

# Journal of Materials Chemistry B

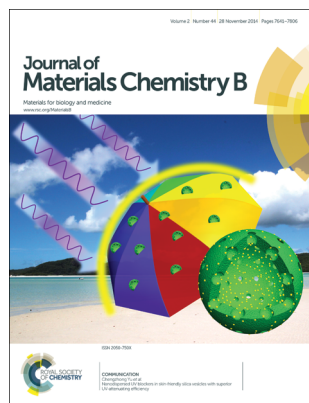
Materials for biology and medicine

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## IN THIS ISSUE

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pp. 7673–7678.  
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2014, 2, 7673.

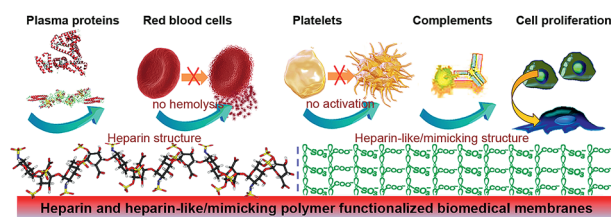
## FEATURE ARTICLE

7649

### Progress in heparin and heparin-like/mimicking polymer-functionalized biomedical membranes

Chong Cheng,\* Shudong Sun and Changsheng Zhao\*

In this review article, we highlight the recent researches and biomedical applications in the field of surface heparinization and heparin inspired modification of polymeric membranes.



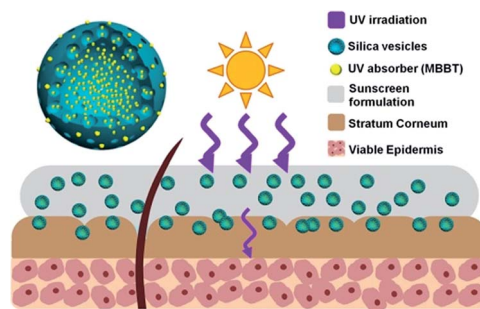
## COMMUNICATION

7673

### Nanodispersed UV blockers in skin-friendly silica vesicles with superior UV-attenuating efficiency

Jun Zhang, Anthony P. Raphael, Yannan Yang,  
Amirali Popat, Tarl W. Prow and Chengzhong Yu\*

A nanodispersed hydrophobic UV blocker was encapsulated by skin-friendly silica vesicles in an amorphous state, leading to ultrahigh UV-attenuating efficiency and SPF values.



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# Journal of Materials Chemistry B

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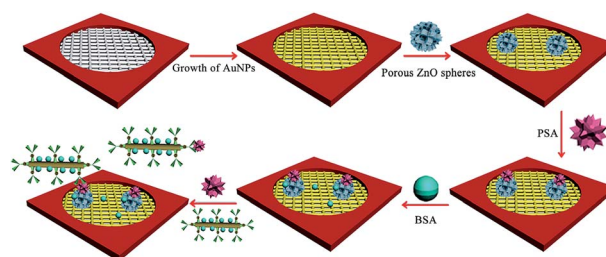


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### Chemiluminescence excited paper-based photoelectrochemical competitive immunosensing based on porous ZnO spheres and CdS nanorods

Guoqiang Sun, Yan Zhang, Qingkun Kong, Chao Ma, Jinghua Yu, Shenguang Ge, Mei Yan\* and Xianrang Song

A chemiluminescence excited photoelectrochemical (PEC) competitive immunosensor for sensitive and specific detection of the prostate specific antigen (PSA) is firstly developed by combining a microfluidic paper-based device.

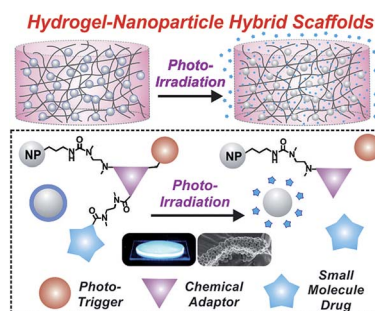


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### Photo-triggerable hydrogel–nanoparticle hybrid scaffolds for remotely controlled drug delivery

Shreyas Shah, Pijus K. Sasmal and Ki-Bum Lee\*

Hydrogel–nanoparticle hybrid scaffolds that combine synthetic photo-triggerable compounds, three-dimensional hydrogels and multifunctional nanoparticles in a single, reservoir-based drug delivery platform.

