

## CONTENTS

Cited in: BIOSIS/Biological Abstracts; CAB Abstracts; Chemical Abstracts Services; Current Contents (Life Sciences); EMBASE/Excerpta Medica; International Pharmaceutical Abstracts; PUBMED/MEDLINE/Index Medicus; Polymer Contents; Science Citation Index. Also covered in the abstract and citation database Scopus®. Full text available in ScienceDirect®

## Cover Story

- Real-time monitoring of antibody microdistribution during photoimmunotherapy  
K. Park (West Lafayette, USA) 247

## Reviews

- PEG-PCL-based nanomedicines: A biodegradable drug delivery system and its application  
P. Grossen, D. Witzigmann, S. Sieber and J. Huwyler (Basel, Switzerland) 46
- Recent advancements in liposomes targeting strategies to cross blood-brain barrier (BBB) for the treatment of Alzheimer's disease  
M. Agrawal, Ajazuddin, D.K. Tripathi, S. Saraf, S. Saraf, S.G. Antimisariis, S. Mourtas, M. Hammarlund-Udenaes and A. Alexander (Chhattisgarh, India; Rio, Patras, Greece; Uppsala, Sweden) 61
- Advances in combination therapy of lung cancer: Rationales, delivery technologies and dosage regimens  
L. Wu, D. Leng, D. Cun, C. Foged and M. Yang (Shenyang, China; Copenhagen, Denmark) 78
- Nanomedicine for prostate cancer using nanoemulsion: A review  
A. Sasikumar and K. Kamalasanan (Kerala, India) 111
- Mechanical microencapsulation: The best technique in taste masking for the manufacturing scale - Effect of polymer encapsulation on drug targeting  
B. Al-kasmi, MHD.B. Alsirawan, M. Bashimam and H. El-zein (Damascus, Syria; Bradford, UK) 134
- Microneedles in the clinic  
S. Bhatnagar, K. Dave and V.V.K. Venuganti (Hyderabad, India; MD, USA) 164
- Nanosizing techniques for improving bioavailability of drugs  
R. Al-Kassas, M. Bansal and J. Shaw (Auckland, New Zealand) 202
- Intrinsic parameters for the synthesis and tuned properties of amphiphilic chitosan drug delivery nanocarriers  
M. Motiei, S. Kashanian, L.A. Lucia and M. Khazaei (Kermanshah, Islamic republic of Iran; Jinan, PR China; North Carolina, USA) 213
- Evolution of the scientific literature on drug delivery: A 1974–2015 bibliometric study  
C. Robert, C.S. Wilson, A. Venuta, M. Ferrari and C.-D. Arreto (Paris, France; Sydney, Australia; Houston, USA; Naples, Italy) 226

## Research papers

- Angubindin-1, a novel paracellular absorption enhancer acting at the tricellular tight junction  
S.M. Krug, T. Hayaishi, D. Iguchi, A. Watari, A. Takahashi, M. Fromm, M. Nagahama, H. Takeda, Y. Okada, T. Sawasaki, T. Doi, K. Yagi and M. Kondoh (Osaka, Tokushima, Ehime, Japan; Berlin, Germany) 1
- Singlet oxygen-responsive micelles for enhanced photodynamic therapy  
X. Li, M. Gao, K. Xin, L. Zhang, D. Ding, D. Kong, Z. Wang, Y. Shi, F. Kiessling, T. Lammers, J. Cheng and Y. Zhao (Tianjin, China; Aachen, Germany; Urbana, USA) 12
- pH triggered re-assembly of nanosphere to nanofiber: The role of peptide conformational change for enhanced cancer therapy  
P. Liang, J. Zheng, S. Dai, J. Wang, Z. Zhang, T. Kang and C. Quan (Guangzhou, PR China) 22
- A DPP-IV-resistant glucagon-like peptide-2 dimer with enhanced activity against radiation-induced intestinal injury  
J. Gu, S. Liu, N. Mu, T. Huang, W. Zhang, H. Zhao, Z. Shu, C. Zhang, Q. Hao, W. Li, X. Xue, W. Zhang and Y. Zhang (Xi'an, China) 32
- The effects of non-invasive radiofrequency electric field hyperthermia on biotransport and biodistribution of fluorescent [60] fullerene derivative in a murine orthotopic model of breast adenocarcinoma  
N.A. Lapin, M. Krzykawska-Serda, S. Dilliard, Y. Mackeyev, M. Serda, L.J. Wilson, S.A. Curley and S.J. Corr (Houston, USA; Kraków, Katowice, Poland) 92

