

**PASTEUR INSTITUTE OF INDIA  
COONOOR 643 103, NILGIRIS.  
TAMILNADU**



**ANNUAL REPORT  
2016 - 2017**

*To strive to seek to find and not to yield*



**DIRECTOR**

Dr. B. SEKAR, M.D.,

**DEPUTY DIRECTOR**

Dr. B. Sundaran, M.Sc., Ph.D.,

**QUALITY ASSURANCE AND QUALITY  
CONTROL DEPARTMENT**

**SENIOR RESEARCH OFFICER**

Shri C. Palaniappan, M.Sc., D.M.L.T.,  
(superannuated on 31.10.2016)

**RESEARCH OFFICER**

Shri R. Mohan, M.Sc.,

**ASSISTANT RESEARCH OFFICER**

Dr. N. Sivananda, M.Sc., M.Phil., Ph.D., M.Ed., M.Phil., PGDCA, DIPC.,  
Shri T. Sekar, M.Sc., PGDCA

**PRODUCTION DIVISION**

**TISSUE CULTURE ANTI RABIES VACCINE**

**SENIOR RESEARCH OFFICER**

Dr. A. Premkumar, M.Sc., Ph.D.,

**ASSISTANT RESEARCH OFFICERS**

Shri Jason Muthukumar Jeyacross, M.Sc.,  
Dr. S. Jagannathan, M.Sc., MBA, PGDBI, Ph.D.,

**DPT GROUP OF VACCINES**

**RESEARCH OFFICERS**

Smt. Savithri Sundaran, M.Sc.,  
Smt. Shanthi Mani, M.Sc.,

**ASSISTANT RESEARCH OFFICERS**

Dr. K.C. Shivanandappa, M.Sc., Ph.D.,  
Smt. T. Lalitha, M.Sc.,  
Smt. Chandra Charles, M.Sc.,  
Shri B. Annamalai, M.Sc., P.G.D.M.L.T.,

**ASSISTANT TECHNICAL OFFICERS**

Shri V. Manoharan  
(superannuated on 31.08.2016)  
Shri K. Murthy  
Shri D. Chandran



**ADMINISTRATIVE SECTION**

**ADMINISTRATIVE OFFICER**

Shri A. Vairamoorthy, M.A., M.L., M.H.R.M.,

**SENIOR P.A. TO DIRECTOR**

Shri P. Sasikumar, B.Com., M.A. P.G.D.M.M

**ACCOUNTS DEPARTMENT**

**ACCOUNTS OFFICER**

Vacant

**PURCHASE, STORES DEPARTMENT**

**STORES OFFICER**

Shri S. Chandrasekaran, B.Com., M.A.,

**LABORATORY ANIMAL DIVISION**

**VETERINARY ASSISTANT SURGEON**

Vacant

**ASSISTANT RESEARCH OFFICER**

Dr. C. Muniandi, M.Sc., Ph.D.,

**LIBRARY**

**LIBRARY AND INFORMATION OFFICER**

Vacant

**MAINTENANCE SECTION**

**MAINTENANCE OFFICER**

Vacant

**DISPENSARY**

**SENIOR MEDICAL OFFICER**

Dr. (Smt) Sibani Barman, M.B.B.S.,

**MEDICAL OFFICER**

Dr. Samyak Sahu, M.B.B.S.,



## DIRECTOR'S MESSAGE



This year has been busy with lot of activities on the establishment of cGMP manufacturing facilities for DPT group of vaccines. All of our officers and staff with great involvement have taken part in different FAT programmes, Kick off meetings, Pre bid meetings related to the upcoming cGMP project.

In the reporting year, we have completed FAT programme for Sterilization package, Water system, Pure steam generators and Water for Injection plant and also for Filling machine at Italy.

As part of the monitoring of the progress of the cGMP project, in the reporting year we have conducted three Local Monitoring Committee meetings with the participation of Dr. S. Manivannan, Deputy Drugs Controller (I), CDSCO, South Zone, Chennai as a Special Invitee.

Our Rabies Diagnostic Lab and Anti Rabies Clinic continued to render public health services. Our Rabies Diagnostic Lab has received 190 samples from all over the country, for the estimation of Anti-rabies neutralizing antibodies by RFFIT using Murine Neuroblastoma-2A cells. As done in the previous years, in the reporting year also about 1173 patients received Anti Rabies Vaccines in our Anti Rabies Treatment Centre among them 560 patients received Anti Rabies Serum also.

With the prevailing situation of No Rabies case reported from Nilgiris District for the past 10 years PII, Coonoor has initiated steps to declare the Nilgiris district Rabies free with the collaboration of Directorate of Public Health, Govt. of Tamilnadu. In continuation of the workshop for Assessing Rabies Free Status of Nilgiris District, Tamilnadu conducted, this year, the Department of Public Health and Preventive Medicine, Tamilnadu has organized the review meeting among all the stack-holders of the Co-ordination Committee formed by the District Collector of Nilgiris at PII, Coonoor. The technical support for the review meeting was rendered by PII, Coonoor. The data generated in the meeting are shared with other stakeholders and also presented by the Director, PII, Coonoor in the National Conference of Association for the Prevention and Control of Rabies in India (APCRI).

In commemoration of the death anniversary of Louis Pasteur, this year also we celebrated 'World Rabies Day' on 28th September, 2016. With an objective of creating awareness on the importance of vaccines, we organized various competitions among school children; Drawing Competition on the topic "Hygiene and Disease Prevention", Quiz competition on the topic "Role of Vaccine in National Health" and Essay Writing competition on the topic "Vaccines – Present and Future" and prizes were distributed. These competitions gave an opportunity for the school children to showcase their knowledge on vaccines.

On the academic front in the reporting year we organized Post-graduate student project of three month duration. Around 51 Post Graduate students from different colleges and universities have undertaken the projects as part of their course under the guidance of our officers and staff. We also organized one week in-plant training for 238 college students and also one day Industrial visit for 115 batches of 5944 students. Besides this 13 scholars are pursuing their research activities as part of their Ph.D., course affiliated to Bharathiar University in different subjects like Microbiology, Biotechnology and Biochemistry. These research activities are being carried out in the recently established R & D laboratories using molecular biological tools.

This year we have submitted proposals for exploring the possibility of production of Pentavalent vaccine in future to ensure the vaccine security to the Ministry.

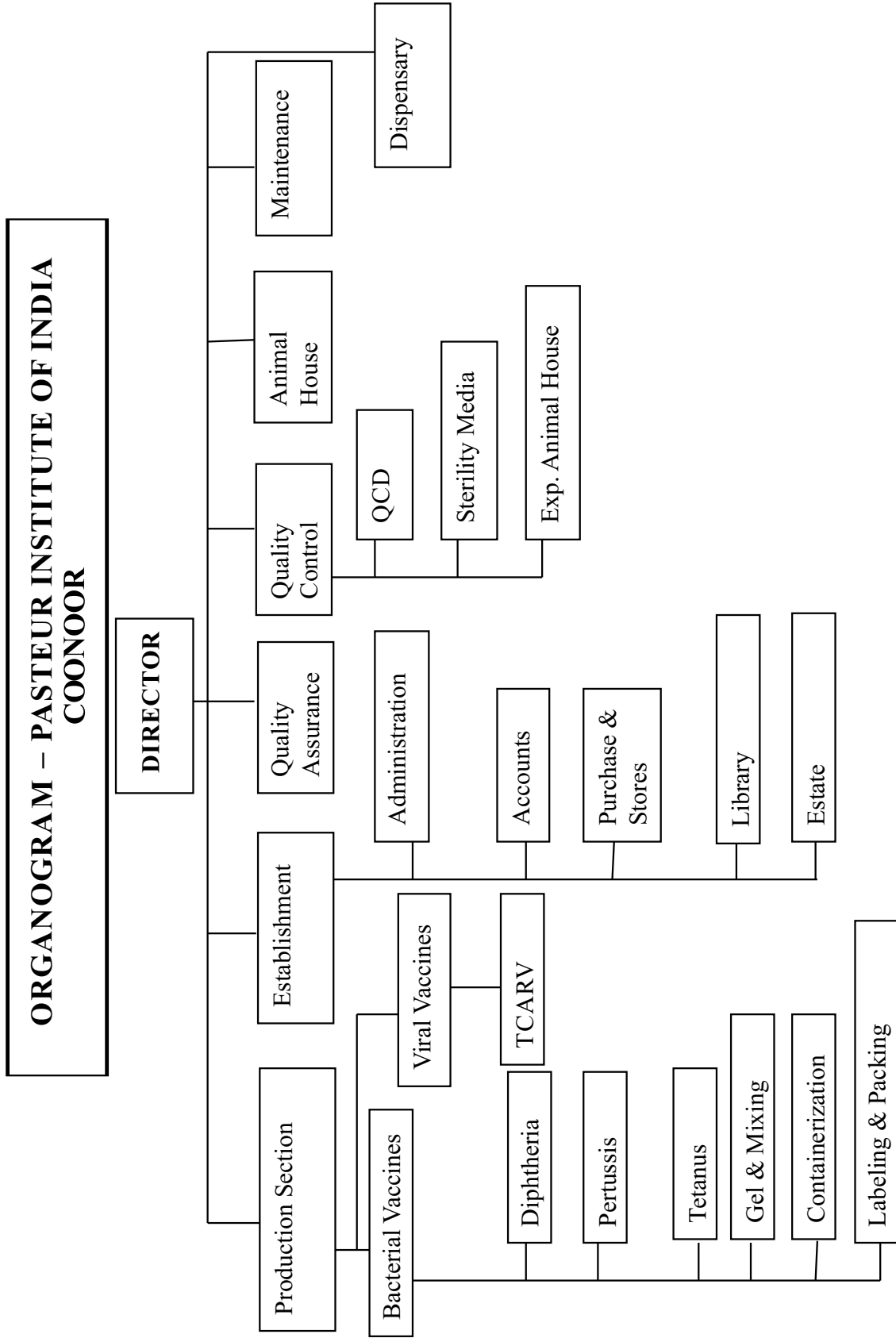
Considering the space constraint at PII, Coonoor for developing GMP facility for viral vaccines like TCARV, JE, etc. we sought for 30 acres of surplus land from Govt. of India Press, Coimbatore under Ministry of Urban Development (MoUD). In the meeting convened by Land and Development Office of MoUD on 15.12.2016 has principally agreed for our request and the proposal is under process.

On the whole, the reporting year has witnessed very fruitful progressive developments.

I sincerely thank the Secretary, Additional Secretary, Joint Secretary and all officials of Department of Vaccine Institute of Ministry of Health and Family Welfare, Government of India, for all the supports rendered during the reporting period. I thank all the officers and staff of PII, Coonoor for all the progress witnessed in this year.



*To strive to seek to find and not to yield*



### CONTROLLING OFFICERS

- |                            |   |
|----------------------------|---|
| 1. Director                | : Dr. B. Sekar, M.B.B.S., M.D.,         |
| 2. Deputy Director         | : Dr. B. Sundaran, M.Sc., Ph.D.,        |
| 3. Senior Research Officer | : Shri C. Palaniappan, M.Sc., D.M.L.T., |
| 4. Senior Medical Officer  | : Dr (Smt) Sibani Barman, M.B.B.S.,     |

### RESPONSIBILITIES OF CONTROLLING & OTHER OFFICERS

- |                            |  |
|----------------------------|--|
| 1. DIRECTOR                | Chief executive officer of all activities associated with the Institute viz.. Administration, Accounts & Finance, Production, QA, QCD, R&D.  |
| 2. DEPUTY DIRECTOR         | All activities associated with Production of Diphtheria, Tetanus, Pertussis, Gel & Mixing Section, Containerization & Inspection and Labelling, Packing and Dispatch section the production and supply of TCARV, Animal House, Maintenance section, Purchase, Stores Department, Estate Department, Quality Assurance Division and administrative duties assigned by the Director. |
| 3. SENIOR RESEARCH OFFICER | All activities associated with QCD (QCD, Sterility Media Section, Rabies Diagnosis Lab and Experimental Animal House).   |
| 4. SENIOR MEDICAL OFFICER  | All activities associated with Dispensary.   |
| 5. ADMINISTRATIVE OFFICER  | All activities associated with Administration, Establishment, Security, Legal and Vehicle movement and also Accounts   |

### **COMMITTEES**

#### **1. Departmental Purchase Committee**

- (a) Dr. B. Sekar, Director – Head of the Committee
- (b) Dr. B. Sundaran, Deputy Director
- (c) Dr (Mrs) Sibani Barman, Senior Medical Officer
- (d) Shri C. Palaniappan, Senior Research Officer
- (e) Dr. A. Premkumar, Senior Research Officer
- (f) Shri A. Vairamoorthy, Administrative Officer
- (g) Shri S. Chandrasekaran, Stores Officer

