

# LABORATORY SERVICES AND BIOBANK GROUP (LSB)

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The Laboratory Services and Biobank Group (LSB) (Figure 1) works with IARC's Administrative Services Office (ASO) and research Groups to provide core laboratory and biobanking services to support the Agency's research activities. The Group also provides technical and safety advice to the Nouveau Centre project for the future laboratories and biobank.

## LABORATORY SERVICES

LSB ensures that optimal laboratory services are available, including a laboratory store providing consumables, glass-washing facilities, mycoplasma testing and quarantine, and pipette checking. In conjunction with the Laboratory Steering Committee, LSB oversees the common laboratory platforms and ensures equipment is well maintained. Interaction between

laboratory-based and epidemiological research is enhanced through the upgrading, updating, and acquisition of

state-of-the-art scientific instruments and the provision of sample storage capacity.

**Figure 1. Laboratory Services and Biobank Group team photo. Courtesy of Xuexun Zhou.**



## HEALTH AND SAFETY

Health and safety issues are managed in collaboration with the Occupational Health and Safety Committee (OHSC).

The safety manual has been completely rewritten to become a key document at IARC. Available online, it incorporates the latest international guidelines and is aligned with similar national and international documents. The first section applies to all persons working on or visiting the site. Information is given on the role of all personnel/service providers involved in safety and security at IARC, access conditions, general rules, emergency procedures, and medical services. The second section covers laboratory safety, including personal and collective protection guidelines, management of equipment and cold storage, transport procedures between laboratory floors, laboratory services offered, and good laboratory practice. Information is provided on biological and chemical risks; risks related to the handling of carcinogens, radioactive substances, or liquid nitrogen; and waste management.

Authorization for the restricted use of genetically modified organisms (GMO), and authorization to house and use radionuclides, has been renewed.

During the biennium, 204 general safety briefings for newcomers were provided, as well as 41 training sessions for newcomers working in the laboratory. LSB made 17 presentations to 186 laboratory personnel, covering good

laboratory practice, good laboratory pipetting, working with liquid nitrogen, ergonomics, and the Electronic Laboratory Notebook. A further three presentations were made to other personnel involved with the laboratories, including ASO, Information Technology Services (ITS), cleaning personnel, and security guards.

## IARC BIOBANK

The IARC Biobank maintains biological sample collections from international studies and operates a service platform for sample retrieval, sample inventories, DNA extraction, and the shipment of biological material worldwide.

The IARC sample management database (SAMI) stores information for more than 6 million biological specimens. During the biennium, almost 230 000 new samples were imported into SAMI and more than 145 000 samples were accessed for internal or external collaborators. SAMI is continuously being upgraded, and a web-based version 2.0 was developed.

Standard practices and procedures govern sample transfer from and to the Agency and the management of sample storage under optimal conditions. During the biennium, a procedure for fast-track material sharing was implemented and 156 Material Transfer Agreements for incoming and outgoing samples were verified. A procedure for the disposal of sample collections was developed in preparation for the move to the Nouveau Centre. LSB secured additional funding

from the Governing Council to replace obsolete equipment and purchase new units to increase cold storage capacity to meet future needs as well as provide adequate back-up facilities. A new freezer-temperature monitoring system was piloted for future expansion to the Nouveau Centre.

## BIOBANK SERVICES

The Biobank provides pre-analytical services on a cost-recovery basis. During the biennium, 16 projects were conducted relating to 24 requests from international institutions. This resulted in more than 13 880 sample retrievals from liquid nitrogen, 7790 DNA extractions, 7716 DNA aliquots, and 125 shipments to 24 countries worldwide.

An overview of the services provided as at September 2019 is presented in Figure 2.

The Biobank continues to participate in international proficiency schemes and scored very highly in the programmes of DNA extraction from whole blood, frozen tissue, and formalin-fixed, paraffin-embedded tissue and DNA quantification.

