

# Journal of Materials Chemistry B

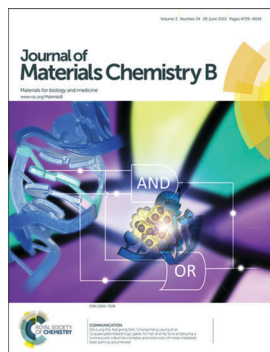
Materials for biology and medicine

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## IN THIS ISSUE

ISSN 2050-750X CODEN JMCBDV 3(24) 4759–4934 (2015)



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See Dik-Lung Ma,  
Kangning Ren,  
Chung-Hang Leung *et al.*,  
pp. 4780–4785.  
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*J. Mater. Chem. B*,  
2015, 3, 4780.

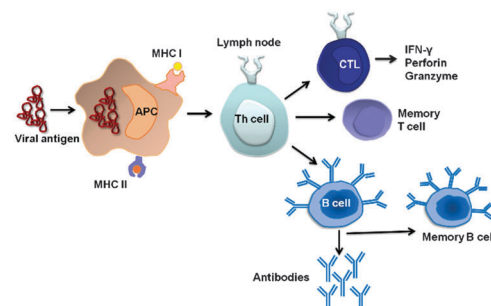
## REVIEW

4767

### The potential of nanoparticles for the immunization against viral infections

Viktoriya Sokolova, Astrid Maria Westendorf, Jan Buer, Klaus Überla and Matthias Eppler\*

Vaccination has a great impact on the prevention and control of infectious diseases. Nanoparticles can deliver immunoactive biomolecules to induce a virus-specific immune response.



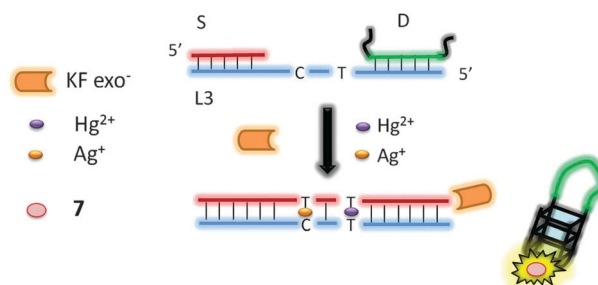
## COMMUNICATIONS

4780

### G-quadruplex-based logic gates for Hg<sup>II</sup> and Ag<sup>I</sup> ions employing a luminescent iridium(III) complex and extension of metal-mediated base pairs by polymerase

Dik-Lung Ma,\* Sheng Lin, Lihua Lu, Modi Wang, Chong Hu, Li-Juan Liu, Kangning Ren\* and Chung-Hang Leung\*

We report herein the synthesis of a series of cyclometallated iridium(III) complexes as luminescent G-quadruplex-selective probes to construct AND, OR and INHIBIT logic gates for the detection of Hg<sup>II</sup> and Ag<sup>I</sup> ions.



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Journal of Materials Chemistry B (print: ISSN 2050-750X; electronic: ISSN 2050-7518) is published 48 times a year by The Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

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# Journal of Materials Chemistry B

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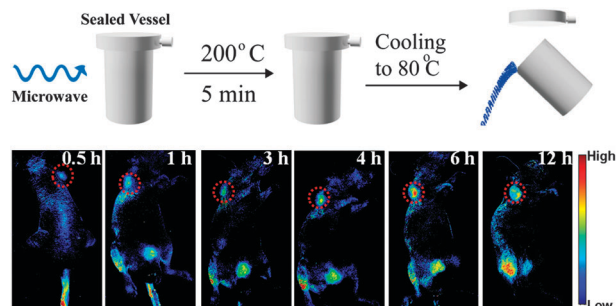
## COMMUNICATIONS

4786

**Rapid microwave-assisted synthesis of ultra-bright fluorescent carbon dots for live cell staining, cell-specific targeting and *in vivo* imaging**

Hua He,\* Xiaojuan Wang, Zhenzhen Feng, Tiantian Cheng, Xing Sun, Yawei Sun, Yongqing Xia, Shengjie Wang, Junying Wang and Xiaodong Zhang\*

Ultra-bright fluorescent carbon dots were rapidly synthesized for multifunctional bio-imaging including live cell staining, cell-specific targeting and *in vivo* imaging.