(Contents continued at inside back cover)

Additional material available online.

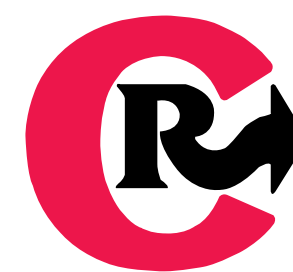
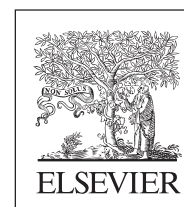


0168-3659(20170828)260:C;1-D

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

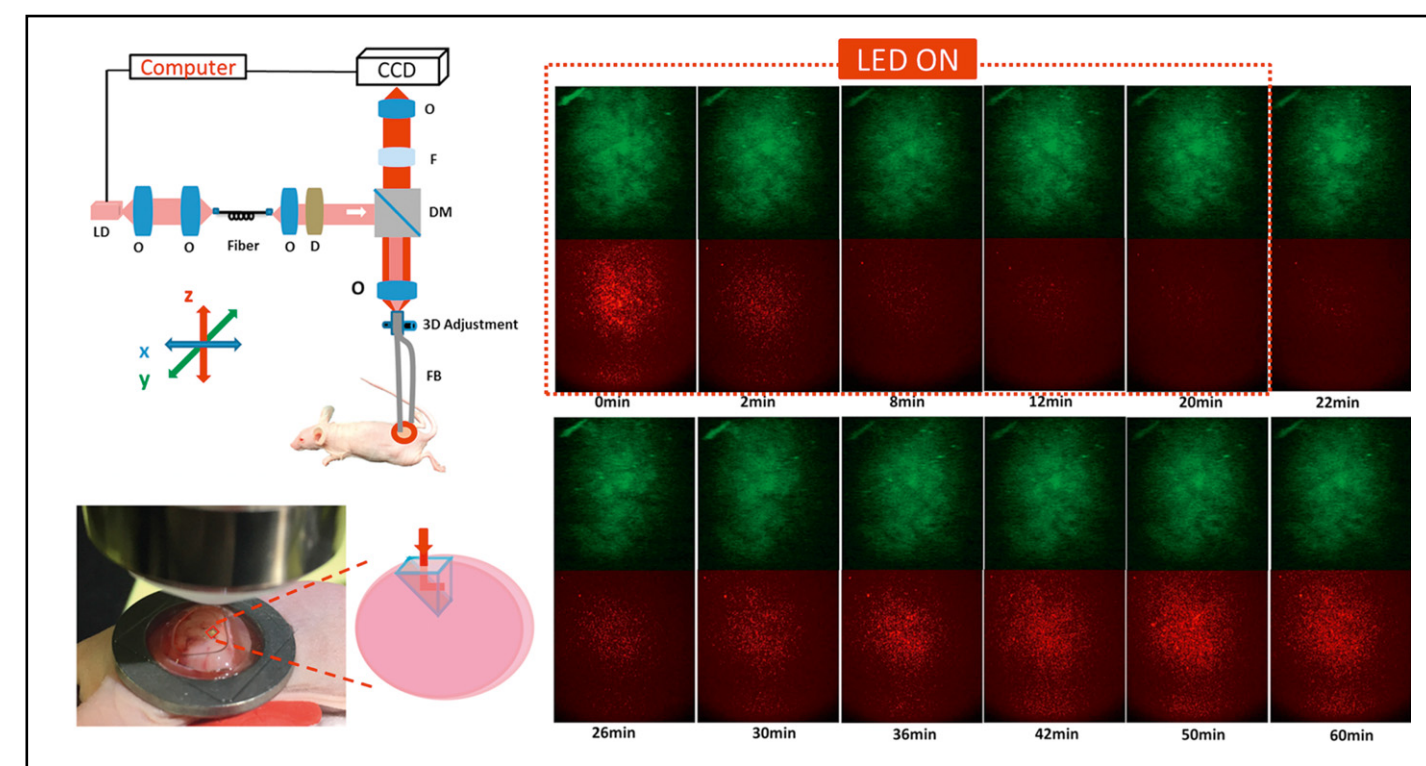
ScienceDirect

05054



# journal of controlled release

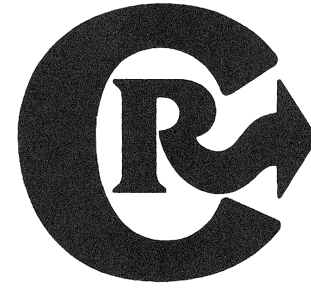
OFFICIAL JOURNAL OF THE CONTROLLED RELEASE SOCIETY  
AND THE JAPANESE SOCIETY OF DRUG DELIVERY SYSTEM



## COVER STORY

Real-time monitoring of antibody microdistribution during photoimmunotherapy

# journal of controlled release



Official Journal of the Controlled Release Society and of the Japanese Society of Drug Delivery System

The *Journal of Controlled Release* (JCR) publishes high-quality research articles in the broad field of delivery science and technology. This includes drug delivery systems and all aspects of formulations, such as physicochemical and biological properties of drugs, design and characterization of dosage forms, release mechanisms, *in vivo* testing, and formulation research and development in the disciplines of pharmaceutical, diagnostic, agricultural, environmental, cosmetic, and food industries. Manuscripts that advance fundamental understanding of principles and/or demonstrate advantages of novel technologies in safety and efficacy over current clinical standards will be given priority. Each issue has the cover story highlighting the significance of a selected article published in the issue. At the end of each quarter, the JCR editors select "The Editors' Choice" from the published research articles.