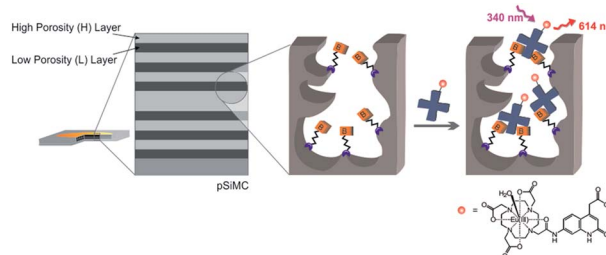


7694

### Biomolecule detection in porous silicon based microcavities via europium luminescence enhancement

S. N. Aisiyiah Jenie, Zhangli Du, Steven J. P. McInnes, Phuc Ung, Bim Graham, Sally E. Plush and Nicolas H. Voelcker\*

The ability of a porous silicon microcavity (pSiMC) to act as a luminescence enhancing sensor was confirmed using Eu(III) complex labelled streptavidin as a model analyte on a biotin-modified pSiMC.

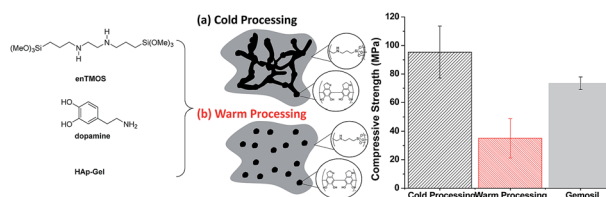


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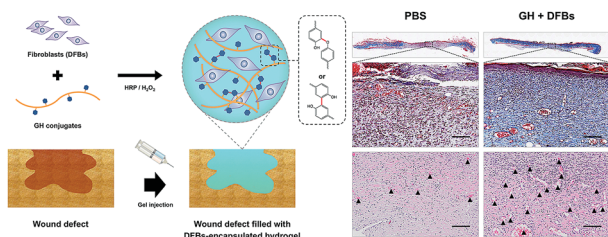
### The role of temperature in forming sol–gel biocomposites containing polydopamine

Jason Christopher Dyke, Huamin Hu, Dong Joon Lee, Ching-Chang Ko\* and Wei You\*

The processing temperature has a big impact on the mechanical properties of HAp-Gemasil composites containing polydopamine.



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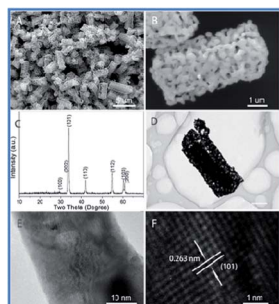


### Enzyme-catalyzed *in situ* forming gelatin hydrogels as bioactive wound dressings: effects of fibroblast delivery on wound healing efficacy

Yunki Lee, Jin Woo Bae, Jin Woo Lee, Wonhee Suh and Ki Dong Park\*

Wound treatment using injectable or sprayable fibroblast-encapsulated GH-hydrogels.

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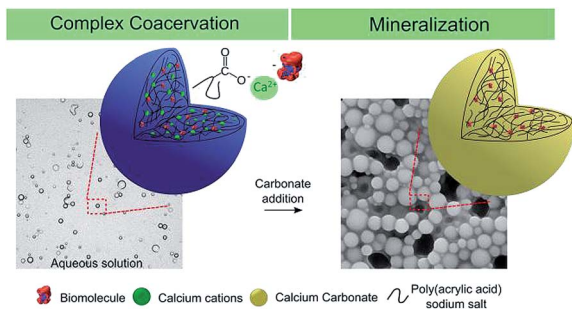


### A porous PdO microrod-based electrochemical sensor for nanomolar-level $\text{Cu}^{2+}$ released from cells

Xia Cao,\* Yu Han, Caizhen Gao, Ying Xu, Xiaomin Huang, Magnus Willander and Ning Wang\*

Highly porous PdO microrods (PoPdOMRs) with a well-defined morphology, large surface area and active sites were synthesized *via* a facile wet chemical method for the first time.

7725

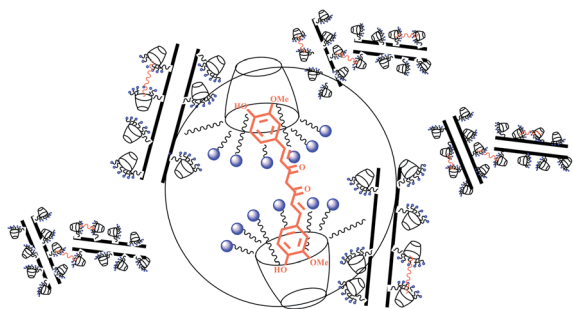


### Coacervate-directed synthesis of $\text{CaCO}_3$ microcarriers for pH-responsive delivery of biomolecules

V. Lauth, M. Maas\* and K. Rezwan

pH-responsive, protein loaded calcium carbonate microcarriers are synthesized by the combination of complex coacervation and mineralization for drug delivery applications.