#### **2. Departmental Condemnation Committee**

- (a) Dr. B. Sundaran, Deputy Director
- (b) Dr (Mrs) Sibani Barman, Senior Medical Officer
- (c) Shri C. Palaniappan, Senior Research Officer
- (d) Dr. A. Premkumar, Senior Research Officer
- (e) Shri R. Mohan, Research Officer
- (f) Shri B. Annamalai, Assistant Research Officer
- (g) Shri S. Chandrasekaran, Stores Officer



### 3. Library Committee

- (a) Dr. B. Sundaran, Deputy Director – Member Secretary
- (b) Dr (Mrs) Sibani Barman, Senior Medical Officer
- (c) Shri C. Palaniappan, Senior Research Officer
- (d) Dr. A. Premkumar, Senior Research Officer
- (e) Mrs. Savithri Sundaran, Senior Research Officer
- (f) Mrs. Shanthi Mani, Research Officer
- (g) Shri R. Mohan, Research Officer
- (h) Dr. Samyak Sahu, Medical Officer

### 4. Interim Staff Council

#### Official side

1. Dr. B. Sekar, Director & Chairman, ISC
2. Shri A. Vairamoorthy, Administrative Officer & Secretary
3. Dr. B. Sundaran, Deputy Director & Member
4. Dr. (Mrs) Sibani Barman, Sr. Medical Officer & Member
5. Shri S. Chandrasekaran, Stores Officer & Member

#### Staff side

- |                           |                             |   |               |
|---------------------------|-----------------------------|---|---------------|
| 1. Shri K.B. Balakrishnan | Technical Assistant         | : | Rep. of Gr.01 |
| 2. Shri N. Chandran       | Lab. Technician & Leader    | : | Rep. of Gr.02 |
| 3. Shri V. Vijayan        | Lab. Assistant & Dy. Leader | : | Rep. of Gr.03 |
| 4. Shri C. Doraiswamy     | U.D.C.,                     | : | Rep. of Gr.04 |
| 5. Shri A. Velmurugan     | MTS                         | : | Rep. of Gr.05 |
| 6. Shri M. Ravindran      | MTS                         | : | Rep. of Gr.05 |
| 7. Shri T. Natarajan      | MTS                         | : | Rep. of Gr.05 |
| 8. Shri R. Yesudoss       | Staff Car Driver            | : | Rep. of Gr.06 |
| 9. Mrs. B. Jayalakshmi    | Lady Staff Representative   | : | Rep. of Gr.08 |

### 5. Chief Vigilance Officer

Dr. B. Sundaran, Deputy Director

### 6. Liaison Officer for SC & ST employees

Dr. B. Sundaran, Deputy Director

### 7. Central Public Information Officer and Appellate Authority under RTI Act

#### **Central Public Information Officer:**

Dr. B. Sundaran, Deputy Director

#### **Central Assistant Public Information Officer**

Shri P. Sasikumar, Sr. P.A. to Director

#### **Appellate Authority**

Dr. B. Sekar, Director



## OVERVIEW

Pasteur Institute of India, Coonoor is a pioneer Institute involved in the production of Antirabies Vaccine and DPT group of Vaccines. It is functioning as an autonomous body under Ministry of Health and Family Welfare, Govt. of India.

### PREAMBLE

The Institute started functioning as Pasteur Institute of Southern India, on 6<sup>th</sup> April 1907 and the Institute took a new birth as the Pasteur Institute of India (registered as a Society under the Societies Registration Act 1860) and started functioning as an autonomous body under the Ministry of Health and Family Welfare, Government of India, New Delhi from the 10<sup>th</sup> of February, 1977. The affairs of the Institute are managed by a governing body. The Institute is functioning on a no profit basis.

### GENESIS

The death of a young English lady Lily Pakenham Walsh, due to hydrophobia in the year 1902 who could not get antirabies treatment in time led to the establishment of Pasteur Institute of Southern India. Mr. Henry Phipps, American Philanthropist donated to Lord Curzon, the then Viceroy of India a sum of Rs.50.00 lakhs for the development of Medical Institutions, out of which, a sum of Rupees one lakh was allocated to start the Pasteur Institute of Southern India at Coonoor.

The cool and equitable climate led to the choice of Coonoor as the most suitable location for the construction of the Institute. Spread over an area of 16 acres of land the Institute is situated on a grassy knoll on the upper reaches of Coonoor town amidst beautiful surroundings with lush greenery, manicured lawns and flower gardens. It has a glorious tradition of single minded dedication to alleviate the suffering of humanity by its contribution to the research and development of vaccines in the country.

### SETTING THE PACE IN TECHNOLOGY

Pasteur Institute of India has consistently set the pace in innovating and adapting newer technology to suit Indian conditions and needs. It is this vast experience and expertise which makes it well equipped to meet the challenges of applying advanced technology in vaccine production. Most of the analytical and manufacturing equipments are available in the Institute. Full fledged facility is available for Research and Development work which includes HPLC system, ultra centrifuge, ELISA equipment and equipment for molecular biology work.

The Institute is recognized by the Tamilnadu Dr. M.G.R. Medical University, Chennai for M.D degree in Microbiology and by the Bharathiar University for Ph.D in Microbiology, Biotechnology and Biochemistry in the faculty of Science.

### INSTITUTE'S PRODUCT PROFILE

- ❖ Tissue Culture Antirabies Vaccine (Vero Cell Purified)
- ❖ DPT group of vaccines viz., Diphtheria-Pertussis-Tetanus (DPT) Vaccine, Diphtheria Tetanus (DT) Vaccine and Tetanus Toxoid (TT) Vaccine.





## OBJECTIVES

The objectives of the Society are to make available effective means of preventing the occurrence of rabies to spread the knowledge of such means among the public and to undertake research work on rabies and vaccines for viral and bacterial diseases and for the following purpose.

- To prepare such other vaccines as may be in the National interest.
- To develop the Institute into an advanced service, post-graduate training and research center.
- To co-operate with International and National agencies engaged in biomedical research and training and arrange for inter-change of personnel, material and data.

## IMPORTANT MILESTONES

- 1907 Manufacture of Neural Tissue Antirabies Vaccine.
- 1957 The isolation of Asian Flu Virus during the pandemic and development of Influenza vaccine against the same virus.
- 1970 The Development of BPL-inactivated Rabies Vaccine for the first time in India which made the treatment easier and cheaper with less dose and less injections with a vaccine of increased potency.
- 1970 Research, Development, Production and Supply of Trivalent (Sabin) Oral Polio Vaccine for the first time in India
- 1982 Release of DPT group of vaccines for the National Programme of Immunization.
- 1988 Release of Tissue Culture Anti Rabies Vaccine for Canine Prophylaxis.
- 2001 Development and release of Vero Cell Derived Purified Rabies Vaccine for human use at an affordable price to common man for the first time in India by Government controlled Institutions.
- 2003 This is the first Government sector vaccine Institute awarded with ISO 9001-2000 certificate by BVQI, UK in Quality Management System.
- 2006 Renewal of ISO 9001:2000 certificate for further period of 3 years by BVQI, UK for QMS

## FUTURE PLAN

- Creation of cGMP facilities for DPT group of vaccines.
- Creation of cGMP facilities for Tissue Culture Antirabies Vaccine.
- Research and Development of newer cost effective vaccines like Pentavalent vaccine, Japanese Encephalitis Vaccine (JEV) and sabin Injectable Polio Vaccine (sIPV).



## INTERNATIONAL ACCREDITATION

This Institute has been accredited with International Organisation for Standardization (ISO) Certification 9001-2000 for its adopting Quality Management System during the year 2003-2004. This is the first Institute in the Public Sector which has been accredited with ISO 9001-2000 in the vaccine manufacture by International accrediting organization namely Bureau Veritas Quality International (BVQI), London. The certificate was valid upto 22.02.2009. The ISO standards are complementary in line with Good Manufacturing Practices (GMP) norms. The Certificate is issued only after conducting a series of audits to check whether all the standards of ISO are in compliance.

## PRESENT ACTIVITIES

- Establishment of cGMP facility for manufacturing DPT group of vaccines.
- Rabies Diagnostic Lab and treatment center to cater the need of the general public.
- Academic programmes like Ph. D. Microbiology, Biochemistry and Biotechnology (Part time & Full time) affiliated to Bharathiar University, Coimbatore and M.D (Microbiology) affiliated to Tamilnadu Dr. M. G. R Medical University, Chennai.
- Breeding of Mice and Guinea pigs for Experimental purpose like Quality Control of DPT group and TCAR vaccines.

## INSTITUTE'S QUALITY POLICY

*“We are committed to produce Safe, Potent and Cost effective vaccines with continual improvements in our Quality system.”*

To strive to seek to find and not to yield



## DETAILS OF GRANT-IN-AID RECEIVED FROM THE MINISTRY OF HEALTH AND FAMILY WELFARE, NEW DELHI AND THE EXPENDITURE INCURRED, ETC., DURING 2016-17

The Ministry of Health and Family Welfare, New Delhi has released a total sum of ₹36.00 Crores to this Institute during the financial year 2016-17 vide the under mentioned Sanction Orders:

Sl. No.	Sanction letter No. and Date	Amount (in `)	
1.	Letter No.V.11011/05/2016-VI/1 dated 08.06.2016	6,00,00,000	General
2.	Letter No.V.11011/05/2016-VI/2 dated 08.06.2016	8,00,00,000	Salaries
3.	Letter No.V.11011/05/2016-VI/3 dated 08.06.2016	16,63,00,000	Capital
4.	Letter No.V.11011/05/2016-VI/4 dated 14.10.2016	3,00,00,000	General
5.	Letter No.V.11011/05/2016-VI/5 dated 14.10.2016	4,00,00,000	Salaries
6.	Letter No.V.11011/05/2016-VI/6 dated 14.10.2016	5,00,00,000	Capital
7.	Letter No.V.11011/05/2016-VI/1 dated 16.12.2016	3,00,00,000	General
8.	Letter No.V.11011/05/2016-VI/2 dated 16.12.2016	4,87,00,000	Capital
		<b>50,50,00,000</b>	
	Unspent/Opening Balance: 2016-17	<b>16,24,61,129</b>	
	<b>TOTAL</b>	<b>66,74,61,129</b>	
	Expenditure 2016-17	<b>60,54,51,523</b>	

While releasing the Grant-in-Aid, the Ministry has, vide above letter informed that the normal expenditure of the Plan scheme including the administrative expenses of grantee institutions may be met from the above amount. The details of the head wise expenditure incurred are given below:

Sl. No.	Head of Account	Amount (in ₹ lakhs)
1.	Grants-in-General	1262.76
2.	Grants for creation of Capital Assets	3799.00
3.	Grants-in-Aid Salaries (new)	992.75
	<b>TOTAL</b>	<b>6054.51</b>

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	<b>TOTAL</b>	<b>6054.51</b>



## ACTIVITIES UNDERTAKEN IN RESPECT OF ESTABLISHMENT OF GREEN FIELD MANUFACTURING GMP FACILITY FOR PRODUCTION OF DPT VACCINE AT PIIC

- The Govt. proposed to create Green Field GMP facility for manufacturing DPT group of vaccines at PIIC. In this regard, HLL Lifecare Ltd., Trivandrum has been identified as Project Consultant. EFC has recommended for a total estimated non-recurring expenditure of ₹137.02 crores plus the Project Management Consultancy Fee for HLL.
- In Nilgiris, the height of new building is restricted to 7 mts. and any proposal above 7 mts. requires approval of Architectural & Aesthetics Aspects (AAA) Committee and Hill Area Conservation Authority (HACA) committee. Accordingly, the layout has been submitted to the local municipal authorities for recommendation of the AAA/HACA committees. AAA Committee recommended and referred the proposal to HACA committee and the HACA has also approved in principle and the proposal has been forwarded to the Municipal Administration and Water Supply Department (MAWS) for final Orders. The final order was received during May, 2013 from the Local Municipal Authorities, Coonoor.
- Civil work for the new GMP project was initiated in the month of June, 2013.
- Most of critical equipments were received and installed.
- After that Equipment Validation the Process validation will be undertaken. Then the production of vaccine from the new facility will be initiated and completed with the certification of initial 3 consecutive batches by Central Drugs Laboratory, Kasauli.
- The designed annual capacity of the new facility will be: DPT- 60 Mld; TT –55 Mld; DT- 15Mld (Total- 130 Mld).

