

PROFORMA FOR ANNUAL REPORT 2015

(February 2015- February 2016)

Name of Laboratory : DBT Molecular Biology/ Virology Laboratory

Name of PI : Dr. Lahari Saikia

Department & Institution: Department of Microbiology, Assam Medical College & Hospital, Dibrugarh

Contact Details Phone & e mail: Dr. Lahari Saikia, Professor & Head, Department of Microbiology.

Basic Science Building, 2nd Floor, Assam Medical College, Dibrugarh

Phone no. : 9495032051

E-mail : lahari.saikia@yahoo.com

Name of Co PI : Dr. Jayanta Kr. Das

Institution & department : Department of Microbiology, Assam Medical College & Hospital, Dibrugarh

Contact Details Phone & E-mail: Dr. Jayanta Kr. Das, Associate Professor, Department of Microbiology.

Basic Science Building, 2nd Floor, Assam Medical College, Dibrugarh

Phone No. : 9495032051

E-mail : jayanta2009das@gmail.com

1. Completion/taking forward of sanctioned objectives

(KINDLY ONLY USE THE TABULATED FORMAT AS GIVEN)

S.no.	Sanctioned Objectives	Status as in February 2016
1.	A study of viral aetiology of acute encephalitis Syndrome	<ul style="list-style-type: none">• Our laboratory has processed CSF samples in Real time PCR for detection of Herpes simplex virus, Enterovirus, West Nile Virus and Japanese encephalitis virus. Till date (6th February) we have processed CSF for HSV (673 no's), Enterovirus (601 no's), West Nile (119) and Japanese encephalitis virus (71nos). Out of which 8 no's of sample showed positive result for HSV. Currently we have been processing the ELISA negative JE samples for the year 2016.• Serological diagnosis (ELISA) of CSF samples have also been done for Japanese Encephalitis virus(3553nos), Dengue virus(550 no's), West Nile (460 no's), Chikungunya virus(457 no's). Out of which 1487 no's positive for JE virus and 32 no's positive for Dengue virus
2.	Estimation of HIV and HBV viral load	Our lab has been providing patient service for HIV and HBV viral load. Till 6 th February 2016 total 98 no's of HBV viral load cases and 22 nos. of HIV viral load cases have been successfully completed.
3.	Diagnosis of pulmonary and Extra pulmonary tuberculosis	Our lab has been performing Line probe assay and liquid culture for Mycobacterium Tuberculosis. Till 6 th February 2016, LPA (179 nos.) of cases has been tested for multi drug resistance (MDR) by HAIN twin incubator using line probe assay. A total of 30 no's of liquid culture for Mycobacterium Tuberculosis.

2. Enhancing patient services:

Diagnostic tests made available from major equipment provided in this project, number of cases of each diagnostic tests carried out, Revenue generated overall and charge per test if any.

(KINDLY ONLY USE THE TABULATED FORMAT AS GIVEN)

Sl. No.	Name of the major Equipment	Diagnostic facility/Parameter	No. of patients who have availed the diagnostic facility/parameter		Remarks/revenue if any in 2015-2016
			2014-2015 (1 st April 2014 to 31 st March 2015)	2015-2016 (1 st April 2015 6 th February 2016)	
1.	Cobas TaqMan 48 Real Time PCR	HBV Viral Load	45	29	Rs. 1,54000.00 (excluding the free service cases)
2.	HAIN Twin incubator (provided by Hospital Management Society)	Line Probe Assay	61	118	Rs. 1,88,800.00 (excluding the free service cases)
3.	BD MGIT (Funded from other DBT Project)	Tuberculosis liquid Culture	0	30	Rs. 27,000.00 (excluding the free service cases)
4.	Infrastructure of DBT Molecular Biology/Virology laboratory has been utilizing for DNA/RNA extraction purpose Light Cyler-480 II (ICMR Unit)	Herpes Simplex Virus PCR	99	521	All service have been provided at free of cost. (Under CDC funded project "Providing Laboratory support for surveillance of JE in India")
5.	Infrastructure of DBT Molecular Biology/Virology laboratory has been utilizing for DNA/RNA extraction purpose. PCR performed in Light Cyler-480 II(ICMR Unit)	Enterovirus PCR	79	444	All service have been provided at free of cost. (Under CDC funded project "Providing Laboratory support for surveillance of JE in India")
6.	Infrastructure of DBT Molecular Biology/Virology laboratory has been utilizing for DNA/RNA extraction purpose. PCR performed in Light Cyler-480 II(ICMR Unit)	Bacterial PCR (Streptococcus Pneumonia, Neisseria Meningitides, Haemophilus Influenza)	17 (Neisseria Meningitides)	521 (Neisseria Meningitidis, Haemophilus Influenza, Streptococcus Pneumonia)	All service have been provided at free of cost. (Under CDC funded project "Providing Laboratory support for surveillance of JE in India")