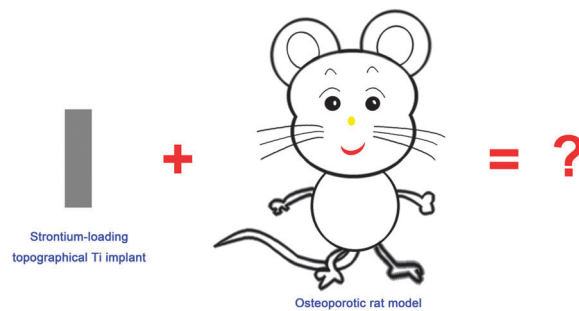
## PAPERS

4790

**Strontium delivery on topographical titanium to enhance bioactivity and osseointegration in osteoporotic rats**

Jin Wen, Jinhua Li, Hongya Pan, Wenjie Zhang, Deliang Zeng, Lianyi Xu, Qianju Wu, Xiuli Zhang, Xuanyong Liu\* and Xinqian Jiang\*

Strontium-substituted hierarchical Ti surface can enhance the osseointegration by both increasing new bone formation and reducing bone resorption under osteoporotic conditions.

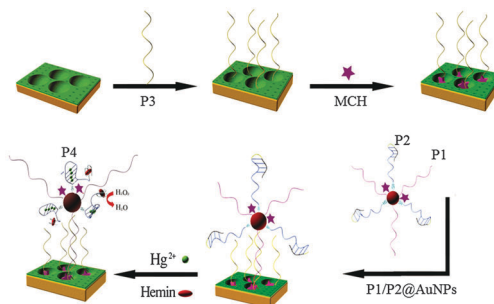


4805

**An electrochemical sensing strategy based on a three dimensional ordered macroporous polyaniline–platinum platform and a mercury(II) ion-mediated DNAzyme functionalized nanolabel**

Rong Tian, Xiaojun Chen,\* Nan Jiang, Ning Hao, Lin Xu and Cheng Yao\*

An  $\text{Hg}^{2+}$ -switched DNA biosensor using a three dimensional ordered macroporous polyaniline–platinum platform and a G-rich sequence recognition probe was developed, with the detection limit of  $8.7 \times 10^{-14}$  M.

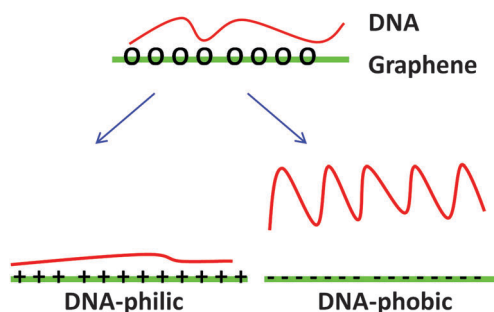


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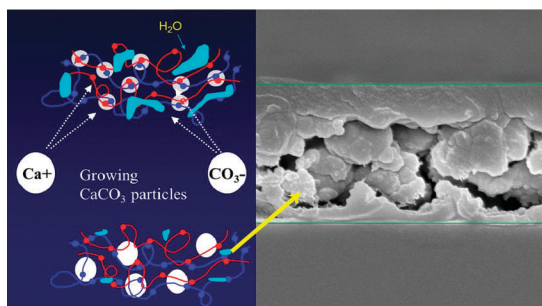
**Charge-tunable absorption behavior of DNA on graphene**

Zhe Kong, Wei Zheng, Qi Wang, Hongbo Wang, Fengna Xi, Lijun Liang\* and Jia-Wei Shen\*

Charge-tunable absorption behavior of DNA on graphene: 0 is uncharged; – is negative charge; + is positive charge.



4821

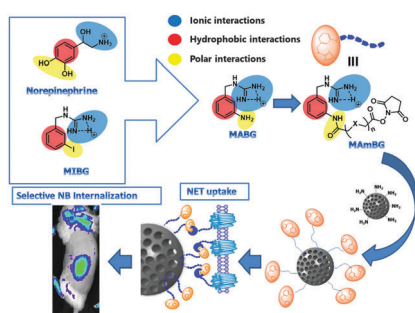


### Naturally inspired polyelectrolyte multilayer composite films synthesised through layer-by-layer assembly and chemically infiltrated with $\text{CaCO}_3$

Iffat F. Patel, Maxim V. Kiryukhin, Nikolai L. Yakovlev, Himadri S. Gupta\* and Gleb B. Sukhorukov\*

Inorganic chemical infiltration in polyelectrolyte multilayer films results in a considerable change in morphology and mechanical properties mimicking natural composite materials.

