



DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology



National Institutes of Health
Turning Discovery Into Health

Regional Prospective Observational Research for Tuberculosis (RePORT) India Consortium

6th Annual RePORT India Consortium Joint Leadership Meeting

“SYNERGIES TO COMBAT TB”

Feb 2-4, 2017

Hotel Marriott, Hyderabad, India

Hosted by



LEPRA Society



MEETING AGENDA

6th Annual Joint Leadership Meeting
RePORT INDIA CONSORTIUM
SYNERGIES TO COMBAT TB
 HYDERABAD, INDIA | FEBRUARY 2–4, 2017

DAY 1 | FEBRUARY 2, 2017 | SAPPHIRE HALL | COURTYARD MARRIOTT

Scientific Talks: Vijaya Valluri & Krishna Vankayalapati, Moderators		
9:00–9:20 AM	Welcome:	Vijaya Valluri / Krishna Vankayalapati
	Lamp Lighting Ceremony	TS Rao/Rajesh Kapur/Jyoti Logani/ /Gray Handley/Sudha / Soumya Swaminathan/Nandita Chopra/Indira Nath/Motilal Bhagat/PP Reddy, Others
9:20–9:40 AM	Sponsor Welcome	Jyoti Logani: DBT/ Soumya Swaminathan, Manjula Singh: ICMR/ Gray Handley, Sudha Srinivasan, NIH
9:40–9:50 AM	Overview of Mahavir Hospital & Research Centre	Susheel Kapadia/Sumanlatha
9:50–9:55 AM	RePORT Chair Welcome	Amita Gupta and DJ Christopher
9:55–10:25 AM	The Indian TB Research Consortium	Soumya Swaminathan, ICMR Director General
10:25–10:45 AM: BREAK FOR TEA & GROUP PHOTO		
10:45–11:15 AM	State of the RePORT India Consortium	Amita Gupta
11:15–11:45 AM	Human Immune Response/TBD	Daniel Hoft: St Louis University
11:45 AM–12:15 PM	CRISPR/Cas9 Technology for Novel Targets in Mycobacteria	Indira Nath: Indian National Science Academy
12:15–12:35 PM	Targeting Topology Modulators to Counter Resurgent Mtb	Nagaraja Valakunja, President: Jawaharlal Nehru Centre for Advanced Scientific Research
12:35–1:45 PM: BREAK FOR LUNCH & SPONSOR MEETING (CLOSED) <i>Topaz, Courtyard Marriott</i>		
Consortium Updates: Padmapriyadarsini C & Vijay Viswanathan, Moderators		
1:45–3:45 PM	Cohort Research Unit Updates <i>20 minute update from each unit</i>	BJGMC & NIRT; JIPMER; MVDRC; CMC LEPRA; Hinduja
3:15–3:45: TEA AVAILABLE		
3:45–5: 00 PM	Executive Committee	EC Only
	Common Protocol Data Management Training	SAS-CHRD
5:30–7:30 PM	PI Meeting with ICMR Leadership, DBT/NIH re ITRC and Vaccine Studies <i>Closed meeting (PI or designate and sponsors) followed by dinner</i>	
Group Outing to Golconda Fort <i>for those not attending PI-Leadership meeting</i>		
5:00 PM	Bus Departs Hotel for Golconda Fort	
6:30 PM	Arrives Golconda Fort for Light and Sound Program	
7:30 PM	Departs Golconda Fort for Hotel	
9:00 PM	Arrive at Hotel; Dinner on Own	

DAY 2 | FEBRUARY 3, 2017 | TURQUIOSE HALL | COURTYARD MARRIOTT

Scientific Discussions: DJ Christopher & Lalita Ramakrishnan, Moderators

8:00–8:15 AM	Welcome and Goals for the Day	Vijaya Valluri/ LEPRA CEO (TBD) Mahavir Research Director (TBD)
8:15–10:15 AM	Working Group Discussions <i>In Turquoise, Jade, Opal, & Amber Halls</i>	Clinical Epidemiology Basic Science Data Management Other Working Groups in breakout rooms

10:15–10:30 AM: BREAK FOR TEA

**Scientific Discussions: TB Vaccines Part II and Diagnostics
Roxana Rustomjee & Jyoti Logani, Moderators**

10:30–11:00 AM	TB Vaccine Session 1: ID93 Therapeutic Vaccine Concept Discussion	Jerry Ellner Rupak Shivakoti Rhea Coler
11:00–11:30 AM	TB Vaccine Session 2: VPM1002 Prevention of Recurrence Update	Vidya Mave Padmini Salgame VPM Serum, TBD
11:30–11:45 AM	Biomarkers of Human Immunity to TB	Jyothi Rengarajan, Emory University
11:45 AM–12:00 PM	Developing a TB Point-of care Diagnostic Using Quantitative Proteomics	Rushdy Ahmad, Broad Institute of MIT and Harvard

12:00–1:00 PM: BREAK FOR LUNCH

Scientific Discussions: Jerrold Ellner & Sonali Sarkar, Moderators

1:00–3:00 PM	Scientific Priorities & Discussions	Jerrold Ellner & Vijaya Valluri: Basic Science Hardy Kornfeld & Padma Chandrasekaran: Clinical Epidemiology Nishi Suryavanshi: Behavioral Science
3:00–3:15 PM	Multi-cohort Systems Biology Analysis of Mtb Infection	Purvesh Khatri: Stanford Institute for Immunity, Transplantation and Infection

3:15–3:30 PM: BREAK FOR TEA

3:30–5:15 PM	Omic Companies/Entities Talks and Discussion <i>Presentations are 20 minutes each, followed by a 25 minute discussion</i>	VL Ramprasad: Medgenome Akhilesh Pandey: IOB/JHU Nagesh: Sandor Life Sciences Brian Ingram Metabolon – (via WebEx at 4:30pm) Discussion
5:15–5:20 PM	Evening Plan Briefing	DJ Christopher

5:20–6:00 PM: REFRESHMENTS & YOUNG INVESTIGATOR POSTER SESSION

Jade Hall

6:00–8:00 PM: SPONSORED DINNER FOR ALL PARTICIPANTS

DAY 3 | FEBRUARY 4, 2017 | TURQUIOSE HALL | COURTYARD MARRIOTT

Operations Discussions: Elizabeth Hanna & Vidya Mave, Moderators		
8:00–8:15 AM	Welcome and Goals for the Day	Vijaya Valluri
8:15–8:30 AM	TST/QFT Comparison Sub-study	DJ Christopher & Andrea DeLuca
8:30–9:30 AM	Parent Protocol Data Harmonization	Nikhil Gupte Jane Pleskunas Vijay Kumar
9:30–10:30 AM	Parent Protocol and Common Protocol: The Future	Group Discussion
10:30–10:45 AM: BREAK FOR TEA		
10:45 AM–12:45 PM	Review of Recently Funded Studies from RePORT India and RICC <i>11 studies, 10 minutes each</i>	Natasha Hochberg Balamugesh Thangakunam Pavan Kumar Robert Horsburgh Prudhula Devalraju Lora Sabin Jerrold Ellner DJ Christopher Vidya Mave Hardy Kornfeld
12:45–1:45 PM: BREAK FOR LUNCH		
Working Group & Consortium Summaries: Gautum Roy & Hardy Kornfeld, Moderators		
1:45–3:00 PM	Working Group Session Summaries & Action Plans <i>5 Working Groups,</i> Ops, Basic Science, Clinical Epidemiology, Data Management, Chest Xray; 15 min each)	Shrivjay Kumar Padmini Salgame/ Krishna Vankayalapati Balamugesh Thangakunam/ Sonali Sarkar Amanda Fournier
3:00–3:30 PM	Other Consortium Updates	TBD
3:30–4:00 PM	Summary of Meeting & Action Items	Amita Gupta DJ Christopher Karthickeyan Duraisamy
4:00–4:15 PM	Closing Remarks	Vijaya Valluri Krishna Vankayalapati Sponsor Representatives
4:15–4:30 PM: END OF SESSION TEA		
4:30–5:30 PM: PI ONLY MEETING		

DAY 4 | FEBRUARY 5, 2017 | MAHAVIR HOSPITAL & RESEARCH CENTRE

Common Protocol v2.0 & Laboratory Refresher Training	
8:00 AM–4:00 PM	Closed meeting for RePORT India Consortium Investigators Only

RePORT India Consortium Overview

2013-2016

Background and Mission

RePORT India (Regional Prospective Observational Research for Tuberculosis (TB)) is a bilateral, multi-organizational, collaborative effort that was established in 2013 under the Indo-U.S. Vaccine Action Program (VAP) to address the threat of TB that affects the lives and well-being of people in India and across the globe and which poses an increased risk for persons living with HIV, or other immunocompromised conditions.

The purpose of the RePORT India Consortium is to 1) advance regional TB science in India, 2) strengthen TB research capacity and infrastructure, and 3) foster research collaboration within India and with other countries with an aim of carrying out a wide range of basic and clinical research that can lead to clinically important biomarkers, vaccines, drugs and diagnostics.

