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Progress Report for R&D Projects [Year2]

Section-A: Project Details

- A1. Project Title:** "Setting up the National Biobank facility for clinical and basic research in HCV at ILBS" renamed as "National Liver Disease Biobank" on suggestions from Steering committee"
- A2. DBT Sanction Order No. & Date:**
57, 102/IFD/SAN/2672/2018-2019 dated September 27, 2018 &
58, 102/IFD/SAN/2673/2018-2019 dated September 27, 2018
- A3. Name of Principal Investigator:**
Chhagan Bihari, Associate Professor, Pathology
Telephone: 011-46300000 (Ext.-16035)
E-mail: drcbsharma@gmail.com
- Name of Co-PI/Co-Investigator:**
1. Archana Rastogi, Additional Professor, Pathology
Telephone: 011-46300000 (Ext.-16049)
E-mail: drarchanarastogi@gmail.com
 2. Ekta Gupta, Additional Professor, Virology
Telephone: 011-46300000 (Ext.-16047)
E-mail: ektagaurisha@gmail.com
 3. Senthil Kumar, Additional Professor, HPB Surgery
Telephone: 011-46300000 (Ext.-13026)
E-mail: sanskriti@hotmail.com
 4. Shvetank Sharma, Associate Professor, MCM Department
Telephone: 011-46300000 (Ext.-24166)
E-mail: shvetanks@gmail.com
 5. Rakhi Maiwall, Associate Professor, Hepatology
Telephone: 011-46300000 (Ext.-23328)
E-mail: rakhimaiwall02@yahoo.com
- A4. Institute: INSTITUTE OF LIVER & BILIARY SCIENCES**
- A5. Address with Contact Nos. (Landline & Mobile) & Email:**
D-1, Vasant Kunj, New Delhi-110070
Telephone: 011-46300000
Email: info@ilbs.in
Website: www.ilbs.in
- A6. Total Cost: 2222.96302 (in Lakhs)**
- A7. Duration: 5 Years**
- A8. Approved Objectives of the Project:**
- To Establish an Independent National Biobank facility on HCV research, functional testing of cryopreservation and analytical systems and implementation of quality assurance practices in Biobanking.
 - Nationwide capacity building in HCV research by sharing the resources and informatics and strengthening competence and capabilities of stakeholders for HCV Research in India.

- To attain partial sustenance model to deliver the excellence in Biobanking services by adopting the C-CAMP like Business and financial model by utilizing the Biobank cryopreservation, analytical services and other resources.
- To undertake Biobank based pilot projects and to develop the Biobanking based need and science in India.

**A9. Specific Recommendations made by the Task Force (if any):
New objectives after the recommendations of Steering cum core
Committee:**

- To broaden the scope of biobank Hep C to all liver disease including biliary and pancreatic diseases. It is to be known as National Liver Disease.
- To implement the quality assurance practices from the outset with the goal of aiming for accreditation and targeted approach for sample collections by involvement of academic medical centres and identify and categorise the sample collections according to high priority science areas, investigators driven sample collection from host institute as an accessible major clinical and research facility.
- To provide contract research by using the wide spectrum of analytical services in the biobank.
- To collect samples from HBV/HCV/HIV co-infected patients and increasing the value of biosamples by ensuring appropriate clinical data and collecting them not only at one time, but with long-term follow-ups.
- DBT needs to consider the biobank manpower salaries at par with ILBS.

Section-B: Scientific and Technical Progress

B1. Progress made against the Approved Objectives, Targets & Timelines during the Reporting Period (1000-1500 words for interim reports; 2500-3500 words for final report; data must be included in the form of up to 3 figures and/or tables for interim reports; up to 7 figures and/or tables for final reports).