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### Functionalized halloysite multivalent glycocluster as a new drug delivery system

M. Massaro, S. Riela,\* P. Lo Meo, R. Noto, G. Cavallaro, S. Milioto and G. Lazzara\*

A new design for halloysite nanotube materials was obtained by grafting chemically modified cyclodextrin units onto the nanotube surface.

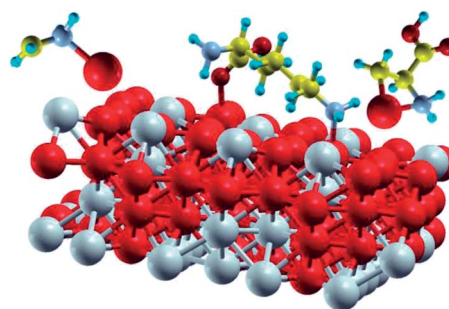


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### Interfacing hard and living matter: plasma-assembled proteins on inorganic functional materials for enhanced coupling to cells and tissue

U. Allenstein,\* F. Szillat, A. Weidt, M. Zink and S. G. Mayr\*

A novel plasma assisted functionalization technique is employed to strongly crosslink lysine monomers on functional metal surfaces. Chemical processes in the plasma are rationalized by density functional theory calculations. The resulting coating is robust, ductile and cell adhesion enhancing.

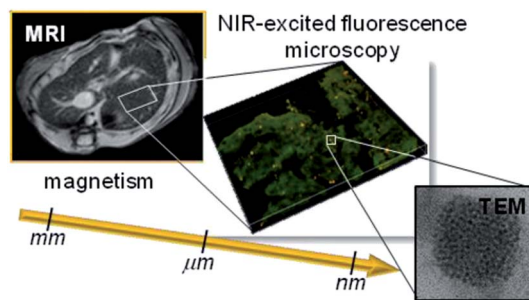


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### Highly cohesive dual nanoassemblies for complementary multiscale bioimaging

Adrien Faucon, Thomas Maldiney, Olivier Clément, Philippe Hulin, Steven Nedellec, Myriam Robard, Nicolas Gautier, Evelien De Meulenaere, Koen Clays, Tomas Orlando, Alessandro Lascialfari, Céline Fiorini-Debuisschert, Jérôme Fresnais and Eléna Ishow\*

Core-shell nanoarchitectures made of non-doped fluorescent organic platforms capped with magnetic nanoparticles display high bioimaging performances.

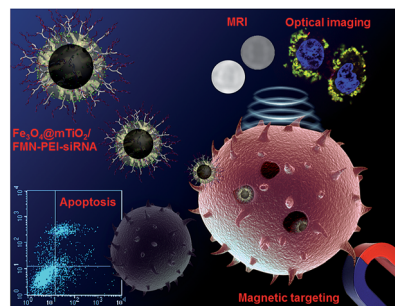


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### Magnetically guided survivin-siRNA delivery and simultaneous dual-modal imaging visualization based on $\text{Fe}_3\text{O}_4@\text{mTiO}_2$ nanospheres for breast cancer

Jiang Wu, Ying Liu, Wei Li, Chunyan Wang, Yanjun Li, Ying Tian, Jing Sun, Shouju Wang, Xin Wang, Yuxia Tang, Hong Zhu, Zhaogang Teng\* and Guangming Lu\*

$\text{Fe}_3\text{O}_4@\text{mTiO}_2/\text{FMN-PEI}$  as a siRNA delivery system can transfect survivin-siRNA to induce apoptosis, along with magnetic targeting, MRI and optical imaging.

