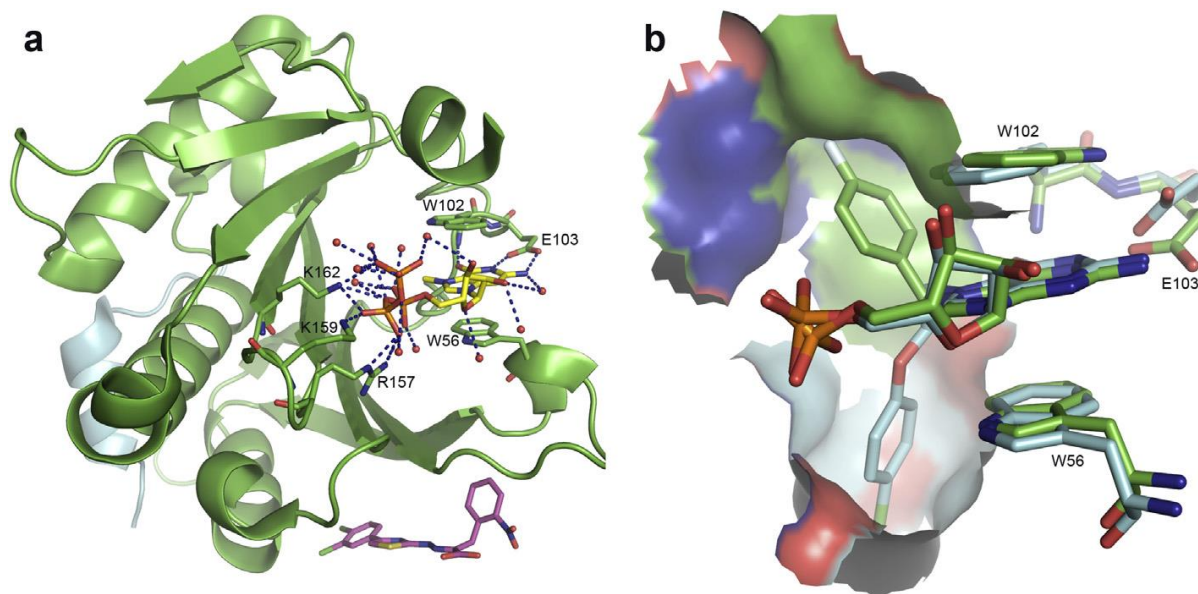




The University of
Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

The School of Pharmacy Journal



November 2016-January 2017

Foreword

Welcome to our latest edition of the School of Pharmacy Journal, a quarterly collection of publications and press releases from November 2016 to January 2017.

This edition includes some exciting news from staff and students of the School including a publication by an MPharm undergraduate! There was a significant research output in terms of publications and grant capture for the period including about 21 publications, some of which highlight research collaboration between the UK and Malaysia campuses. In the paper "Cudraflavone C Induces Tumor-Specific Apoptosis in Colorectal Cancer Cells through Inhibition of the Phosphoinositide 3-Kinase (PI3K)-AKT Pathway" by a collaborative effort between researchers at two campuses, they conclude that Cudraflavone C is a PI3K-AKT inhibitor with selective anti-tumor activities against CRC cells. In another paper "Correlating gastric emptying of amphotericin B and paracetamol solid lipid nanoparticles with changes in particle surface chemistry" collaborators conclude that the rate of the diffusion of simulated media into solid lipid nanoparticles depended on the solubility of the loaded-drug in the particular medium.

At the end of January, Dr. Daniel G. Anderson, Massachusetts Institute of Technology, Koch Institute, gave a lecture to about 300 people on 18th January to the University. Staff and students from across the University of Nottingham attended his presentation entitled: '*Nucleic acid delivery systems for RNA therapy and gene editing*'. This exciting talk on his world leading cutting edge research was part of the launch of the Inaugural Biomaterials Discovery Workshop which will be held annually at the University, associated with the recently awarded £6.5M EPSRC Programme Grant in Next Generation Biomaterials.