7.	ELISA READER & WASHER (Make: Thermo Scientific)	JE IgM ELISA	508	514	All service have been provided at free of cost. (Under NVBDCP")
8.	ELISA READER & WASHER (Make: Thermo Scientific)	Dengue IgM ELISA	219	361	All service have been provided at free of cost. (Under NVBDCP")
9.	ELISA READER & WASHER (Make: Thermo Scientific)	Scrub Typhus IgM ELISA	184	491	All service have been provided at free of cost. (Under CDC funded project "Providing Laboratory support for surveillance of JE in India")
10.	ELISA READER & WASHER (Make: Thermo Scientific)	West Nile IgM ELISA	65	385	All service have been provided at free of cost. (Under CDC funded project "Providing Laboratory support for surveillance of JE in India")

3. Measures:

(Please mention specific quality control measures adopted if any or to be adopted.):

- Our laboratory is participating in proficiency testing from NIMHANS, Bangalore for HSV PCR, Enterovirus PCR, Bacterial PCR (Streptococcus pneumonia, Neisseria Meningitidis, Haemophilus influenza), JE IgM ELISA, Scrub Typhus IgM ELISA, West Nile IgM ELISA. Our laboratory has participated in EQAS for Dengue IgM under IAMM EQAS-Delhi. We have got 100% score in all the test parameters.
- Regarding quality control measures for viral load assay we have been using IVD approved kits from ROCHE Diagnostics. The kit itself provide three internal quality controls i.e. NC (negative Control. LPC (low positive control) and HPC (High positive control). These three controls are run with each and every batch of test samples for internal quality control test.
- For Line Probe assay and Mycobacterium Tuberculosis Culture, Quality Control Strain H₃₇Rv is used. We are participating in Inter-Laboratory Comparison with Department of Microbiology, Grant Medical College and Sir J.J. Group of Hospitals, Mumbai for Line probe Assay and Culture. Our score was 100% in all the test parameters.
- Both Virology and Mycobacteriology laboratory is NABL accredited.

4. Training:

Details of workshops/ training conducted/attended; PhDs registered/submitted; /MD-MS Thesis
(KINDLY ONLY USE THE TABULATED FORMAT AS GIVEN)

Name and workshop/training programme ATTENDED From February 2015- February 2016	Duration & Venue	Organized /conducted by	Name & no. of participant(s) from project	Source of fund availed
Workshop and Hands-on training in diagnosis and detection of non-JE AES pathogen	4 days(7-10 September), NIMHANS, Bangalore	Department of Neurovirology, NIMHANS, Bangalore	Dr. Pallabi Sargiary, Mr. Parag Ranjan Bhuyan	No expenditure

Workshop/training programme CONDUCTED From February 2015-February 2016	Duration & Venue	Organized /conducted by	No. of participant(s) attended	Objective of workshop /training	Source of fund availed and total amount spent.

Sl. No	Name (please mention designation if project personnel)	Thesis Title (please also mention PhD/MD/MS)	Thesis Status	No. of Patients/ cases/ samples	Equipment Used
1.	Dr. Priyanka Mukherjee	Prevalence and Genotyping distribution of HPV in antinatal women- A hospital based study	Ongoing (Starting June 2015)	138	Thermal Cycler, Biohazard safety Cabinet, Gel Electrophoresis & Power Pack, UV Trans illuminator, Gel Documentation System, Table Top Refrigerated Microcentrifuge , Micropipette Set ,

5. Science based research activity:

Research work in progress, Papers & Presentations:

- Our Laboratory is performing real time PCR for detection of Neisseria Meningitidis, Haemophilus Influenza, and Streptococcus Pneumonia in AES cases. Molecular diagnosis is being done based on TaqMan principle in Real Time PCR platform .Infrastructure of DBT Molecular Biology/Virology laboratory has been utilizing for DNA/RNA extraction purpose and PCR is performed in LC-480II in an another laboratory (MDRL,ICMR unit) **(Work going on under CDC project “Providing laboratory support for surveillance of JE in India”, with NIMHANS)**
- Serological test i.e. ELISA is being performed for detection of Scrub Typhus in AES cases. **(Work going on under CDC project “Providing laboratory support for surveillance of JE in India”, with NIMHANS)**