The Biobank provides support to research groups for incoming samples, from reception to uploading into the common database (SAMI).

## BCNET

To address the underrepresentation of biological resources in low- and middle-

Figure 2. An overview of the services provided as at September 2019. © IARC.

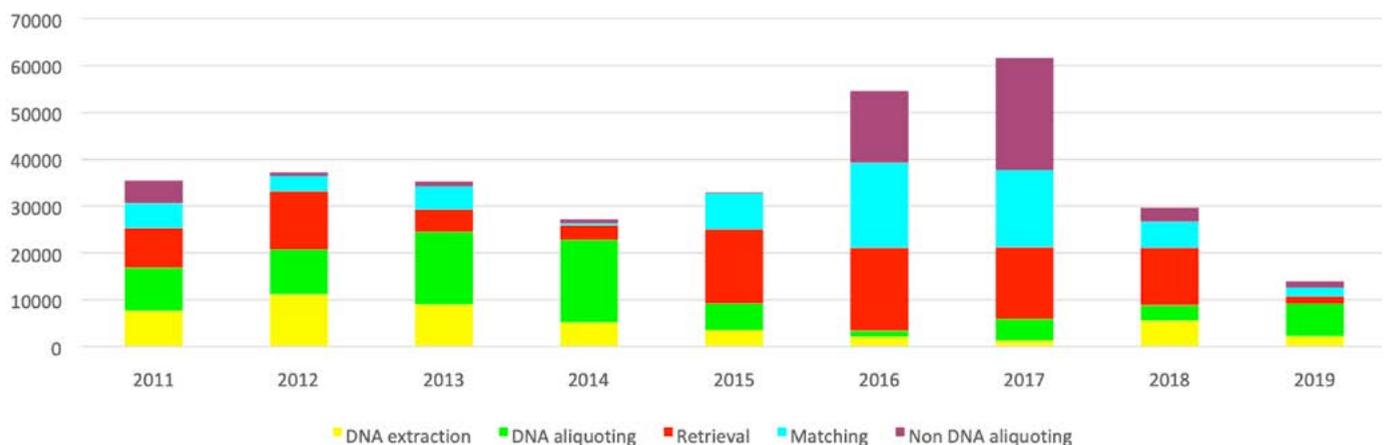
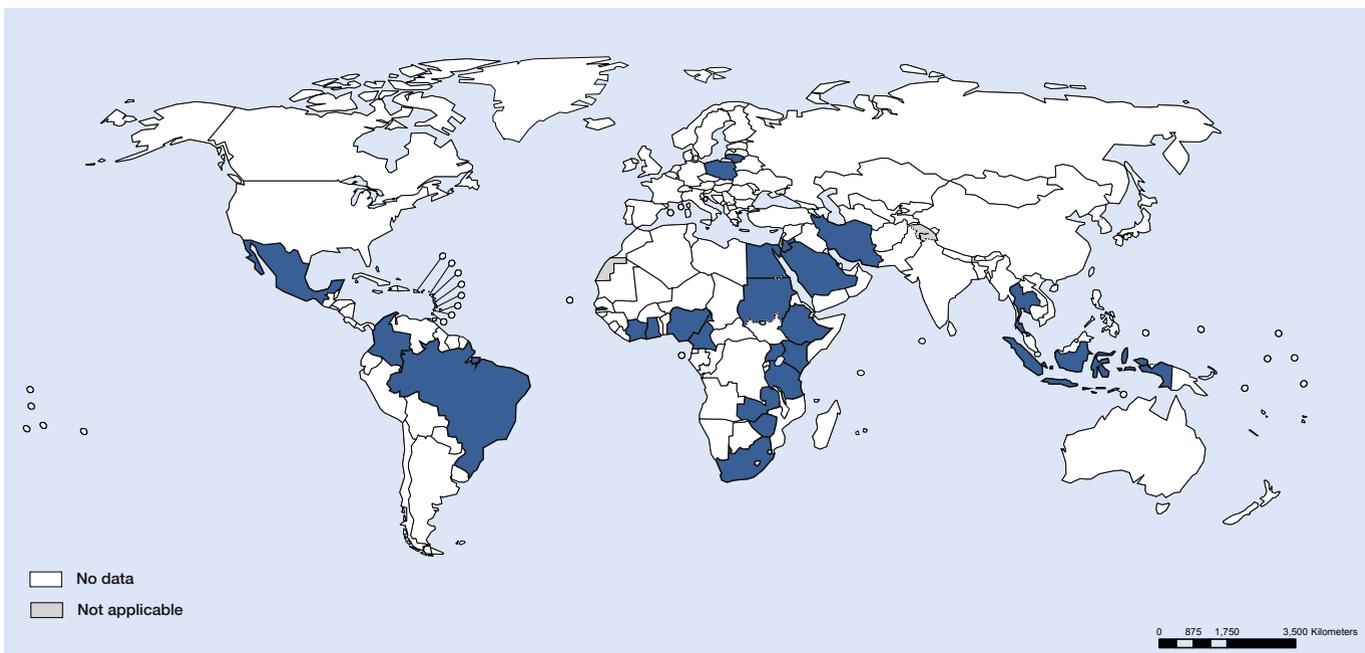