Professor Phil Williams
Phil.Williams@nottingham.ac.uk
Director of Research and Knowledge Exchange
(Nottingham)



Professor Nashiru Billa
Nashiru.Billa@nottingham.edu.my
Associate Dean (Research)
(Malaysia)

Contents

- [Staff Research News](#)
- [Grants/Studentships Awarded](#)
- [Student News](#)
- [General News](#)
- [Highlighted Papers](#)
- **Press Releases**
 - [PhDoh! My experience in gaining a PhD](#)
 - [Long Service Awards](#)
 - [Congratulations to Gautam Paul](#)
 - [Pharmacy for the Curious – A new book is published](#)
 - [The Magic of Mushrooms – BBC Four](#)
 - [Blessing Airhihen wins award at Pharmacology 2016](#)
 - [The Inaugural Biomaterials Discovery open lecture](#)
 - [MPharm undergraduate publishes paper](#)
- **Blogs**
 - [BESTS Scholarship Brisbane October 2016 by Dr. Claire Mann](#)
- **Collated Research Papers**

[**Testing for Multivariate Normality in Mass Spectrometry Imaging Data: A robust Statistical Approach for Clustering Evaluation and the Generation of Synthetic Mass Spectrometry Imaging Data Sets**](#)

Alex Dexter, Alan M. Race, Iain B. Styles and Josephine Bunch

Analytical Chemistry (2016) 88 (22), pp 10893-10899

10.1021/acs.analchem.6b02139

[Feasibility of Spatially Offset Raman Spectroscopy for in Vitro and in Vivo Monitoring Mineralization of Bone Tissue Engineering Scaffolds](#)

Zhiyu Liao, Faris Sinjab, Amy Nommeets-Nomm, Julian Jones, Laura Ruiz-Cantu, Jing Yang, Felicity Rose and Ioan Notingher

Analytical Chemistry (2017) 89 (1), pp 847-853

10.1021/acs.analchem.6b03785

[A multigene approach to determine the molecular phylogeography of Argiope mangal and Argiope dang \(Araneae: Araneidae\) and their genetic relationships with the Ariope aetherea special group](#)

Ji Tan, Zi-Yang Chan, Phaik-Eem Lim, Joseph Kok-Hong Koh and Hoi-Sen Yong

Biochemical Systematics and Ecology (2016) 69, pp 115-123

10.1016/j.bse.2016.08.013

[Robust anti-nociceptive effects of monoacylglycerol lipase and inhibition in a model of osteoarthritis pain](#)

James J. Burston, Paul I. Mapp, Sarir Sarmad, David A. Barrett, Micah J. Niphakis, Benjamin F. Cravat, David A. Walsh and Victoria Chapman

British Journal of Pharmacology (2016) 173 (21), pp 3134-3144

10.1111/bph.13574

[Proposing the Use of Partial AUC as an Adjunctive Measure in Establishing Bioequivalence Between Deltoid and Gluteal Administration of Long-Acting Injectable Antipsychotics](#)

Lik Hang N. Lee, Charles Choi, Pavel Gershkovich, Alasdair M. Barr, William G. Honer and Ric M. Procyshyn

European Journal of Drug Metabolism and Pharmacokinetics (2016) 41 (6), pp 659-664

10.1007/s13318-016-0348-z

[Design of nucleotide-mimetic and non-nucleotide inhibitors of the translation initiation factor eIF4E: Synthesis, structural and functional characterisation](#)

Fadi Soukarieh, Matthew W. Nowicki, Amandine Bastide, Tuija Pöyry, Carolyn Jones, Kate Dudek, Geetanjali Patwardhan, François Meullenet, Neil J. Oldham, Malcolm D. Walkinshaw, Anne E. Willis and Peter M. Fischer

European Journal of Medicinal Chemistry (2016) 124, pp 200-217

10.1016/j.ejmech.2016.08.047

[Quantitative analysis of lab-to-lab variability in Caco-2 permeability assays](#)

Jong Bong Lee, Atheer Zgair, Dhiaa A. Taha, Xiaowei Zang, Leonid Kagan, Tae Hwan Kim, Min Gi Kim, Hwi-yeol Yun, Peter M. Fischer and Pavel Gershkovich
European Journal of Pharmaceutics and Biopharmaceutics (2017) 114, pp 38-42
10.1016/j.ejpb.2016.12.027

