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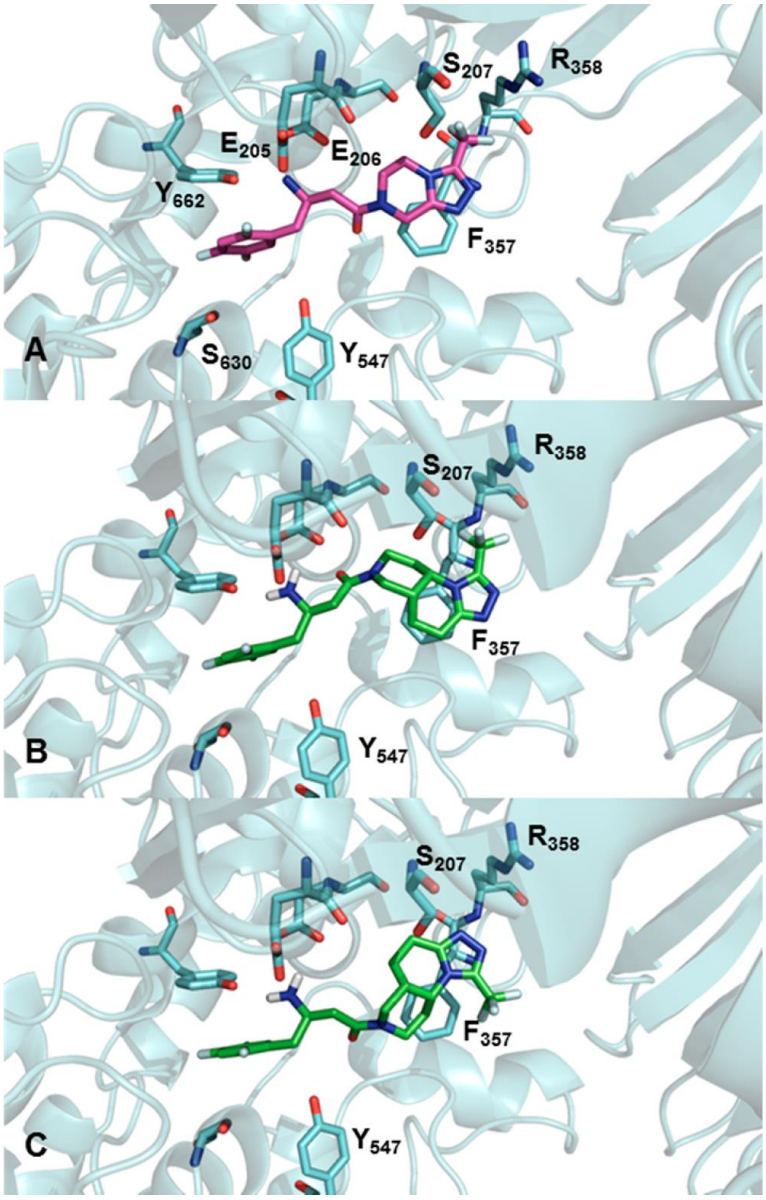
The School of Pharmacy

Journal



February - April 2017

Foreword

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

March 2017 saw the release of the latest QS World University Rankings for Pharmacy and Pharmacology.

We are delighted to be ranked 6th in the world and the top UK School of Pharmacy.

The QS rankings are based on a number of measures, two of which (citations and H-index) focus on the quality and impact of our research. For the 'Citations per paper' metric, that reflects how many researchers cite our work in their publications, we are top. This edition of the Journal covering February through April gives a good indication of the breadth and depth of our research that is evidently so well respected.