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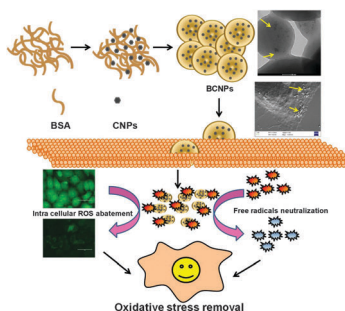


### A new targeting agent for the selective drug delivery of nanocarriers for treating neuroblastoma

Gonzalo Villaverde, Alejandro Baeza,\* Gustavo J. Melen, Arantazu Alfranca, Manuel Ramirez and Maria Vallet-Regi\*

Novel MIBG analogues as targeting agents for neuroblastoma nanomedicines.

4843

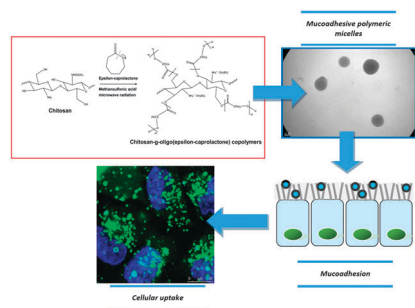


### Antioxidant nanozyme: a facile synthesis and evaluation of the reactive oxygen species scavenging potential of nanoceria encapsulated albumin nanoparticles

Bharat Bhushan and P. Gopinath\*

In the present article, a facile synthesis of biocompatible nanoceria encapsulated albumin nanoparticles (BCNPs) via desolvation technique that lead to the abatement of intracellular ROS is reported.

4853



### Chitosan-*g*-oligo( $\epsilon$ -caprolactone) polymeric micelles: microwave-assisted synthesis and physicochemical and cytocompatibility characterization

Romina J. Glisoni, Silvina S. Quintana L, María Molina, Marcelo Calderón, Albertina G. Moglioni and Alejandro Sosnik\*

Mucoadhesive chitosan-*g*-oligo( $\epsilon$ -caprolactone) polymeric micelles were synthesized by a microwave-assisted technique and fully characterized *in vitro*.

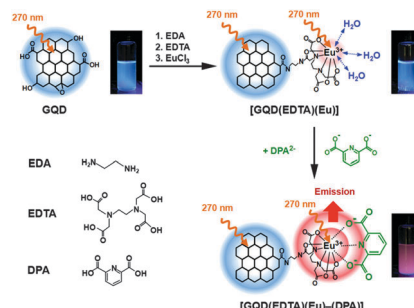


4865

### A graphene quantum dots based fluorescent sensor for *anthrax* biomarker detection and its size dependence

Jaehoon Ryu, Eunwoo Lee, Kisu Lee and Jyongsik Jang\*

Graphene quantum dots (GQDs) with two different diameters were modified via hybridization with a EuIII–macromolecule complex, and their application as dual emission fluorescent sensors for detection of *Bacillus anthracis* spores was investigated.

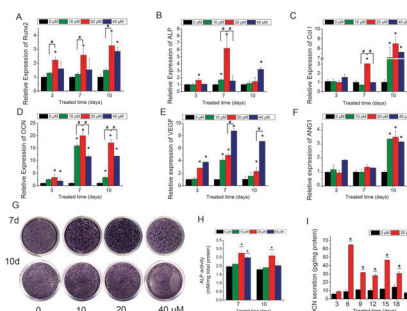


4871

### Evaluation of osteogenesis and angiogenesis of icariin loaded on micro/nano hybrid structured hydroxyapatite granules as a local drug delivery system for femoral defect repair

Yuqiong Wu, Lunguo Xia, Yuning Zhou, Wudi Ma, Na Zhang, Jiang Chang, Kaili Lin,\* Yuanjin Xu\* and Xinquan Jiang\*

Icariin has been identified to promote osteogenic differentiation of bone mesenchymal stem cells (BMSCs).