[Hyperlipidaemia alone and in combination with acidosis can increase the incidence and severity of statin-induced myotoxicity](#)

Dhiaa A. Taha, Atheer Zgair, Jong Bong Lee, Cornelia H. de Moor, David A. Barrett, Kimberley D. Bruce, Mitchell Sungelo, Robert H. Eckel and Pavel Gershkovich
European Journal of Pharmaceutical Sciences (2017) 11, pp 167-175
10.1016/j.ejps.2017.01.018

[The structural modification of natural products for novel drug discovery](#)

Hong Yao, Junkai Liu, Shengtao Xu, Zheyang Zhu and Jinyi Xu
Expert Opinion on Drug Discovery (2017) 12 (2), pp 121-140
10.1080/17460441.2016.1272757n

[Funding for change: New Zealand pharmacists' views on, and experiences of, the community pharmacy services agreement](#)

Hannah Kinsey, Shane Scahill, Lynne Bye and Jef Harrison
International Journal of Pharmacy Practice (2016) 24 (6), pp 379-389
10.1111/ijpp.12266

[Correlating gastric emptying of amphotericin B and paracetamol solid lipid nanoparticles with changes in particle surface chemistry](#)

Hilda Amekyeh, Nashiru Billa and Clive Robert
International Journal of Pharmaceutics (2017) 517 (1-2) pp 42-49
10.1016/ijpharm.2016.12.001

[A feasibility service evaluation of screening and treatment of group A streptococcal pharyngitis in community pharmacies](#)

T. Thornley, G. Marshall, P. Howard and A.P.R Wilson
Journal of Antimicrobial Chemotherapy (2016) 21 (11), pp 3293-3299
10.1093/jac/dkw264

[Extracellular matrix-derived hydrogels for dental stem cell delivery](#)

Aiswarya Viswanath, Julie Vanacker, Loïc Germain, Julian G. Leprince, Anibal Diogenes, Kevin M. Shakesheff, Lisa J. White and Anne des Rieux
Journal of Biomedical Materials Research (2016) 105 (1), pp 319-328
[10.1002/jbm.a.35901](https://doi.org/10.1002/jbm.a.35901)

[Simple and sensitive HPLC-UV method for determination of bexarotene in rat plasma](#)

Jong Bong Lee, Atheer Zgair, Tae Hwan Kim, Min Gi Kim, Sun Dong Yoo, Peter M. Fischer and Pavel Gershkovich
Journal of Chromatography B (2017) 1040, pp 73-80
[10.1016/j.jchromb.2016.11.024](https://doi.org/10.1016/j.jchromb.2016.11.024)

[The Role of Unconventional Hydrogen Bonds in Determining BII Propensities in B-DNA](#)

Alexandra Balaceanu, Marco Pasi, Pablo D. Dans, Adam Hospital, Richard Lavery and Modesto Orozco
Journal of Physical Chemistry Letter (2017) 8 (1), pp 21-28
[10.1021/acs/jpclett.6b02451](https://doi.org/10.1021/acs/jpclett.6b02451)

[Long-range correlations in the mechanics of small DNA circles under topological stress revealed by multi-scale simulation](#)

Thana Sutthibutpong, Christian Matek, Craig Benham, Gabriel G. Salde, Agnes Noy, Charles Laughton, Jonathan P.K. Doye, Ard A. Louis and Sarah A. Harri
Nucleic Acids Research (2016) 44 (19), pp 9121-9130
[10.1093/nar/gkw815](https://doi.org/10.1093/nar/gkw815)

[Cudraflavone C Induces Tumor-Specific Apoptosis in Colorectal Cancer Cells through Inhibition of the Phosphoinositide 3-Kinase \(PI3K\)-AKT Pathway](#)

Hsien-Chuen Soo, Felicia Fei-Lei Chung, Kuan-Hon Lim, Veronica Alicia Yap, Tracey D. Bradshaw, Ling-Wei Hii, Si-Hoey Tan, Sze-Jia See, Yuen-Fen Tan, Chee-Onn Leong and Chun-Wai Mai
PLOS One (2017) 12 (1)
[10.1371/journal.pone.0170551](https://doi.org/10.1371/journal.pone.0170551)