Cohort Research Units

RePORT India Consortium consists of five distinct TB Cohort Research Units (CRUs) at six Indian clinical sites located in Western and Southern India (see map). Each CRU is partnered with a U.S.- based Principal Investigator (PI) and an academic institution. The CRUs consist of one or more clinical sites where participants are enrolled and where data and samples are collected for research.

Common and Parent Protocols

The CRUs collaborate to address a wide array of scientific objectives and to implement a Common Protocol to establish an Indian biorepository of well-characterized and standardized specimens with associated clinical data for future TB research. The Common Protocol is anticipated to start February 2017. The Common Protocol has a central repository for specimen storage which is located at the National Institute of Research in Tuberculosis (NIRT) in Chennai, a statistical and data management center housed at the Society for Applied Studies (SAS)-Centre for Health Research and Development (CHRD) in New Delhi, India, and a US coordination and support center located at Westat in Rockville, MD.

Prior to commencing the Common Protocol, the CRUs began implementing site specific "Parent Protocols" with distinct research objectives as early as 2014. The Parent Protocols consist of either one or two prospective observational cohorts where specimens are collected: one with participants who have active pulmonary TB (Cohort A) and the second with participants who are household contacts (HHCs) to an active case of TB (Cohort B). Cohort A is focused on TB diagnosis and treatment outcomes. Cohort B is focused on risk of infection and TB disease after exposure. Each CRU is connected to one or more laboratories where samples are processed for storage and specified for both protocol and future testing. The CRUs house their Parent Protocol data and samples at their respective India-based institutions.

The Partnership, topic of study for each Parent Protocol, Indian PIs and respective CRU and US Principle Investigators and their institutions, cohorts recruited and type of active TB participant recruited within Cohort A are as follows:

1) BJGMC and NIRT and JHU

Topic of Study: Host and Microbial Factors Associated with Poor Treatment Response and Progression to Active TB

Indian PIs: Drs. Vidya Mave, and Deelip Kadam, Byramjee Jeejeebhoy Government Medical College (BJGMC), Pune, India and Dr. Padma Chandrasekaran, National Institute for Research in TB (NIRT), Chennai, India

US PIs: Dr. Amita Gupta, Johns Hopkins University, Baltimore, MD, USA

Cohorts: Cohort A (Adult Pulmonary TB, Pediatric TB, and Extrapulmonary TB) and Cohort B

2) JIPMER and BMC

Topic of Study: Biomarkers for Risk of TB and for TB Treatment Failure and Relapse

Indian PIs: Drs. Subhash Parija, Gautam Roy, and Sonali Sarkar, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India

US PIs: Dr. Jerrold Ellner, Boston Medical Center, USA

Cohorts: Cohort A (Adult Pulmonary TB and Pediatric TB) and Cohort B

3) MVDRC and UMass

Topic of Study: Effects of Diabetes and Prediabetes on TB Severity

Indian PIs: Dr. Vijay Viswanathan, MV Diabetes Research Centre (MVDRC), Chennai, India

US PIs: Dr. Hardy Kornfeld, University of Massachusetts Medical School, Boston, USA

Cohort Participation: Cohort A (Adult Pulmonary TB)

4) CMC, Vellore and U of Wash/U of Cambridge

Topic Study: Host Determinants in the Eicosanoid Pathway that Modulate the Inflammatory Response, Disease Outcome and Treatment responsiveness in TB

Indian PIs: Dr. D.J. Christopher, Christian Medical College (CMC), Vellore, India

US PIs: Dr. Lalitha Ramakrishnan, University of Washington/University of Cambridge, UK

Cohort Participation: Cohort A (Adult Pulmonary TB and TB Meningitis)

5) LEpra-BPHRC and Mahavir Hospital and U of Texas

Topic of Study: Immunologic Markers of Persons at Highest Risk of Progression of Latent TB Infection to TB

Indian PI: Dr. Vijaya Valluri, LEpra Society-Blue Peter Public Health and Research Centre (BPHRC), Hyderabad, India

US PIs: Dr. Krishna Vankayalapati, University of Texas Health Science Center, Tyler, TX, USA

Cohort Participation: Cohort B

Banked Specimens from Parent Protocols

As of December 2016, the CRU Parent Protocols have enrolled a total of 1717 Cohort A participants with 1577 in follow-up. Cohort A participants include: 1344 adult pulmonary TB (PTB), 99 Pediatric TB, 135 Extrapulmonary TB, and 139 TB Meningitis. Additionally, 2419 participants have been enrolled in Cohort B and 2282 are in follow-up. The Parent Protocols have also banked thousands of specimens thus far including plasma, whole blood, Mtb isolates, urine, hair, and sputum that will be used in current and future research studies. (See *Specimen Repository Tables*)

Additional Consortium-Wide Studies

1) TST Comparison Study

The consortium received funding to conduct a TST comparison study with PIs Dr. DJ Christopher and Andrea DeLuca, MHS. The study objective is to compare the performance of latent TB diagnostics PPD and QuantiFERON (QFT) among populations of interest, including children and immunocompromised adults. Study subjects will be recruited from four CRUs. The study is slated to begin early 2017, enroll 1700 participants, and take 18 months.

2) TB Vaccine Trial

The consortium is collaborating with Serum Institute of India Pvt. Ltd. (SIIPL) and VPM, Germany, on a multicenter phase III double-blind, randomized, placebo controlled study to evaluate the efficacy and safety of VPM1002, a new recombinant BCG vaccine, in the prevention of TB recurrence in HIV uninfected adults after successful pulmonary TB Treatment in India. The study estimates 12 months of accrual and 12 months of follow-up.

Executive Committee/Working Groups/Operations Support

The RePORT India Consortium's primary governance body is the Executive Committee whose mission is to set the research priorities of the consortium and guide its overall scientific activities, assist with the administrative and logistical issues and to ensure that the important areas of TB research are addressed and effectively coordinated. The consortium is currently

governed by Dr. Amita Gupta (US Chair), Dr. Hardy Kornfeld (US Co-Chair), Dr. D.J. Christopher (India Chair) and Dr. Vijaya Valluri (India Co-Chair). The Executive Committee meets monthly via teleconference. The consortium has several active working groups including: Operations, Basic Science, Clinical Epidemiology, Data Management, and Chest Radiograph. Consortium operations are facilitated by a full time RePORT India Coordinator located in India in Chennai and a US Secretariat which is located at Johns Hopkins University.

Funding

Funding of the consortium is jointly provided by the Government of India's (GOI) Department of Biotechnology (DBT), and the Indian Council of Medical Research (ICMR); and the U.S. National Institutes of Health's (NIH), National Institute of Allergy and Infectious Diseases (NIAID), Division of AIDS (DAIDS), and the NIH's Office of AIDS Research (OAR). CRDF Global administers and oversees the funding from the U.S. government. Supplemental funding through RePORT has been made available in 2017 and awarded to 10 projects (*See RFA Awardees Table*).

Meetings

The first meeting of the consortium occurred in August 2013 in Bethesda, Maryland hosted by the NIH. Subsequent meetings of the full consortium have occurred annually rotating between CRU locations in India and hosted by the PI of the respective CRU. The 6th annual RePORT India Joint Leadership Meeting is being held in Hyderabad, India from February 2-4, 2017 and hosted by Dr. Vijaya Valluri from LEPR-Blue Peter Research Society. The purpose of the meeting is to review relevant science and discuss consortium operations issues. The RePORT India consortium participated in the first annual RePORT International Consortium (described below) Conference in July 13-14, 2016 in Cape Town, South Africa.

RePORT International

The RePORT India consortium is also a member of RePORT International which is comprised of regional cohorts including RePORT Brazil, RePORT Indonesia, and RePORT South Africa. Additional cohorts in China and Philippines are expected. Each RePORT network is designed to support local, in-country specific data and specimen biorepositories, and associated research with the goal to add additional networks to encourage worldwide TB treatment and prevention research. Request for Applications for specific priorities like TB Diabetes, TB in children and pregnant women, diagnostics, and biomarkers are periodically released. RePORT International Meeting will hold its next annual meeting in Brazil in the fall of 2017.