Proposed and Approved Timelines in the project submitted

	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Approval of the ethics committee to establish tissue bank facility	■																			
Recruitment of Tissue Bank staff	■																			
Call for material suppliers and installation experts for cryopreservation setup	■																			
Ordering/tendering for Cryopreservation equipments		■	■																	
Establishment and installation of Cryopreservation infrastructure				■	■	■														
Call for material suppliers and installation experts for Analytical equipments			■																	
Ordering/tendering for Analytical equipments			■	■																
Establishment and installation of Analytical infrastructure				■	■	■														
Verification Cryopreservation and Analytical functional facility of Biobank and Operations						■	■	■												
Establishment and implementation of Standard Operating Procedures						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Quality assurance						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Collection and storage of samples from the outside and From ILBS										■	■	■	■	■	■	■	■	■	■	■
Validation of stored samples for scientific usage										■	■	■	■	■	■	■	■	■	■	■
Participation of researchers stakeholders										■	■	■	■	■	■	■	■	■	■	■
Training programme											■	■	■	■	■	■	■	■	■	■
Business Development												■	■	■	■	■	■	■	■	■

Establishment: Biobank is all set and functional with different rooms for offices, reception, processing and storage area. A separate storage space for Liquid Nitrogen Tanks is allotted and ready for biobank.

Table-1: Equipments Status: Cryopreservation & Analytical Systems:

S. No.	Items	Status
1.	Liquid Nitrogen Tanks Capacity App. 100000 vials (qty-2) *I year	Installed and working
2.	Liquid Nitrogen Tanks Capacity App. 100000 vials (qty-2) *II year	Tender under process
3.	Controlled Rate Freezer	Pending Inspection and Installation
4.	Cryo shippers 35VHCV-11M (qty-4) *I year	Installed and working
5.	Cryo shippers CXR500-0 (qty-2) *I year	Installed and working
6.	Cryo shippers (qty-4) *II year	Repeat order under process
7.	Cryo shippers (qty-2) *II year	Repeat order under process
8.	Shipping Case (qty-2)	Installed and working
9.	-80°C ULT Freezer System (qty-3) *I year	Installed and working
10.	-80°C ULT Freezer System (qty-2) *II year	Tender under process
11.	-20°C ULT Freezer System	Installed and working
12.	Lab Freezers (qty-2)	Installed and working
13.	Sample Pass Box (qty-2)	Installed and working
14.	Bio safety cabinet class-II Type A-2 Esco Airstream Class-II Type A-2 biological safety cabinet	Installed and working

15.	Micro-Centrifuge with rotors and adapters	Installed and working
16.	CO2 Incubator with Accessories	Installed and working
17.	Grossing Station	Installed and working
18.	Cryotome	Installed and working
19.	Semi-automatic Rotary Microtome	Installed and working
20.	Semi-Automated Tissue Processor	Installed and working
21.	Tissue Embedding Station	Installed and working
22.	Microscope	Installed and working
23.	Automated Immunostainer IHC/IF/ISF	Installed and working
24.	Flow Cytometer with Cell Sorter	Purchased, in transit
25.	NGS	Installation done
26.	High Resolution MS/MS System (Mass Spectrometer)	Purchased, in transit
27.	Software, hardware, computers (SQL Server with supporting equipments and Laptop with MS Visual studio)	In house software designed and 60% process developed according to the needs of the biobank.
28.	Miscellaneous equipments (Tissue Flotation Bath, Slide warmer, Ph meter, Water bath, Block cabinet (qty-2), Micro-slide cabinet, Lab freezer, Mini gel tank, Microwave oven, Dry bath with blocks, Hot air oven, Oxygen Meter with sensor & Buzzer, Qubit fluorometer)	-Installed and working

IT and Software Development:

Software is the most important aspect in biobanking for management of biological sample with the implementation of barcode systems, Laboratory Information Management Systems (LIMS) and collaborative tools for sharing biological sample collections are required.

