National Centre
for the Replacement
Refinement & Reduction
of Animals in Research

NC3Rs Workshop: Human tissue models for cancer research

1-2 March 2017; Central London

Human tissue derived from tumour resection, clinical trial, non-transplantable donation and post-mortem sources represents a vital resource for biomedical research and pharmaceutical development. The rate of progress in developing new drugs to treat cancer has been slow, in part due to over reliance on animal models which are not sufficiently predictive of drug responses in man. The adoption of methods using human tissue has the potential to replace some of these animal models, improving predictivity and reducing animal use.

Chair: Professor Gareth Thomas, University of Southampton

Aims of workshop:

- Bring together cancer researchers working with human tissue and other models to discuss how human tissue is used and what barriers exist to increased uptake.
- Use examples of successful human tissue research to inform participant consideration and discussion on routes to improving predictivity to man
- Define activities for the future which will advance the use of human tissue in cancer research as an alternative to animal modelling.

Themes:

- Engineering the microphysiology of cancer with human tissue
- Fresh human tissue
- Fixed human tissue for research and drug development

Draft agenda - Day 1	
08:30 – 09:00	**Registration and Coffee**
09:00 – 09:30	**Welcome and Introduction** *Professor Gareth Thomas, University of Southampton (Chair)*
09:30 – 10:30	**Keynote Lecture - Human tissue to drive predictivity to man in cancer research: examples from the IMAT portfolio** *Dr Tony Dickherber, Innovative Molecular Analysis Technologies (IMAT) Program, NIH National Cancer Institute*
10:30 – 11:00	**Coffee and poster viewing**
Theme 1: Engineering the microphysiology of cancer with human tissue	
11:00 – 11:30	**Tumour on a chip – application of human tissue to replace animal studies** *Professor John Greenman, University of Hull*
11:30 – 12:00	**3D printed tissue to recreate microenvironmental architecture for cancer research** *Professor Will Shu, University of Strathclyde*
12:00 – 12:30	**Generation of an organoid biobank: opportunities, limitations and the Human Cancer Model Initiative** *Dr Hayley Francies, Wellcome Trust Sanger Institute*
12:30 – 13:30	**Lunch and poster viewing**
Theme 2: Fresh human tissue	
13:30 – 14:00	**The collection and provision of human tissue for pharmaceutical development in cancer research - TBC**
14:00 – 14:30	**The application of living tissue to improve predictivity over animal models in cancer research and drug development** *Dr David Bunton, ReproCELL Europe*
14:30 – 15:00	**In vitro techniques to reduce the number of animals used in PDX mouse modelling during drug discovery** *Dr Larrisa Carnevalli, AstraZeneca*
15:00 – 15:30	**Coffee and poster viewing**
Breakout Session 1	
15:30 – 17:00	**Current status and definition of barriers to increased use of human tissue in cancer research**
17:00 – 17:25	**Feedback from breakout session**
17:25 – 17:30	**Wrap-up of day 1 and overview of day 2** *Professor Gareth Thomas, University of Southampton*
17:30 ~	**Networking reception and voting on topics to take forward to day 2**

Draft agenda - Day 2	
08:30 – 09:00	**Registration and Coffee**
09:00 – 09:10	**Welcome and Introduction** *Professor Gareth Thomas, University of Southampton (Chair)*
09:10 – 09:40	**Cancer tissue provision in the UK and the role of BBMRI-ERIC** *Dr Philip Quinlan, UK Clinical Research Collaboration and BBMRI-ERIC*
09:40 – 10:10	**Edinburgh CRUK centre – human tissue for drug screening consortium** *Professor Neil Carragher, University of Edinburgh*
Theme 3: Fixed human tissue for research and drug development	
10:10 – 10:40	**Applying bioinformatics to reduce animal use in cancer research** *Dr Christopher Woelk, University of Southampton*
10:40 – 11:00	**Molecular pathology/MALDI TOF imaging spectrometry in cancer research - TBC**
11:00 – 11:20	**Coffee and poster viewing**
Breakout Session 2	
11:20 – 12:30	**Discussion of the barriers to development and implementation of human tissue models for cancer research**
12:30 – 12:55	**Feedback from breakout session**
12:55 – 13:00	**Meeting wrap-up** *Professor Gareth Thomas, University of Southampton*
13:00 ~	**Lunch and poster viewing**