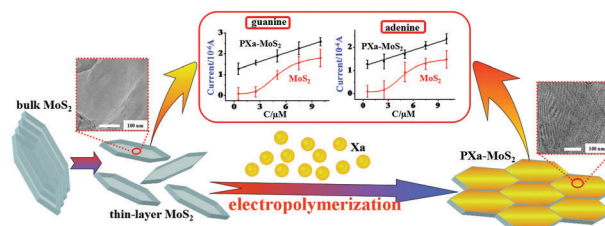


4884

### Enhanced electropolymerization of poly(xanthurenic acid)–MoS<sub>2</sub> film for specific electrocatalytic detection of guanine and adenine

Tao Yang,\* Meijing Chen, Fuxin Nan, Lihua Chen, Xiliang Luo\* and Kui Jiao

The electropolymerized PXa–MoS<sub>2</sub> hybrid interface based on thin-layer MoS<sub>2</sub> exhibited enhanced electrocatalytic activity for aromatic guanine and adenine.

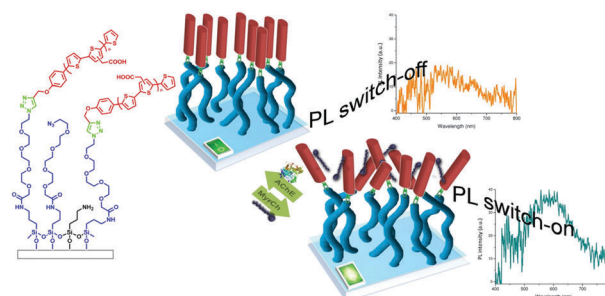


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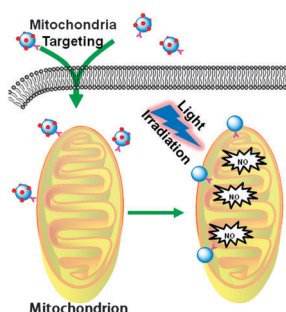
### Acetylcholinesterase-induced fluorescence turn-off of an oligothiophene-grafted quartz surface sensitive to myristoylcholine

G. Grisci, W. Mróz, U. Giovanella, K. Pagano, W. Porzio, L. Ragona,\* F. Samperi, S. Tomaselli, F. Galeotti\* and S. Destri

Immobilized oligothiophene chains that are able to assemble/disassemble upon interaction with a cationic surfactant to detect acetylcholinesterase activity by altering their photoluminescence.



4904

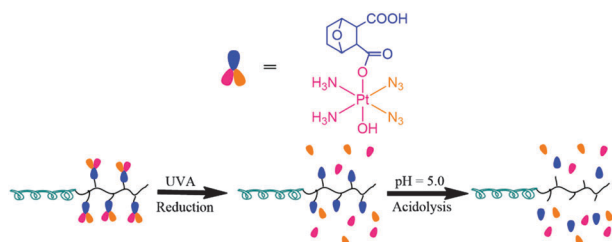


### A mitochondrial-targeting and NO-based anticancer nanosystem with enhanced photo-controllability and low dark-toxicity

Jiangsheng Xu, Fang Zeng,\* Hao Wu and Shuizhu Wu\*

A spatiotemporally controllable NO-releasing nanosystem for killing cancer cells with high efficiency based on carbon dots has been developed, which exhibits mitochondrial targeting, light-responsive NO-releasing and cell imaging capabilities.

4913

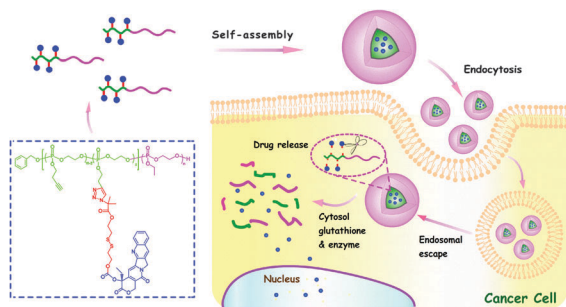


### A polymer-(multifunctional single-drug) conjugate for combination therapy

Dongfang Zhou, Shasha He, Yuwei Cong, Zhigang Xie, Xuesi Chen, Xiabin Jing and Yubin Huang\*

A single-drug integrating three different drug functions (platinum, azidyl radical and DMC) and two types of therapies (chemotherapy and radiation therapy) was synthesized and attached onto a carrier to prepare a polymer-(multifunctional single-drug) conjugate.

4922



### A polyphosphoester-conjugated camptothecin prodrug with disulfide linkage for potent reduction-triggered drug delivery

Qingqing Zhang, Jinlin He,\* Mingzu Zhang and Peihong Ni\*

A reduction-cleavable polyphosphoester-camptothecin (CPT) prodrug tailored for enhancing drug loading content and triggering drug release has been prepared and applied in tumor chemotherapy.