## PROGRESS OF CIVIL AND OTHER TASKS AS ON 31<sup>ST</sup> MARCH 2017

- Civil work for the new GMP project was initiated in the month of June, 2013.
- Civil: 96.51% of the work completed. All major works have been completed and the other works like Epoxy flooring, Raw Material and Final Goods block and ETP & STP are in progress.
- 80.80% of the HVAC work completed.
- 77.31% of the Modular work completed.
- 83.88% of the Electrical distribution works completed.
- 78.25% of the Water system works completed.
- 87.45% of the Mechanical works completed.
- 88.13 % of the Fire Protection System works completed.



## OTHER GMP RELATED ACTIVITIES

### Kick off meeting :

- Garment washing was held at PII, Coonoor on 06.04.2016.
- Walk-in-Incubator was held at PII, Coonoor on 07.04.2016.
- Animal Cages & Racks was held at PII, Coonoor on 11.04.2016.
- Lab equipments was held at Chennai on 09.01.2017.
- Incubator and Platform shaker was held at Chennai on 14.02.2017.

### FAT programme :

- Seed fermentor at M/s. Scigenics India Pvt. Ltd., Chennai was held on 15.04.2016 and 16.04.2016.
- Sterilization package lot – 5 held at M/s. Machin Fabric Pvt. Ltd., Mumbai between 30.05.2016 to 01.06.2016.
- Water System lot – 1 was held at M/s. TSA Water System, Palghar, Mumbai for the period 21<sup>st</sup> to 24<sup>th</sup> June, 2016.
- Filling Machine at M/s. Romaco, Italy for the period from 22.06.2016 to 05.07.2016.
- Water System (pre-treatment system & PWD generation and distribution for DP block) held at M/s. TSA Water System, Palghar, Mumbai for the period from 20<sup>th</sup> to 23<sup>rd</sup> July, 2016.
- Software FAT and preliminary inspection for fabrication equipment package was held at M/s. Praj High Purity Systems, Mumbai 30.08.2016 to 02.09.2016.
- Fabrication equipment package pertaining to DP block at M/s. Praj High Purity Systems, Mumbai for the period from 20<sup>th</sup> to 28<sup>th</sup> September, 2016.
- Garment Washing Machine was held at M/s. Ramchands, Bangalore on 2<sup>nd</sup> and 3<sup>rd</sup> December, 2016.
- Water for Injection (WFI) and Pure Steam Generator at M/s. Pharma Lab, Ahmedabad for the period from 21<sup>st</sup> to 30<sup>th</sup> December, 2016.
- Fabrication package (Schedule - II) was held at M/s. Praj High Purity Systems, Mumbai between 5<sup>th</sup> to 30<sup>th</sup> December 2016.
- Bio-waste inactivation system was held at M/s. Praj High Purity Systems, Mumbai for the period from 13<sup>th</sup> to 18<sup>th</sup> March, 2017.

### Pre-bid Meetings :

- Warehouse equipment packages was held at PII, Coonoor on 22.04.2016.
- SS furniture was held at Chennai on 20.01.2017.
- Clean room equipment was held at Chennai on 14.02.2017.



**Local Monitoring Committee meeting :**

- 6<sup>th</sup> Local Monitoring Committee meeting held on 12.04.2016 to evaluate the progress of the project for establishing the cGMP facility for manufacturing DPT vaccines on quarterly basis.
- 7<sup>th</sup> Local Monitoring Committee meeting held on 26.08.2016.
- 8<sup>th</sup> Local Monitoring Committee meeting held on 06.01.2017
- \* DQ discussion for filling line held at PII, Coonoor on 11.04.2016.
- \* Inspection for animal cages and racks manufactured at M/s. Vishnu Traders, Rurki, Uttarkand on 21<sup>st</sup> and 22<sup>nd</sup> July, 2016.
- \* Officers of PII, Coonoor attended cGMP training workshop conducted by Centre for GMP at Trivandrum for the period from 22<sup>nd</sup> to 27<sup>th</sup> August, 2016.
- \* Factory Inspection for the Deep Freezer was held at M/s. Cryo Scientific, Chennai on

**PRODUCTION DIVISION**

The Pasteur Institute of India, Coonoor has been producing the DPT group of vaccines viz., DPT, DT and TT vaccines as its main product, along with sheep brain anti rabies vaccine. The Institute has successfully developed indigenous technology for manufacturing of Vero cell derived and purified vaccine for human use. The Sheep brain anti rabies vaccine, usually referred as ARV (NT) was phased out in the year 2004.

Prior to suspension of the Drug Licence in January 2008 this organization had been producing the DPT group of vaccines viz., DPT, DT and TT vaccines as its main product, as well as Tissue Culture Anti Rabies Vaccine (TCARV). No production work carried out during the suspension period. On receipt of the revocation order, this Institute has supplied 494.30 lakh doses of DPT group of vaccines to the UIP till Jan. 2015.

Vaccine production was temporarily suspended, since the establishment of GMP facility which is underway.

**A. BACTERIAL VACCINE DIVISION**

The bacterial vaccine division comprises of three basic functional units, has been producing bulks for the production of DPT group of vaccines.

- Diphtheria
- Tetanus
- Pertussis



The DPT vaccine production units have adopted modern fermentor technology to produce the toxin (Tetanus and Diphtheria) and bacterial mass (*B. pertussis*), which are the components of DPT group of vaccines. ***PIIC is the first Institute in the country both in public and private sectors to adopt and install the PROSTAK system for clarification of toxin and concentration of formal treated toxin prior to ammonium sulfate fractionation step and concentration of Pertussis organisms.*** The crude toxoid of both tetanus and diphtheria are purified as per GMP norms adopting latest technology of Tangential flow principles using appropriate membrane and cassettes (Micro filtration & ultra filtration). Further the Membrane filters successfully replaced the old fiber shedding EKS filters in the final polishing filtration process.

## **DIPHTHERIA**

This section is adopting fermentation technology for the cultivation of Diphtheria organisms. The capacity of the fermentor is 400 lts. The crude toxoid of diphtheria is purified as per adopting latest technology of Tangential flow principles using appropriate membrane and cassettes (Micro filtration & ultra filtration). Membrane filters successfully replaced the old fiber shedding EKS filters.

## **TETANUS**

The tetanus section is adopting both pot culture and fermentor culture for the cultivation of Tetanus organisms. For the clarification of the toxin prostak modules with 0.22 µm membrane filters have been standardized and used. Toxoid concentration was done by Pellicon Cassette system.

## **PERTUSSIS**

This division is adopting fermentor technology for the bulk production. The total capacity of the fermentor is 400 lts. There are two such units installed and used. The concentration of bacterial mass involves the use of Tangential Flow Filtration system utilizing 0.45µm open channel modules – (micro porous membranes) fitted to Prostak system.

## **B. VIRAL VACCINE DIVISION**

The Institute has the facility to produce the Vero cell derived purified antirabies vaccine.

### **VERO CELL DERIVED PURIFIED ANTIRABIES VACCINE**

Tissue culture Anti Rabies Vaccine project was started in 1981 funded by WHO/UNDP. In 1982 PV-3462 strain of rabies was adopted in BHK and Vero cell lines. In 1983 PV-11 strain was adopted in BHK-21 cell lines. From 1984 onwards-regular batches using Vero cell based PV-11 strain of rabies virus have been produced.

Further the clinical trials have been carried out on 6 batches. During 2001-2002 CDL, Kasauli declared and certified that the vaccine produced by this Institute is of standard quality.

### **Bioreactor standardization:**

In the current year, we initiated standardization of Rabies vaccine production at lab scale level using cytodex beads based Bioreactor technology followed by purification in HPLC system. The



initial results were very encouraging and we have proposed to scale up the production volume and do further standardization. This technology is a closed system, less laborious, high yielding and cost effective.

## QUALITY CONTROL DIVISION

The Quality Control Division comprised of the following divisions

1. Quality Control Department
2. Rabies Diagnostic Laboratory
3. Sterility Media Section and supply to different laboratories
4. Experimental Animal House

The following processes were carried out in Quality Control Division.

- a) Quality Control Tests on Bacterial Vaccines ( DPT group of vaccines) and Tissue Culture Anti Rabies Vaccine
- b) Sterility media preparation
- c) Rabies Diagnostic Tests
- d) In vivo tests and Regular Maintenance of Experimental Animal House

### a. QUALITY CONTROL TESTS AS PART OF THE PRODUCT DEVELOPMENT / STABILITY TESTINGS

During this period, received and processed 2 stability samples of BPDT, 2 stability samples of BPTT, 1 stability sample of B.P. pool, 4 individual strains of B. *Pertussis* samples, 40 R& D /TCARV samples.

### b. STERILITY MEDIA PREPARATION DIVISION

During this period the Sterility Media section was engaged in the preparation of sterility media to rule out the microbial contamination on various samples and also for the checking of microbes in the classified sterile area in vaccine production. The following table shows the figures of various bacteriological media prepared and utilized.

Nutrient Agar	5.72 Litres	Prepared in Petri dishes and used for various testings
Sabourauds Agar	2.72 Litres	Prepared in Petri dishes and used for various testings
Alternate Thioglycollate broth fluid medium	30.00 Litres	Used in the sterility testings as per I.P.
Soyabean Casein Digest broth	33.00 Litres	Used in the sterility testings as per I.P.





**c. RABIES DIAGNOSTIC LAB**

190 sera samples both from Human and Domestic animals were subjected to Rapid Fluorescent Focus Inhibition Test (RFFIT) for the detection and quantification of Rabies Neutralizing Antibodies using Murine Neuroblastoma-2A cells and 96 well flat bottom Micro titre plates. This includes the samples received from our Dispensary from the patients reporting for consultation and to assess the post vaccination sero conversion for the protection against rabies infection.

**d. EXPERIMENTAL ANIMAL HOUSE**

Production Labs and Quality Control Department conducted in vivo tests in the experimental animal house. These experimental animals were maintained in the Experimental animal house during the test period as per test procedure.

**LABORATORY ANIMAL DIVISION**

Animal	Weaned	Supplied
Mice	11549	6670
Guinea pigs	683	194

**RABIES TREATMENT CENTRE & DISPENSARY**

Rabies treatment center established in 1907 for treatment of dog bite cases is continuously functioning for the last 100 years or more effectively and efficiently. For the benefit of the long distance patients coming from far of places this hospital is working round the clock. During day time the dispensary is also providing basic health care facilities to employees of Pasteur Institute of India and their dependents. Rabies treatment center is also engaged in collecting epidemiological data of animal bite cases and also efficacy of antirabies vaccines. In order to minimize the cost and quantity of tissue culture vaccine intra dermal administration is practiced.

**DISPENSARY PERFORMANCE STATISTICS**

Staff and family	:	5525
Diabetes patients	:	63
Hypertensive patients	:	70
Asthma patients	:	6



**PATIENT TREATED WITH TCARV**

Sl. No.	Details	Nilgiris	Other than Nilgiris	Total cases
1.	Class - I	3	20	23
2.	Class - II	108	41	149
3.	Class - III	308	632	940
4.	A.R.S. given cases	145	415	560
5.	Adult Male	237	393	630
6.	Adult Female	125	172	297
7.	Child Male	65	92	157
8.	Child Female	40	49	89
9.	Advice cases	--	--	--
10.	Pre-Exposure	20	10	30
11.	Re-Exposure	19	35	54
12.	Post-Exposure	400	658	1058
13.	Annual Booster	28	3	31
14.	Hydrophobia	--	--	--

**RABIES FREE NILGIRIS**

With the prevailing situation of No Rabies reported from Nilgiris District for the past 10 years PII, Coonoor has initiated steps to declare the Nilgiris district Rabies free with a collaboration of Directorate of Public Health, Govt. of Tamilnadu.

The data of Pasteur Institute of India Antirabies Clinic shows that no case of Rabies reported from Nilgiris District since 2003-04 and the same situation prevails in the other health facilities in the District. No case of animal rabies was reported for the past 14 years as per the Department of Animal Husbandry, Nilgiris District. Based on this information, one day National Workshop was organized on "Assessing Rabies Free Status of Nilgiris District, Tamilnadu" by the Director of Public Health and Preventive Medicine, Directorate of Public Health and Preventive Medicine, Govt. of Tamilnadu with the technical support of Pasteur Institute of India, Coonoor on 31st August, 2013 at Pasteur Institute of India, Coonoor.



In continuation of the workshop for Assessing Rabies Free Status of Nilgiris District, Tamilnadu, this year, the Department of Public Health and Preventive Medicine, Tamilnadu has organized the review meeting among all the stack-holders of the Co-ordination Committee formed by the District Collector of Nilgiris at PII, Coonoor. The technical support for the review meeting was rendered by PII, Coonoor.

The data generated in the meeting are shared with other stakeholders and also presented by the Director, PII, Coonoor in the Association for the Prevention and Control of Rabies in India (APCRI).

