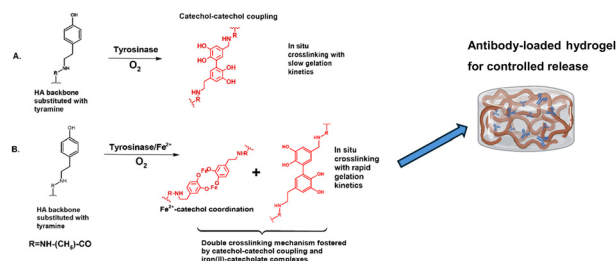
6792



Stimuli-responsive core-shell-shell nanocarriers for implant-directed magnetic drug targeting

Timo Herrmann, Nina Angrisani, Janin Reifenrath, Jessica Meißner, Adrian Hannebauer, Lukas Mönkeberg, Valentin Hagemann, Irene Morales, Peter Behrens, Nina Ehlert* and Sebastian Polarz*

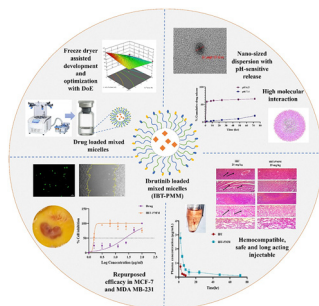
6804



Iron(II)-catalysed tyrosinase crosslinked hyaluronic acid hydrogel for the controlled release of human antibodies

Seth Asamoah,* Martin Pravda,* Jana Matonohová, Tereza Bártová, Eva Šnejdrová, Sebastian Spiegel, Andrew Chan, Vincent Pernet and Vladimír Velebný

6819



Benchmarking of pH-responsive mixed micelles for repurposed breast cancer therapy of ibrutinib with molecular modeling and pharmacokinetic insights

Indrani Maji, Sharon Munagalasetty, Lakshmi Tulasi Narahariseti, Ezhilmathe A., Srushti Mahajan, Mayur Aalhat, Ujala Gupta, Pooja Yadav, Vasundhara Bhandari, Chandraiah Godugu, Manish Kumar Chourasia and Pankaj Kumar Singh*

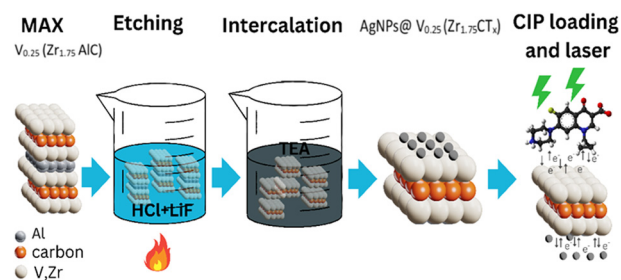


PAPERS

6843

Tailoring the synthesis of $V_{0.25}(Zr_{1.75})C$ MXene for sensitive SERS quantification of ciprofloxacin antibiotics: spectroscopic and DFT investigation

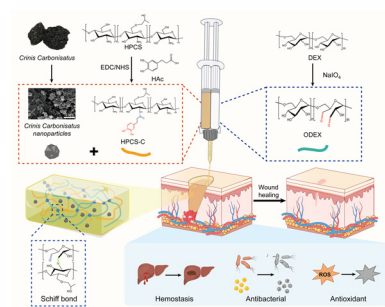
Nasurullah Mahar, Areej H. Al-Mebti, Sajjad Hussain and Abdulaziz A. Al-Saadi*



6855

Injectable self-healing hydrogels loaded with Crinis Carbonisatus nanoparticles for rapid hemostasis and wound healing

Rui Tian, Fazhen Luo, Yilin Yu, Jinxia Mi, Xiaoya Gao, Zhengtao Wang* and Yan Xie*



6873

Rational design of near-infrared carbon dots as polarity-sensitive fluorescent probes for imaging of lipid droplets

Zheng Yang,* Ying Peng, Mengyao Qu, Haonan Yang, Xiaodan Jia and Xiangrong Liu