[A systematic review in select countries of the role of the pharmacist in consultations and sales of non-prescription medicines in community pharmacy](#)

Linda van Eikenhorst, Nde-Eshimuni Salema and Claire Anderson
Research in Social and Administrative Pharmacy (2017) 13 (1), pp 17-38

10.1016/j.sapharm.2016.02.010

[Examination of England's New Medicine Service \(NMS\) of complex health care interventions in community pharmacy](#)

Asam Latif, Justin Waring, Deborah Watmough, Nick Barber, Anthony Chuter, James Davies, Nde-Eshimuni Salema, Matthew J. Boyd and Rachel A. Elliott
Research in Social Administrative Pharmacy (2016) 12 (6), pp 966-989

10.1016/j.sapharm.2015.12.007

[The cellular magnetic response and biocompatibility of biogenic zinc- and cobalt- doped magnetite nanoparticles](#)

Sandhya Moise, Eva Céspedes, Dalibor Soukup, James M. Byrne, Alicia J. El Haj and Neil D. Telling

Scientific Reports (2017) 7, 39922

10.1038/srep39922

[Electrochemical communication with the inside of cells using micro-patterned vertical carbon nanofiber electrodes](#)

F.J. Rawson, M.T. Cole, J.M. Hicks, J.W. Aylott, W.I. Milne, C.M. Collins, S.K. Jackson, N.J. Silman and P.M. Mendes

Scientific Reports (2016) 6, 37672

10.1038/srep37672

[Cell Death Mechanisms in Tumoral and Non-Tumoral Human Cell Lines Triggered by Photodynamic Treatments: Apoptosis Necrosis and Parthanatos](#)

J. Soriano, I. Mora-Espí, M.E. Alea-Reyes, L. Pérez-García, L. Barrios, E. Ibáñez and C. Nogués

Scientific Reports (2017) 7, 41340

10.1030/srep41340

[Annexin A2 antibodies but not inhibitors of the annexin A2 heterotetramer impair productive HIV-1 infection of macrophages in vitro](#)

Andrew W. Woodham, Adriana M. Sanna, Julia R. Taylor, Joseph G. Skeate, Diane M. Da Silva, Lodewijk V. Dekker and W. Martin Kast

Virology Journal (2016) 13:187

10.1186/s12985-016-0649-5

Staff Research News

- [Professor Morgan Alexander](#) was an invited speaker at AVS, Nashville. November 2016.
- [Professor Morgan Alexander](#) was the Distinguished Guest on the Millipore Scientific Advisory Board, Boston USA, November 2015.
- [Professor Cameron Alexander](#) was invited to talk at the “Polymer Therapeutics Conference - Exploiting Disease Mechanisms for Therapy”, International PharmTech Conference 2016, EPSRC EHDA Network, De Montfort University, Leicester, November 4th 2016.
- [Professor Cameron Alexander](#) became chair of the EPSRC Physical Sciences Strategic Advisory Team in December 2016.
- [Professor Cameron Alexander](#) was invited to talk at European Nanomedicine Meeting 2017, April 2017.
- [Dr Pavel Gershkovich](#) has been invited and has given a talk at Rutgers, The State University of New Jersey, November 2016.
- [Dr Pavel Gershkovich](#) was a Grant review panel member, Academy of Finland, February 2017.
- [Professor David Heery](#), Professor Alan McIntyre (Medicine & Health Sciences) and Professor Anna Grabowska (Medicine & Health Sciences) have been awarded a grant for ‘Target Validation and Functional Analysis of BET proteins In Hypoxic TNBC Tumours’ by Breast Cancer Now.
- [Mr Gautam Paul](#) has been appointed to be one of six chairs of a Pharmacy Pre-registration Competency Panels pilot. This panel has been set up by Health Education England (HEE), who are currently investigating the use of independent competency panels to pilot a potential sign off of the pre-registration training portfolio.
- [Dr Felicity Rose](#) has been invited to speak at the 8th and forthcoming Academy of Pharmaceutical Sciences (APS) International PharmSci Conference 2017.

