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Prescriptive Biobanking for Future Clinical Research in Haemato-Oncology: The Cambridge Blood and Stem Cell Biobank experience

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The Cambridge Blood and Stem Cell Biobank was created in 2009 with the aim of providing a resource of well-defined blood and stem cell derived products primarily for the study of Haematological Malignancies. The bank consists of large existing cohorts from previous clinical trials alongside collection of fresh samples for current trials and research studies. Following consultation with researchers and clinicians we established an integrated approach of collecting detailed clinical data and a program of cell isolation and/or separation and preservation for each haematological malignancy, such that a sample of tumour and constitutional cells is stored from each patient. For some samples we use the Miltenyi AutoMACS selection platform to isolate rare tumour cell types present in samples at <5% total cells, such as CD34+ stem/progenitor cells.

Our strength lies particularly in banking from chronic myeloid disorders, and we have recently been awarded funding to support the UK Myeloproliferative Neoplasms (MPNs) Sample Bank. In collaboration with the Cancer Genome Project at the Sanger Institute, UK and researchers in the University of Cambridge Department of Haematology we have been able to characterise over 200 patient samples for exomic acquired mutations, with subsequent functional analysis on cryopreserved cells from the same samples. As haematological malignancies become more defined by molecular abnormalities than cellular properties, well-characterised samples from these patients are in higher demand. Therefore we are beginning to sustain our biobank by providing enhanced informatics with each sample through careful clinical data collection to define malignancies and molecular testing to supplement established diagnostics.

Biography

Joanna Baxter completed her PhD in 2003 from the University of Southampton, UK, studying rare chromosomal translocations and mutations in myeloid malignancies with Prof Nick Cross. Her postdoctoral studies included the discovery of the JAK2 mutation in MPNs in the lab of Prof Tony Green in Cambridge, before moving into her current role in 2009. She is the Lead Scientist and Custodian at Cambridge Blood and Stem Cell Biobank, a resource for research into Haematological malignancies, stem cells, normal haematopoiesis and immune development, based on the Cambridge Biomedical Campus on the Addenbrookes Hospital site in Cambridge. Alongside promoting biobanking in blood cancer research she is married with two young children.

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