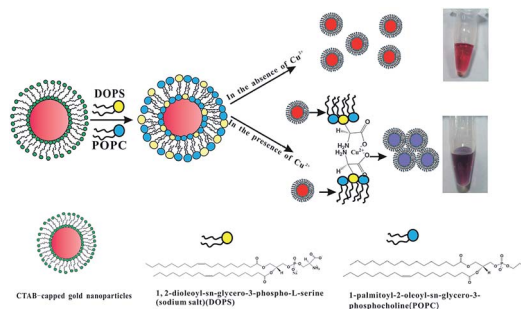


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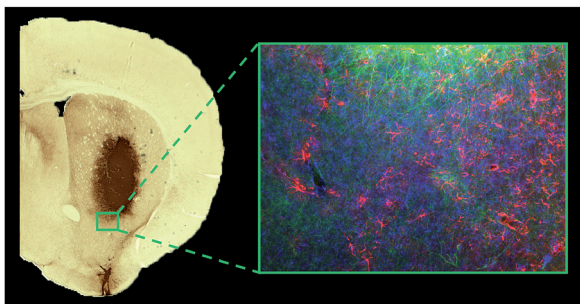
### A novel phosphatidylserine-functionalized AuNP for the visual detection of free copper ions with high sensitivity and specificity

WeiJuan Yang, Ye He, LiangJun Xu, Danlong Chen, Mengxue Li, Hongyan Zhang and FengFu Fu\*

A novel phosphatidylserine (PS)-functionalized AuNP was synthesized for the visual detection of  $\text{Cu}^{2+}$ . The as-prepared PS-functionalized AuNPs could specifically bind  $\text{Cu}^{2+}$  to induce the aggregation of AuNPs, which gave rise to a color change from wine-red to blue.



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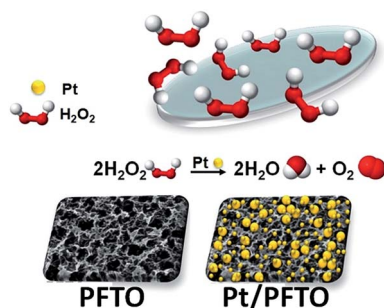


### ***In vivo* assessment of grafted cortical neural progenitor cells and host response to functionalized self-assembling peptide hydrogels and the implications for tissue repair**

A. L. Rodriguez, T. Y. Wang, K. F. Bruggeman, C. C. Horgan, R. Li, R. J. Williams, C. L. Parish\* and D. R. Nisbet\*

Functionalized *N*-fluorenylmethoxycarbonyl self-assembling peptides are biocompatible *in vivo*, demonstrating their utility as a cell delivery vehicle for tissue engineering.

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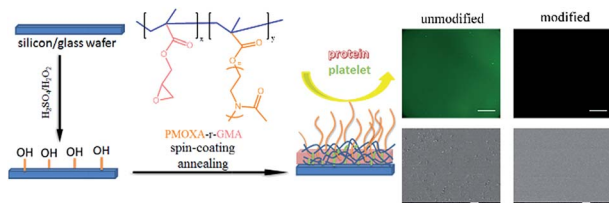


### **Porous fluorine-doped tin oxide as a promising substrate for electrochemical biosensors—demonstration in hydrogen peroxide sensing**

Kuan-Ting Lee, Dai-Min Liu, Yung-Yung Liang, Nobuhiro Matsushita, Toshiyuki Ikoma and Shih-Yuan Lu\*

Conducting porous substrates of high hydrophilicity offer not only fast charge transport and large sensing surface areas but also necessary wettability in aqueous analytes for electrochemical biosensors.

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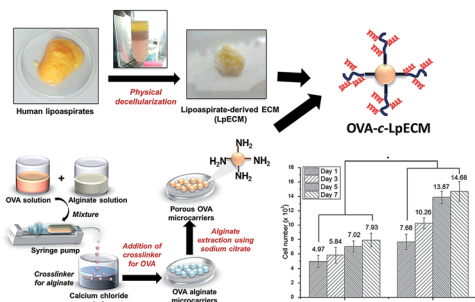


### **Preparation and characterizations of poly(2-methyl-2-oxazoline) based antifouling coating by thermally induced immobilization**

Longchao Bai, Lin Tan, Lijuan Chen, Songtao Liu and Yanmei Wang\*

Poly[(2-methyl-2-oxazoline)-random-glycidylmethacrylate] was immobilized on a silicon/glass surface via a simple annealing procedure to obtain a covalent and cross-linked antifouling coating.

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### **Bioactivated protein-based porous microcarriers for tissue engineering applications**

Baiwen Luo, Qiu Li Loh, Marcus Thien Chong Wong, Nguan Soon Tan and Cleo Choong\*

Lipoaspirate-derived extracellular matrix enrichment was able to provide the necessary cell adhesion receptors and biological factors for improving cell-material interactions of porous OVA microcarriers.