RSC Pharmaceutics

rsc.li/RSCPharma

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

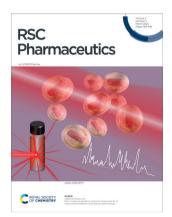
eISSN 2976-8713 CODEN RPSHBW 2(2) 199-428 (2025)



Cover

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

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



mRNA

Inside cover

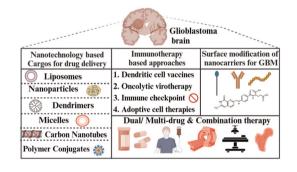
See Caterina Minelli et al., pp. 279-291.

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

REVIEWS

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

Ashish Dhiman, Yagni Shah, Dhwani Rana and Kalpna Garkhal*



mRNA therapeutic vaccine product

235

The rise of mRNA therapeutic vaccines

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

Ionizable lipids Rational design Self-adjuvant, Immunogenicity Stability CMC development Virus or Cancer





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



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



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



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

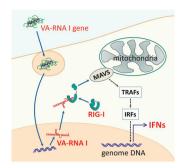
@RSC_Adv

COMMUNICATION

257

Tumor immunotherapy by plasmid DNAs encoding adenovirus virus-associated RNA

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

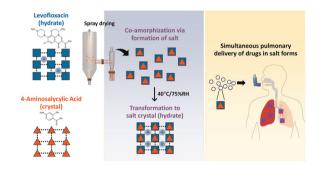


PAPERS

264

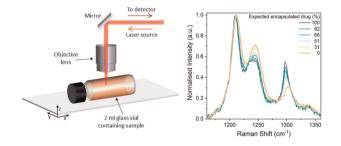
Formation of drug-drug salt crystals and co-amorphous forms of levofloxacin and 4-aminosalicylic acid for pulmonary applications

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



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

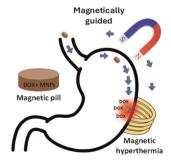
Elizabeth J. Legge, Ryan T. Coones, William A. Lee, Yiwen Pei, Natalie A. Belsey and Caterina Minelli*



292

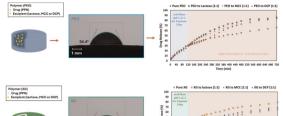
Drug-loaded 3D-printed magnetically guided pills for biomedical applications

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



PAPERS

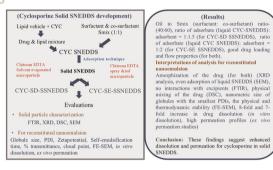
303



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

Haia Muhamad, Nihad Mawla, Saedah Derejah, Adam Ward, James Williamson and Kofi Asare-Addo*

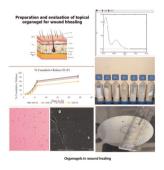
318



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

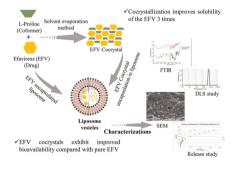
333



Development and characterization of a gallic acidinfused topical emulgel for enhanced wound management: formulation and in vitro optimization

Souray 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

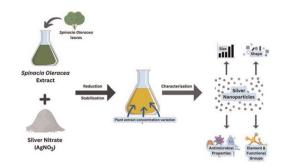
Sucheta Sarkar, Arijit Prosad Roy, Sanchita Mitra, Gouranga Nandi, Ranabir Sahu, Tarun Kumar Dua and Paramita Paul*

PAPERS

353

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

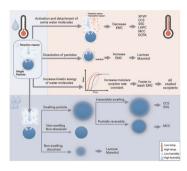
Tamara Akpobolokemi, Etelka Chung, Rocio Teresa Martinez-Nunez, Guogang Ren, Bahijja Tolulope Raimi Abraham* and Alex Griffiths



369

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

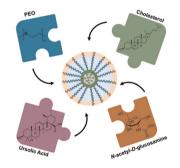
Isra Ibrahim, Mark Carroll, Anas Almudahka, James Mann, Alexander Abbott, Fredrik Winge, Adrian Davis, Bart Hens, Ibrahim Khadra and Daniel Markl*



387

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

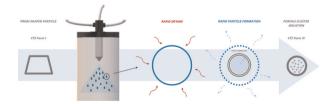
Laís Rossetto Ferraz de Barros, Carlos Eduardo de Castro, Anabella Patricia Rosso, Rodrigo da Costa Duarte, Alexandre Gonçalves Dal-Bó, Wendel Andrade Alves and Fernando Carlos Giacomelli*



398

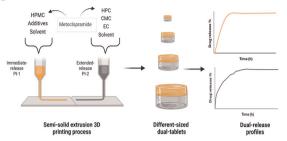
Controlled isolation of a novel polymorphic form of chlorothiazide by spray drying

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



PAPERS

413



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*