

Application to support the upkeep and maintenance of SEARCHBreast, a virtual on line resource to locate and share surplus archival material from breast cancer animal models to help address the 3Rs and to promote 3D tissue modelling

Thanks to support from the Pathological Society we have been able to support the upkeep and maintenance of the SEARCHBreast database and run a successful workshop on the use of humanised 3D models in cancer research. During the course of this grant, opportunities to broaden SEARCHBreast into a wider SEARCH framework was reported, with due acknowledgment to the Pathological Society on page one of the paper (1). This paper is in the top 5% of all research outputs scored by Altmetric and the journal has an impact factor of 9.7.

One of the main comments from holding SEARCHbreast workshops in the past was a desire from scientists to experience some of the 3D technology the project was promoting 'hands on'. Consequently, a training workshop "Building capacity in 3D tissue modelling and applications: A hands-on interactive workshop" was held in Leeds on Wednesday 18 May 2018, as a British Association of Cancer Research Special Conference. This covered a range of different types of cancer and was aimed at early career researchers to embed the concept of using bespoke 3D cancer models in their work from an early career stage. Space were capped at 50 due the capacity of our teaching labs and these were filled very quickly, with a waiting list.

The workshop comprised a series of expert talks in the morning, covering *ex vivo* models of cancer metastasis, an introduction to microfluidic technology, the use of tuneable hydrogels to support cancer cell growth in 3D, and hints and tips on how to best establish 3D cancer models using various platforms. This was followed by an interactive session in the afternoon where delegates were exposed to a number of different techniques which could be applied to cancer research, with opportunities to speak to experts and have a go at using some of the technology. These included preparing precision cut tissue slices, matrix-free 3D culture models, hanging drop cultures, preparation of tuneable hydrogels, microfluidic devices and 3D platforms.

Feedback from the workshop was excellent, the only negative was that more 'hands on' was requested, suggesting there is an appetite for this type of forum in the cancer biology space. Anticipating that this might be the case, prior to the workshop, I was able to secure additional funding from NC3Rs to offer 4 x £250 training bursaries to early career researchers, which will allow them to receive more intense training in a lab of their choice in one of more of the technologies presented at the workshop. Recipients of these bursaries will be selected by the workshop organisers and a representative from NC3Rs.

The photographs below demonstrate the interactive nature of the workshop.



Finally, I am grateful to the Pathological Society for kindly providing financial support for this project.

Publication

1. Morrissey B, Blyth K, Carter P, Chelala C, Jones L, Holen I, Speirs V. The Sharing Experimental Animal Resources, Coordinating Holdings (SEARCH) Framework: Encouraging Reduction, Replacement, and Refinement in Animal Research. *PLoS Biol.* 2017 Jan 12;15(1):e2000719. doi: 10.1371/journal.pbio.2000719.