RePORT India Publications (*See Publications Table*)

Planned Activities for 2017

- 6th Annual Joint Meeting in Hyderabad, India, Feb 2-4, 2017
- Competitive Funding Announcement from NIH and DBT for consortium site renewal, Feb 2017
- Common Protocol implementation in early 2017
- VPM 1002 TB Vaccine Trial implementation early 2017
- TST Comparison Study implementation early 2017
- Meeting with RePORT International in Brazil, Fall 2017
- Synergize with newly formed India TB Research Consortium (ITRC)

RePORT India Consortium Website

For further information: <http://reportcohort.com/>

6th Annual Joint Leadership Meeting
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Screening, Enrollment, and Follow up Report of Cohort A and B: Year 2014- 2016

Target Enrollment Sample Size for Cohort A and B

Cohort A	Sample Size
BJMC/NIRT	1000
CMC	400
JIPMER	1100
MVDRC	450
RePORT India	2950

Cohort B	Sample Size
JIPMER	1500
BJMC/NIRT	1400
LEPRA/MAH	1500
RePORT India	4400

Participant Enrollment and Follow up for Cohort A: Year 2014- 2016

Cohort A: % enrolled among screened

	Screened	Enrolled	% Enrolled
BJMC/NIRT	2587	698	27
CMC-PTB	53	53	100
CMC-TBM	138	106	77
JIPMER	1490	595	40
MVDRC	373	302	81
RePORT India	4641	1754	38

Cohort A: % on follow up among enrolled

	Enrolled	On follow-up	% On follow-up
BJMC/NIRT	698	652	93
CMC-PTB	53	43	81
CMC-TBM	106	83	78
JIPMER	595	554	93
MVDRC	302	245	81
RePORT India	1754	1577	90

Participant Enrollment and Follow up for Cohort B: Year 2014- 2016

Cohort B: % enrolled among screened

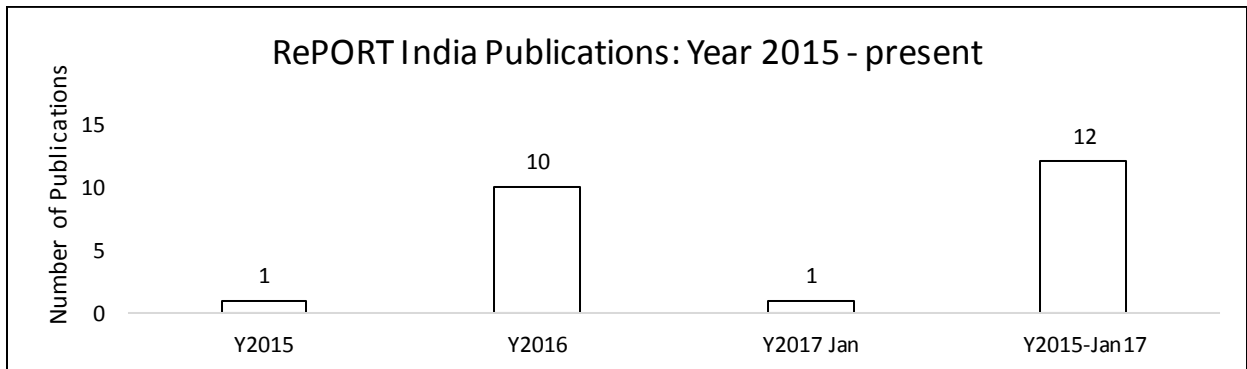
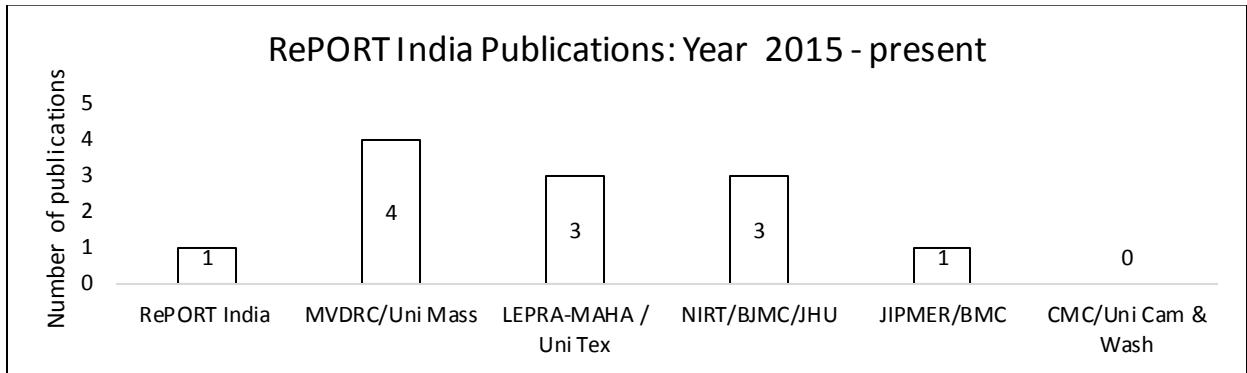
	Screened	Enrolled	% Enrolled
JIPMER	1327	878	66
BJMC/NIRT	1201	955	80
LEPRA/MAH	727	727	100
RePORT India	3255	2560	79

Cohort B: % on follow up among enrolled

	Enrolled	On follow-up	% On follow-up
JIPMER	878	867	99
BJMC/NIRT	955	879	92
LEPRA/MAH	727	536	74
RePORT India	2560	2282	89

6th Annual Joint Leadership Meeting
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SYNERGIES TO COMBAT TB
 HYDERABAD, INDIA | FEBRUARY 2-4, 2017

RePORT India Publications
Year 2015 - present



Entire RePORT India Consortium

RePORT International: Advancing Tuberculosis Biomarker Research Through Global Collaboration

Hamilton CD¹, Swaminathan S², Christopher DJ³, Ellner J⁴, Gupta A⁵, Sterling TR⁶, Rolla V⁷, Srinivasan S⁸, Karyana M⁹, Siddiqui S¹⁰, Stoszek SK¹¹, Kim P⁸.

1. Scientific Affairs, Global Health, Population and Nutrition, FHI 360 Department of Medicine, Division of Infectious Diseases, Duke University School of Medicine, Durham, North Carolina. 2. Department of Clinical Research, National Institute for Research in Tuberculosis, Chennai and Pune. 3. Pulmonary Medicine, Christian Medical College, Vellore, India. 4. School of Medicine, Boston University, Massachusetts. 5. School of Medicine, Johns Hopkins University, Baltimore, Maryland. 6. Department of Medicine, Division of Infectious Diseases, Vanderbilt University School of Medicine, Nashville, Tennessee. 7. National

Institute of Infectious Diseases Evandro Chagas-Fiocruz, Rio de Janeiro, Brazil. 8. Division of AIDS, National Institute of Allergy and Infectious Diseases, National Institutes of Health. 9. Collaborative Clinical Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health. The National Institute of Research and Development, Indonesia Ministry of Health, Jakarta, Indonesia. 10. Collaborative Clinical Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health. 11. Health Studies Sector, Westat, Rockville, Maryland.

Journal: Clinical Infectious Diseases (CID). 2015 October 15; 61(Suppl 3): S155–S159

PubMed: <http://www.ncbi.nlm.nih.gov/pubmed/26409277>

MV Diabetes Research Centre/University of Massachusetts

Effect of standard tuberculosis treatment on naive, memory and regulatory T-cell homeostasis in tuberculosis-diabetes co-morbidity

Kumar NP¹, Moideen K¹, Viswanathan V², Kornfeld H³, Babu S^{1,4}.

1. National Institutes of Health - NIRT - International Centre for Excellence in Research, Chennai, India. 2. Prof. M. Viswanathan Diabetes Research Centre, Chennai, India. 3. University of Massachusetts Medical School, Worcester, MA, USA. 4. Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, NIH, Bethesda, MD, USA

Journal: Immunology. 2016 Sep;149(1):87-97. doi: 10.1111/imm.12632. Epub 2016 Jul 26.

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27289086>

High Prevalence and Heterogeneity of Diabetes in Patients with TB in South India: A Report from the Effects of Diabetes on Tuberculosis Severity (EDOTS) Study

Kornfeld H¹, West K², Kane K², Kumpatla S³, Zacharias RR², Martinez-Balzano C², Li W², Viswanathan V³.

1. University of Massachusetts Medical School, Worcester, Massachusetts. Electronic address: Hardy.Kornfeld@umassmed.edu. 2. University of Massachusetts Medical School, Worcester, Massachusetts. 3. Prof. M. Viswanathan Diabetes Research Center, Royapuram, India

Journal: Chest: Volume 149, Issue 6, June 2016, Pages 1501–1508.

PubMed: <http://www.ncbi.nlm.nih.gov/pubmed/26973015>

Modulation of dendritic cell and monocyte subsets in tuberculosis- diabetes co-morbidity upon standard tuberculosis treatment

Nathella Pavan Kumar ^{a,*}, Kadar Moideen ^a, Shanmugam Sivakumar ^c, Pradeep A. Menon ^c, Vijay Viswanathan ^b, Hardy Kornfeld ^d, Subash Babu ^{a,e}

^a National Institutes of Health NIRT International Center for Excellence in Research, Chennai, India ^b Prof. M. Viswanathan Diabetes Research Center, Chennai, India ^c National Institute for Research in Tuberculosis, Chennai, India ^d University of Massachusetts Medical School, Worcester, MA, USA ^e LPD, NIAID, NIH, MD, USA

Journal: Tuberculosis (Edinb). 2016 Dec; 101:191-200. doi: 10.1016/j.tube.2016.10.004. Epub 2016 Oct 11.