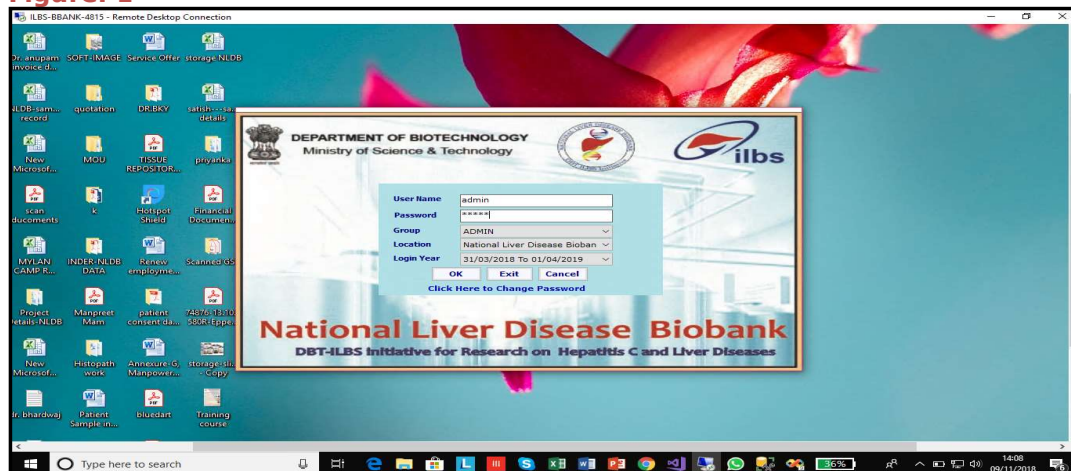
Many LIMS software were reviewed by IT manager, PI and Biobank manager; based on comparative studies, demos and our requirements, experts did not found any suitable software or found them very costly at the range of 55-65 lacks (modul-bio) for NLDB. Then we decided to develop in-house software by utilizing the funds allocated in this head.

Inputs from PI, biobank team, experts, demos, and international experts were collected and we started to develop biobank software named "*National Biobank Information Management Systems (NBIMS)*" after purchasing the required hardware and software.

(NBIMS) Software features:

- Storage Management
- Sample management
- Workflow management
- Subject management
- Data tracking, security & Regulatory Compliant
- Request management
- Configuration management
- Mobile reports

Figure: 1



NBIMS (National Biobank Information Management Systems) has been designed and work started on Software with two levels architecture:

In frontend Visual Studio 2017

In Backend – SQL server 2017

Complete NBIMS software has been divided in 4 Module as follows:

1. Login Module:

Containing login component i.e. User Name, Password, User Group, Biobank Location and user Entry Location.

2. Security Module:

It has all features of secure software i.e. User Access Module, Group Access, and Password change.

3. Biobank Start-up Module:

This Module covers all master forms and biobank Setup Form in initial stage, which includes the configuration of software before start.

4. Biobank Module:

With help of this module we operate all day-to-day operations of biobank from Patient Registration, Sample Details to storage of the sample.

Dashboard:

With help of Dashboard, We can easily track the movement of sample from collection to storage. Dashboard has colour coding system to recognize status of samples in biobank.

60% NBIMS software development has been completed from sample collection to storage.

In Progress:

- Retrieval of sample, shipment and billing
- Accesses control to collaborative hospitals

NBIMS Training:

Biobank software is introduced to biobank and training is provided. Existing Data were imported and routine management of biosample has been started with software.

Website Development and Promotion:

- Domain name www.nldb.in/
- Errors were removed from internal panel and Banner improvement.
- Updated Project list, team member, committee member list and photos were uploaded
- Site was promoted by social bookmarking, directories submissions, on page analysis, meta tag analysis and Various key words related to our biobank were promoted
- Blogs and biobank links were uploaded on popular sites, incorporation of new meta tags
- Wikipedia Hindi page created.

Web Application:

We are working on a Web application to collaborate with most of the hospital and after their permission collect the samples and associated data via on line access.

Legal framework of biobank operations:**Legal Advice on policy documents:**

- **Agreements & Policy**
 - General Memorandum of Understanding
 - Collaboration agreement
 - Material Transfer Agreement (MTA)
 - Service Agreement
 - Sharing policy
- **Forms created with Legal Advice:**
 - Informed Consent
 - Hindi
 - English
 - Service Requisition Form (revised)
- **SOPs reviewed by Legal advisor & Core committee:**
 - Database Backup
 - Document Maintenance
 - Ethics
 - Information Access Control
 - Inventory Verification
 - Labelling and tracking materials
 - Materials and information
 - Material request and release
 - Participant recruitment into a biobank program
 - Privacy and security
 - Records and documentation
 - Process of sharing the biobank the resources
 - Biosample collection and transportation
- **Suggestions from Legal advisor:**
 - Requirement based undertaking from end users.
 - Material Transfer Agreement between end user and NLDB.
 - Sample sharing based on requisition from National/International researchers.
 - Multi layer data decoding of samples.

