

## IN THIS ISSUE

eISSN 2976-8713 CODEN RPSHBW 2(2) 199–428 (2025)



### Cover

See Hiroshi Ueda, Kazunori Kadota *et al.*, pp. 264–278.

Image reproduced by permission of Hiroshi Ueda from *RSC Pharm.*, 2025, **2**, 264.



### Inside cover

See Caterina Minelli *et al.*, pp. 279–291.

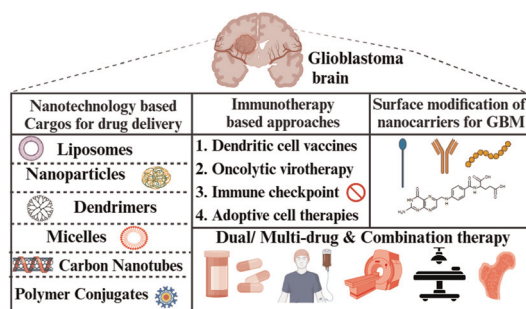
Image reproduced by permission of Elizabeth J. Legge and Alex G. Shard at NPL Management Limited from *RSC Pharm.*, 2025, **2**, 279.

## REVIEWS

207

### Comprehensive review on glioblastoma: nanotechnology, immunotherapy and combined therapeutic approaches

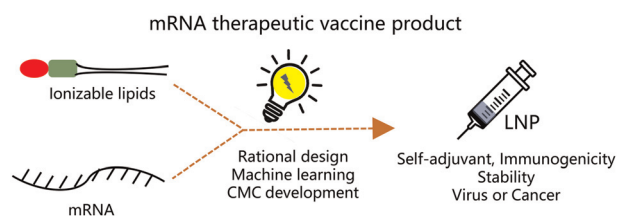
Ashish Dhiman, Yagni Shah, Dhvani Rana and Kalpna Garkhal\*



235

### The rise of mRNA therapeutic vaccines

Jinlu Du,\* Ziling Fan, Jiangming Huang, Zhengyuan Li, Hongguo Hu and Yanxia Li



# RSC Advances

At the heart of open access for  
the global chemistry community

## Editor-in-chief

Russell J Cox

Leibniz Universität Hannover, Germany

## We stand for:



**Breadth** We publish work in all areas of chemistry and reach a global readership



**Affordability** Low APCs, discounts and waivers make publishing open access achievable and sustainable



**Quality** Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



**Community** Led by active researchers, we publish quality work from scientists at every career stage, and all countries

Submit your work now

[rsc.li/rsc-advances](https://rsc.li/rsc-advances)

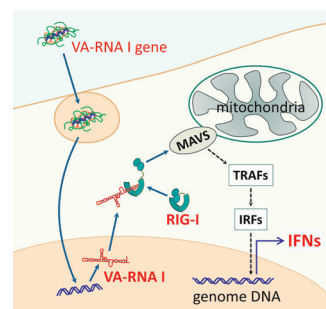
@RSC\_Adv

## COMMUNICATION

257

**Tumor immunotherapy by plasmid DNAs encoding adenovirus virus-associated RNA**

Tomoko Ito, Takayuki Yoshimoto, Izuru Mizoguchi and Yoshiyuki Koyama\*

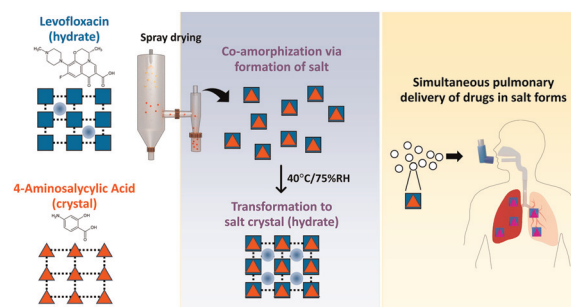


## PAPERS

264

**Formation of drug–drug salt crystals and co-amorphous forms of levofloxacin and 4-aminosalicylic acid for pulmonary applications**