## EDITORS

### EDITOR-IN-CHIEF

**Prof. K. Park**, Purdue University, Departments of Biomedical Engineering and Pharmaceutics, West Lafayette, IN, USA;  
E-mail: kpark@purdue.edu

### Associate Editors for the Americas

**Prof. Y.H. Bae**, Dept. of Pharmaceutics and Pharmaceutical Chemistry, University of Utah, 421 Wakara Way, Salt Lake City, UT 84108, USA;

E-mail: you.bae@utah.edu

**Prof. S. Mitragotri**, Dept. of Chemical Engineering, University of California at Santa Barbara, Mail Code 5080, Santa Barbara, CA 93106, USA;

E-mail: samir@engineering.ucsb.edu

**Prof. S.P. Schwendeman**, Dept. of Pharmaceutical Sciences, University of Michigan, 428 Church Street, Ann Arbor, MI 48109, USA;

E-mail: schwende@umich.edu

### EDITORS FOR EUROPE

#### Editor

**Prof. S.C. De Smedt**, Ghent Research Group on Nanomedicines, Ghent University, Ottergemsesteenweg 460, 9000 Ghent, Belgium

E-mail: Stefaan.desmedt@ugent.be

#### Associate Editors

**Prof. T.G.G.M. Lammers**, Department of Experimental Molecular Imaging, RWTH Aachen University Clinic, Pauwelsstrasse 30, 52074 Aachen, Germany;

E-mail: tlammers@ukaachen.de

**Prof. J.-C. Leroux**, Inst. of Pharmaceutical Sciences, Eidgenössische Technische Hochschule (ETH) Zürich, Wolfgang-Pauli-Str. 10, 8093 Zürich, Switzerland