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27865391>

Tuberculosis-diabetes co-morbidity is characterized by heightened systemic levels of circulating angiogenic factors

^aNathella Pavan Kumar ^a, Kadar Moideen ^a, Shanmugam Sivakumar ^a, Pradeep A. Menon ^a, Vijay Viswanathan ^b, Hardy Kornfeld ^c, Subash Babu ^{a,d,*}

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Journal: *J Infect.* 2017 Jan;74(1):10-21. doi: 10.1016/j.jinf.2016.08.021. Epub 2016 Oct 4.

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27717783>

Blue Peter Public Health & Research Centre, LEPR Society/University of Texas Health Science Center at Tyler

NK-CD11c+ Cell Crosstalk in Diabetes Enhances IL-6-Mediated Inflammation during Mycobacterium tuberculosis Infection

Cheekatla SS¹, Tripathi D¹, Venkatasubramanian S¹, Nathella PK², Paidipally P¹, Ishibashi M³, Welch E¹, Tvinnereim AR¹, Ikebe M³, Valluri VL⁴, Babu S², Kornfeld H⁵, Vankayalapati R¹

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Journal: *PLoS Pathog.* 2016 Oct 26;12(10):e1005972. doi: 10.1371/journal.ppat.1005972. eCollection 2016.

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27783671>

A TLR9 agonist promotes IL-22-dependent pancreatic islet allograft survival in type 1 diabetic mice

Deepak Tripathi, Sambasivan Venkatasubramanian¹, Satyanarayana S. Cheekatla¹, Padmaja Paidipally¹, Elwyn Welch¹, Amy R. Tvinnereim¹ & Ramakrishna Vankayalapati¹

¹.Department of Pulmonary Immunology, Center for Biomedical Research, University of Texas Health Science Center at Tyler, Tyler, Texas 75708, USA

Journal: *NATURE COMMUNICATIONS* | 7:13896 | DOI: 10.1038/ncomms13896 | www.nature.com/naturecommunications

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27982034>

IL-21-dependent expansion of memory-like NK cells enhances protective immune responses against *Mycobacterium tuberculosis*

S Venkatasubramanian¹, S Cheekatla¹, P Paidipally¹, D Tripathi¹, E Welch¹, AR Tvinnereim¹, R Nurieva² and R Vankayalapati¹

¹Department of Pulmonary Immunology, Center for Biomedical Research, University of Texas Health Science Center at Tyler, Tyler, Texas, USA

²Department of Immunology, M. D. Anderson Cancer Center, Houston, Texas, USA

Journal: *Mucosal Immunol.* 2016 Dec 7. doi: 10.1038/mi.2016.105

PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/27982034>

National Institute for Research in Tuberculosis (NIRT)/Byramjee Jeejeebhoy Medical College (BJMC)/Johns Hopkins University

Cohort for Tuberculosis Research by the Indo-US Medical Partnership (CTRIUMPH): protocol for a multicentric prospective observational study.

Gupte A¹, Padmapriyadarsini C², Mave V³, Kadam D⁴, Suryavanshi N⁵, Shivakumar SV², Kohli R⁵, Gupte N³, Thiruvengadam K², Kagal A⁴, Meshram S⁴, Bharadwaj R⁴, Khadse S⁴, Ramachandran G², Hanna LE², Pradhan N⁵, Gomathy NS², DeLuca A¹, Gupta A¹, Swaminathan S⁶; CTRIUMPH Study Team.

Collaborators (73)

1. Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA
Johns Hopkins University School of Medicine, Baltimore, Maryland, USA.
2. National Institute for Research in Tuberculosis, Chennai, Tamil Nadu, India.
3. Johns Hopkins University School of Medicine, Baltimore, Maryland, USA
Johns Hopkins Clinical Trials Unit, Byramjee Jeejeebhoy Government Medical College, Pune, Maharashtra, India.
4. Byramjee Jeejeebhoy Government Medical College, Pune, Maharashtra, India.
5. Johns Hopkins Clinical Trials Unit, Byramjee Jeejeebhoy Government Medical College, Pune, Maharashtra, India.
6. Indian Council of Medical Research, New Delhi, India

Journal: *BMJ Open* 2016 Feb 25;6(2):e010542.

PubMed: <http://www.ncbi.nlm.nih.gov/pubmed/26916698>

Tuberculosis Risk among Medical Trainees, Pune, India

Anita Basavaraj, Ajay Chandanwale, Akhil Patil, Dileep Kadam, Samir Joshi, Nikhil Gupte, Katie McIntire, Divyashri Jain, Hamza Dalal, Rohan Badave, Andrea DeLuca, Amita Gupta, Robert Bollinger, and Vidya Mave

Author affiliations: Byramjee-Jeejeebhoy Medical College, Pune, India (A. Basavaraj, A. Chandanwale, A. Patil, D. Kadam, S. Joshi, H. Dalal, R. Badave); Byramjee-Jeejeebhoy Medical College Clinical Trials Unit, Pune (A. Basavaraj, A. Chandanwale, D. Kadam, S. Joshi, N. Gupte, D. Jain, A. Gupta, R. Bollinger, V. Mave); Johns Hopkins University School of Medicine, Baltimore, Maryland, USA (N. Gupte, K. McIntire, A. Gupta, R. Bollinger, V. Mave); Johns Hopkins Bloomberg School of Public Health, Baltimore (A. DeLuca)

Journal: *Emerging Infectious Diseases.* 2016;22(3):541-543. doi:10.3201/eid2203.151673.

Isoniazid hair concentrations in children with tuberculosis: a proof of concept study

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Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER)/Boston Medical Center

Advances in basic and translational tuberculosis research proceedings of the first meeting of RePORT international.

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Christian Medical College, Vellore (CMC-Vellore) / University of Cambridge-University of Washington

6th Annual Joint Leadership Meeting
RePORT INDIA CONSORTIUM
SYNERGIES TO COMBAT TB
HYDERABAD, INDIA | FEBRUARY 2–4, 2017

Entire RePORT India Consortium

Presentation

Hamilton C D, Ellner J, Swaminathan S, Christopher D, Gupta A, Sterling T, Rolla VC, Stoszek S. “Regional Prospective Observational Research for Tuberculosis (RePORT) Consortia Using a Common Protocol to Collect Specimens for Biomarker Research.” Poster session (PD-1029-01) presented at 45th Union World Conference on Lung Health of the International Union Against TB and Lung Disease; 2014 October 28-November 1, Barcelona, Spain.

Gupta A, “An Overview of the RePORT India Consortium.” Annual IeDEA Meeting, NIH, Rockville, MD, USA, 2016 June 22.

MV Diabetes Research Centre/University of Massachusetts

Presentations (EDOTS Data presented)

Kornfeld H. “Diabetes and TB.” Keystone Symposium on Tuberculosis, 2013 March 14-17, Whistler, BC, Canada.

Kornfeld H. “Diabetes and TB.” World AIDS Day, 2013 March 21-22, Cornell University, New York, NY, USA.

Kornfeld H. “Plans for Research on TB and Metabolic Disorders in Asia.” Eleventh ITRC International Symposium on Tuberculosis, 2013 October 12, Chengdu, China.

Kornfeld H. “Impact of Diabetes on Tuberculosis Risk and Severity.” Invited Seminar, 2013 October 16, Shenzhen-Hong Kong Institute of Infectious Disease, Shenzhen, China.

Kornfeld H. “Sugar, Fat, and Consumption.” Invited Seminar, 2014 August 22, University of Texas, Health Science Center at Tyler, Tyler, TX, USA.

Kornfeld H. “The Effects of Diabetes on TB Susceptibility.” Invited Seminar, 2015 January 12, No.4 People’s Hospital of Nanning, Nanning, China.

Kornfeld H. “TB and Diabetes.” Keystone Symposium on Granulomas in Infectious and Non-Infectious Disease, January 22-27, 2015, Santa Fe, NM, USA.

Kornfeld H. "TB and Diabetes." Invited Seminar, 2015 February 27, Singapore Immunology Network. Singapore.

Kornfeld H. "Tuberculosis: the Rise of Comorbidities." Medical Grand Rounds, University of Massachusetts Medical School, 2015 June 4, Worcester, MA, USA.

Kornfeld H. "Determinants of TB Severity." Invited Seminar, Shenzhen-Hong Kong Institute of Infectious Diseases, Shenzhen, China.

Kornfeld H. "Sugar, Fat and Consumption." Invited Seminar, 2016 January 16, Boston University School of Medicine, Boston, MA, USA.

Blue Peter Public Health & Research Centre, LEpra Society/University of Texas Health Science Center at Tyler

Presentations and Posters

Venkatasubramanian S, Paidipally P, Cheekatla SS, Welch E, Raghunath A, Tvinnereim AR, Nurieva R, Barnes PF, and Vankayalapati R. "IL-21 dependent expansion of memory-like NK cells enhances protective immune responses against *Mycobacterium tuberculosis*." Presentation and poster session presented at NK 2015—15th Meeting of the Society for Natural Immunity, 2015 May 2-6, Montebello, Canada.