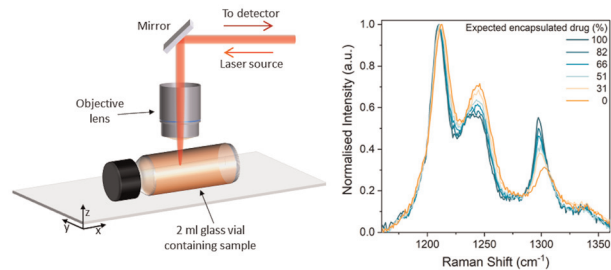
Hiroshi Ueda,\* Jun Yee Tse, Tetsuya Miyano, Yuzuki Nakayama, Peiwen Mo, Yuta Hatanaka, Hiromasa Uchiyama, Yuichi Tozuka and Kazunori Kadota\*



279

**Non-invasive quantitative chemical measurements of liposomal formulations using Raman spectroscopy**

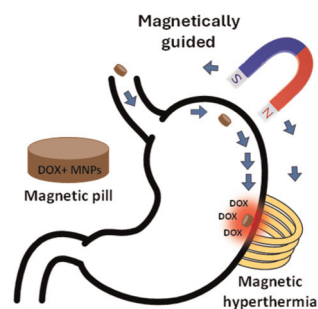
Elizabeth J. Legge, Ryan T. Coones, William A. Lee, Yiwen Pei, Natalie A. Belsey and Caterina Minelli\*



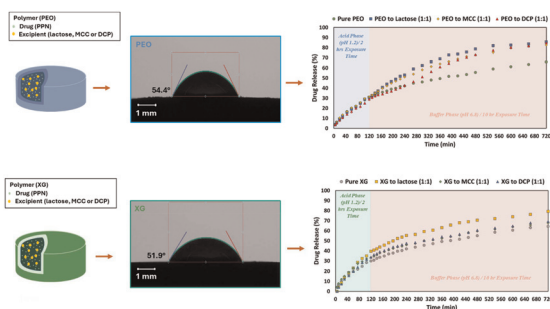
292

**Drug-loaded 3D-printed magnetically guided pills for biomedical applications**

Eirini Myrovali,\* Aikaterini-Theodora Chatzitaki, Kyrillos Papadopoulos and Dimitrios G. Fatouros



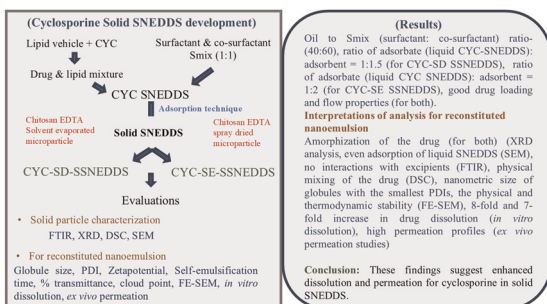
303



### Comparative analysis of drug release kinetics in polyethylene oxide and xanthan gum matrices with various excipients

Haja Muhamad, Nihad Mawla, Saedah Dereiah, Adam Ward, James Williamson and Kofi Asare-Addo\*

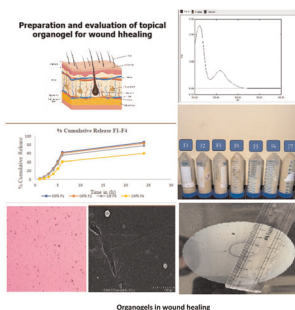
318



### Design and evaluation of solid self-nanoemulsifying drug delivery systems of cyclosporine developed with a superior adsorbent base

Mohit Kumar, Pooja A. Chawla,\* Abdul Faruk and Viney Chawla

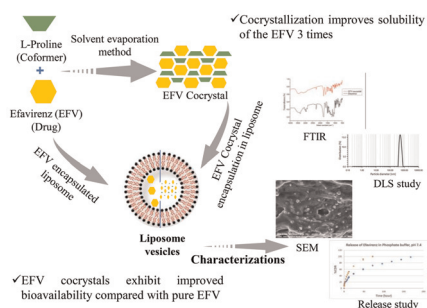
333



### Development and characterization of a gallic acid-infused topical emulgel for enhanced wound management: formulation and *in vitro* optimization

Sourav Dhandhi, Yeshna, Vishal, Monika, Samrat Chauhan, Monika Singh, Rahul Pratap Singh and Vikas Jhawat\*

342



### Preparation and characterization of efavirenz cocrystal-encapsulated pronanoliposomes for antiretroviral therapy with improved bioavailability