E-mail: jleroux@ethz.ch

**Prof. D. Peer**, Department of Cell Research and Immunology, Tel-Aviv University Ramat Aviv, Tel-Aviv, 69978 Israel;

E-mail: peer@post.tau.ac.il

### EDITORS FOR ASIA

#### Editor

**Prof. I.C. Kwon**, Biomedical Research Center, Korea Institute of Science and Technology (KIST), 39-1 Hawolgok-Dong, 136-791 Seongbuk-Gu, Seoul, South Korea;

E-mail: ikwon@kist.re.kr

#### Associate Editors

**Prof. H. Harashima**, Lab. Mol. Design of Pharmaceutics, Fac. of Pharmaceutical Sciences, Hokkaido University, Kita 12, Nishi 6, Kita-ku, 060-0812 Sapporo, Japan;

E-mail: harasima@pharm.hokudai.ac.jp

**Prof. A. Kikuchi**, Dept. of Materials Science and Technology, Tokyo University of Science, 6-3-1 Niijuku, Katsushika, 125-8585 Tokyo, Japan;

E-mail: kikuchia@rs.noda.tus.ac.jp

**Prof. Y. Oh**, College of Pharmacy, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul, 151-742 Korea;

Email: ohyk@snu.ac.kr

#### Review Editor

**Prof. V.P. Torchilin**, Pharmaceutical Sciences, Northeastern University, 360 Huntington Ave., Boston, MA 02115-5000, USA;

E-mail: v.torchilin@neu.edu

#### Special Issue Editor

**Prof. W.E. Hennink**, Dept. of Pharmaceutics, Utrecht Inst. for Pharmaceutical Sciences, Universiteit Utrecht, Universiteitsweg 99, 3584 CG Utrecht, Netherlands

#### Theme Issue Editor

**Prof. J. Hanes**, The Wilmer Eye Institute, Johns Hopkins School of Medicine, 400 N. Broadway, Baltimore, MD, USA;

E-mail: hanes@jhmi.edu

#### Concept Papers Editor

**Prof. Y.H. Bae**, Dept. of Pharmaceutics and Pharmaceutical Chemistry, University of Utah, 421 Wakara Way, Salt Lake City, UT 84108, USA;