Cheekatla SS, Tripathi D, Venkatasubramanian S, Nathella PK, Paidipally P, Ishibashi M, Welch E, Tvinnereim AR, Mitsuo I, Babu S, Kornfeld H, and Vankayalapati R. "NK-DC crosstalk in diabetes enhances IL-6 mediated inflammation during tuberculosis infection." Presentation and poster accepted for presentation at Keystone Symposium on Tuberculosis Co-Morbidities and Immunopathogenesis (B6), 2016 February 28—March 3, Keystone, CO, USA.

Abstracts

Cheekatla SS, Venkatasubramanian S, Tripathi D, Paidipally P, Welch E, Tvinnereim AR and Vankayalapati R. "IL-21 is essential for the optimal control of *Mycobacterium tuberculosis* infection [abstract]." American Association of Immunologist Meeting, 2015 May 8-12, New Orleans, LA, USA.

Cheekatla SS, Tripathi D, Venkatasubramanian S, Paidipally P, Welch E, Tvinnereim AR, Kornfeld H and Vankayalapati R. "IL-6 regulates pro- and anti-inflammatory cytokine production and mortality of *Mycobacterium tuberculosis* infected type 2 diabetic mice [abstract]." American Association of Immunologist Meeting, 2015 May 8-12, New Orleans, LA, USA.

Tripathi D, Venkatasubramanian S, Cheekatla SS, Paidipally P, Welch E, Tvinnereim AR, and Vankayalapati R. "Liver NK1.1 cells and IL-22 promote pancreatic islets allograft survival in Type 1 diabetic mice [abstract]." American Association of Immunologist Meeting, 2015 May 8-12, New Orleans, LA, USA.

Tripathi D, Venkatasubramanian S, Cheekatla SS, Paidipally P, Welch E, Tvinnereim AR, and Vankayalapati R. "CD4+CD25+Foxp3+ cells from JNK^{-/-} mice prolong pancreatic allograft survival in type 1 diabetic mice [abstract]." American Association of Immunologist Meeting, 2015 May 8-12, New Orleans, LA, USA.

Venkatasubramanian S, Dhiman R, , Paidipally P, Cheekatla SS, Tripathi D, Welch E, Tvinnereim AR, Brenda Jones B, Theodorescu D, Barnes PF, and Vankayalapati R. "A Rho GDP dissociation inhibitor produced by apoptotic T-cells inhibits growth of *Mycobacterium tuberculosis* [abstract]." American Association of Immunologist Meeting, 2015 May 8-12, New Orleans, LA, USA.

National Institute for Research in Tuberculosis (NIRT)/Byramjee Jeejeebhoy Medical College (BJMC)/Johns Hopkins University

Lectures

Gupta A. "TB in Pregnancy" RePORT India TB Workshop, 2015 March 5, Mumbai, India.

Gupta A. "TB in Pregnancy" RePORT India meet, Advancing TB Research, 2016 Feb 02, CMC Vellore, India.

Mave V. "RePORT India – Objectives and Future directions." TB Vaccine 4th Global Forum, 2015, Shanghai, China.

Mave V. "Therapeutic Drug Monitoring (TDM) of TB in Young Children: The Role of Hair Assays, IMPAACT Annual meeting, Washington DC, June 2015

Abstracts/Presentations

Elf JL, Kinikar A, Khadse S, Mave V, Gupte N, Kulkarni V, Patekar S, Raichur P, Breyse P, Gupta A, Golub J. "The Association of Exposure to Air Pollution from Biomass Fuels, Kerosene, and Secondhand Tobacco Smoke with TB in Adult Women and Children in Pune, India." American Thoracic Society International Conference, 2015 May 1, Denver, CO, USA & 14 July 2016, RePORT International Durban, SA.

Mave V, Pradhan R, Kagal A, Bharadwaj R, Gupte N, Gupta A, Meshram S, Golub J. "Third Anti-TB Drug in Continuation Phase for TB patients: Is It the Need of the Hour for India?" 27 October 2016, 47th Union World Conference on Lung Health Liverpool, UK.

Mave V, Gupte N, Meshram S, Kagal A, Gupta A, Bharadwaj R, Pradhan R, Golub J. "Xpert® MTB/RIF Assay for Pulmonary Tuberculosis Diagnosis in Patients with Pre-Diabetes Mellitus and Diabetes Mellitus." 27 October 2016, 47th Union World Conference on Lung Health, Liverpool, UK.

Chandrasekaran P, Mave V, Tiruvengadam K, Gupte N, Hannah LE, Meshram S, Swaminathan S, Gupta A. "Household Contact Tracing of Adult Pulmonary TB Patients in India: Prevalence of TB Disease." 27 October 2016, IDSA Conference, New Orleans, LA.

Gupte A, Meshram S, Selvaraju S, Gupte N, Shivakumar SVBY, Paradkar M, Kohli R, Thiruvengadam K, Suryavanshi N, Chandrasekaran P, Mave V, Swaminathan S, Gupta A, Golub J, Checkley W. "Host Factors Associated with Poor Respiratory Health-related Quality of Life in Pulmonary Tuberculosis." 27 October 2016, IDSA Conference, New Orleans, LA. & RePORT International, 14 July 2016, Durban, SA.

Gupte A, DeLuca A, Pattabiraman S, Sharma GN, Pradhan N, Subramaniyan B, Chandrakumar D, Thomas B, Suryavanshi B, Paradkar M, Meshram S, Kagal A, Kohli R, Golub J, Ramachandran G, Swaminathan S, Gupta A. "TB Infection prevalence, incidence and risk factors among child and adult household contacts of adult TB cases in India." 27 October 2016, IDSA Conference, New Orleans, LA.

Ogale YP, Elf JL, Lokhande R, Mave V, Roy S, Gupta A, Golub JE, Mathad J. "Characteristics Associated with Mobile Phone Access Among TB Patients in Pune, India." Poster session presented at 46th World Conference on Lung Health of the International Union Against TB and Lung Disease, 2015 December 1-5, Cape Town, South Africa.

Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER)/Boston Medical Center

Presentations

Posters presented at the October 2016 Evans Department of Medicine Research Days at Boston University, School of Medicine, Boston, MA, under the titles:

- "Stigma as a Barrier to Tuberculosis Care: A Literature Review"
- "Description of New Pulmonary Tuberculosis Cases in Southern India"
- "Association between Wood Fuel, Tobacco Use and Two-month Sputum Smear Conversion among Pulmonary Tuberculosis Cases in India"
- "Predictors of 2 Month Sputum Conversion among Tuberculosis Patients in India"
- "Prolonged Cough among Tuberculosis Patients In Tamil Nadu and Pondicherry, India"

Svadzian A, Sahu A, Pleskunas JA, Sarkar S, Roy G, Ellner JJ, Hochberg NS, Reddy D. "Association between Wood Fuel Usage and Disease Severity among Pulmonary Tuberculosis Cases". Poster session presented at the November 2016 American Society of Tropical Medicine & Hygiene meeting, 2016 Atlanta, GA.

Roy G, Sivaprakasam A, Kubiak R, Govindarajan S, Salgame P, Ellner J, Hochberg N, Sarkar S. "Description of New Pulmonary Tuberculosis Cases in Southern India. Poster session presented at 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease, 2015 December 1-5, Cape Town, South Africa.

Sarkar S, Fernandes P, Lakshminarayanan S, Kubiak R, Horsburgh CR, Ravikumar T, Ellner J, Hochberg N. "Age and Gender Distribution of Latent Tuberculosis Infection Cases in a Household Contact Study, India." Poster session presented at 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease, 2015 December 1-5, Cape Town, South Africa.

Reddy, D, Sahu S, McIntosh A, Kubiak R, Roy G, Ellner J, Sarkar S, Hochberg N. "Association Between Latent Tuberculosis Infection and Indoor Air Pollution among Household Contacts of Pulmonary Tuberculosis Cases." Poster session presented at 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease, 2015 December 1-5, Cape Town, South Africa.

Christian Medical College, Vellore (CMC-Vellore) / University of Cambridge-University of Washington

Conference Posters/Abstracts

Pradip Dhabhi, T Balamugesh, D J Christopher. "The prevalence of active and latent tuberculosis infection in patients with type 2 diabetes mellitus in a tertiary care hospital of South India" Presented at the Winter Symposium RePORT leadership group meeting, 2016 February 12-14, Vellore, India.

Rohit K O, Prince James, Richa Gupta, Balamugesh T, D J Christopher. Diagnostic yield of various Microbiologic and Histopathologic tests in TB pleural effusion diagnosed with thoracoscopy and outcomes of such patients on 6 months follow up. Presented at the Winter Symposium RePORT leadership group meeting, 2016 February 12-14, Vellore, India.