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Biomacromolecules (2017) 18 (5) pp 1532-1543
DOI: 10.1021/acs.biomac.7b00101

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DOI: 10.1038/cddis.2017.98

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Win Nee Phong, Cheng Foh Le, Pau Loke Show, Jo-Shu Chang, and Tau Chuan Ling
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European Journal of Medicinal Chemistry (2017) Vol 132, pp 173-183

DOI: 10.1016/j.ejmech.2017.03.027

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European Journal of Medicinal Chemistry (2017) 135 pp 414-423

DOI: 10.1016.j.ejmech.2017.04.045

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Journal of Antimicrobial Chemistry (2017) Vol 72 (3) pp 744-753
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DOI: 10.1021/acs.molpharmaceut.6b01023

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Neuro-Oncology (2017) Vol 2, No. 1:2

DOI: 10.21767/2572-0376.100018

Analyzing DNA curvature and its impact on the ionic environment: application to molecular dynamics simulations of minicircles

Marco Pasi, Krystyna Zakrzewska, John H. Maddocks and Richard Lavery

Nucleic Acids Research (2017) Vol 45 (7) pp 4269-4277

DOI: 10.1093/nar/gkx092

Enhancement of apoptic activities on brain cancer cells via the combination of y-tocotrienol and jerantinine A

Ibrahim Babangida Abubakar, Kuan-Hon Lim, Toh-Seok Kam and Hwei-San Loh

Phytomedicine (2017) Vol 30 pp 74-84

DOI: 10.1016/j.phymed.2017.03.004

Effect of polymer topology on non-covalent polymer-protein complexation: miktoarm versus linear mPEG-poly(glutamic acid) copolymers

Alejandro Neito-Orellana, Marco Di Antonio, Claudio Conte, Franco H. Falcone, Cynthia Bosquillon, Nick Childrehouse, Giuseppe Mantovani and Snow Stolnik

Polymer Chemistry (2017) Vol 8 pp 2210-2220

DOI: 10.1039/c7py00169j

A conceptual framework toward identifying and analysing challenges to the advancement of pharmacy

Lina R. Bader, Simon McGrath, Michael J. Rouse and Claire Anderson
Research in Social and Administrative Pharmacy (2017) Volume 13 (2) pp 321-331
DOI: 10.1016/j.sapharm.2016.03.001

Dually sensitive dextran-based micelles for methotrexate delivery

B. Blanco-Fernandez, A. Concheiro, H. Makwana, F. Fernandez-Trillo, C. Alexander and C. Alverez-Lorenzo
RSC Advances (2017) 7 (24) pp 14448-14460
DOI: 10.1039/C7RA00696A

Jerantinine A induces tumor-specific cell death through modulation of splicing factor 3b subunit 1 (SF3B1)

Felicia Fei-Lei Chung, Perry Faith Tze Ming Tan, Vijay Joseph Raja, Boon-Shing Tan, Kuan-Hon Lim, Toh-Seok Kam, Ling-Wei Hii, Si Hoey Tan, Sze-Jia See, Yuen-Fen Tan, Li-Zhe Wong, Wai Keat Yam, Chun Wai Mai, Tracey D. Bradshaw and Chee-Onn Leong
Scientific Reports (2017) Vol 7, Article 42504
DOI: 10.1038/srep42504

Concise Review: Emerging Drugs Targeting Epithelial Cancer Stem-Like Cells

Mehreen Ahmed, Kritika Chaudhari, Roya Babaei-Jadidi, Lodewijk V. Dekker and Abdolrahman Shams Nateri
Stem Cells (2017) Vol 35 (4) pp 839-850
DOI: 10.1002/stem.2579