Ethical Approval:

As per ICMR biobanking guidelines 2017 and based on five external biobank experts reviews we designed blanket consent format to cover the broader objectives for future research and got approval for sample collection through blanket informed consent. It will create and serve as a prototype for other institutes on similar lines. IRB Number:F.25/5/107/ILBS/AC/2016/11252/2454 dated 21st July 2018 IEC/2018/61/NA01

NLDB Cryostorage:**Table: 2: Samples Stored at NLDB:**

We have collected, processed and stored project driven biosamples as per suggestions of Steering committee:

(Detailed summary attached as **Annexure-1**)

S. No.	Types of Sample	Types of Disease	No. of Patient samples
1	Serum	Negative control	9558
2	Serum	Liver diseases	205
3	Plasma	Liver diseases	391
4	PBMC	Liver diseases	362
5	Urine	Negative control	88
6	Urine	Various Cancer	39
7	Tissue	Liver diseases	76
Total			10719

Table: 3: Analytical Services rendered to non-host Institutes/Researchers:

Process Name	Total Process
Process, Embed, Stained slide	40
Process, embed, H&E slide	635
Special Stain (MT)	151
IHC	4
IF Slide	14
unstained slide	339
PAS	46
AFB/PB	67
Embed snap-frozen tissue	42
Assessment, Reporting & image analysis	63
Retic /Decalcification bone staining	29
OCT embedding	14
Grand Total	1444

NLDB has supported projects in different Institutes via analytical services on human as well as on animal biosamples

Resource Sharing with Institutes/Researchers and Others in 2017-18:

The following Institutes and Researchers/Students from the Institutes are using our services on regular basis:

- Institute of Liver & Biliary Sciences (ILBS)
- Institute of Nuclear Medicine & Allied Sciences (INMAS)
- Defence Institute of Physiology & Allied Sciences (DIPAS)
- Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR)
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
- Translational Health Science And Technology Institute (THSTI)
- Datt Mediproducts Pvt. Ltd.
- National Institute of Immunology (NII)
- Biolinx India (*advertisement on NLDB website)

Service Agreements Signed:

- NLDB has signed 10 Storage and 3 Analytical service agreements with researchers and PIs from ILBS and INMAS. (details attached as **Annexure-2(A)**)

Joint Projects with NLDB support:

- NLDB has submitted 7 joint projects with Researchers/Scientists from ILBS and South Asian University. (details attached as **Annexure-2(B)**)

Transient Storage facility provided:

- NLDB have served transient storage facility to 4 researchers who appealed NLDB in urgent situation for their samples.

Website Advertisement

- NLDB started providing space for advertisement at its website with proper valid IT advised disclaimer.

Academic and outreach activities:

- Visited *Clinicians (60); Hospitals (32); Research Institutes (15); Researchers/Scientists (63); Universities (7)* across Delhi/NCR to spread awareness and benefits of biobank services and to collaborate for storing biosamples at National Liver Disease Biobank (NLDB).
- Contacted and reached Researchers/Students/Scientist via emails and personal visits to help their research studies.
- Director ILBS (Dr. S.K. Sarin) apprise about the NLDB to DBT, DST, SERB & ICMR to promote the biobank. The Secretary, SERB responded via letter dated 30th Oct, 18 (**Annexure-3**) ensuring to make this facility more utilizable and Secretary SERB sent mails to all investigators, where it is funded by SERB, DST. We expect similar approach from the DBT.
- 15 researchers contacted NLDB to avail the biobank services after circulating the mail by Sec. SERB.
- NLDB has organized one day workshop for students from Amity University to spread awareness and benefits of biobank and also presented overview of biobank activities.

National Platform:

Participated in 5 conferences and also given presentations in Research institutes/Universities in Delhi/NCR, reaching researchers and students explaining biobanking concept and educating its benefits.

- APASL-2018, Delhi (India)
- ISPGHAN-2018, Mumbai (India)
- ACBR-2018, Delhi (India)
- Drug Discovery Research Centre (DDRC)(THSTI), Delhi(India)
- National Conference on Advances in Biotechnology-2018, Sharda University, Noida (India)
- First National Update on Nephrology & Renal Transplant-2018, ILBS, Delhi (India)

Information brochure and Flyers: Figure 2

International Platform:

Dr. Birendra Kr. Yadav, Biobank Manager had given a presentation on topic entitled "National Liver Disease Biobank in India: Fostering Research Collaboration across India and Abroad" in prestigious biobanking conference, ISBER-2018 annual meet in Dallas-USA.