Christopher DJ, Mitra S, Saroini JS, Balaji V, Gupta M, Therese M, yadav B, Jeyaseelan L. Burden of diabetes among patients with tuberculosis: ten-year experience from an Indian tertiary care teaching hospital. IUATLD abstract book PD-626-30; 2014: 488.

Christopher DJ, Denkinger C, Thangakunam B, Sarojini JS, Pai M, Schumacher S. Point-of-care implementation of Xpert: evaluating the impact of product and process innovation in TB diagnosis. IUATLD abstract book PD-797-31; 2014: 53.

Presentations (RePORT CMC data shared)

D J Christopher 'Evolution of drug resistant TB in India' in Annual update in Tuberculosis at CMC, Vellore, Nov 16.

D J Christopher 'Road for TB elimination in India', lecture at the 4th meeting of Asian Experts Community, Bali (Indonesia), Aug 2015.

Hinduja/Hopkins

Abstracts/Presentations

Udwadia ZF, Tornheim JA, Ganatra S, DeLuca A, Banka R, Gupta A. "Impact of Drug Susceptibility Testing on Drug Choice in a Tuberculosis Cohort with High Rates of Drug Resistance from the Private Sector in Mumbai." 27 October 2016, IDSA Conference, New Orleans, LA, USA.

**GRANT ACTIVITY:
SUBMISSIONS & AWARDS**
AS OF JANUARY 2017

6th Annual Joint Leadership Meeting
RePORT INDIA CONSORTIUM
SYNERGIES TO COMBAT TB

HYDERABAD, INDIA | FEBRUARY 2-4, 2017

	Title	Partners	Grant Source	Year	Investigators	Award Status
1.	Impact of HIV and Diabetes Mellitus on TB Drug Resistance and Recurrence	BJGMC NIRT JHU	CRDF/RePORT India Supplemental Funding	2016-2017	Mave V , Devi U, Padmapriyadarsini C, Mathema B, Vishwanathan V, Kornfeld H, Kreiswirth B, Golub J, Gupte N, Shivakumar SVBY, Gupta A.	Awarded
2.	Impact of air pollution on inflammation and anti TB immunity	BJGMC NIRT JHU	CRDF/RePORT India	2016-2017	Shivakoti R , Gupta A, Padmapriyadarsini C, Chandrakumar D, Golub J, Mave V, Babu S, Elf J, Hannah LE, Kulkarni V, Gupte N	Not Awarded
3.	Biomarkers for TB diagnosis and treatment response	BJGMC NIRT Emory JHU	CRDF/RePORT India	2016-2017	Rengarajan J , Hannah LE, Thiruvengadam K, Toidi A, Gupta A, Gupte N, Kulkarni V and TRIUMPH team	Awarded
4.	Characterizing the host inflammatory response, and its association with treatment outcomes and lung health in adult pulmonary TB patients undergoing treatment in India	BJGMC NIRT JHU	CRDF/RePORT India	2016-2017	Gupte A , Padmapriyadarsini C, Gupta A, Babu S, Mave V, Gupte N, Kornfeld H	Not Awarded
5.	Measuring TB drugs in Hair as a tool to monitor adherence, exposure and response	BJGMC NIRT JHU	NIH/NIAID: R21	2016-2018	Mave V , Dooley K, Ramachandran G, Gupta A, Bacchetti, Sushant M, Gupte N, Gandhi M	Awarded
6.	Impact of Immune Changes of HIV and Stages of Pregnancy on TB	BJGMC NIRT JHU	NIH/NICHHD: R01	2015-2019	Gupta A , Mathad J, Bhosale R, Alexander M, Mave V, Gupte N, Padhan N, Kulkarni V, Hannah LE, Babu S	Awarded
7.	Residual Respiratory Impairment Following Pulmonary Tuberculosis: The Lung Health Sub-Study	BJGMC NIRT JHU	UJALA/ Gilead Foundation/ RePORT India	2015-2017	Gupte A, Gupta A , Meshram S, Kadam D, Mandar, Gupte N, Padmapriyadarsini C, Salvi S, Golub J, Selvaraju S	Awarded
8.	Impact of Pregnancy on Tuberculosis	JIPMER BMC	NIH/NIAID R01	2015-2018	Ellner J , Sarkar S, Hochberg N, Horsburgh CR, Saigame P, Savic R, Dartois V, Joseph NM, Jacob SE, Jayalakshmy R, Plakkal N, Ramachandran G, Sasirekha R, White LF	Awarded
9.	Impact of Personal Exposure to Black Carbon on Pulmonary Tuberculosis Severity	JIPMER BMC	Potts Memorial Foundation	2014-2018	Hochberg NS , Reddy D, Sahu S, Sarkar S	Awarded

	Title	Partners	Grant Source	Year	Investigators	Award Status
10.	Effect of helminths on tuberculosis severity	JIPMER BMC Rutgers NIRT NIH	NIH R21	2016-2019	Hochberg NS , Salgame P, Babu S, Ellner JJ, Johnson WE, Joseph NM, Mahalakshmy T, Nutman T, Rajkumari N, Parija S	Pending
11.	Role of Iron Deficiency in Resistance of Women of Child-Bearing Age to Tuberculosis	JIPMER BMC	NIH	2016-2017	Ellner J , Salgame P, Sarkar S, Pleskunas J, Amsaveni, Hochberg NS	Awarded
12.	MDR-TB and HIV at RePORT sites India	BJGMC NIRT JIPMER JHU BMC	CRDF/RePORT India	2016	Horsburg R , Padmapriyadarsini C, Mave V, Sarkar S, Gupta A	Awarded
13.	Novel serum based biomarkers for diagnosis of TB and treatment monitoring in HIV-infected and uninfected children	BJGMC NIRT DTTC, Capetown JHU	India SA RFA	2016	Valvi C , Hesseling AC, Chandanwale A, Kulkarni R, Paradkar M, Mave V, Gupte N, Chandrasekaran P, Shivakumar SVBY, Danasekaran K, Thiruvankadam K	Pending
14.	Novel blood biomarker to predict progression to active TB disease among recently exposed adult and pediatric household contacts of TB patients in India and South Africa	BJGMC NIRT SA JHU	India SA RFA	2016	Padmapriyadarsini C , Scriba T, Mave V, Paradkar M, Shivakumar SVBY, Gupte N, Gupta A, Danasekaran K, Sameer K, Thiruvengadam S, Tripathy S, Prasad K	Pending
15.	Biomarkers for treatment response and disease recurrence in pulmonary and extrapulmonary tuberculosis disease	IGIB BJGMC SA NIRT JHU	India SA RFA	2016	Gokhale R , Kana B, Swaminathan S, Padmapriyadarsini C, Mave V, Gupta A, Shivakumar SVBY	Pending
16.	Validation and fine tuning of the Computer Aided Diagnosis of Pulmonary Tuberculosis model for the Indian Subcontinent	CMC	CRDF/RePORT India	2016	Christopher DJ , Balamugesh T, Lal B, Agrawal A	Awarded
17.	Annual screening of health care personnel using tst & qgt and identification of bio-markers & the role of pet scan	CMC	CRDF/RePORT India	2016	Christopher DJ , Balamugesh T	Not Awarded
18.	Extracranial involvement as detected by positron emission tomography scan in patients with tubercular meningitis	CMC	CRDF/RePORT India	2016	Balamugesh T , Christopher DJ	Awarded
19.	Radiological treatment response in Pulmonary Tuberculosis	CMC	CRDF/RePORT India	2016	Balamugesh T , Christopher DJ	Not Awarded
20.	Inflammatory biomarkers as a triage test for	JIPMER	CRDF/RePORT India	2016	Ellner JJ , Salgame P, Sarkar S,	Awarded

	Title	Partners	Grant Source	Year	Investigators	Award Status
	screening symptomatic TB	Rutgers BMC			Pleskunas J	
21.	Characterization of Monocyte Responses in Pulmonary TB Patients with or without Type 2 Diabetes	NIRT	CRDF/RePORT India		Kumar P	Awarded
22.	Effect of Malnutrition on Latent TB	JIPMER Rutgers BMC	CRDF/RePORT India	2016	Hochberg NS, Negi VS, Mahalakshmy T, Johnson WE, Salgame P, Pleskunas J	Awarded
23.	Determining Barriers to TB Care	JIPMER BMC BU	CRDF/RePORT India	2016	Sabin L, Sarkar S, Fernandes P, Hochberg NS, Pleskunas J, Amsaveni	Awarded
24.	The goal of the proposal is to determine the mechanisms involved in IFN-γ independent inhibition of MTB growth in human macrophages.	LEPRA UT	NIH/NIAID: R01AI123310-01A1		Vankayalapati K, Velluri V and others	Not Awarded Received a 15-percentile ranking
25.	The goal of the proposal is to determine the role of memory-like NK cells and household contacts of TB patients.	LEPRA UT	NIH: 1R21AI127177-01		Vankayalapati K, Velluri V and others	Not Awarded
26.	TH17 cell subsets as potential risk markers of latency and active TB infection in household contacts	LEPRA UT	RePORT India Supplement	2016	Devaliraju KP (PI), Neela VSK, Valluri VL, Vankayalapati	Awarded
27.	T-regs mediated immune responses in LTBI+HIV+ individuals	LEPRA UT	UT	2015	Vankayalapati K, Velluri V and others	Awarded Sub recipient.
28.	D4GDI-mediated immune responses in LTBI+HIV+ individuals	LEPRA UT	NIH: R21AI120257-01 Indo-US Vaccine Program, RePORT India Cohort	2015-2017	Vankayalapati K, Velluri V and others	Awarded
29.	The role of monocyte subpopulation in HIV+LTBI+ individuals and development of active TB	LEPRA UT	NIH: R21AI127178-01 Indo-US Vaccine Program, RePORT India Cohort	2016 - 2018	Vankayalapati K, Velluri V and others	Awarded