Staff Research News

- Professor Cameron Alexander was invited to give a talk entitled 'Synthetic polymers as probes for biology' at the University of Birmingham, Department of Chemistry, February 2017.
- Professor Cameron Alexander gave an Invited Keynote talk at the 2nd European Nanomedicine Meeting, London, April 2017.
- Dr Franco Falcone has been invited to act as a grant peer-reviewer for the Irish Health Research Board.
- Dr Franco Falcone has received and accepted an invitation to present a 1-hour Henry Stewart Talks (HSTalks) lecture in the course 'Allergy: from basics to clinic'.
- Dr Catherine Jopling was an invited speaker at the Microbiology Society annual conference, Edinburgh, April 2017.
- Dr Lisa White, Anne McLaren Research Fellow, was an invited speaker at Universite Catholique de Louvain in Brussels on the 1st February 2017. Lisa's talk was entitled 'Processing effects upon biologic scaffold structure and function'.
- Dr Felicity Rose, Head of Division (RMCT), is an invited speaker at the Academy of Pharmaceutical Sciences 8th Annual Conference at The University of Hertfordshire on the 5th September 2017. This year's theme is 'Pharmaceutical Science without boarders' and Felicity's talk is entitled 'Thermoresponsive materials for mammalian cell culture: a journey into the third dimension'.
- Dr Felicity Rose has also been nominated to the following committee: Tissue Engineering and Regenerative Medicine International Society (TERMIS) – EU chapter (TERMIS-EU) Outreach and Communications Committee.
- Dr Dong-Hyun Kim was an invited speaker at the 5th Annual meeting of Korea Metabolomics Society in South Korea on the 6th April. His talk was titled 'Stable isotope-assisted metabolomics: A blessing for clinical studies'.
- Dr Dong-Hyun Kim was an invited speaker at the College of Pharmacy, Kyungpook National University in South Korea on the 6th April. His seminar was titled 'What role can metabolomics play in drug discovery and development?'
- Dr Michael Stocks was invited to Genetech in San Francisco to present a research seminar.

- Dr Michael Stocks has been invited to AstraZeneca in Gothenburg to present a research seminar.

Grants/Studentships Awarded

- BBSRC Follow-on Fund: Exploitation of a novel fungicide for preventing fungal contamination and deterioration of products and materials £198,414. (Principle Investigator: Simon Avery, Life Science. Co-Investigators: Professor Cameron Alexander, Pharmacy; Ricky Wildman, Engineering).
- Michael Stocks and Cynthia Bosquillon have been awarded an EPSRC iCASE studentship from GSK on 'Synthesis and evaluation lung tissue-retentive prodrugs'.

Student News

- Jong Bong Lee, 3rd year PhD student in the School of Pharmacy (under the supervision of Dr Pavel Gershkovich and Professor Pete Fischer), has been awarded the University Tri Campus Postgraduate Prize 2016/17. Jong Bong's research project deals with an important issue of optimization of treatment of cancer based on principles of pharmacokinetics. Jong Bong received the Ander Hendry Postgraduate Scholarship (£150) as a recognition of the progress he made in his research and his contribution to the postgraduate community. In addition to his outstanding research achievements (6 published peer-reviewed journal articles since he started his PhD, in addition to previous publications), Jong Bong is also an active contributor to cultural and sport activities of the postgraduate community.

- Robert Cavanagh and Rosa Catania (in collaboration with Felipe Cicaroni Fernandes and Blessing Anonye from the University of Warwick) have been awarded a £700 grant by the Innovative Manufacturing Global Research Priorities and Warwick AMR for their proposal "AMR - Awareness, Motivation and Research". This grant, together with additional support from the CDT, will fund their project which aims to engage and inform the younger generation on the current challenges in antimicrobial resistance. The team of four will be involved in outreach activities that intend to explain the mechanisms that lead to antimicrobial resistance, in order to raise awareness for this growing concern and discourage the misuse of antibiotics.

- Aimie Garces (2nd year PhD student with Michael Stocks and Tracey Bradshaw) has presented a poster at the ACS in San Francisco titled 'Highly Potent and Selective Phophoinositol-3 Kinase δ (PI3Kδ) Inhibitors for Treatment of Inflammatory Respiratory Diseases'.

- Natalija Tatic, a NanoFar PhD student has received a Graduate School Travel Prize of £600 to attend the European Chapter Meeting of the Tissue Engineering and Regenerative Medicine International Society conference 2017 (TERMIS). The 2017 conference is held in Davos, Switzerland in June where Natalija will be making an oral presentation.

General News

- Dr Keith Spriggs reported on Outreach activities:
  The primary after school science club ran another four schools this semester and a group of primary school children were hosted as part of an initiative with the Ogden Trust taking the total to 11 primary schools this year! In addition, another confirmed science club at the QMC school in which staff, postgrads and undergrads deliver hands-on sessions for children who are staying in the hospital.

  Last month around 240 children extracted DNA from kiwi fruit as part of the Primary Science Fair (organised by Sam Tang in Chemistry). With assistance from Keith Spriggs and Pharmacy UGs Dorcas Oyelayo and Yoko Ho, the children learned about DNA and the chemical and physical principles of DNA extraction.