Trainings:

- Biobank Manager visited Sing Health Tissue Repository, Singapore on Sept. 18th, 2018 for biobank training and international exposure in biobanking.
- Training in IHC/ Immuno-fluorescence on Automated Immunostainer by scientists from Biogenex for Technical Staffs

- Training on Tissue processing, Embedding, Cutting, Slide Preparation were provided to Technical Staffs.
- A junior technical executive has received training in Molecular Laboratory and cell sorting.

Awards:

- Vivid Foundation, NGO (Delhi) has awarded us "Innovation in Health" award for performing unique work in field of biomedical research.
- Dr. Birendra Yadav (Biobank Manager) received Travel Award from apex biobanking society ISBER in 2018

Directions and benefits attained from international organisation:

Networking with international biobank communities is necessary for development and growth, education, innovations and harmonisation in biobanking. We have joined following international societies:

- *Asian Network of Research Resource Centres (ANRRC)*: ANRRC helped us in introducing biobanking experts for International Advisory Committee member from Asia.
- *ISBER Membership* grants free access to guidelines of ISBER (ISBER Best Practices and Self-Assessment Tool (SAT)). It also make easy for us to connect and share with experts in the field of biobanking.

Biobanking certificate/ diploma course:

Biobank course has been designed and approved by ILBS academic council (F.25/1/7/AC/ILBS/2014/8313/2095 dated 26/05/2018). The basic purpose of this course is to give in-depth knowledge and train students in the field of biobanking.

International Advisory committee:

The committee was constituted to:

- Review SOPs, Biobank Policy, Advice on how to advance National Liver Disease Biobank's promotion and goals
- Help in development of proposals for the future organisation of meetings and educational opportunities.

International Advisory Members

- Dr. Gramatiuk Svetlana, President Ukraine Association of Biobank
- Dr. Olga Potapova, CEO and Scientific director, Cureline
- Prof. Daniel Cathpoole, Group Leader, Biospecimens Research and Tumour Bank, Children's Cancer Research Unit; The Kids Research Institute; The Children's Hospital.
- Prof. James J. Potter, Assistant Professor, The Johns Hopkins University, School of Medicine Baltimore
- Dr. Robert Hewitt, Director, Biobank consortia and Communication Trans-Hit Biomarkers, Inc.
- Dr. Soo-Yong Tan, Head & Senior Consultant, National University Cancer Institute, Singapore (NCIS), ANRRC-Executive Board Member
- Dr. Rajeev Singh, Director, HMRI Biorepository Houston

- Dr. Zisis Kozlakidis, Head, Laboratory Services and Biobanking (IARC/WHO); ISBER Past-President; Scientific Advisor at PTEN Research
- Dr. Daniel Simeon-Dubach, Director, Med-service, Walchwil; Chair, ISBER Standards Advisory Committee

Steering cum Executive Committee Meeting:

First steering cum Executive Committee meeting was held on 13th Feb, 2018. The committee appreciated the efforts, initiatives and developments in the NLDB and found the work so far to be satisfactory and valuable suggestions suggested from the Chairperson and Members that are being followed.

Table: 4: Targets achieved vs. proposed timelines for year 2

		Second Year			
		Quarter 1	Quarter 2	Quarter 3	Quarter 4
Proposed	Establishment and installation of Cryopreservation infrastructure	[Blue]			
Achieved		[Orange]			
Proposed	Establishment and installation of Analytical infrastructure	[Blue]			
Achieved		[Orange]			
Proposed	Verification Cryopreservation and Analytical functional facility of Biobank and Operations			[Blue]	
Achieved				[Orange]	
Proposed	Establishment and implementation of Standard Operating Procedures		[Blue]		
Achieved			[Orange]		
Proposed	Quality assurance		[Blue]		
Achieved			[Orange]		

Ordering & tendering was done already in first year and we received the cryopreservation and supporting equipments (Liquid Nitrogen Tanks (LN2), -80°C deep freezers and -20°C deep freezer). -80°C and -20°C deep freezer were installed and made functional in first and second quarters. Installation of LN2 tanks completed. Histopathological equipments were installed in first and second quarter and are now functional. Installation of NGS completed in starting of fourth quarter. FACS and Mass Spectrometer are in transit and we expect the awaiting shipment to be completed by Dec 2018; in between the required infrastructural facility for FACS and Mass spectrometer is under construction.

