UCL Biobanking and UCL NIHR BioResource

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Introduction

• NIHR BioResource
  • UCL BioResource (funded by the NIHR and Biomedical Research Centre)

• Biobanks at UCL
What are biobanks?

Current versus Savings
Complex Biobank Landscape

**Source**
- Epidemiology cohorts
- Clinical Trials
- Surgical samples
- Diagnostic Archive
- Patients in clinic
- Research samples

**Samples Type**
- Prospective
- Disease Specific
- Control
- Live
- Post mortem
- Tissue
- Cells
- Blood
- Other Bodily Fluids

**Collector**
- Phlebotomist
- Research Nurse
- Researcher
- Clinician
- Biobank
- Mortuary staff

**Collection site**
- GP
- NHS
- University
- Other study specific
- Multi site

**Processing Required**
- Fresh
- Frozen
- Fixed
- Fixed embedded
- Fixed Frozen
- Extraction
- Separation
- Aliquoting
- Culturing

**Storage**
- Under Licence
- Exempt from HTA
- Ethics approval
- Short term
- Long term
- Conditions

**Data**
- Study and sample Data
- Patient Questionnaires
- Clinical data
- Electronic patient records
- Health statistics HES, ONS etc
- Research results
The Grand Challenge: Maximising value of UCL’s and Partner Hospital biospecimen repositories

• Consistency/Standardisation
  – Tissue, blood, plasma, DNA
  – Cancer, cardiovascular, child health, neurological, etc.

• Maximise potential
  – Easier to locate and access

• Security
  – Safely stored
  – Back up
  – Monitored

All samples labelled with 2-D barcode

Standardised tubing and racking systems
UCL-RFH Biobank

- Biorepository with a planned on-site capacity of 1 million aliquots.
- First sample banked in Dec 2009
- 30 User groups (UCL, RFH, Other Academic, Commercial)
- 37,000 aliquots banked so far (2013 06 11)
- 1,500 aliquots released so far (2013 06 11)
- Derivatives stored include Serum, Plasma, Cells, Tissue, Urine
- Service provider to UCL, UCLH, RFH and external User groups.
UCL-RFH Biobank – User examples

Project specific

Colorectal cancer - Use of active targeting quantum dots in diagnosis and as drug delivery agents in colorectal cancer tissues and the detection of serum biomarkers for colorectal cancer diagnosis and screening

ANG-01 - Circulating markers of angiogenesis in portal hypertension

Clinical Trials

NET01 - A randomised phase II study comparing capecitabine plus streptozocin with or without cisplatin chemotherapy as treatment for unresectable or metastatic neuroendocrine tumours

ProT4 - Multicentre randomised phase II study to evaluate the efficacy of prophylactic transfer of CD4 lymphocytes after T cell depleted reduced intensity HLA identical sibling transplantation for indolent non Hodgkin’s lymphoma and CLL

TACE2 - A randomised placebocontrolled double blinded phase III trial evaluating sorafenib in combination with transarterial chemoembolisation (TACE) in patients with unresectable hepatocellular carcinoma

Disease Specific Biobank Resources

Infectious Diseases DNA bank – (RTB)

NET bank - NeuroEndocrine Tumour Biobank

ME/CFS Biobank - UK’s first biobank of human blood samples for research into the causes of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (M.E. /CFS) on behalf of the London School of hygiene and Tropical Medicine
BioResource – the difference: biobank +

Samples are part of a person

As well as the sample, BioResource is about the person

People are extremely valuable in understanding health and disease. Those wishing to participate in research and trials can be a valuable RESOURCE for understanding disease processes and developing new treatments.
NIHR BioResource

Involving willing volunteers/patients interested in participating in research is at the centre of NIHR BioResource

NIHR BioResource Joint project between Biomedical Research Centres/Units from:
   Cambridge (lead site)  Oxford  UCLH/UCL  Imperial  GSTT/KCL  IoP/SLaM (KCL)
   Leicester

Cambridge has been running 2005 and has over 12,000 healthy volunteers, mostly blood donors recruited through NHSBT

AIM for over 60,000 patient/volunteers recruited across all centres by April 2017
NIHR BioResource

2-Staged Activity:

- **Stage 1 activity** - Recruitment of new volunteers and patients to the bioresource
- **Stage 2 activity** - Recall of existing members to stage 2 research studies
NIHR BioResource

Sample/Data Collection – Stage 1

- Enrolment through our hospitals
- Providing Informed consent
- Sample collection is very light: 22.2ml blood sample (3 X 4.9ml EDTA tube & 1X 7.5ml Serum) for DNA / Serum/ Plasma isolation
- Material used for identification and selection of suitable volunteers for stage 2 studies only-not for individual research purposes
- Contact details collected-needed for recall purposes (email, phone numbers etc...)
- Questionnaire data-health and lifestyle information used to aid selection process (e.g. BMI, medical history, smoking status etc...)
Stage 2 Research Studies

- Research studies supported across the disease themes (Cancer, neurocardio....)
- Range of commitments required from the volunteer
  - **Less Intensive**
  - Blood studies (Requiring single or multiple samples)
  - Online questionnaires
  - **More Intensive**
  - 30hr fast (e.g. T2D)
  - Muscle biopsy/skin biopsy
  - One or more overnight stays
  - Dietary regime
  - Drugs/Biologicals
UCL BioResource

• UCL will focus on recruitment of patients with various conditions but also healthy volunteers
• Started recruitment on 25th of July 2013 at NHNN in headache, MS and genetics clinic
• Have just over 50 recruits to date (just over 2 weeks, recruiting in 5 clinics a week)
• Will roll out to further clinics at the NHNN soon and then when the second research nurse joins will expand to UCLH
• Developing a communications strategy to inform those coming in to hospitals and staff
Aims

- Potential in time everyone who comes to UCLP hospitals could participate
- Improve patient and general population involvement in research
- Champion UK’s leadership in biomedicine
- Engage with industry to speed translation
- Driver of economic growth
Links to videos about NIHR BioResource

- What is the BioResource has the introduction clip.  
  [http://bioresource.nihr.ac.uk/about-us/what-is-the-bioresource/](http://bioresource.nihr.ac.uk/about-us/what-is-the-bioresource/)
- BioResource Centres has the clip about the centres  
- Why should I join? Holds the clip of volunteers talking about their experience  
  [http://bioresource.nihr.ac.uk/volunteer/why-should-i-join/](http://bioresource.nihr.ac.uk/volunteer/why-should-i-join/)
- How to join page has the clip about the joining process and confidentiality  
  [http://bioresource.nihr.ac.uk/volunteer/how-to-join/](http://bioresource.nihr.ac.uk/volunteer/how-to-join/)
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Thank You
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