  Other Outreach Opportunities:

  IntoUniversity – Young people from Britain's poorest backgrounds face a considerable educational disadvantage: they do far less well at school; they are unlikely to go to university; they have little chance of entering the professions. IntoUniversity provides support by providing (amongst other things) mentorship and guidance. Volunteering opportunities are available for staff and students. Some of our undergraduates are already involved in this scheme and can testify to its value.

  QMC School – a Wednesday afternoon science club has been confirmed for the QMC school delivered by a mixture of staff, postgrads and undergrads.

  Ogden Trust – this semester a Wednesday afternoon science club for primary school children in collaboration with the Ogden trust was organised in which children visited the Pharmacy School Building for 5 consecutive weeks and participated in experiments/demonstrations in the teaching labs. These were extremely well received by all involved and the indication is that there will be the opportunity to repeat this next semester.

  For Postgrads - Pathways to STEM e-mentors – Widening Participation are currently looking to recruit undergraduate/postgraduate students to act as e-mentors for post-16 students for their Pathways to STEM programme. It is entirely online and students will be paid £50.

For Academic Staff - STEM Insight Programme

This is a CPD opportunity for secondary school teachers and career advisers with an aim to equip them with up-to-date knowledge of what a university can offer in terms of study and career options (i.e. career in academia/research/professional services). The teachers/participants will also learn the research and teaching practices at the University – something they can bring back to apply to their teaching at secondary schools. The primary focus is for these trained teachers to go back and inspire their students to pursue a science/engineering career and to choose a STEM subject for their undergraduate study.

- Dr Cornelia De Moor gave a talk on 3 May as founder Chair of the Wollaton Science and Technology Club and will be hosting work experience students for the week of 26 June.

- Dr Lisa White was a principle organiser of the event 'Discoveries and Detour: career paths of women in science'. This event was to mark International Women's Day 2017, to help celebrate and promote women and their careers in science. The event took place on Friday 3rd march 2017 and was very well received.

- Dr Marta Alvarez-Paino, a post doc, has won first prize in the 'Weird and Wonderful' category of a national science photography competition organised by engineering and Physical Sciences Research Council (EPSRC). Currently in its fourth year, Weird and Wonderful is one of five competition categories. This competition features researchers in receipt of EPSRC funding and Marta was selected from over a hundred entries across the entire competition. Marta's prize winning images shows a collection of biodegradable dimpled microparticles for enhanced cell growth. To see the stunning photograph and to find out more place visit: http://www.nottingham.ac.uk/news/pressreleases/2017/april/science-photography-prize-for-polymer-particles-resembling-golf-balls.aspxhttp://www.nottingham.ac.uk/news/pressreleases/2017/april/science-photography-prize-for-polymer-particles-resembling-golf-balls.aspx

Highlighted Papers

- ***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

  This paper shows how biodistribution and drug release can be controlled, and tumour volume in mice reduced, by modulation of polymer properties and drug linker chemistry. This work was an internal AstraZeneca project for which CA acted as advisor and chemistry supervisor, and provided one of the first high profile outputs of the AZ Post-Doc program (which they are now expanding).

- ***Identification of polymer surface adsorbed proteins implicated in pluripotent human embryonic stem cell expansion***

  M. Hammad, W. Rao W, J.G.W Smith, D.G. Anderson, R. Langer R, L.E. Young, D.A. Barrett, M.C. Davies, C. Denning and M.R. Alexander.
  Biomaterials Science (2016) 4 (9), 1381-1391.
  DOI: 10.1039/C6BM00214E

  An approach of screening proteins at the surface of biomaterials was developed by Moamen Hammad as part of his PhD funded by the Royal Pharmaceutical Society. Interestingly, heat shock proteins were identified as being able to induce attachment and maintenance of human stem cell pluripotency. This finding will be of great importance in the development of manufacturing processes to meet the need of the emerging regenerative medicine therapies to produce billions of cells for each treatment. Supervisors: Martyn Davies and Morgan Alexander.