Verification of -80°C & -20°C deep freezers and supporting equipments is done and we expect LN2 tank verification to be completed. Verification of analytical facilities is 80% completed and the remaining analytical facilities FACS and mass spectrometer are on verge of completion and will be completed by end of 2018. SOPs are established reviewed and approved by neutral experts and legal advisor. Policies and SOPs are being implemented as quality practice. Standardised protocols are followed for collecting, transporting, receiving, processing (includes decoding), maintaining quality and storing to ensure quality. Multi layer access implemented in the software for access of patients clinical data. A Jr. Tech executive left NLDB and was replaced after the recruitment process; IT Manager was recruited in mid of second quarter. Collection, storage and analytical services started from outside and from ILBS.

Validation of stored samples for scientific usage, participation of researchers stakeholders, joint collaborations, training programme and business development has started before the propose timeline.

B2. Summary and Conclusions of the Progress made so far (minimum 100 words, maximum 200 words)

NLDB is all set and functional with rooms for offices, reception, and processing and storage area (different -80 and LN2). A separate storage space for Liquid Nitrogen Tanks is allotted and ready for biobank. IT Manager was recruited and 60 % NBIMS software development has been completed and introduced to biobank and training is provided. Routine management of biosample has been started with software. Errors were removed from web site and various key words related to our biobank were promoted. SOPs are implemented, Agreements, service requisition form and Consent form legally validated and consent are approved by ILBS ethical committee. Project based Collection as well as routine collection of biosamples is started from ILBS and outside. NLDB has supported many projects in different Institutes via analytical services and at present users from nine Institutes/organization are using our services on regular basis. Biobank has submitted 6 joint projects and signed 12 agreements for service. We have participated in 5 conferences; organised workshop and approached Clinicians/Hospitals/Research Institutes/Researchers across Delhi/NRC to spread awareness. We have constituted International advisory committee, joined ANRRC and ISBER membership and received two awards in 2018. Biobank is making its stand among researchers and we are receiving samples/ analytical service request from national and international institutes. We are currently on verge of signing MOU with five hospitals.

B3. Details of New Leads Obtained, if any:

Set-up of counselling centre:

While visiting to institutes it was felt that a counselling centre is needed in the institute and ILBS settled it for patients referred by hospitals, diagnostics laboratories and blood banks. We are counselling 5-8 patients daily. While counselling the patient, it is easier to obtain informed consent for left over samples or sample collection.

Further it is planned that NASH patients to be counselled by nutritionists and alcoholic patients by health psychologists (Clinician or Dieticians)

Requests for collection of biospecimen:

We have received biosample requirements from different National and International Research Institutes/Universities for various projects; on the basis of the project requirements we are collecting biosamples and approaching different hospitals to fulfil their requirements to support them.

Table: 5 Project based Requests received from different Institutes:

National			
Research Institute	Sample Type	Patient/Donor	Identified Provider Hospital
IGIB	Frozen Tissues	Cancer	Max (Saket)
THSTI	Plasma	NASH	ILBS; Max (Saket)
Jamia Hamdard	Serum/Saliva	Cancer	Max (Saket)
ITRC	Tissue/ serum	liver disease and healthy control	ILBS
South Asian University	Frozen Tissues	Cancer, Gall bladder / Kidney	ILBS; Max (Saket)
INMAS	Cell Lines	HUVEC (from Single Donor)	ILBS
JNU	Serum/Saliva/Plasma	Head and neck cancer, Depression, Yoga / Meditation	Max (Saket), Spinal Injuries Hospital; Shanti Mukand
JNU, Common pool	Plasma / Serum	Yoga / Meditation	In talks with Yoga centres
DU	Plasma	Infected blood	Janakpuri Super Specialty Hospital
DTU	Plasma	Hep B / C	ILBS
ILBS, Nutrition	Tissue / Plasma/ PBMC	NASH	ILBS
ILBS, Common pool	Urine	Cancer	ILBS
NCBS	Cell Lines	Primary hepatocyte (Mice)	ILBS
National Institute of Pathology	Tissue/Plasma	Gallstone cases, Peri-tumoral tissue, Bile- Controls	In talks with hospitals
CFTRI	NAFLD (Diabetic/Non-diabetic)	Liver Disease	ILBS
International			
Trans-hit Bio	Plasma / PBMC	Renal transplant, Solid organ transplant rejection	Max (Saket); ILBS