Figure 3. Map of BCNet member countries as at September 2019. © IARC.



**World Health Organization**

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income countries (LMICs) for research, the LMICs Biobank and Cohort Building Network (BCNet; <http://bcnet.iarc.fr/>) was established by IARC in 2013. Currently, 36 institutions from 23 countries are members of BCNet (Figure 3).

#### TRAINING

Training workshops on biobanking were conducted in Indonesia (November

2018), Kenya (January 2019; Figure 4), Brazil (May 2019), and Romania (June 2019).

#### COLLABORATIONS

LSB represents IARC at the International Organization for Standardization (ISO) and at the Biobanking and BioMolecular resources Research Infrastructure–European Research Infrastructure Consor-

tium (BBMRI-ERIC) as an observer. IARC collaborates with BBMRI-ERIC members for international networking and interoperability issues to ensure that the structures and common services (CS) developed within Europe will be accessible to wider international communities. LSB also participates in working groups – for CS information technology (IT), CS ethical, legal, and social issues (ELSI), European Paediatric

Figure 4. Biobank training at Ampath Oncology Institute, Eldoret, Kenya, January 2019. Courtesy of Bonnie Oduor.



Translational Research Infrastructure (EPTRI), and Quality Management – and participates in international projects.

LSB continues to support the African Organisation for Research and Training on Cancer (AORTIC), linking the organization with BBMRI-ERIC and BCNet and other biobanking organizations in Europe and globally: the European, Middle Eastern and African Society for Biopreservation and Biobanking (ESBB) and the International Society for Biological and Environmental Repositories (ISBER).

## GRANTS

Four grant awards were received: (i) Implementation and operation of the gateway for health (ADOPT) into BBMRI-ERIC (EU-H2020 no. 676550), which aims to expand BBMRI beyond Europe (October 2015–September 2018); (ii) Bridging Biobanking and Biomedical Research across Europe and Africa (B3Africa) (EU-H2020 no. 654404), for which IARC is leading the Training and Dissemination work packages (July 2015–June 2018); (iii) a grant for BCNet projects from the United States National

Cancer Institute Center for Global Health (NCI-CRDF-2016); and (iv) a grant from the EPTRI (May 2019–December 2019).

In addition, there are three research projects with budget allocation for biobank services: (i) HPV genomics, from Institut national du Cancer (INCa), France; (ii) Fat–ovarian, from INCa; and (iii) Impact of HBV genetic variability on liver disease in West Africa, from Agence nationale de recherches sur le sida et les hépatites virales (ANRS), France.