## QUALITY ASSURANCE

“Quality Assurance” is a wide – ranging concept covering all matters that individually or collectively influence the quality of a product. It is the totality of the arrangements made with the object of ensuring that pharmaceutical products are of the quality required for their intended use. Quality Assurance therefore incorporated GMP and other factors.

The following activities were carried out in Quality Assurance Section.

- ❖ Regular monitoring of seed stock in cold storage for bacterial vaccine (DPT group of vaccine) and issue to the production laboratories based on the requirement.
- ❖ Maintaining the Standard Operating Procedures (SOPs) for all sections of our organization and made amendments based on the request.
- ❖ Batch Processing Records (BPRs) were issued based on the request from the different section and reviewed the same after the completion of the work.
- ❖ Revisions made in organogram and responsibility for all sections as and when warranted.
- ❖ Environmental monitoring (viable & non viable particle count) at DPT filling unit and other critical area undertaken.
- ❖ Calibration of temperature and pressure gauges available in different section was organized.
- ❖ Monitoring of vehicles during the vaccine loading, fixing of data logger and vehicle temperature documentation.
- ❖ Active role being played in establishment of cGMP facility for the production of DPT group of vaccines.
- ❖ To actively participate in key meetings such as URS finalization, DQ review and discussion, pre bid, kick off, FAT protocol review, etc., for various equipment packages.

## RESEARCH & DEVELOPMENT LABORATORY

Research and Development is the source of the discoveries that will shape the future of our organization by providing continuous improvement for existing products and executing against new product.

R & D Laboratory is equipped with the following facilities:

- High Pressure Liquid Chromatography (HPLC) for the analysis of proteins.
- Conventional PCR, Gradient PCR and Real Time PCR.
- Bio-safety cabinet to handle the pathogens.
- Lyophilizer facility.
- Two Bio-Reactors for Vero cell cultivation and R&D activity in rabies vaccine technology.



- Mini Pellicon system for the concentration and purification of biological products.
- DNA and protein analysis by electrophoresis.
- Bright Field cum Fluorescent Microscope for cell culture studies.
- Spectrophotometer
- Sonicators
- -20°C and -80°C Deep Freezers and
- Gel Documentation system.

During the reporting period, the following activities were carried out:

- Research work carried out Ph.D. scholars in the field *Staphylococcus aureus*, *Helicobacter pylori*, *Haemophilus influenza*, *Corynebacterium diphtheriae*, *Clostridium tetani* and Rabies virus.
- Standardization of in-house serological assays for rabies virus.
- Microcarrier culture based rabies vaccine research work in progress.
- Research work done by the M.Sc., project student from different sections.

### **LIBRARY**

The Institute has a well stocked library with 4259 books and 12737 bound volumes, 7 International journals, 10 Indian Journals and WHO publication (Periodicals and Selected Series subscription).

#### ***List of Books added to library during the reporting period:***

1. Drugs & Cosmetics Act, 25<sup>th</sup> Edition, 2016

#### ***List of Foreign Journals Purchased:***

1. Biologicals
2. Journal of American Medical Association
3. Lancet
4. New England Journal of Medicine
5. New Scientist
6. Vaccines
7. WHO publications (Global)
8. Human Vaccines and Immunotherapeutics (formerly Human Vaccines)

#### ***List of Indian Journals Purchased:***

1. MIMS
2. Antiseptic
3. Chemical Product Finder
4. CIMS
5. Indian Journal of Biotechnology
6. Indian Practitioner
7. Pharma Review
8. Tamil Computer
9. India Today – Hindi
10. Indian Veterinary Journal
11. Sarita



**Complimentary**

1. Dream 2047
2. EPI Newsletter
3. Life Science Industrial News
4. Nutrition News

**Details regarding Amount Spent:**

Amount spent on renewal of foreign and Indian journals and WHO publication (Global subscription) : ₹ 10,80,308.00

**Academic Activities:**

In addition to the usual library activities the industrial visit from different colleges and universities were entertained to the students to enrich their scientific knowledge and to create awareness in vaccine production and immunization procedures etc. From April 2015 to March 2016, 115 batches consisting of 5944 of students have visited the Institute.

During the period April 2015 to March 2016, 51 students for project, 238 students for in plant training were enrolled.

The library is having internet connection to utilize the E-Journal service to the maximum. Project certificates and attendance certificates were typed and made all the arrangements to issue the same to the students through library



### DETAILS OF THE PROMOTION MADE DURING APRIL 2016 TO MARCH 2017

Sl. No	Name	Designation	Promoted to	Date
1.	Shri R. Sathiyamoorthy	Laboratory Technician	Technical Assistant	19.04.2016
2.	Shri V. Muthu	Laboratory Assistant	Laboratory Technician	19.04.2016
3.	Shri C. Arumugam	Laboratory Assistant	Laboratory Technician	19.04.2016
4.	Shri R. Krishnamurthy	Laboratory Assistant	Laboratory Technician	19.04.2016
5.	Smt. B. Rangalakshmi	Laboratory Assistant	Laboratory Technician	19.04.2016
6.	Shri R. Karuppan	Laboratory Assistant	Laboratory Technician	19.04.2016
7.	Shri J. Joseph	Laboratory Assistant	Laboratory Technician	19.04.2016
8.	Shri M. Gunasekaran	Multi Tasking Staff	Laboratory Assistant	19.04.2016
9.	Shri K. Manoharan	Multi Tasking Staff	Laboratory Assistant	19.04.2016
10.	Shri R. Manisekaran	Multi Tasking Staff	Laboratory Assistant	19.04.2016
11.	Shri T. Vijayakumar	Multi Tasking Staff	Laboratory Assistant	19.04.2016
12.	Shri T. Malleswaran	Multi Tasking Staff	Laboratory Assistant	19.04.2016
13.	Shri N. Mohan	Multi Tasking Staff	Laboratory Assistant	19.04.2016
14.	Shri S. Munuswamy	Laboratory Assistant	Laboratory Technician	01.05.2016
15.	Shri V. Vijayan	Multi Tasking Staff	Laboratory Assistant	01.05.2016
16.	Shri K. Krishnan	Laboratory Technician	Technical Assistant	01.06.2016
17.	Shri A. Mani	Laboratory Assistant	Laboratory Technician	01.06.2016
18.	Shri D. Chandran	Senior Technical Assistant	Assistant Technical Officer	01.09.2016
19.	Shri B.H. Bellie	Technical Assistant	Senior Technical Assistant	01.09.2016
20.	Shri J. Shankaran	Laboratory Technician	Technical Assistant	01.09.2016
21.	Dr. B. Sundaran	Assistant Director	Deputy Director	24.09.2016
22.	Shri A. Rajappa	Maintenance Technician	Supervisor	01.10.2016
23.	Shri P. Paramasivam	Laboratory Technician	Technical Assistant	01.11.2016
24.	Dr. A. Premkumar	Research Officer	Senior Research Officer	07.02.2017
25.	Dr (Mrs) Savithri Sundaran	Research Officer	Senior Research Officer	07.02.2017
26.	Dr. K.C. Shivanandappa	Assistant Research Officer	Research Officer	07.02.2017
27.	Shri T. Sekar	Senior Research Assistant	Assistant Research Officer	07.02.2017
28.	Shri G. Chandramohan	Senior Research Assistant	Assistant Research Officer	07.02.2017
29.	Shri R. Arumugam	Laboratory Technician	Technical Assistant	07.02.2017
30.	Shri S. Umapathy	Laboratory Assistant	Laboratory Technician	07.02.2017
31.	Shri K. Ravichandran	Laboratory Assistant	Laboratory Technician	07.02.2017
32.	Shri R. Ravi	Maintenance Assistant	Maintenance Technician	07.02.2017
33.	Shri R. Saravanan	Maintenance Assistant	Maintenance Technician	07.02.2017
34.	Shri N. Poornachandran	Multi Tasking Staff	Laboratory Assistant	07.02.2017
35.	Shri R. Siddayan	Multi Tasking Staff	Laboratory Assistant	07.02.2017
36.	Shri R. Vasudevan	Multi Tasking Staff	Laboratory Assistant	07.02.2017

To strive to seek to find and not to yield



**DETAILS OF THE STAFF SUPERANNUATED/OPTED V.R.S. DURING THE PERIOD FROM APRIL 2016 TO MARCH 2017**

Sl. No.	Name	Desigation	Superannuated on
1.	Shri R. Karuppan	Lab Technician	30.04.2016
2.	Smt. Lissy Eswaran	Multi Tasking Staff	31.05.2016
3.	Smt. V. Rajalakshmi	Technical Assistant	31.05.2016
4.	Shri C. Arumugam	Lab Technician	31.08.2016
5.	Shri V. Manoharan	Assistant Technical Officer	31.08.2016
6.	Shri C. Subramanian	Supervisor	30.09.2016
7.	Shri Chandra Bahadur Karki	Multi Tasking Staff	30.09.2016
8.	Shri P. Shanmugam	Technical Assistant	31.10.2016
9.	Shri C. Palaniappan	Senior Research Officer	31.10.2016
10.	Shri S. Kanagasabapathy	Laboratory Assistant	30.11.2016
11.	Shri K. Krishnamurthy	Assistant Technical Officer	31.12.2016
12.	Shri B. Pandurangan	Technical Assistant	31.01.2017
13.	Smt. K. Jayakumari	Lab Technician	31.03.2017

**DETAILS OF THE STAFF DECEASED DURING THE PERIOD FROM APRIL 2016 TO MARCH 2017**

Sl. No.	Name	Desigation	Superannuated on
1.	Shri Heera Bahadur	Multi Tasking Staff	25.01.2017

**OTHER ACTIVITIES DURING THE PERIOD**

**WORLD RABIES DAY:  
RALLY:**

In commemoration of Death anniversary of Louis Pasteur, the inventor of Rabies Vaccine, World Rabies Day is observed on September 28<sup>th</sup>. Pasteur Institute of India, Coonoor a premier vaccine producing Institute working on the control of Rabies for the past 108 years, conducts Rabies awareness rally every year.

To commemorate the event a portrait of Louis Pasteur was unveiled in the Conference Hall of PII, Coonoor by Dr. P.K. Manoharan, Professor & Head, Radio Astronomy Centre, Ooty. Dr. P.K. Manoharan is a world renowned Astrophysicist who has accomplished pathbreaking research on solar winds and interplanetary physics.



As done in the previous years we organized a rally to promote awareness on the prevention of rabies. It was flagged off by Dr. Porkodi, Deputy Director of Health Services, Nilgiris District. The rally started from PII, Coonoor and reached Coonoor bus stand. Officers and staff of the Institute and college students have participated in the rally. Notably 30 students from Srimad Andavan Arts and Science College, Tiruchirappalli also took part in the rally. Placards carrying messages on the prevention of rabies among humans and animals were displayed, Hand bills with messages on prevention of rabies were also distributed in the rally. Earlier in the day, hand bills in English and Tamil were distributed along with the newspapers in the district.

### **DRAWING, ESSAY WRITING & QUIZ COMPETITION:**

The Pasteur Institute of India, Coonoor, in commemoration of the World Rabies Day which falls on 28<sup>th</sup> September, organized an inter school quiz competition on '*Role of Vaccine in National Health*' on 5<sup>th</sup> November, 2016 at 11.00 a.m. at the St. Mary's Girls Hr. Sec. School, Coonoor. About 65 schools in Nilgiris District, both private and government schools, were invited for the quiz competition among which 12 teams from different schools have participated. The quiz competition was inaugurated by Shri Salai Sakthivel, Inspector of Police, Upper Coonoor Police Station in the presence of Sister Mariya Agzeeliya Shanthi, Headmistress, St. Mary's Girls Hr. Sec. School, Coonoor, Shri Anoop Mohan, Joint Manager, Bank of Baroda. Dr. B. Sundaran, Deputy Director, Pasteur Institute of India, Coonoor welcomed all the gatherings.

Initially pre-qualifying round for 12 teams was held and 6 teams of 2 students each have been selected for the main quiz competition. The main aim of the quiz competition was to create awareness on the importance of vaccine in the prevention of diseases among school children and to the general public through them.

I - Prize was awarded to Mr. C. Sethukumar and Ms. K. Srinithi, St. Jude's Public School and Junior College, Kotagiri.

II - Prize was awarded to Ms. J. Sneha and Mr. Alwin J Antony of Kendriya Vidyalaya, Wellington.

III - Prize was awarded to Mr. Ryan Zacharia and Mr. Terin Tilak of St. Joseph's College, Coonoor. Consolation prize was awarded to Mr. B. Pradeep Kumar and Mr. R. Dilipraj of Govt. Hr. Sec. School, Yedappalli.