	Title	Partners	Grant Source	Year	Investigators	Award Status
30.	Progression of tuberculosis infection to disease among HIV-infected and HIV seronegative individuals – a prospective cohort study in South India and South Africa	CMC LEPRA JIPMER NIRT PHRU UWITS	Indo-South Africa	2016	Valluri VL , Martinson N, Christopher DJ, Variava E, Sarkar S, Priyadarsini P, Bhavna G, Ziyaad W, Melissa C, Prudhula DK, Sanjeev NV.	Pending
31.	Research and interventions for HIV, Alcohol, Tobacco and Tuberculosis in India and South Africa (The HATT Consortium)	BJGMC NIRT JHU	NIH/NIAAA: R01	2017	Gupta A, Chander G , Heidi H, Thomas B, Kadam D, Suryavanshi N, Chandrasekaran P, Mave V, Gupte N	Pending
32.	Predictors of Resistance Emergence Evaluation in MDR-TB Patients on Treatment - (PREEMPT)	JIPMER NIRT BJGMC Brazil Vanderbilt Rutgers CDC JHU BMC	NIH/NIAID: R01	2017	Horsburgh R, Sterling TR , Pelloquin C, Alland D, Ciegelski P, Collins J, Chandrasekharan P, Ellner J, Gupta A, Mave V, Rolla V, Kritski A, Sarkar S	Pending
33.	Pediatric TB Biomarkers for Diagnosis and Treatment Response	BJGMC NIRT JHU	NIH/NIAID: R01	2016	Karakousis P , Pardakar M, Tomheim J, Gupta A, Chandrasekaran P, Bader J, Mave V, Gupte N, Kulkarni V, Bharadwaj R, Vali C, Shivakumar SVBY, Hannah LE, Pandey A	Not Awarded
34.	Developing a Rapid Point-of-Care TB Diagnostic	RePORT International	NIH/NIAID: R01	2017	Walt D (Tufts PI), Rushdy A (Broad Institute co-PI) , Rolla V, Santos M, Kristi A, Sterling T, Li Y, Mave V, Cristopher DJ, Gupta A, Pim A, Walzl G, Hamilton C, Duffly D, Gillette M	Pending
35.	Innate Immune responses in Household contacts	Lepra Mahavir BJMC NIRT JHU UT	NIH/NIAID: R01	2017	Vankayalapati K , Velluri V, Gupta A, Mave V, Kadam D, Bharadwaj R, Hanna E, Shivakumar SVBY, Prudhula, Padmapriyadarsini C, Gupte N	Pending
36.	Does tubercular infection adversely affect cardiovascular risk?	JIPMER BCM	CRDF/RePORT	2016	Kar S , Sarkar Si, Negi VS, Prasanna MD, Roy G, Premarajan KC, Hochberg N, Lakshminarayanan S	Not awarded

	Title	Partners	Grant Source	Year	Investigators	Award Status
37.	Impact of malnutrition on latent tuberculosis infection	JIPMER BMC Rutgers OHSU Tufts	NIH/R01	2016	Hochberg NS , Salgame P, Wanke C, Johnson WE, Ellner JJ, Parija S, Negi VS, Joseph NM, Rajkumari N, Mahalakshmy T, White LF, Lewinsohn D	Not Awarded
38.	Geographical and genotypic distribution of TB cases under RePORT India – tools for understanding epidemiology	JIPMER BMC BU	CRDF/RePORT	2016	Sarkar S , Roy G, Mahalakshmy T, Lakshminaraya S, Joseph NM, Jenkins H, Amsaveni, Hochberg NS	Not Awarded
39.	Determining Barriers to TB Care	JIPMER BMC	BU SPH Pilot	2016	Fernandes P , Sabin L, Sarkar S, Pleskunas J, Amsaveni, Hochberg NS	Not Awarded

RePORT India Supplemental Funding Opportunity - Award Finalists					
CRDF Proposal #	Title	PI Name	PI Institute	PI country	
23719	Effect of Malnutrition on Latent TB	Hochberg, Natasha	Boston Medical College (BMC)	US	
23721	Extra Cranial Involvement As Detected By Positron Emission Tomography Scan In Patients With Tubercular Meningitis	Thangakunam, Balamugesh	CMC	India	
23722	Characterization of Monocyte Responses in Pulmonary TB Patients with or without Type 2 Diabetes	Kumar, Pavan	NIRT	India	
23723	MDR-TB and HIV at REPORT Sites in India	Horsburgh, C. Robert	Boston Medical College (BMC)	US	
23725	TH17 cell subsets as potential risk markers of latency and active TB infection in household contacts	Devalraju, Prudhula Kamakshi	LEPRA Society – BPHRC	India	
23730	Determining Barriers to TB Care	Sabin, Lora	Boston University	US	
23732	Inflammatory biomarkers as a triage test for screening TB	ElIner, Jerrold	Boston Medical College (BMC)	US	
23734	Validation and Fine Tuning of the Computer Aided Diagnosis of Pulmonary Tuberculosis Model for the Indian Subcontinent	Christopher, Devasahayam	CMC	India	
23737	Biomarkers for Tuberculosis Diagnosis and Treatment Response	Rengarajan, Jyothi	Emory University	US	
23738	Impact of HIV and Diabetes Mellitus on TB Drug Resistance and Recurrence	Mave, Vidya	Johns Hopkins University (JHU)	US	

RePORT India Consortium
Scientific Priorities

Basic Science – Ideas for Future Studies

- Host biomarkers of TB recurrence (The TB vaccine trial will allow us to do this.)
- Host biomarkers of protection in children and adults
- Host biomarkers that predict TB treatment failure and death via unbiased multi-omic approaches such as transcriptomics, proteomics, metabolomics, lipidomic approaches
- Host inflammatory response during TB treatment and after completion of treatment and its association with TB and death outcomes
- Heavily exposed that remain infection free (restrict to bedmates of cases), and study the genetic and immunologic determinants of resistance
- Virulence differences in Mtb strains and strain evolution during treatment
- Mtb strain sequencing and comparison of strain relatedness
- Mycobacterial strain typing with clinical status/severity (need collaborators with expertise in microbial pathogenesis)

Clinical Epidemiology - Ideas for future studies:

- What is the combined impact of multiple comorbid risk factors on adverse TB outcomes (diabetes, BMI, smoking, alcohol, vitamin D, vitamin A, and anemia)?
- Does diabetes increase the risk of MTB infection?
- How does diabetes impact TB treatment response (sputum conversion) in the Indian population?
- Does glycemic control (HbA1c) correlate with treatment response?
- Does diabetes impact TB resolution (CXR score, lung function, respiratory quality of life)?
- Does pre-diabetes increase TB disease risk or severity?
- Does TB promote dysglycemia and is this reversible?
- Sex differences in infection and TB disease outcomes.
- Status of malnutrition as a risk factor for progression of LTBI to active TB disease

Behavioral Science – Ideas for future studies:

- Depression and TB treatment adherence and treatment outcomes
- Stigma of TB
- Alcohol and smoking and TB treatment adherence and treatment outcomes

Cohort A - Pulmonary TB

Parent Protocol Banked Specimens Type and Total by CRU

CRU	BJGMC	NIRT	JIPMER	MVDRC	CMC	Total
N	232	217	606	304	53	1412

Samples	Entry (≥ 14)																	
	2W		1M		2M		5M		6M		Total		Total					
	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT				
Plasma	2244	1542	412	206	52	4456	0	1999	1439	3438	1491	1373	3030	0	1190	146	96	1432
Plasma for PK						0	0	407	195	602			0	314	158			0
PAXgene	255	219	1353	206		2033	0	197	205	402	182	195	1467	0	152	90	96	338
PBMCs	497	478		191		1166	0	397	443	840	357	389	901	0	299	34	91	424
DNA	272				45	317	6			0			0	153	131	0	1	1
QGIT	2423	852				3275	0	2070	732	2802	1938	588	2526	0	1304	24		1328
Mtb Isolate	316	460	1789		53	2618	124	57	153	210	35	43	78	13	28	3		23
Urine	2188	808			53	3049	135	1591	688	2279	1602	600	2202		1306	76		1382
Hair	385	28				413	0	204	12	216	0	6	6	156	14			153
Sputum	385	369			52	806	195	181	252	433	179	237	416	142	248	33		162
Sputum Deposit	0	0				0	0	0	0	0	0	0	0	0	0	0		0
Gastric Aspirate	0	0				0	0	0	0	0	0	0	0	0	0	0		0