- [Dr Felicity Rose](#) has been elected to the Tissue Engineering and Regenerative Medicine International Society (TERMIS) Communications & Outreach Committee (EU council)
- [Dr Laurence Burroughs](#) gave a talk at The Royal Society of Chemistry Biomaterials Chemistry Special Interest Group [Annual Conference](#) on the 11th-12th January at Ulster University (Jordanstown Campus)

Grants/Studentships Awarded

- The grant funding for the EPSRC Thematic Studentships 'Bioinstructive materials for healthcare applications' was successful and the grant awarded was (£280,241.32). [Dr Felicity Rose](#) is the Principle Investigator and [Dr. Cameron Alexander](#) Co-Investigator with respect to this research.
- Newton (UK)-CSC (China) joint grant for a PhD placement programme was awarded in January 2017 to [Dr Zheyang Zhu](#) and [Professor Clive Roberts](#) in collaboration with Professor Jinyi Xu at China Pharmaceutical University.
- [Dr. Claire Mann](#) was successful in winning a BESTS scholarship from the Graduate Scholarship. She won £3000 for a career development trip to Australia for 3 weeks which was hosted by the University of Queensland at Brisbane, you can read about this through this link in the Blog section.
- [Dr Matthew Boyd](#), [Dr. Claire Mann](#) and the multidisciplinary health team ([Professor Claire Anderson](#), Professor Tony Avery (School of Medicine) and Professor Justin Waring (Business School)) have been awarded a small grant of £50k by NHS England to evaluate wave 1 of the 'Pharmacists in GP Practices' national project. This is a 14 month project starting January 2017.

Student News

- PhD student Blessing Airhihen was awarded a British Pharmacological Society Oral Communication Prize for her talk describing the characterisation of compounds that inhibit deadenylase enzymes. The prize was awarded for the best oral presentations at Pharmacology 2016, then annual meeting of the British Pharmacological Society. In addition to a certificate, Blessing received a £250 cash prize.
- Jonathan Whitchurch (Supervisor Prof DM Heery) has been awarded a 2017 Newton-Bhabha PhD placement award. This is a British Council Funded Scheme, and the award will fund travel to undertake a 3 month placement at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India.

General News

- [Professor Clive Roberts](#) from the School, along with many others from around the world have contributed to a new book that aims to help prospective students decide whether pharmacy is for them.
- [Professor Cornelia De Moor](#) appeared on 'The Magic of Mushrooms' on BBC4 to discuss her work with mushrooms in the hope of finding a cure for cancer. It is hoped that Cordyceps from a particular type of fungi may lead to a scientific breakthrough
- The RMCT Division has a new divisional logo. The winning design was chosen in 2016 and the winner was Post-doc Dr Marta-Alvarez Paino.



Highlighted Papers

- ***Abnormal clock gene expression and locomotor activity rhythms in two month-old female APP^{swe}/PS1^{dE9} mice.***

O. Oyegbami, H.M. Collins, M.C. Pardon, F. Ebling, D.M. Heery and P.M. Moran
Current Alzheimer Research (2017)

This study shows that genes controlling circadian biorhythms are altered in a mouse model of Alzheimer's Disease. Behavioural defects in response to circadian cues suggest that this could serve as a model of sundowning in Alzheimer's patients.

- ***Tumour regression and improved gastrointestinal tolerability from controlled release of SN-38 from novel polyoxazoline-modified dendrimers***

J.I Hare, R.M. England, J.R. Barnes, J. Wilson, A. Smith, P.D. Kemmitt, N. Strittmatter, M.J. Waring, C. Alexander, S.T. Barry and M.B. Ashford
Journal of Controlled Release (2017) 247, pp 73-85
[10.1060/j.jconrel.2016.12.034](https://doi.org/10.1060/j.jconrel.2016.12.034)

This paper results from an ongoing collaboration with AstraZeneca via their internal Post-Doctoral Fellowship scheme. The paper is significant because it shows that the highly active but poorly tolerated anti-cancer drug, SN-38, can be delivered effectively in mice, using new class of polymers which maintain efficacy while reducing the harmful side effects normally associated with SN-38 therapy.