The winners were awarded cash prize of Rs.3000/- each for first place, Rs.2000/- each for second place, Rs.1500/- each for third place, Rs.1000/- each for consolation prize along with a shield and certificate.

The audience were the students of the St. Mary's Girls Hr. Sec. School, Coonoor and open questions were also addressed to the audience and those who answered correctly were awarded. The quiz masters were Dr. Samyak Sahu, Medical Officer and Smt. T. Lalitha, Assistant Research Officer of the Institute. The programme was co-ordinated by Dr. B. Sekar, Director of Pasteur Institute of India, Coonoor.

Prior to the quiz competition, Pasteur Institute of India, Coonoor has also conducted Drawing Competition on '*Hygiene and Disease Prevention*' and Essay Writing Competition on '*Vaccines – Present and Future*' among the school students of Nilgiris District on 3<sup>rd</sup> and 4<sup>th</sup> November, 2016 respectively. 34 candidates from 17 schools for Drawing Competition and 36 candidates from 18 schools for Essay Writing Competition have participated.





Master J. Samuel Gladson, St. Joseph's College (ICSE), Coonoor won I price of Rs.3000/-, Ms. S.P. Spoorthi, J.S.S. International School, Ooty won II price of Rs.2000/-, Ms. Tejasri Pradeep, St. Joseph's Convent, Coonoor have won III price of Rs.1500/- and Mr. K. Dhanush, Govt. High School, Emerald and Ms. Sreeja, Govt. High School, Kookalthorai have won consolation prize of Rs.1000/- for Drawing Competition.

Mr. Abishek, St. Joseph's Boys High School, Coonoor won I prize of Rs.3000/-, Ms. Shafika Fathima, St. Joseph's Convent Girls High School, Coonoor won II prize of Rs.2000/-, Ms. S. Saran, Stanes Anglo Indian Hr. Sec. School, Coonoor won III prize of Rs.1500/- and Ms. A. Lilly Mary, N.S. Ayya Memorial Hr. Sec. School, Kattery Dam and Ms. R. Sujitha, Govt. High School, Emerald have won consolation prize for Essay Writing Competition.

All the winners were also awarded with a Certificate and Shield from Pasteur Institute of India, Coonoor. Certificates were also distributed to all the participants of the above programmes.

The cash prizes were sponsored by Bank of Baroda and were distributed by Shri Anoop Mohan, Joint Manager of Bank of Baroda, Coonoor. Shri Suresh Vakil, Chief Manager, State Bank of India, Coonoor, another sponsorer, Sister Mariya Agzeeliya, Headmistress, St. Mary's Girls Hr. Sec. School, Coonoor participated in the function. All the winners were awarded shield from Pasteur Institute of India, Coonoor.

On the whole the three competitions held in commemoration of World Rabies Day by Pasteur Institute of India, Coonoor enriched the students with sound educational information on the importance of the vaccine and the disease that can be prevented by vaccination.

## CONCLUSION

In the reporting year, this Institute has been engaged in busy activities for the establishment of GMP facility. We have been involved in the concerned activities such as Factory Acceptance Test, Kick off meetings, Pre bid meetings taking forward all the accomplishment towards our goal.

Further, we closely monitored the progress of the GMP project through three Local Monitoring Committee meetings and reporting to Ministry in various review meetings and in our Standing Finance Committee and Governing Body meetings.

On the whole, the reporting year has witnessed very fruitful progressive developments.



**THE TEAM****Office Superintendent**

1. Mrs K. Mahalakshmi
2. Shri L. Nanjappa
3. Shri B. Krishnamurthy
4. Mrs K. Saroja Devi

**Foreman**

5. T.G. Irudhayaraj

**Sr. Technical Assistant**

6. Shri M. Madhavan
7. Shri M. Bellan
8. Smt. Victoria Jayaraj
9. Shri M. Subramani
10. Shri B.H. Bellie

**Head Clerk**

11. Shri M. Raman
12. Shri R. Ram
13. Mrs S. Sasikala
14. Shri T.K. Balakrishnan
15. Shri S. Ravi
16. Mrs Bareedha Jaffarulla
17. Mrs Shanthi Subramani
18. Shri R. Kanagaraj
19. Shri R. Dharmalingam

**Pharmacist**

20. Shri P. Venkatachalam

**Research Assistant**

21. Shri V. Raja Karthikeyan

**Technical Assistant**

22. Shri N. Kesu
23. Shri S. Sadhasivam
24. Shri K.B. Balakrishnan
25. Shri B. Iyer

26. Shri B. Pandurangan  
(superannuated on 31.01.2017)
27. Shri B.B. Shanmugam
28. Shri A. Jaffarulla
29. Mrs Rajalakshmi.V  
(superannuated on 31.05.2016)
30. Shri S. Govindaraj
31. Shri K. Devaraj
32. Shri N. Ragupathi
33. Shri N.M. Ramakrishnan
34. Shri T. Sigamani
35. Shri A. Sathar
36. Shri P. Shanmugam  
(superannuated on 31.10.2016)
37. Shri R. Sathiyamoorthy
38. Shri K. Krishnan
39. Shri J. Shankaran
40. Shri P. Paramasivam
41. Shri R. Arumugam

**Maintenance Supervisor**

42. Shri V. Ravi
43. Shri C. Subramanian  
(superannuated on 30.09.2016)
44. Shri A. Rajappa

**Laboratory Technician**

45. Shri S. Mani
46. Shri A. Paulraj
47. Mrs R. Manjula
48. Shri R. Gopalakrishnan
49. Shri A. Victor
50. Mrs Uma Subramani
51. Mrs Melan Basavaraj
52. Mrs Jayakumari K.  
(superannuated on 31.03.2017)



53. Shri K. Shankaran  
 54. Shri N. Chandran  
 55. Shri B. Raju  
 56. Shri B. Bastin  
 57. Shri R. Raja  
 58. Shri C. Selvaraj  
 59. Shri P. Vasu  
 60. Shri P. Paneerselvam  
 61. Shri D. Jaganathan  
 62. Shri B. Lakshmanan  
 63. Shri S. Peter  
 64. Shri K. Krishnan  
 65. Shri V. Muthu  
 66. Shri C. Arumugam  
 (superannuated on 31.08.2016)  
 67. Shri R. Krishnamurthy  
 68. Smt. B. Rangalakshmi  
 69. Shri R. Karuppan  
 (superannuated on 30.04.2016)  
 70. Shri J. Joseph  
 71. Shri S. Munuswamy  
 72. Shri A. Mani  
 73. Shri S. Umaphathy  
 74. Shri K. Ravichandran (Sr)

**Maintenance Technician**

75. Shri M.E. Sridhar  
 76. Shri C. Alexander Joseph  
 77. Shri R. Ravi  
 78. Shri R. Saravanan

**Staff Car Driver**

79. Shri R. Yesudoss

**Upper Division Clerk**

80. Shri D. Anurag  
 81. Shri P. Mani  
 82. Shri N. Kuppusamy

83. Shri S. Chandran  
 84. Shri C. Doraiswamy  
 85. Shri R. Dhurairajan  
 86. Shri B. Karthick  
 87. Shri Y.D. Praveen

**Laboratory Assistant**

88. Shri M. Subramani  
 89. Shri M.B. Raju  
 90. Shri A. Dhanabalan  
 91. Shri M. Radhakrishnan  
 92. Shri S. Lingan  
 93. Shri C. Vadivelu  
 94. Shri B. B. Sundaram  
 95. Shri R. Gunasekaran (Junior)  
 96. Shri K. Arumugam  
 97. Shri P. Periaswamy  
 98. Shri S. Kanagasabapathy  
 (superannuated on 30.11.2016)  
 99. Shri S. Devanbu  
 100. Shri M. Murugan  
 101. Shri S. Chandrasekaran  
 102. Shri B. Sivalingam  
 103. Shri K. Elancheran  
 104. Shri M. Gunasekaran  
 105. Shri K. Manoharan  
 106. Shri R. Manisekaran  
 107. Shri T. Vijayakumar  
 108. Shri T. Malleswaran  
 109. Shri N. Mohan  
 110. Shri V. Vijayan  
 111. Shri R. Mohan  
 112. Shri N. Poornachandran  
 113. Shri R. Siddayan  
 114. Shri R. Vasudevan



**Maintenance Assistant**

115. Shri B. Nataraj  
116. Shri V. Radhakrishnan

**Library Clerk**

117. Shri K. Sivalingam

**Truck/Van Driver**

118. Shri G. Thanaraj  
119. Shri P. Rajendran

**Multi Tasking Staff**

120. Shri G. Ravi  
121. Shri P. Krishnaswamy  
122. Shri R. Durai  
123. Shri K. Ravichandran (Jr)  
124. Shri T. Natarajan  
125. Shri R. Sreenivasan  
126. Shri M. Thiyagarajan  
127. Shri S. Gangadharan  
128. Shri Y. Vincent Heuman  
129. Shri J. Selvan Vincent Raj  
130. Shri A. Velmurugan  
131. Shri S. Murugan  
132. Shri M. Murugan  
133. Shri M. Thirumoorthy  
134. Shri K. Mani  
135. Shri K. Ambiraj  
136. Shri D. Surendran  
137. Shri R. Dharmaraj Shanmugam  
138. Shri S. Anandan  
139. Shri K. Ganesan  
140. Shri K. Manohar  
141. Shri V. Jayaraman  
142. Shri S. Pakkiarayan  
143. Shri A. Singaravelu  
144. Shri V. Kanagaraj  
145. Shri A. Karuppiah  
146. Shri P. Nandakumar

147. Mrs B. Jayalakshmi  
148. Shri M. Ganesan  
149. Mrs Dhanamani Murugesan  
150. Shri R. Raghu  
151. Shri R. Gunasekaran  
152. Miss B. Saroja  
153. Shri G. Saravanamoorthy  
154. Shri B. Ramu  
155. Shri L. Murali  
156. Shri N. Ramadass  
157. Shri M. Ravindran  
158. Mrs R. Parvathi  
159. Mrs M. Geetha  
160. Shri ChandraBahadur Karki  
(superannuated on 30.09.2016)  
161. Shri Min Bahadur Katri  
162. Shri Bommiraj Bahadur  
163. Shri K. Heera Bahadur  
(deceased on 25.01.2017)  
164. Mrs K. Kalavathi  
165. Mrs R. Kamatchi  
166. Mrs Shanthi Rajkumar  
167. Mrs Lissy Easwaran  
(superannuated on 31.05.2016)  
168. Mrs Sivarani  
169. Mrs D.R. Latha  
170. Shri G. Ramesh  
171. Shri S. Balasubramani  
172. Shri A.K. Jithendran  
173. Shri A. Senthilkumar  
174. Shri G. Saravanan  
175. Shri P.K. Anandan  
176. Shri R. Vinoth  
177. Shri B.N. Haldurai  
178. Mrs.S. Pavithra  
179. Mrs. M. Mahalakshmi



**PASTEUR INSTITUTE OF INDIA  
COONOOR 643 103, NILGIRIS.**



**SCIENTIFIC REPORT  
2016 - 2017**

*To strive to seek to find and not to yield*



## STUDENT PROJECT CONDUCTED AT THIS INSTITUTE

### **Study on adaptation and infectivity titre of Rabies virus strains (PV11 and PV3462) in Vero, Murine Neuroblastoma-2A and Human Embryonic Kidney – 293 Cell lines**

Ms. N. Poonkothai<sup>1</sup>, Ms. W. Vinoli Joshiha<sup>2</sup>, Ms. Musilin Winnicka<sup>3</sup>, Mr. A. Faizan

<sup>1</sup>Periyar University, Salem

<sup>2</sup>Periyar Maniammai University, Vallam, Thanjavur

<sup>3</sup>Vivekanandha College of Engineering for Women, Tiruchengode

<sup>4</sup>Vinayaka Missions Kirupanandad Variar Engineering College, Salem

Supervisor: Dr. N. Sivananda, Assistant Research Officer

#### **ABSTRACT**

The present study has been designed to evaluate the adaptability of two rabies virus strains PV-11 (used for vaccine production) and PV3462 (used for diagnostic purpose) in terms of their susceptibility and virus yield in different cell lines (Vero, Neuroblastoma-2A and HEK 293) by in vitro method. The results revealed that PV11 had good adaptability and are sensitive enough to produce high yield of virus titre in Vero cells when compared with other cells used for the study. Also PV3462 showed better adaptation with high infectivity rate in Neuroblastoma 2A cells when compared with other cells used for the experiments.

