

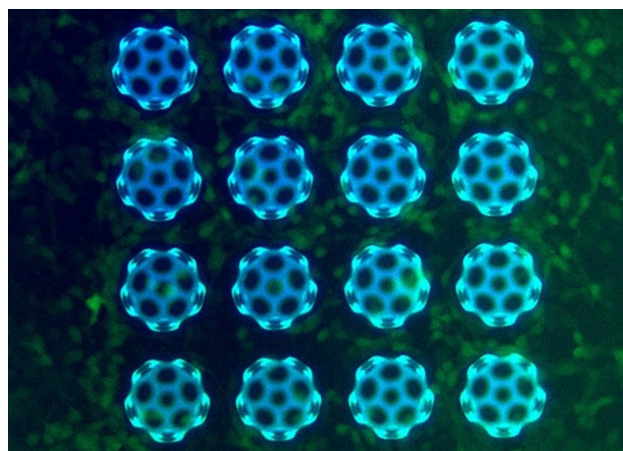
## ESTABLISHING A BIOFABRICATION CENTRE

### Assisting the academic community to find the right industrial partner

In 2018, the University of Nottingham identified additive biofabrication as a priority research area and established an Interdisciplinary Research Cluster (IRC) in Additive Biofabrication, led by Professors Ricky Wildman and Felicity Rose. The focus of the IRC was to stimulate discussion and pump priming activities amongst researchers at Nottingham, and with international collaborators. The project came about following a joint studentship funded by the EPSRC/MRC CDT in Regenerative Medicine.

Additive biofabrication is the use of three-dimensional (3D) printing technologies to create structures that can direct the behaviour of biological systems. Being able to exercise control over biology offers routes to having real impact not only in basic research but also for further medical and environmental applications. In addition, cell-based therapies are a growing market, and Wildman and Rose aim to produce structures that can support and direct cell growth and provide the basis for functional clinical products in the future.

Wildman and Rose asked NBIC to raise the profile of their capability in additive biofabrication at Nottingham through their industrial network. Through a Partner Search, NBIC facilitated a connection to the Knowledge Transfer Network (KTN), which resulted in a joint webinar in November 2020 focussed on informing industry about this technology. NBIC also introduced Wildman and Rose to the Centre for *In Vitro/In Vivo* Translation at GSK, and since then have been in discussion about the application of 3D bioprinting to the development of in vitro models; and have been successful in securing a BBSRC iCASE award (£95K) to start in October 2021. Professor Wildman said,



*3D printed porous microparticles interacting with mammalian cells in culture.*

“The NBIC industrial network has been integral to the success of the KTN event and the BBSRC iCase award with GSK, providing us with an opportunity to explore collaborations with individuals who might have been outside our reach without NBIC”.

Wildman and Rose are currently establishing a dedicated 3D bioprinting laboratory within the Nottingham Biodiscovery Institute and have secured funding from the EPSRC to purchase state of the art 3D printing equipment for biological applications, which will be operational towards the end of 2021. Although the Centre was originally conceived from the application of additive manufacturing to regenerative medicine, Wildman and Rose believe that this technology could provide tools and solutions for a number of challenges. Significant commercial exploitation opportunities also exist through the generation, robust protection and exploitation of intellectual property and contract research with industry.



#### Professor Felicity Rose

Professor of Biomaterials and Tissue Engineering at the University of Nottingham, Head of the Division of Regenerative Medicine and Cellular Therapies, and Deputy Director of the Nottingham Biodiscovery Institute (BDI).



#### Professor Ricky Wildman

Professor of Multiphase Flow and Engineering at the University of Nottingham. His research develops scientific understanding of additive manufacturing processes in order to exercise control over function.