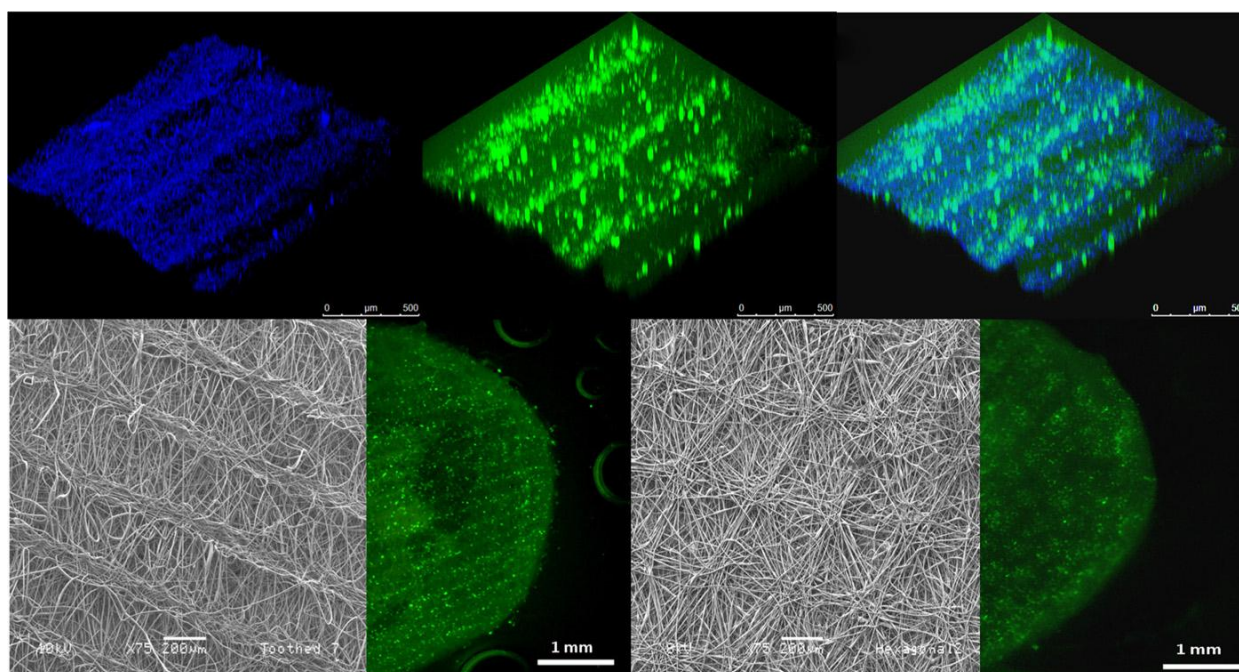


The School of Pharmacy Journal



March-April 2014

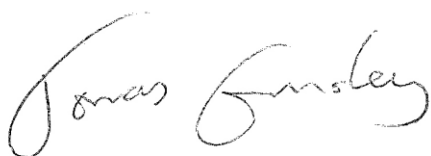
Foreword

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

In a major breakthrough in stem cell manufacturing technology scientists within the group of Professor Kevin Shakesheff have developed a new substance which could simplify the manufacture of cell therapy in the pioneering world of regenerative medicine. This work was published in PNAS (2014) 111: 5580-5585. Professor Kevin Shakesheff said "Our new combination of hydrogels is a first. It allows dense tissue structures to be produced from human pluripotent stem cells (HPSC) in a single step process never achieved before. The discovery has important implications for the future of manufacturing in regenerative medicine. This field of healthcare is a major priority for the UK and we are seeing increasing investment in future manufacturing processes to ensure we are ready to deliver real treatments to patients when HPSC products and treatments go to trial and become standard." The work was funded by the EPSRC Centre for Innovative Manufacturing for Regenerative Medicine in which The University of Nottingham is a partner. The centre brings together experts in stem cell biology, materials science, pharmaceutical sciences and manufacturing. In addition Professor Kevin Shakesheff has been given one of the first ever RISE awards by the Engineering and Physical Sciences Research Council (EPSRC) and Royal Academy of Engineering. The awards are brand new and were set up to recognise the leading scientists and engineers of the UK in this 20th anniversary year of the EPSRC.

One of the most important human receptor families, from a drug discovery and development perspective, is the GPCR family. In the area of chemical biology and membrane GPCR receptor research two papers were published in the journal "British Journal of Pharmacology" (2014) 171: 1102-1113, 171: 1073-1084 from the group of Barrie Kellam and Steve Hill describing the use of fluorescent-conjugates as a toolbox for visualisation of GPCRs at the single cell level.

Advances in macromolecular crystallography and gene regulation research have also come from two papers in the area of post translational modifications. In a breakthrough article in Nucleic Acids Research (2014) 42: 822-835 the group of Ingrid Dreveny and David Heery reported for the first time that MOZ DPF induces α -helical conformation in the histone tail H3K4-T11, revealing a unique mode of histone H3 recognition. This data provides the first observation of extensive helical structure in a histone tail, revealing the inherent ability of the H3 tail to adopt alternate conformations in complex with chromatin regulators affecting gene regulation. In a second paper the group of Ingrid Dreveny report the crystal structure of a Structure and Catalytic Regulatory Function of Ubiquitin Specific Protease 11 N-Terminal and Ubiquitin-like Domains Biochemistry, 2014, 53 (18), pp 2966-2978. This enzyme regulates vital signaling pathways in the nucleus and is implicated in DNA damage repair.



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