Time Period	Streptococcus Pneumonia			Neisseria Meningitidis			Haemophilus Influenza		
	No. of cases	Positive	Negative	No. of cases	Positive	Negative	No. of cases	Positive	Negative
January, 2015 to January, 2016	510	10	500	510	0	510	510	2	508

Time Period	Scrub typhus		
January, 2015 to January, 2016	No. of cases	Positive	Negative
	509	66	443

- A total **173 no's** of samples have been processed in DNA sequencer(1st April 2015-6th February,2016)
- Post Graduate Thesis titled “Prevalence and Genotyping distribution of HPV in antinatal women- A hospital based study” is undergoing in the laboratory. Till date, a total of 94 no's of samples (Serum and Cervical Swabs) has been collected. DNA extraction has been done from the collected samples.
- The Tissue culture laboratory has been made functional. Media and reagent preparation has been done and we are maintaining the Vero cell line.

Paper Submitted (under review):

- Anusmita Das, Lahari Saikia, S.J. Patgiri, P. Dowarah, R. Nath, “Bacterial pathogens associated with community acquired pneumonia in children below 5 years of age”; *Indian Pediatrics*.
- Mithu Medhi , Lahari Saikia, Saurav Jyoti Patgiri, Vicky Lahkar, Ezaz Hussain, Sanjeeb Kakati,”Occurrence of Japanese Encephalitis among AES cases in upper Assam districts from 2012-2014, a report from a tertiary care Hospital. “*Indian Journal of Medical Research.*”

Oral paper in Conference:

- Presented in Microcon 2015: Epidemiology of JE in Assam by (Dr. Priyanka Mukherjee, PGT)

**6. Intra institutional & extra institutional use of laboratory facility
(KINDLY ONLY USE THE TABULATED FORMAT AS GIVEN)**

Sl. no	Name of Dept/Institution/Person	Equipment used	Time period	Purpose
1.	DBT project, Molecular Mycology Lab, Dept of Microbiology, AMCH	DNA Sequencer	From August 2014 onwards	Sequencing of PCR products
2.	Dr. Priyanka Mukherjee	Biohazard safety Cabinet, Thermal Cycler, Gel Electrophoresis & Power Pack, UV Trans illuminator, Gel Documentation System, Table Top Refrigerated Micro centrifuge, Micropipette Set	From June 2015 onwards	DNA Extraction and PCR for detection of human papilloma virus

3.	DBT –Tuberculosis Project, Dept. of Microbiology, AMCH	Conventional PCR	From September 2014 onwards	Multiplex PCR for MDR TB detection.
4.	DBT –Tuberculosis Project, Dept. of Microbiology, AMCH	DNA Sequencer	From August 2015 onwards	Sequencing of PCR products
5.	Bacteriology Laboratory, Dept. of Microbiology, AMCH	DNA Sequencer	From August 2015 onwards	Sequencing of PCR products

7. Sustenance & Revenue Generation Strategy:

Funding options for Maintenance, Human Resource, Patient care and Research beyond September 2016.

Visions for sustenance of DBT Molecular Biology & Virology Lab:

DBT Molecular Biology, Virology Laboratory was proposed with an idea to establish a well equipped molecular biology laboratory for molecular detection of major viral diseases such as Japanese encephalitis, HIV, HBV etc. Apart from this it was also aimed to establish scope of research and to carry out academic activities for post graduate medical students such as M.D. thesis work.

The Molecular Biology Lab was established in 2009 under funding of DBT, New Delhi, Govt. of India. DBT sponsored the infrastructure project entitled “Up gradation of Infrastructure in Medical Colleges in NER, India” for 5 years. Following are the visions for sustenance of Molecular Biology Laboratory beyond September 2016.

Proposed plan for enhancing diagnostic and research activity:

- Existing HBV & HIV viral load diagnostic services will be continued.
- Mycobacterium Tuberculosis Culture and Line Probe Assay will be continued as revenue generating model.
- The Virology laboratory has been recognized as an Apex Laboratory by CDC, under a project named as “Providing laboratory support for surveillance of JE in India”.
- We are being identified as one out of 10 Medical colleges in India a Project on Labs for Life by CDC, Atlanta and Govt. of India
- Tissue culture Laboratory has already been made functional and media and reagent preparation is going on. Our preliminary objective is isolation of JE virus and Dengue virus by using Vero cell lines
- The existing facilities of Molecular Biology, Virology Lab will be utilized to carry out MD thesis work and Extra Mural Research project works. One PGT (Dr. Priyanka Mukherjee) is working on her thesis

work entitled “Prevalence and Genotyping distribution of HPV in antenatal Women” in DBT Molecular Biology/Virology Lab.