### **The effect of Formaldehyde on concentrated Tetanus Toxin and its purification by chromatographic techniques**

Jyothi P Nair<sup>1</sup>, Rikerlin L. Rngaid<sup>2</sup>, Karthick S<sup>3</sup>, Swathi I<sup>4</sup>, Asher Theoplus S<sup>5</sup>

<sup>1</sup>Bharathiar University, Coimbatore

<sup>2</sup>Periyar University, Salem

<sup>3</sup>Bharathidasan University, Tiruchirappalli

<sup>4</sup>St. Michael College of Engineering and Technology, Kalayarkovil

<sup>5</sup>Karunya University, Coimbatore

Supervisor: Smt. T. Lalitha, Assistant Research Officer

#### **ABSTRACT**

The tetanus toxoid is prepared from extremely potent neurotoxin TeNT (tetanospasmin), which is converted by treatment with formaldehyde into the non toxin, but still immunogenic form. Conventionally, the production of tetanus toxoid included detoxification by formaldehyde followed by concentration of the toxin using ultra filtration and purification by fractional precipitation (ammonium sulphate). During detoxification the formaldehyde binds to tetanospasmin as well as low molecular weight proteins (<30 kDa). The objective of the study was to modify certain steps in which we would remove impurities thereby, increasing the purity of the toxoid. Prior to the detoxification step the toxin was concentrated toxin was separated into two batches. To one batch 0.5% formaldehyde was added and incubated at 35°C for detoxification. Similarly the other batch was further concentrated by fractional precipitation followed by addition of 0.5% formaldehyde and incubated as above. The MTV, MLD tests were carried out in vivo. Further, it was attempted to purify the toxoid after above steps using sephadex G-200 column (Gel filtration chromatography). The Lf and the amount of protein nitrogen content were estimated and the purity was calculated for the different toxin/toxoid samples. Further the samples were analysed by SDS PAGE for specific protein, ELISA and SRID were carried out to determine the antigenicity of the toxoid. The recovery percentage of the toxoid as well as the antigenic purity were compared with the conventional results which inferred in the increase of antigenic purity.



### **Standardization of Reverse Transcriptase Nested, Hemi-Nested and Multiplex Polymerase Chain Reaction techniques for PV 11, PV 3462 and CVS strains of rabies virus.**

Ms. S. Rusna<sup>1</sup>, Ms. M. Sathya<sup>2</sup>, Ms. T. Yazhini<sup>3</sup>

<sup>1</sup>Bharathiar University, Coimbatore

<sup>2</sup>Periyar University, Salem

<sup>3</sup>Jeppiar Engineering College, Chennai

Supervisor: Shri T. Sekar, Assistant Research Officer

#### **ABSTRACT**

Rabies viral strains PV11, PV 3462 and CVS were propagated in Vero cell line, Neuro blastoma cell and mouse brain culturing respectively. The RNA were extracted from these strains and were converted to cDNA by reverse transcription polymerase chain reaction technique. The cDNA from three different strains of rabies virus were used as sample for the standardization of Nested PCR, Hemi-Nested PCR and Multiplex PCR techniques. Rabies virus Specific primers for LP1, LP2, MP, NP and PP genes were designed, synthesized and optimum condition for each set of primers were standardized using gradient PCR. Standardization of nested PCR involves with primer pairs of LP1 for primary amplification followed by LP2 for secondary amplification which is within the LP1 product. Hemi – nested PCR was standardized using LP1 primer for primary amplification and secondary amplification using forward primer of LP2 and reverse primer of the LP1. The multiplex PCR was standardized using LP1 & PP, MP & NP gene specific primers since these primers amplification conditions were similar which were optimized using gradient PCR analysis. The genes of three different strains get amplified with the same product length for their respective primers and also these strains were detectable with the Nested, Hemi-Nested and Multiplex PCR techniques.

### **Comparative study of the growth of *Corynebacterium diphtheria* and its toxin production using different media components**

Ms. Rublin Abisha A<sup>1</sup>, Ms. T. Sowmiya<sup>2</sup>, Mr. D. Ezra Leander Santhosh<sup>3</sup>, Mr. B. Anand Krishna<sup>4</sup> and Ms. Jefina Nancy Karunya K<sup>5</sup>

<sup>1</sup>Jeppiar Engineering College, Chennai

<sup>2</sup>Periyar University, Salem

<sup>3&4</sup> St. Joseph's College of Engineering, Chennai

<sup>5</sup> Karunya University, Coimbatore

Supervisor: Shri B. Annamalai, Assistant Research Officer

#### **ABSTRACT**

An alternative study to observe the growth and toxin production of *Corynebacterium diphtheria* using different media components which does not contain any meat digest products. The proteinaceous hydrolysates are derived from casein and from yeast and compared with the conventional meat based Papain Digest Medium. Analysis of parameter essential for toxin release and for further standardization.



### Studies on rabies antigen and its potency analysis

Mr. Isac Newton G<sup>1</sup>, Mr. Kishor E<sup>2</sup>, Ms. N. Elamathi<sup>3</sup>,  
<sup>1&2</sup> St. Joseph's College of Engineering, Chennai  
<sup>3</sup>Periyar University, Salem  
 Supervisor: Dr. A. Premkumar, Sr. Research Officer

#### ABSTRACT

Rabies is one of the oldest recognized and most important zoonotic diseases of India and worldwide, affecting man and animals. It is caused by Rabies virus. It has five main proteins Glycoprotein, Nucleoprotein, Matrix protein, Phosphoprotein and Polymerase L protein. The study is aimed at analysis on rabies viral antigen using quantitative techniques such as Haemagglutination assay, rocket immune-electrophoresis and qualitatively by SDS-PAGE. Further, analysis of potency was done with SRID test. The results were validated using statistical methods and bioinformatics tools. The values of both experimental data and in-silico analysis revealed similar results in the Haemagglutinin test.

### Optimisation of Serum usage and different inactivating agents for the development of Vero Cell based Rabies Vaccine production

Priyadarsini B<sup>1</sup>, Arjun Kumar J<sup>2</sup>, Elango C<sup>3</sup>, Sruthi C<sup>4</sup>, Umasankari M<sup>5</sup>,  
<sup>1</sup>Periyar Maniammal University, Thanjavur  
<sup>2</sup>SNR Sons College (Autonomous), Coimbatore  
<sup>3</sup>Hindustan College of Arts & Science, Coimbatore  
<sup>4</sup>Bharathiar University, Coimbatore  
<sup>5</sup>Ayyanadar Jankiammal College (Autonomous), Sivakasi  
 Supervisor : Mrs. Chandra Charles, Assistant Research Officer

#### ABSTRACT:

Introduction: Serum is shown to have several essential functions in culture. Apart from being the source of nutrients, growth factors, hormones, etc it facilitates the attachment, aids in spreading cells, and provides protection against mechanical damage and shear forces. In this study, serum is optimized using different concentration to analyse the maximum yield of cell growth with minimum serum concentration. Cells were revived in growth media supplemented with 10% New Born Calf Serum initially, and was further passaged in media supplemented with 5% and 3% serum. The cells were then passaged in different serum concentration ranging from 1%, 1.5%, 2%, 2.5%, 3%, 3.5% and 4% The growth and yield were analysed. Inactivation was carried out using different chemicals like Ascorbic Acid, Hydrogen peroxide and Formaldehyde and physical agents like UV and thermal inactivation methods. They were observed under different temperature and time intervals and were tested and were tested in mice to check for effective inactivation. Out of the repeated passages done in different serum concentrations and analysis with various parameters, cells cultured in 1.5% of serum concentration proved to be more or less equal to the cells normally cultured in 3% serum containing media. Both the physical and chemical inactivating agents like Ascorbic acid, Hydrogen peroxide, Formaldehyde, UV radiation and thermal inactivation showed that they can be used for the inactivation instead of BPL. Reduced serum concentration in the culture would reduce the cost as well as reduce the burden of eliminating the serum proteins. Substituting other methods of inactivation other than BPL is the pursuit of finding safe, effective and inexpensive alternative inactivating agent.





## Development & Characterization of Nanoemulsion carrier for Rabies Viral Protein as a Nanovaccine

Ms. Archana, SNR Sons College (Autonomous), Coimbatore  
 Mr. M. Lalith Kumar, Adhiparasakthi College of Arts & Science (Autonomous), Kalavai  
 Mr. Ankit Kumar Gautam, Karunya University, Coimbatore  
 Mr. Kirubakaran, Bharathidasan University, Tiruchirapalli  
 Ms. Sharmila Dayana, Periyar Maniammal University, Thanjavur  
 Supervisor : Dr. S. Jagannathan, Assistant Research Officer

### ABSTRACT :

**Introduction :** India is highly endemic country for Rabies and tops the list regarding contribution of human deaths due to rabies in the world. 20,000 (or 2 per 100,000 population) human rabies deaths occur in India annually. To enhance the vaccination efficiency using with the nanoemulsion, to develop water in oil based nanoemulsion, and optimised the preparation and characterization. Purified rabies used to Nanoemulsified and analysis its entrapment.

**Materials and Methods :** Soybean oil was used as oil phase along with surfactant and co-surfactant and water as water phase, the nano droplet was prepared and reduced the size by homogenization. The Con 02/12 was characterized and prepare as a nanoemulsion (NE RV Ag) the antigenic value and protein content was tested by SRID, BCA and its size of the potential was analysed by ZETA sizer. The entrapment was also calculated. The Ioni interaction was confirmed by FTIR.

**Results and Discussion :** Out of 8 nanoemulsion the Ta5 was obtained within the limit, and the two nanodroplet was prepared (F1, F2) and the size, potential, conductivity was analysed and the sizes was within the nanorange. The Con 02/12 was characterized and the total protein was 103 ug/ml and the NIH potency was 4.99 IU/ml, that also confirmed with SRID. Further the RV Ag was entrapped with NE (F2), with various concentrations of NE and namely 1% NE RV Ag. 2% NE RV Ag. 4% NE RV Ag. and 8% NE RV Ag. The ionic interactions of the molecules was analysed by FTIR and cinfirmed the new peaks was obtained after nanoemulsion. The 4% NE RV Ag. formulation was hold higher encouraging results it reveals the optimal concentration.

**Interpretation :** In case of 1% NE RV Ag. the protein entrapment was more, as well as in the FTIR studies, the never single bondages was formed and it is a strong, it signify the stable ionic interaction. Also this would need further studies in the immunogenicity analysis in the suitable animal model with the regular routes along with the transdermal approach.

**Conclusion :** Promise to hold good scope for further research to get the more immune response with needle free immunobiologicals.

### Immunogenicity of analysis of Nano emulsified Rabies Viral Protein through transdermal delivery system in a suitable animal model.

Ms. J. Namitha, SNR Son's College (Autonomous), Coimbatore, Ms. P. Anamika, Periyar Mariammai University, Thanjavur, Ms. P. Kalavathy, Ayyanadar Janaki Ammal College (Autonomous), Sivakasi, Ms. S. Theporal, Periyar University, Salem, Mr. S. Purusothman, Hindustan College of Arts & Science, Coimbatore.



**ABSTRACT:**

**Introduction** : India is highly endemic country for rabies and tops the list regarding contribution of human deaths due to rabies in the world, 20,000 (or 2 per 100,000 population) human rabies deaths occur in India annually. To enhance the vaccination efficiency using with the nanoemulsified rabies viral protein and immunized in Guinea pig and assessed the immunogenicity.

**Materials & Methods** : Soybean oil based nanoemulsion was used as a carrier the Con 02/12 was characterized and prepare as a nanoemulsion (NE RV Ag), Carbopol 934 as chemical enhancer, Healthy guinea pig was used as animal model, The blood was collected and the immunogenicity was assessed by rocker Immunoelectrophoresis and RFFIT method.

**Results & Discussion** : The RV Ag was confirmed in the nanoemulsified rabies viral protein by entrapment and the 4% NE RV Ag as have more entrapment when compare with others in case of the SDS PAGE was have tiny single band was found at 66 KDa, the diameter of nanoemulsion was 125.5 and the PDI was 0.258.

**Interpretation** : The immunogenicity of the Transdermal routes on 14<sup>th</sup> and 21<sup>st</sup> day was found in rocket immunoelectrophoresis 210 and 270 IU/ml it reveals the immunogenicity, in case of RFFIT the all nanoemulsified immune response was less than 0.5, it meager amount was responded. It needs the further studies in the quantum of antigen prior to immunization with other animal model.

**Conclusion** : Promise to hold scope with further research to get more immune response with needle free immunobiologicals.