E-mail: you.bae@utah.edu

#### Advisor

**Prof. T. Nagai**, E-mail: nagai-t@mbc.ocn.ne.jp

#### Editorial Board

**M.J. Alonso**, Santiago de Compostela, Spain

**T.L. Bowersock**, Kalamazoo, MI, USA

**X. Chen**, Changchun, China

**P. Colombo**, Parma, Italy

**P. Couvreur**, Châtenay-Malabry, France

**M.C. Davies**, Nottingham, UK

**A.J. Domb**, Jerusalem, Israel

**R. Duncan**, Cardiff, UK

**L. Ensign**, Baltimore, MD, USA

**E. Fattal**, Châtenay-Malabry, France

**M. Foltvar**, Waterloo, Canada

**B. Gander**, Zürich, Switzerland

**H. Ghandehari**, Salt Lake City, UT, USA

**G. Golomb**, Jerusalem, Israel

**D.W. Grainger**, Salt Lake City, UT, USA

**R. Gurny**, Geneva, Switzerland

**M. Hashida**, Kyoto, Japan

**J.A. Hubbell**, Lausanne, Switzerland

**L. Illum**, Nottingham, UK

**S.Y. Jeong**, Seoul, Korea

**T. Jin**, Shanghai, China

**A.T. Jones**, Cardiff, UK

#### Founding Editors

**Prof. J. Feijen**, University of Twente, The Netherlands

**Dr. J. Heller**, USA

**A. Kabanov**, Omaha, NE, USA

**K. Kataoka**, Tokyo, Japan

**Y. Kawashima**, Gifu, Japan

**J. Kopeček**, Salt Lake City, UT, USA

**G.S. Kwon**, Madison, WI, USA

**S.J. Lee**, Seoul, Korea

**C.M. Lehr**, Saarbrücken, Germany

**K.W. Leong**, Baltimore, MD, USA

**T. Li**, Lexington, KY, USA

**K. Mäder**, Halle (Saale), Germany

**H. Maeda**, Kumamoto, Japan

**E. Mathiowitz**, Providence, RI, USA

**A.G. Mikos**, Houston, TX, USA

**T. Minko**, Piscataway, NJ, USA

**S.M. Moghimi**, Stockton on Tees, United Kingdom

**R. Niven**, Half Moon Bay, CA, USA

**H. Okada**, Tokyo, Japan

**T. Okano**, Tokyo, Japan

**D.W. Pack**, Urbana, IL, USA

**N.A. Peppas**, Austin, TX, USA

**Y. Perrie**, Birmingham, UK

**M. Prausnitz**, Atlanta, GA, USA

**D. Putnam**, Ithaca, NY, USA

**T. Rades**, Copenhagen, Denmark

**M.J. Rathbone**, Kuala Lumpur, Malaysia

**A.P. Rolland**, San Diego, CA, USA

**K. Roy**, Atlanta, GA, USA

**W.M. Saltzman**, New Haven, CT, USA

**R.A. Siegel**, Minneapolis, MN, USA

**J. Siepmann**, Lille, France

**P.S. Stayton**, Seattle, WA, USA

**Y. Sugiyama**, Tokyo, Japan

**H.-W. Sung**, Hsinchu, Taiwan

**K. Takayama**, Tokyo, Japan

**I. Uchegbu**, London, UK

**K. Ulbrich**, Prague, Czech Republic

**A. Urttilä**, Helsinki, Finland

**E. Wagner**, Munich, Germany

**C. Wang**, Minneapolis, MN, USA

**C.-H. Wang**, Singapore

**C.O. Yun**, Seoul, Korea

**Q. Zhang**, Beijing, China

**Z. Zhong**, Suzhou, China

(contents continued from outside back cover)

A quantitative study of the intracellular fate of pH-responsive doxorubicin-polypeptide nanoparticles J. Wang, J. Bhattacharyya, E. Mastria and A. Chilkoti (North Carolina, USA)	100
Photoactivatable fluorescent probes reveal heterogeneous nanoparticle permeation through biological gels at multiple scales B.S. Schuster, D.B. Allan, J.C. Kays, J. Hanes and R.L. Leheny (Baltimore, Upton, USA)	124
Targeting of p32 in peritoneal carcinomatosis with intraperitoneal linTT1 peptide-guided pro-apoptotic nanoparticles H. Hunt, L. Simón-Gracia, A. Tobi, V.R. Kotamraju, S. Sharma, M. Nigul, K.N. Sugahara, E. Ruoslahti and T. Teesalu (Tartu, Estonia; CA, New York, Santa Barbara, USA)	142
Real-time monitoring of microdistribution of antibody-photon absorber conjugates during photoimmunotherapy <i>in vivo</i> Q. Tang, T. Nagaya, Y. Liu, J. Lin, K. Sato, H. Kobayashi and Y. Chen (MD, USA)	154
Intracellular trafficking of particles inside endosomal vesicles is regulated by particle size M. Aoyama, Y. Yoshioka, Y. Arai, H. Hirai, R. Ishimoto, K. Nagano, K. Higashisaka, T. Nagai and Y. Tsutsumi (Osaka, Japan)	183
Biodegradable hydrogel derived from cellulose acetate and EDTA as a reduction substrate of leaching NPK compound fertilizer and water retention in soil A.M. Senna and V.R. Botaro (Minas Gerais, São Paulo, Brazil)	194
Effect of stratum corneum heterogeneity, anisotropy, asymmetry and follicular pathway on transdermal penetration A.M. Barbero and H.F. Frasch (WV, USA)	234

**Graphical Abstracts Contents Listing** @ doi: 10.1016/S0168-3659(17)30715-0  
**Calendar**

e1  
I

Additional material available online.

For a full and complete Guide for Authors, please go to <http://www.elsevier.com/locate/jconrel>