- Optimal utilization of DNA Sequencer is being continued by providing sequencing service to other DBT sponsored projects and Bacteriology Laboratory, Dept. of Microbiology of Assam Medical College. In future also this will be continued as revenue generating model
- To develop more trained manpower, laboratory will organize various training workshop in future.

8. Significant landmark achieved by the laboratory

1. Establishment of Viral Diagnostic Laboratory (Conventional and Molecular)
2. Establishment of Sequencing Facility. Identification of unidentified pathogens
3. Facility for Continuous Medical Education (CME) for junior faculty and Medical students.
4. Because of this infrastructure we are being identified as APEX Lab. by CDC, Atlanta for surveillance of AES cases.
5. We are being identified as one out of 10 Medical colleges in India a Project on Labs for Life by CDC, Atlanta and Govt. of India.
6. Facility for Viral Load estimation.

9. Impact of “Development/Upgrading Infrastructure in Medical Colleges in North Eastern States of India” - 2009-2016

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9.1 Fund allocation & utilization:

Sl.No.	Head	Before implementation of DBT project	After implementation of DBT project as on February 2016	Plan beyond September 2016.
1.	Funds available for upgradation/development of laboratory (FOR VIROLOGY LABORATORY)	NIL	NIL	Continuation of present DBT funding
	Funds available for equipment purchase (FOR VIROLOGY LABORATORY)	NIL	a) Total sanctioned amount in lakhs : Rs 2,16,96,915 b) % of funds used till February 2016: 96.9%	Continuation of present DBT funding for support in AMC/CMC and calibration of all instruments
	Funds available for renovation (FOR VIROLOGY LABORATORY)	NIL	a) Total sanctioned amount in lakhs : Rs. 10, 00000. b) % of funds used till February 2016: 99.1%	Continuation of present DBT funding

2.	Funds available for laboratory manpower of laboratory (FOR VIROLOGY LABORATORY)	NIL	a)Total sanctioned amount in lakhs :Rs3861792 b) % of funds used till February 2016: 96.2%	Continuation of present DBT funding for 1.continuation of services of existing laboratory technicians and cleaner. 2. One skilled person in bioinformatics for optimum utilization of molecular & Sequencer services.
3.	Funds available for chemicals, consumables & contingency of laboratory (FOR VIROLOGY LABORATORY)	NIL	a)Total sanctioned amount in lakhs : Rs29,44,103 b) % of funds used till February 2016: 89.4%	Continuation of present DBT funding for consumables for DNA sequencer.
4.	Funds available for travel & workshop (FOR VIROLOGY LABORATORY)	NIL	a)Total sanctioned amount in lakhs : Rs 13,65,378 b) % of funds used till February 2016: 56%	Continuation of present DBT funding for conducting workshop for continuous training of faculty members and PG students

9.2 Infrastructure upgradation- 2009-2016:

Sl.No.	Equipment procured	Before implementation of DBT project	After implementation of DBT project as on February 2016	Maintenance plan beyond September 2016 Choose only one option in all cases: Apply for fresh extramural funding/ sufficient institutional funding/seek continuation of present DBT funding.
1.	Real Time PCR -1 no.	-	Yes	Continuation of present DBT funding for AMC/CMC and calibration of all instruments
2.	Table Top Refrigerated Micro Centrifuge (3 nos.)	-	Yes	
3.	10 KVA On-Line UPS System - 1 no.	-	Yes	
4.	DNA Sequencer: 8 Capillaries Extendable up to 24 capillaries- 1 no.	-	Yes	
5.	Gel Documentation - 1 no.	-	Yes	
6.	Compaq Desktop, 18.5" TFT Monitor, HP LaserJet Printer, I-Ball UPS 621- 1 no.	-	Yes	