Collaboration status with hospitals for collection of Biosamples:

Several hospitals were visited in Delhi/NCR for collaboration to collect excess biosamples after clinical and pathological diagnosis.

Currently we have served MOU in the following hospitals:

- R&R Hospital, MOU at Ministry level approval
- Northern Railway Central Hospital, MOU at Ethical level approval
- Max Hospital (Saket), MOU at Ethical level approval
- Max Hospital (Patparganj), MOU at Ethical level approval
- Indian Spinal Injuries Centre MOU at Dean level approval
- MEDANTA (Gurugram) MOU at Ethical level approval
- Shanti Mukand Hospital, MOU served
- AIIMS, MOU served

NBIMS Software:

After reviewing many LIMS softwares we found that they were not only costly but also not as per our requirements. So, we decided to design and develop in-house software.

Consultancy & Support:

Sir Ganga Ram Hospital has approached & discussed to avail our consultancy on how to build a biobank.

B4. Details of Publications & Patents, if any:

- Yadav BK, Bihari C "Biobanking initiatives to develop a national liver disease biobank facility in India" Per Med. 2018 Nov 5. doi: 10.2217/pme-2018-0019. [Epub ahead of print]
- Yadav BK, Bihari C "Biobanking in India and its importance in cancer research" Edorium J Cancer 2017; 3:10–12.

Abstracts:

Following Abstracts were accepted in International Conferences:

- "National Liver Disease Biobank in India: Fostering Research Collaboration across India and Abroad, ISBER-2018
- "Indian Biobanks: Biosamples and Data sharing, Europe Biobank Week"-2018, Antwerp
- "Indian Biobanks: Governance and Ethical-Legal and Social Issues" ANRRC-2018, Seoul
- "The National Liver Disease Biobank: A Good Resource for Liver and Associated Cancer Research", ESMO-ASIA-2018, Singapore

Section-C: Details of Grant Utilization #

C1. Table: 6: Equipment Acquired or Placed Order with Actual Cost:

S. No.	Equipments Acquired or Placed Order	Actual Cost	Status
1	LN2 storage Tanks 50,000 (1.2ml and 2ml) (included all accessories, vials) (qty-2) + Labelling machines & bar-code readers + Oxygen meter with sensor & buzzer + Auto Exhaust Fan	88,42,424.00	Acquired
2	Controlled Rate FREEZER with supply tank of 180 litre	15,06,511.00	Acquired
3	Cryo shipper Holding time 125 days (qty-2)	3,07,000.00	Acquired
4	Cryo shipper Holding time 100 days (qty-2)	3,07,000.00	Acquired
5	Cryo shipper IATA Approved (qty-2)	4,95,000.00	Acquired
6	Shipping Case (qty-2)	89,750.00	Acquired
7	-80°C freezers (with boxes & racks) (qty-3) + Lab Freezers (qty-2)	16,38,423.00	Acquired
8	Lab Refrigerator (190 Ltr)	15,569.00	Acquired
9	Sample Pass Boxes (qty-2)	2,45,000.00	Acquired
10	Biosafety cabinet	3,62,582.00	Acquired
11	Microcentrifuges including refrigerated centrifuges and rotors adaptors	3,10,000.00	Acquired
12	Table top Centrifuges with adaptors	4,80,000.00	Acquired
13	IT (Hardware & Software)	6,55,231.00	Acquired
14	CO2 Incubator	4,00,000.00	Acquired
15	Grossing Station	2,41,500.00	Acquired
16	Cryotome	15,93,000.00	Acquired
17	Microtome	4,07,469.00	Acquired
18	Tissue Processor	3,32,937.00	Acquired
19	Embedding Station	5,64,240.00	Acquired
20	Tissue Microarrayer	3,00,000.00	Under process
21	Microscope	54,626.00	Acquired
22	Automated IHC,IF, ISF Stainer	On reagent rental basis	Acquired
23	Flow Cytometer with sorter	2,14,32,070.00	In transit
24	NGS	2,34,17,859.00	Acquired
25	Mass spectrometric	4,80,00,000.00	In transit
26	-25°C Deep freezer	1,38,600.00	Acquired
27	Liquid Nitrogen Cylinder 250Ltr (qty-2)	4,25,000.00	Acquired
28	Surecast Gel Handcast Bundle BKit with accessories	2,94,000.00	Acquired
29	Gel-Doc System	4,80,000.00	In transit
30	Miscellaneous	4,21,134.00	Acquired
	Total	11,37,56,925.00	