### **Study of Toxicity, Adjuvanticity and Potency of three strain combination whole cell pertussis vaccine**

Umamaheswari A<sup>1</sup>, Sridharan S<sup>2</sup>, Nagaindhu G N<sup>3</sup>, Abdul Nasir NA<sup>4</sup> and Sangeetha S<sup>5</sup>

<sup>1</sup>Periyar Maniammai University, Vallam

<sup>2</sup>S.N.R. Sons College, Coimbatore

<sup>3</sup>St. Michael College of Engineering and Technology, Kalayarkovil, Sivagangai

<sup>4</sup>V.M.K.V. Engineering College, Salem

<sup>5</sup>Jeppiaar Engineering College, Chennai

Supervisor: Dr. K.C. Shivanandappa, Research Officer

**ABSTRACT:**

In the present study the attempts has been made for the assessment of toxic activity, adsorption ability of DPT formulated vaccine with use of AlPO<sub>4</sub> gel and estimation of potency of three strain wCPV, employed in-vitro and in-vivo tests were found to be higher adsorption rate for Diphtheria & Tetanus components and no adsorption in Pertussis component. The effect pH study showed the optimal pH of AlPO<sub>4</sub> was found to be 6 is shown higher the adsorption rate of D&T component further adsorption study is evaluated by FTIR test. In the toxicity assessment study method such as MWGT, LPF, HSF tests were also shown good weight gain of laboratory mice, increased the WBC count and higher sensitivity of mice to the histamine challenge respectively. And the antigen antibody reaction were estimated by ELISA test shown increased antibody levels in Guinea pig antiserum continuously on 14<sup>th</sup>, 21<sup>st</sup> and 28<sup>th</sup> day. In the final estimated potency of three strain combination vaccine was found to be 7.12 IU/ml.



## Study of Toxicity, Adjuvanticity and Potency of two strain combination whole cell pertussis vaccine

S Swathi<sup>1</sup>, P Pavithra<sup>2</sup>, P Padmaja<sup>3</sup>, R Ranjana<sup>4</sup> and J Jackline<sup>5</sup>

<sup>1,2,3</sup>Vivekanandha College of Engineering for Women, Tiruchengode

<sup>4</sup>Maharani's Science College for Women, Mysuru

<sup>5</sup>PSG College for Arts and Science, Coimbatore

Supervisor: Dr. K.C. Shivanandappa, Research Officer

### ABSTRACT:

In the present study the attempts has been made for the assessment of toxic activity, adsorption ability of DPT formulated vaccine with use of  $AlPO_4$  gel and estimation of potency of three strain wCPV, employed in-vitro and in-vivo tests were found to be higher adsorption rate for Diphtheria & Tetanus components and no adsorption in Pertussis component. The effect pH study showed the optimal pH of  $AlPO_4$  was found to be 6 is shown higher the adsorption rate of D&T component further adsorption study is evaluated by FTIR test. In the toxicity assessment study method such as MWGT, LPF, HSF tests were also shown good weight gain of laboratory mice, increased the WBC count and higher sensitivity of mice to the histamine challenge respectively. And the antigen antibody reaction were estimated by ELISA test shown increased antibody levels in Guinea pig antiserum continuously on 14<sup>th</sup>, 21<sup>st</sup> and 28<sup>th</sup> day. In the final estimated potency of three strain combination vaccine was found to be 6.68 IU/ml.



## List of students registered (full-time) for Ph.D. programme under Bharathiar University, Coimbatore

Sl. No.	Name of the Candidate	Title of the Ph.D. thesis	Superviosr/Guide
1.	Shri T. I. Navinraj	A pilot scale <i>Haemophilus Influenzae</i> Type b vaccine	Dr. A. Premkumar
2.	Smt. K. Suganya	A pilot scale <i>Helicobacter pylori</i> whole cell vaccine	Dr. A. Premkumar
3.	Smt. S. Bhavani Priya	A pilot scale <i>Staphylococcus aureus</i> whole cell vaccine	Dr. A. Premkumar
4.	Ms. S. Preethi	Construction of Recombinant Diphtheria toxin	Dr. B. Sekar

## Staff (Part-time) registered for Ph.D. programme under Bharathiar University, Coimbatore

Sl. No.	Name of the Candidate	Title of the Ph.D. thesis	Supervisor/Guide
1.	Dr. Anjan Jyoti Nath	Evaluation of quality attributes of Rabies vaccines commercially available in India	Dr. K.R. Mani
2.	Shri T. Sekar	Bioreactor based Rabies vaccine preparation	Dr. A. Premkumar
3.	Shri G. Chandramohan	Recombinant Rabies vaccine	Dr. A. Premkumar
4.	Shri V. Raja Karthikeyan	Increased production of tetanus toxin	Dr. N. Sivananda
5.	Shri B. Karthick	Chimeric fusion of <i>Bordetella pertussis</i> antigens	Dr. B. Sekar
6.	Shri R. Mohan		Dr. N. Sivananda
7.	Smt. T. Lalitha		Dr. N. Sivananda
8.	Shri B. Annamalai		Dr. B. Sekar



**Meetings attended / conducted by Dr.B.Sekar, Director during 2016-2017**

1.	<b><u>April - 16</u></b> 08/04/16	Visited National Informatics Centre, Chennai for discussion on Web based monitoring system.
2.	12/04/16	Conducted 6 <sup>th</sup> Local Monitoring Committee Meeting.
3.	13/04/16	Review Meeting on Rabies Free Nilgiris at Ooty by Department of Public Health at Tamil Nadu.
4.	15/04/16	Department of Explosive, Sasthri Bhavan, Chennai. and obtained preliminary approval for HSD Tank installation at Pasteur Institute of India, Coonoor.
5.	<b><u>May - 16</u></b> 12/05/16	Meeting on Supply of D.P.T. components from PIIC & CRI for IVC at M/s. HLL Office with Dr. Inder Parkash DDG (PH) and Dr. Tahlan Director CRI
6.	18/05/16	Project Review Meeting chaired by Joint Secretary (Daritri Panda) at Nirman Bhavan, New Delhi
7.	19/05/16	Review Meeting chaired by Secretary (H) at Nirman Bhavan, New Delhi
8.	<b><u>June-16</u></b> 01/06/16	Attended Factory Acceptance Test programme at M/s. Machine Fabricate at Mumbai
9.	17/06/16	Inaugurated seminar on Anti Microbial Agents relooked at Ramalinga College of Pharmacy, Coimbatore
10.	16&18/06/16	Facilitated the inspection of Joint Secretary (Daritri Panda) at Press Colony, Coimbatore and inspection of GMP facility at Pasteur Institute of India, Coonoor.
11.	09&10/07/16	National Conference Association for Prevention and Control of Rabies Free India (APCRI) Attended APCRICON at NIMHANS and presented invited speech on Rabies free Nilgiris - situation and opportunities.
12.	14&15/07/16	Meeting on RTI on line portal at Nirman Bhavan, New Delhi
13.	16/07/16	M/s.HLL Office, Chennai to discuss on observation of Factory Acceptance Test Programme conducted by TSA, Mumbai
14.	<b><u>August-16</u></b> 22/08/16	Conducted meeting BPCL, HLL regarding fabrication of HSD Tank at Pasteur Institute of India, Coonoor.



**Meetings attended / conducted by Dr.B.Sekar, Director during 2016-2017**

15.	31/08/16 & <b>Sept. - 16</b> 01/09/16	SFC meeting at Nirman Bhavan, New Delhi under the Chairmanship of Shri K.B. Agarwall Additional Secretary.
16.	02/09/16	Factory Acceptance Test programme for fabricated vessels at M/s. Praj factory, Mumbai
17.	12/09/16	Governing Body Meeting at Nirman Bhavan, New Delhi under the Chairmanship of Secretary (Health)
18.	16/09/16	Meeting at M/s. HLL, Chennai to discuss on PQ validation time line with Dr. B. Sundaran, Assistant Director
19.	21/09/16	Review meeting under the Chairmanship of Joint Secretary (Shri Lav Agarwal) at Nirman Bhavan, New Delhi
20.	28/09/16	Organised Rabies Awareness Rally in commemoration of World Rabies Day at Pasteur Institute of India, Coonoor
21.	<b>Oct. - 16</b> 04/10/16	To discuss the issues raised in the CDSCO meeting held at FA Bhaavan, New Delhi., at SII Pune
22.	05/10/16	Went NIV, Pune met Dr. Maurya Director and discussed on the possibilities collaboration works.
23.	12/10/16 13/10/16	Had discussion at M/s. Indian Immunological Pvt Ltd., and M/s. Biological E. regarding the possibility of supply Hib & Hep-B components to Pasteur Institute of India, Coonoor Met Dr. L.R. Sood at Hyderabad and had discussion on the plan for Pentavalent vaccine preparation at Pasteur Institute of India, Coonoor
24.	14/10/16	SII, Pune had discussion with Dr. Jadhav regarding the possibility of supply of Hib & Hep-B components to Pasteur Institute of India, Coonoor
25.	<b>Nov. - 16</b> 02/11/16	Facilitated visit of Dr. L.R. Sood to inspect Measles Lab for upgradation for lab scale preparation of Pentavalent vaccine
26.	24/11/16	Discussed with Joint Secretary (Lav Agarwal) on Pentavalent Vaccine proposal and the timeline of GMP project proposal by M/s. HLL
27.	28/11/16	Meeting called by Joint Secretary (Lav Agarwal) to review the status of progress of GMP project and the Time lines proposal by M/s.HLL
28.	30/11/16	Visited Office of the Joint Director / Registered Director of Staff Selection Committee, Chennai discussed on them modalities of on-line examination for recruitment

To strive to seek to find and not to yield



**Meetings attended / conducted by Dr.B.Sekar, Director during 2016-2017**

29.	<b><u>Dec.-16</u></b> 14/12/2016	Met Dr. Mannivannan DDC/CDSCO, Chennai and discussed on renewal of our production Licence and post approval change procedure for the GMP Project. Went to office of the Advocate Ramesh and Discussed on the pending cases.
30.	19/12/16	General Body meeting of National Institute of Biological as a member under the chairmanship of Secretary (Health) at Nirman Bhawan, New Delhi.
31.	20/12/16	Meeting of Sub Committee for Zoonotic Diseases as a member organized by NCDC, Delhi chaired by DGHS. Met Joint Secretary (Lav Agarwal) appraisal on action taken a Pentavalent Vaccine Proposed Met Joint Secretary (SK Raam) MoUD to know about the status of our request of transfer of land from Govt. of India Press, Press colony, Coimbatore
32.	27/12/16	Factory Acceptance Test programme at M/s. Pharmaplan, Ahmedabad for PSG and WFI plants.
33.	28/12/16	Factory Acceptance Test Programme at M/s. Praj, Mumbai for CIP/SIP vessels.
34.	<b><u>Jan. – 17</u></b> 01, 02 & 04/01/17	Facilitated visit of Secretary (Health) to Pasteur Institute of India for inspection of GMP facility and existing labs.
35.	05/01/17	Went to District Collector Office and discussed on permission for soil disposal.
36.	06/01/17	Conducted LMC meeting at Coonoor with M/s. HLL and Dr. Manivannan, DDC/CDSCO, Chennai attended as special invitee
37.	09/01/17	Kick off meeting for lab equipments at HLL, Chennai.
38.	18/01/17	Went to Office of the Drug Controller General of India, Delhi met Drugs Controller General (India) and discussed on Pentavalent Vaccine project its GMP requirements
39.	27/01/17	Went Office of the Manager, Government of India Press, Coimbatore met Manager and Assistant Engineer, CPWD to arrear the amenities to be created for Government of India, Press Went to Kumaraguru College of Technology, Coimbatore and met Dr. Stephen and discussed on Ph.D. Scholar's Bioinformatics work.