7.	Samsung Refrigerator, Model: RT26FCTR -2 nos.	-	Yes
8.	Air Conditioner, AC Bracket with installation charges -4 nos.	-	Yes
9.	Laminar Air Flow (Vertical Regular Work Station) – 3 nos.	-	Yes
10.	Deep Freeze (-80°C) – 3 nos.	-	Yes
11.	Liquid N2 Storage Cans – 1 no.	-	Yes
12.	Electrophoresis & Power Pack – 1 no.	-	Yes
13.	UV Trans illuminator – 1 no.	-	Yes
14.	Stirred Water Bath – 1 no.	-	Yes
15.	Mini Centrifuge – 1 no.	-	Yes
16.	Universal Water Bath – 1 no.	-	Yes
17.	Hot Air Oven – 1 no.	-	Yes
18.	Vortex – 4 nos.	-	Yes
19.	-20°C Deep Freezer – 2 nos.	-	Yes
20.	Magnetic Stirrer – 1 no.	-	Yes
21.	Centrifuge – 1 no.	-	Yes
22.	Biohazard Safety Cabinet – 2 nos.	-	Yes
23.	CO ₂ incubator – 1 no.	-	Yes
24.	Double Distilled Water Plant – 1 no.	-	Yes
25.	Autoclave – 1 no.	-	Yes
26.	Electronic Balance – 1 no.	-	Yes
27.	Micropipette Set – 1 set	-	Yes
28.	Gradient Thermal Cycler -1 no.	-	Yes
29.	Fluorescence Inverted Microscope – 1 no.	-	Yes
30.	Water Purification System – 1 no.	-	Yes
31.	Media Filtration Kit – 1 no.	-	Yes
32.	Elisa Reader	Yes	-
33.	ELISA washer	Yes	-

9.3. Laboratory area in sq m renovated- 2009-2016:

Laboratory area in sq m renovated before implementation of DBT project	Laboratory area in sq m renovated after implementation of DBT project	Maintenance plan beyond September 2016
NIL	a) DBT Molecular Biology/Virology Lab: (29x18) = 522 sq. feet b) DBT Tissue Culture Lab: (29x22) = 638 sq. feet	Continuation of present DBT funding

9.4 Diagnostics made available through the DBT project:

S.no.	List of diagnostics available before implementation of DBT project	List of diagnostics available after implementation of DBT project
1.	Japanese Encephalitis IgM ELISA	Dengue IgM ELISA
2.		Scrub Typhus IgM ELISA
3.		West Nile IgM ELISA
4.		HBsAg Viral load Estimation
5.		HIV Viral load Estimation
6.		Enterovirus PCR
7.		Herpes Simplex Virus (HSV) PCR
8.		Haemophilus Influenza PCR
9.		Streptococcus Pneumonia PCR
10.		Neisseria Meningitidis PCR
11.		TB liquid Culture
12.		Line Probe Assay (LPA)

9.5 Utilization of upgraded infrastructure for patient care:

Total number of patients visiting Laboratory in one year(2008-2009) before implementation of DBT project	Total number of patients visiting Laboratory in one year(2015-16) after implementation of DBT project	Present annual revenue generated from laboratory
281 (from 1 st April 2008 to 31 st March 2009)	4456	Rs 3,69,800.00

9.6 Manpower development & Research:

	Before implementation of DBT Project	After implementation of DBT Project	
No. of workshops conducted	NIL	4	
No. of workshops attended	NIL	10	
No. of presentations in conferences	NIL	4	
No. of publications in peer reviewed journals	NIL	1 1(under review)	
No. of project personnel recruited	NIL	6	
No. of project personnel trained	NIL	4	
No. of post graduate thesis supported	NIL	4	
No. of PhD students registered	NIL	0	
No. of PhD completed	NIL	0	
No. of other research projects in progress	NIL	5	

10. Five point work plan for February 2016-September 2016

- Existing HBV & HIV viral load diagnostic services will be continued.
- Molecular diagnosis of aetiological agents of AES (HSV, Enterovirus, Streptococcus Pneumonia, Haemophilus influenza, Neisseria meningitides) and Serological diagnosis of aetiological diagnosis of AES (Dengue, Scrub typhus, West Nile) will be continued.

- Mycobacterium Tuberculosis liquid culture and Line Probe Assay diagnostic services will be continued.
- Tissue culture Laboratory has already been made functional and media and reagent preparation is going on. Our preliminary objective is isolation of JE virus and Dengue virus by using Vero cell lines
- The existing facilities of Molecular Biology, Virology Lab will be utilized to carry out MD thesis work and Extra Mural Research project works.
- Optimal utilization of DNA Sequencer is being continued by providing sequencing service to other DBT sponsored projects and Bacteriology Laboratory, Dept. of Microbiology of Assam Medical College.

Signature of PI:

Full name: Dr. Lahari Saikia

Designation: Professor & Head, Dept. of Microbiology

Date: 17/02/2016

NB:

This format is to be submitted in **word format only** by email on or before 18/02/2016. A hard copy of the same may kindly be sent by post at the same time duly signed by PI. Please ensure that the soft copy and hard copy of the reports are exactly the same. Relevant photographs preferably showing project personnel working with the patients along with photographs of workshops attended and conducted may kindly be sent duly captioned. (Maximum of 4 photographs may be separately attached as JPG image file)