C2. Manpower Expenditure Details:

Expenditure from 30th Aug, 16 to 31st Mar, 17: **Nil**
Expenditure in fiscal year 2017-18: **Rs. 19,73,425/-**
Expenditure from 1st Apr, 18 to 30th Sept, 18: **Rs. 26,45,417/-**

C3. Details of Recurring Expenditure:

Consumables:

Expenditure from 30th Aug, 16 to 31st Mar, 17: **Nil**
Expenditure in fiscal year 2017-18: **Rs. 11,86,266/-**
Expenditure from 1st Apr, 18 to 30th Sept, 18: **Rs. 5,34,131/-**

Travel:

Expenditure from 30th Aug, 16 to 31st Mar, 17: **Nil**
Expenditure in fiscal year 2017-18: **Rs. 31,538/-**
Expenditure from 1st Apr, 18 to 30th Sept, 18: **Rs. 80,998/-**

Contingency:

Expenditure from 30th Aug, 16 to 31st Mar, 17: **Nil**
Expenditure in fiscal year 2017-18: **Rs. 99,207/-**
Expenditure from 1st Apr, 18 to 30th Sept, 18: **Rs. 12,803/-**

[Signature(s) of the Investigator(s)]

Principal Investigator:

Dr. Chhagan Bihari,
Associate Professor, Pathology, ILBS

Chhagan Bihari
Dr. CHHAGAN B. BIHARI
Associate Professor, Pathology
Institute of Liver and Biliary Sciences
Sector D-1, Vasant Kunj,
New Delhi-110 070

Co-PI/Co-Investigator:

Dr. Archana Rastogi,
Additional Professor, Pathology, ILBS

Dr. Rastogi
Dr. ARCHANA RASTOGI
Additional Professor - Pathology
Institute of Liver and Biliary Sciences
Sector D-1, Vasant Kunj
New Delhi-110 070

Dr. Ekta Gupta,
Additional Professor, Virology, ILBS

Ekta Gupta
Dr. EKTA GUPTA
Additional Professor - Virology
Institute of Liver and Biliary Sciences
Sector D-1, Vasant Kunj
New Delhi - 110 070

Dr. Senthil Kumar,
Additional Professor,
HPB and Liver Transplant Surgery, ILBS

Senthil Kumar
Dr. SENTHIL KUMAR
MS, FRCS (Ed), FRCS (Hepatobiliary), UK
Additional Professor (Liver Transplantation)
Institute of Liver and Biliary Sciences
D-1, Vasant Kunj, New Delhi-110070

Dr. Shvetank Sharma,
Associate Professor, MCM Department ILBS

S. Sharma

Dr. Rakhi Maiwall,
Associate Professor, Hepatology, ILBS

Instructions:

- (i) All the information needs to be provided, otherwise the Progress Report will be treated as incomplete. In case of 'Nil' / 'Not Applicable' information, the same may be indicated.
- (ii) In case of multicentric project, a combined Progress Report should be submitted incorporating the progress of all components. The Project Co-coordinator/ PI will be responsible for this.
- (iii) *Please indicate the reporting period (i.e. Year 1/2/3/4/5).
- (iv) Submission of Progress Report by the end of the 11th month of grant sanction is linked with further continuation of the project and timely release of funds for the next year.