

Wellcome Genome Campus | IBRH3AU BIOBANKING PROCESS VIDEO

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During the last decade, the role of biobanking has rapidly developed in parallel with the advent of personalised medicine. Biobanks have become a key resource in medical research, providing human biological samples, such as blood, tissue, urine, swabs, and associated data needed for utilisation in both clinical and research-based services. It is essential that researchers access high quality samples and data to generate reproducible results.

IBRH3AU has built local capacity with the state of the art equipment and highly professional personnel who are able to support researchers at all levels of the biobanking process, ranging from sample collection, from sample transportation, to sample processing, to sample storage, and also sample shipment.

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The Integrated Biorepository of H3Africa Uganda, located at Makerere University's College of Health Sciences, supports best practise biobanking across the region to help researchers manage their collections. So how does biobanking work.

So biobanking refers to the storage of biospecimen for future scientific research. Among the biospecimen which we store in the biobanks-- they include the blood and its derivatives, including plasma, serum, PBMCs. We also store a urine. We store stool. We store saliva. We store swabs, including nasopharyngeal swabs, including oropharyngeal swabs, including anal swabs, including vaginal swabs. We also store tissues.

Prior to sample collection, IBRH3AU supports researchers in getting the necessary approvals, including institutional review board approvals. IBRH3AU makes sure that the researchers abide with the necessary ethical guidelines in the country. So during sample collection, they laboratory technologists will take off their respective samples and also collect the various consent forms, the laboratory request forms, and the samples, all packaged in-- following standard operating procedures. And these biospecimens are shipped through the courier system, which is well-trained to the integrated biorepository of H3Africa.

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When the samples and data reach the biobank facility, a laboratory technologist assesses them for sample integrity and verifies them against the sample manifest. In accessioning the sample and its corresponding patient or participant data details are entered into the biobank information management system. Patient or participant data includes demographics and the health history. Hereafter, the samples are distributed to various laboratories for processing, characterization, and sorting.

IBRH3AU has a number of supporting labs that's able to support the process of processing, characterization, and sorting of the samples. And these include the molecular biology laboratory, which is well-equipped to manage any molecular biology experiments. IBRH3AU also has the immunology lab for immunology assays. IBRH3AU also has the mycobacteria lab for TB-related projects and microbiology lab to handle any bacteriology, mycology, or any microbiology procedures.

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In processing, analytical data is generated, which adds value to the biospecimen to be stored. This data is added to the previous data entered in the biobank information management system. This completes the annotation and characterization of the sample. The lab technologist then proceeds to prepare the samples for long-term storage. After entering sample data into the biobank information management system for virtual freezer management, samples allocated freezer space. The freezers are well-maintained and secured with limited access.

At IBRH3AU, our freezer farm is equipped with freezers on various capacities, including -20 to -40. And ultra-low temperature freezers, which are able to freeze from -70 to -80. We also support ambient temperature storage, that is to say from +2 to +8. And we are also able to support storage of samples at room temperature. In addition to the freezer farm, we also have the liquid nitrogen room, which-- where we store samples at -196.

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At the end of the process chain is sample retrieval and shipment. This involves retrieving samples from storage, packaging, and shipment tracking to and from the researchers. Samples are shared with requested data. Sample and data sharing is done within the ethical guidelines.

IBRH3AU serves the East and Central African regions through biobanking. And it has been able to streamline and improve biobanking in this region for over 10 years now.

The integrated biorepository team at Makerere have extensive experience across the spectrum of biobank operations and adhere to a biospecimen collection and management for your research project.

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