To strive to seek to find and not to yield



**Meetings attended / conducted by Dr.B.Sekar, Director during 2016-2017**

40.	<b><u>Feb. – 17</u></b> 14/02/17	Pre-bid meeting for clean room equipments at M/s. HLL.
41.	24/02/17	Facilitated the visit of Mrs. S.K. Ram, Joint Secretary (MoUD) for inspecting on GMP facility and our existing lab.
42.	<b><u>Mar. 17</u></b> 17/03/17	Factory Acceptance Test Programme at M/s Praj Hi-purity Systems, Mumbai for fabrication vessels
43.	25/03/17	Conducted IAEC meeting with Main Nominee Dr. Gnanapoongothai and other members of CPCSEA





**PASTEUR INSTITUTE OF INDIA, COONOOR – 643 103**  
**List of Officials of this Institute deputed to various places from 01.04.2016**

S/No	Name	Designation	Subject	Place/Organization	Date		Particulars
					From	To	
1.	Mrs. Shanthi Mani Shri. T. Sekar Dr. K.C. Shivanandappa Shri B. Iyer Shri K. Devaraj	Research Officer Senior Research Assistant Assistant Research Officer Technical Assistant Technical Assistant	Re- FAT	Chennai	15-04-2016	16-04-2016	-
2.	Dr. B. Sundaran	Assistant Director	Re- FAT	Chennai	15-04-2016	16-04-2016	Re-FAT on seed Fermentor package at HLL.
3.	Dr. B. Sundaran Mrs. Shanthi Mani Dr. K.C. Shivanandappa Shri. T. Sekar Shri B. Iyer Shri K. Devaraj	Assistant Director Research Officer Assistant Research Officer Senior Research Assistant Technical Assistant Technical Assistant	Re- FAT	Chennai	15-04-2016	16-04-2016	Re-FAT meeting.
4.	Dr. A. Premkumar	Research Officer	Board of Study meeting	Bharathiar University, Coimbatore	11-05-2016	-	On Research Innovation for quality improvement in higher education
5.	Dr. B. Sundaran	Assistant Director	Meeting	HBL, Chennai	11-05-2016	13-05-2016	Attending meeting at HBL, Chennai
6.	Dr. B. Sundaran	Assistant Director	Meeting	Chennai	12-05-2016	-	HBL Corporate Office, Chennai
7.	Dr. B. Sundaran	Assistant Director	Meeting	New Delhi	18-05-2016	20-05-2016	Attending meeting on Performance Review of Vaccine Units
8.	Shri V. Manoharan Shri V. Rajakarthikeyan Shri T. Sekar Shri M.E. Sridharan	Assistant Technical Officer Research Assistant Senior Research Assistant Maintenance Technician	FAT	Machine Fabrik, Mumbai	30-05-2016	01-06-2016	Lot of the sterilization package
9.	Dr. B. Sundaran	Assistant Director	FAT programme	Chennai/Mumbai	01-06-2016	02-06-2016	FAT Programme on Sterilization package final lot
10.	Mrs Savithri Sundaran Mrs. Shanthi Mani Shri R. Mohan Dr. K.C. Shivanandappa Mrs. T. Lalitha Shri B. Annamalai	Research Officer Research Officer Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer	Visit	Chennai	02-06-2016	03-06-2016	Visit BCGVL & IVC at Chennai
11.	Dr. K.C. Shivanandappa Shri. T. Sekar Shri T.G. Irudayaraj Shri Alexander Joseph	Assistant Research Officer Senior Research Assistant Foreman Maintenance Technician	Official Work	Mumbai	20-04-2016	24-04-2016	TSA Process Equipments Pvt., Ltd.,.
12.	Dr. B. Sundaran	Assistant Director	FAT programme	Bologna, Italy	22-06-2016	05-07-2016	Factory Acceptance Test Programme for the filling machine

S/No	Name	Designation	Subject	Place/Organization	Date		Particulars
					From	To	
13.	Dr. B. Sundaran	Assistant Director	Training	Chennai/Mumbai	14-07-2016	16-07-2016	Attending training on RTI request & Appeal Management Information System(RTIMIS)
14.	Shri R. Mohan	Research Officer	Inspection	Rorkee, Uttarakand	21-07-2016	22-07-2016	To attend Inspection of animal cages & tracks
15.	Dr. N. Shivananda Shri T. Sekar	Assistant Research Officer Senior Research Assistant	FAT	Umbergaon, Valsad, Gujrat	21-07-2016	22-07-2016	To attend FAT Programme for Walk-in Incubator
16.	Dr. B. Sundaran B. Annamalai	Assistant Director Assistant Research Office	Pre-bid meeting	Chennai	10-08-2016		HBL, Biotech Limited to attend pre-bid meeting on packing equipment
17.	Shri G. Chandramohan Shri B. Karthick	Senior Research Assistant Upper Division Clerk	Training	Coimbatore	17-08-2016	19-08-2016	To attend Hands on Training Bioprospecting Instrumentation methods and Phytochemical analysis.
18.	Mrs Savithri Sundaran Mrs. Shanthi Mani Shri R. Mohan Dr. K.C. Shivanandappa Mrs. T. Lalitha Shri B. Annamalai Dr. N. Sivananda Shri T. Sekar	Research Officer Research Officer Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer Senior Research Assistant.	Training	Trivandrum	22-08-2016	27-08-2016	To attend GMP Training Workshop Part I & Part 2
19.	Mrs. Shanthi Mani Shri R. Mohan Dr. K.C. Shivanandappa Mrs. T. Lalitha Shri B. Annamalai Shri T. Sekar	Research Officer Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer Senior Research Assistant	FAT programme	Mumbai	30-08-2016	02-09-2016	To attend fabrication Equipment Package software FAT& FAT
20.	Shri A. Vairamoorthy	Admin Officer	SFC meeting	Delhi/ Mumbai	30-08-2016	03-09-2016	To attend Standing Finance committee Meeting.
21.	Dr. B. Sundaran	Assistant Director	FAT programme	Mumbai	02-09-2016	03-09-2016	To attend fabrication Equipment Package software FAT& FAT
22.	Dr. B. Sundaran	Assistant Director	GB meeting	Chennai/Delhi	11-09-2016	13-09-2016	To attend Governing Body meeting
23.	Shri A. Vairamoorthy	Admin Officer	GB meeting	Delhi/ Mumbai	11-09-2016	13-09-2016	To attend Governing Body meeting
24.	Dr. B. Sundaran	Assistant Director	Preliminary discussion	Chennai	16-09-2016		To attend preliminary discussion on validation of building & utility services
25.	Mrs. Shanthi Mani Shri R. Mohan Dr. K.C. Shivanandappa Shri. Mohandas Shri K. Moorthy Shri B.H. Bellie	Research Officer Research Officer Assistant Research Officer Eng(Mech). Assistant Technical Officer Senior Technical Assistant	FAT programme	Mumbai	20-09-2016	24-09-2016	To attend fabrication Equipment Package software FAT& FAT

S/No	Name	Designation	Subject	Place/Organization	Date		Particulars
					From	To	
26.	Dr. B. Sundaran	Assistant Director	Interview	Chennai	22-09-2016	-	To attend Interview in the capacity of a member of the selection committee at BCG Vaccine Laboratory.
27.	Shri R. Mohan	Research Officer	meeting	Delhi	26-09-2016	-	To attend the meeting of vaccine manufacturers to discuss upon forthcoming NRA assessment and its tools.
28.	Shri A. Vairamoorthy	Admin Officer	Review meeting	Delhi	03-10-2016	04-10-2016	To attend the Review meeting on HR issues of Vaccine Institute.
29.	Dr. B. Sundaran	Deputy Director	meeting	Pune	04-10-2016	-	To discuss the issues raised in the CDSCO meeting held at FA Bhaavan, New Delhi.
30.	Dr. B. Sundaran	Deputy Director	meeting	Hyderabad/Pune/New Delhi	12-10-2016	15-10-2016	To discuss on outsourcing of Hib, Hep-B components.
31.	Dr. N. Sivananda Shri. T. Sekar Shri G. Chandramohan Shri T.G. Irudayaraj Shri Mohandas Shri Ashok Kumar	Assistant Research Officer Senior Research Assistant Senior Research Assistant Foreman Engineer (Mech) Engineer (EEE).	FAT programme	Palghar, Mumbai	18-10-2016	22-10-2016	To attend FAT program for Microbiology.
32.	Dr. A Premkumar Mrs. Chandra Charles Dr. S. Jaganathan	Research Officer Assistant Research Officer Assistant Research Officer	Training	Sanghavi, Mumbai	22-10-2016	24-10-2016	Hands on training in Chromatography.
33.	Dr. B. Sundaran	Deputy Director	Training	Sanghavi, Mumbai	24-10-2016	-	To observe Hands on training in Chromatography
34.	Shri A. Vairamoorthy Shri L. Nanjappa	Admin Officer Office Superintendent	Official Works	Mysore	10-11-2016	-	To All India Institute of Speech and Hearing.
35.	Mrs. Shanthy Mani	Research Officer	Official Work	Mumbai	22-12-2016	24-12-2016	To attend fabrication Equipment Lot-2
36.	Shri R. Mohan Shri B. Annamalai Shri M. Subramani	Research Officer Assistant Research Officer Senior Technical Assistant	FAT programme	Mumbai	30-08-2016	02-09-2016	To attend fabrication Equipment Lot-2
37.	Shri T.G. Irudayaraj Shri V. Ravi Shri Mohandas Shri Ashok Kumar	Foreman Maint. Supervisor Eng(Mech) Eng(EEE).	FAT programme	Palghar, Mumbai	05-12-2016	10-12-2016	To attend FAT program on Fabrication Equipment Lot-2
38.	Dr. A Premkumar Dr. S. Jaganathan	Research Officer Assistant Research Officer	Seminar	Tiruchirappalli	15-12-2016	-	To participate in Rabies Seminar
39.	Mrs. T. Lalitha Shri T. Sekar Shri V. Rajakarthikeyan Shri B.H. Bellie	Assistant Research Officer Senior Research Assistant Research Assistant Senior Technical Assistant	FAT programme	Trivandrum	22-12-2016	31-12-2016	To attend FAT program on Fabrication Equipment Lot-2
40.	Shri T. Sekar	Senior Research Assistant	FAT programme	Bangalore	02-12-2016	03-12-2016	To attend FAT program on Garments Washing Machine

S/No	Name	Designation	Subject	Place/Organization	Date		Particulars
					From	To	
41.	Shri A. Vairamoorthy	Admin. Officer	Meeting	New Delhi	06-12-2016	07-12-2016	To attend the meeting regarding the Implementation of Roof top Solar PV Project
42.	Dr. B. Sundaran	Deputy Director	Meeting	Chennai	13-12-2016	-	To attend a meeting at O/o Deputy Drugs controller, Chennai
43.	Dr. K.C. Shivanandappa Dr. N. Sivananda Shri Sridharan	Assistant Research Officer Assistant Research Officer Maintenance Technician	FAT programme	Gujarat	23-12-2016	28-12-2016	To attend Factory Acceptance Test for PSG and WFI at Gandhinagar.
44.	Shri T. Sekar	Senior Research Asst	FAT programme	Gujarat	23-12-2016	28-12-2016	To attend Factory Acceptance Test for PSG and WFI at Gandhinagar.
45.	Shri R. Mohan	Research Officer	FAT programme	Mumbai	26-12-2016	29-12-2016	To attend FAT programme on Fabrication Equipment Lot-2.
46.	Dr. B. Sundaran	Deputy Director	Official Work	Ahmadabad/ Mumbai	27-12-2016	29-12-2016	To attend FAT programmes.
47.	Shri R. Mohan	Research Officer	Official Work	New Delhi	10-01-2017	-	To attend the meeting on Online portal for their routine activities.
48.	Shri A. Vairamoorthy Shri P. Sasikumar	Admin Officer Sr. P.A. to Director	Conference	Pondicherry	09-01-20017	11-01-2017	To attend National Official Language Conference at JIPMER.
49.	Dr. B. Sundaran Dr. K.C. Shivanandappa Mrs T. Lalitha Shri B. Annamalai Dr. N. Sivananda	Deputy Director Assistant Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer	Kick off meeting	Chennai	09-01-2017	-	To attend the Kick off meeting for Lab Equipment at HLL, Biotech Limited.
50.	Shri A. Vairamoorthy Shri Y.D. Praveen,	Admin Officer U.D.C.	Training	Chennai	11-01-2017	12-01-2017	To attend Public Financial Management System.
51.	Shri R. Mohan Dr. K.C. Shivanandappa Mrs T. Lalitha Shri B. Annamalai Dr. N. Sivananda	Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer	Pre-bid meeting	Chennai	19-01-2017	20-01-2017	To participate in SS Furniture Tender Pre-Bid Meeting.
52.	Shri K. Murthy	Assistant Technical Officer	Pre-bid meeting	Chennai	19-01-2017	20-01-2017	To participate in SS Furniture Tender Pre-Bid Meeting.
53.	Dr. B. Sundaran Dr. K.C. Shivanandappa Mrs T. Lalitha Shri B. Annamalai Dr. N. Sivananda	Deputy Director Assistant Research Officer Assistant Research Officer Assistant Research Officer Assistant Research Officer	Pre-bid meeting	Chennai	14-02-2017	-	To participate Pre-bid meeting for clean room equipment .
54.	Shri R. Mohan Dr. K.C. Shivanandappa Shri Ashok Kumar Shri M.E. Sridharan	Research Officer Assistant Research Officer Engg.(Elect) Maintenance Technician	FAT programme	Mumbai	14-03-2017	17-03-2017	To participate in FAT Program for Bio Waste Inactivation System schedule.
55.	Dr. B. Sundaran	Deputy Director	FAT programme	Mumbai	17-03-2017	-	To attend FAT programmes on Biowaste Inactivation system.