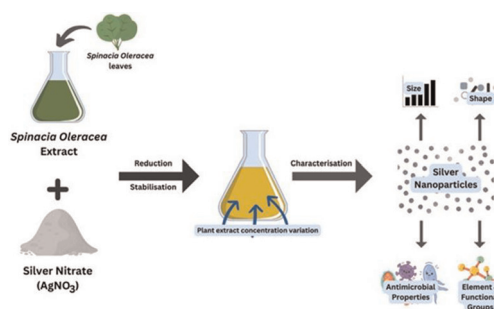
Sucheta Sarkar, Arijit Prosad Roy, Sanchita Mitra, Gouranga Nandi, Ranabir Sahu, Tarun Kumar Dua and Paramita Paul\*



353

### Influence of *Spinacia oleracea* leaf extract concentration on silver nanoparticle formation and evaluation of antimicrobial properties

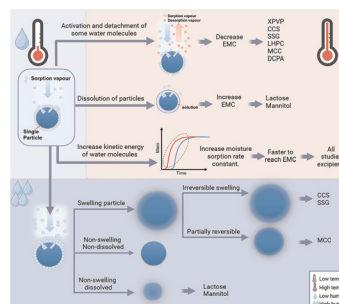
Tamara Akpobolokemi, Etelka Chung, Rocio Teresa Martinez-Nunez, Guogang Ren, Bahijja Tolulope Raimi Abraham\* and Alex Griffiths



369

### Particle-based investigation of excipients stability: the effect of storage conditions on moisture content and swelling

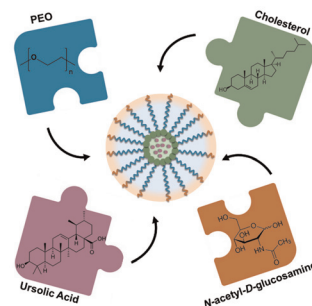
Isra Ibrahim, Mark Carroll, Anas Almudahka, James Mann, Alexander Abbott, Fredrik Winge, Adrian Davis, Bart Hens, Ibrahim Khadra and Daniel Markl\*



387

### Sugar-decorated cholesterol-core nanoparticles as potential targeting nanomedicines for the delivery of lipophilic drugs

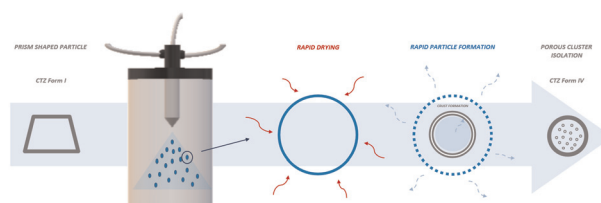
Laís Rossetto Ferraz de Barros, Carlos Eduardo de Castro, Anabella Patricia Rosso, Rodrigo da Costa Duarte, Alexandre Gonçalves Dal-Bó, Wendel Andrade Alves and Fernando Carlos Giacomelli\*

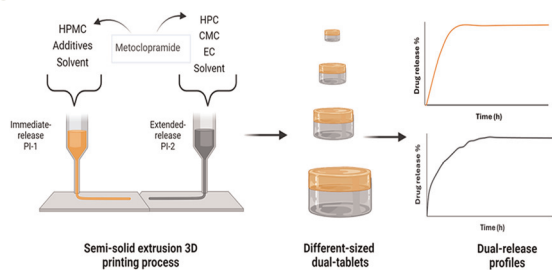


398

### Controlled isolation of a novel polymorphic form of chlorothiazide by spray drying

Alice Parkes, Enrico Spoletti, John O'Reilly, Matteo Lusi, Ahmad Ziaee and Emmet O'Reilly\*





PI- Printing ink; HPMC: hydroxypropyl methylcellulose; HPC: hydroxypropyl cellulose; CMC: carboxymethyl cellulose; EC: ethyl cellulose.

### 3D printing of tailored veterinary dual-release tablets: a semi-solid extrusion approach for metoclopramide

Rathna Mathiyalagan, Max Westerlund, Alaa Mahran, Rabia Altunay, Jarkko Suuronen, Mirja Palo, Johan O. Nyman, Eero Immonen, Jessica M. Rosenholm,\* Erica Monaco and Xiaoju Wang\*