Samples	12M						18M						24M						End of TB Tx						TB Recurrence						TB Tx Failure						Unscheduled Visit					
	BJGMC		NIRT		Total		BJGMC		NIRT		Total		BJGMC		NIRT		Total		BJGMC		NIRT		Total		BJGMC		NIRT		Total		BJGMC		NIRT		Total		BJGMC		NIRT		Total	
	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT	BJGMC	NIRT		
Plasma	1092	883			1975	32	336	107	443	60	935	47	1042	131	40	171	20	152	172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Plasma for PK			0		0	0			0				0			0			0																							
PAXgene	110	120	230		460	32	33	44	77	6	116	141	263	13	5	18	2	19	21																							
PBMCs	222	212	434		868	28	63	47	110	13	224	237	464	25	17	42	4	35	39																							
DNA			0		0	0			0				0			0			0																							
QGIT	489	0	489		489	0			0	75	72	147	147			0			0																							
Mtb Isolate	3	2	5	1	9	10			0	6	7	13	13	6	5	11	9	19	28																							
Urine	946	408	1354		2708	0	280	24	304	40	456	496	104	5	109	16	19	35																								
Hair	1	0	1		1	0	28	0	28	0	2	2	14	1	15	2	0	2	2																							
Sputum	8	2	10	81	91	172			0	0	137	137	11	5	16	3	19	22																								
Sputum Deposit	0	0	0		0	0			0				0		0	0	0	0	0																							
Gastric Aspirate	0	0	0		0	0			0				0		0	0	0	0	0																							

*Failure/Controls Only

Cohort A - Pediatric TB

Parent Protocol Banked Specimens Type and Total by CRU

CRU	BJGMC	NIRT	JIPMER	Total
N	87	9	3	99

Samples	Entry			2W			1M			2M			5M			6M			12M				
	BJGMC	NIRT	JIPMER	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	
Plasma	749	64	2	815			0	722	72	794	721	58	779			0	568	17	585	354	48	402	
Plasma for PK				0			0	162	11	173			0			148			0				0
PAXgene	65	9	6	80			0	69	9	78	80	9	93			0	52	3	55	39	6	45	
PBMCs	109	20		129			0	108	19	127	98	19	117			0	83	6	89	49	10	59	
DNA	2			2			0			0			0			75			0				0
QGIT	513	36		549			0	582	24	606	539	24	563			0	360	0	360	120	0	120	
Mtb Isolate	23	1	3	27			15	8	0	8	3	0	3			1	1	0	1				0
Urine	669	24		693			1	654	36	690	616	36	652			0	63	4	67	302	24	326	
Hair	85	0		85			0	82	0	82			0			71	0	71	62	0			0
Sputum	142	10		152			87	77	12	89	71	10	81			80	0	3	3				0
Sputum Deposit				0			0			0			0			0	63	0	63				0
Gastric Aspirate	7	0		7			2	82	0	82	2		2			0			0				0

Samples	18M			24M			End of TB Tx			TB Recurrence			TB Tx Failure			Unscheduled Visit		
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total
Plasma			0	109	3	112	0	17	17	36	0	36	17	3	20			0
Plasma for PK			0			0	0	0	0	0	0	0			0			0
PAXgene			0	12	3	15	0	3	3	4	0	4	2	2	4			0
PBMCs			0	17	3	20	0	6	6	5	0	5	2	2	4			0
DNA			0			0	0	1	1	0	0	0			0			0
QGIT			0			0	0	0	0	0	0	0			0			0
Mtb Isolate	2	0	2			0	0	0	0	1	0	1			0		1	1
Urine			0	96	0	96	0	4	4	32	0	32	11	2	13			0
Hair			0	4	0	4	0	0	0	4	0	4	2	2	4			0
Sputum	24	3	27			0	0	3	3	6	0	6	2	2	4			1
Sputum Deposit			0			0	0	0	0	0	0	0			0			0
Gastric Aspirate			0			0	0	0	0			0			0			0

Cohort A - Extrapulmonary TB

Parent Protocol Banked Specimen Type and Totals by CRU

CRU	BJGMC	NIRT	Total
N	85	50	135

Samples	Entry		2W		1M		2M		5M		6M		12M		Total
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	
Plasma	788	376	1164	0	664	330	994	656	306	962	0	475	34	509	447
Plasma for PK			0	0	132	42	174			0				0	0
PAXgene	79	53	132	0	66	48	114	66	53	119	0	49	13	62	49
PBMCs	147	104	251	0	120	99	219	127	83	210	0	90	14	104	99
DNA	1		1	2	0		0			0	47	25		0	0
QGIT	575	156	731	0	438	108	546	480	108	588	0	255	0	255	104
Mtb Isolate	12	39	51	26	3	4	7	0	1	1	2	3		0	0
Urine	624	180	804	0	512	148	660	519	144	663	0	398	12	410	311
Hair	80	8	88	0	66	1	67	0	1	1	49	2	0	50	0
Sputum	116	97	213	134	66	56	122	63	55	118	48	53	44	44	1
Sputum Deposit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastric Aspirate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Samples	18M		24M		End of TB Tx		TB Recurrence		TB Tx Failure		Unscheduled Visit		Total
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	
Plasma			0	50	19	69	39	164	203	41	3	44	0
Plasma for PK			0			0			0			0	0
PAXgene			0	5	5	10	4	23	27	3	1	4	0
PBMCs			0	7	6	13	6	44	50	5	1	6	0
DNA			0			0			0			0	0
QGIT			0			0	45	24	69			0	0
Mtb Isolate			0			0	0	0	0	0	0	1	0
Urine			0	40	8	48	32	72	104	20	2	22	5
Hair			0	4	0	4	4	2	6	3	0	3	0
Sputum	17	15	32			0	1	25	26	3	2	5	2
Sputum Deposit	0	0	0			0			0			0	11
Gastric Aspirate	0	0	0			0			0			0	0

Cohort A - TB Meningitis

CRU	CMC	Total
N	139	139

Entry	CMC	Total
Plasma	98	98
DNA	90	90
Urine	112	112
CSF	120	120

**RePORT India Consortium
Cohort B - Household Contacts
Parent Protocol Banked Specimen Type and Totals by CRU**

CRU	BJGMC	NIRT	JIPMER	LEPRA	Total
N	454	499	867	700	2520

Samples	Entry					4M			8M			12M			16M			20M		Total
	BJGMC	NIRT	JIPMER	LEPRA	Total	BJGMC	NIRT	LEPRA	Total	LEPRA	Total	BJGMC	NIRT	JIPMER	LEPRA	Total	LEPRA	Total		
Plasma	4871	3552	563	700	9686	2366	2740	298	5404	199	199	1654	2017	22*	111	3782	67	67	37	37
Plasma for PK	0				0				0							0			0	0
PAXgene	472	484	1980		2936	223	422		645			156	299	57*		455		0	0	0
PBMCs	993	1155		700	2848	478	898	298	1674	199	199	322	563		111	996	67	67	37	37
DNA	432	473		700	1605	1	0		1							0			0	0
QGIT	5812	4919			10731	2869	1976		4845			1798	554			2352		0	0	0
Mtb Isolate	4	35			39	0	13		13			0	0			0		0	0	0
Urine	3957	1744			5701	1976	1080		3056			1402	876			2278		0	0	0
Hair	511	3			514	255	3		258			174	0			174		0	0	0
Sputum	651	647			1298	258	442		700			3				3		0	0	0
Sputum Deposit					0				0							0		0	0	0
Gastric Aspirate	9	0			9	2	0		2							0		0	0	0

Samples	24M					Active TB			Unscheduled Visit			Total	
	BJGMC	NIRT	JIPMER	LEPRA	Total	BJGMC	NIRT	LEPRA	Total	BJGMC	NIRT		Total
Plasma				18	18	183	13	1	6	203	0	0	0
Plasma for PK				0	0					0	0	0	0
PAXgene				0	0	17	5	3		25	0	0	0
PBMCs			18		18	31	10	6	47	9	0	0	0
DNA				0	0	5	4		9	0	0	0	0
QGIT	745	0			745	159	5		164	0	0	0	0
Mtb Isolate				0	0	0	0		0	0	0	0	0
Urine				0	0	174	5		179	0	0	0	0
Hair				0	0	19	0		19	0	0	0	0
Sputum				0	0	31	5		36	0	0	0	0
Sputum Deposit				0	0				0	0	0	0	0
Gastric Aspirate				0	0				0	0	0	0	0

COHORT A OUTCOMES	Adult PTB					Pediatric TB (<15yrs)					EPTB		TBM		Total
	BJGMC	NIRT	JIPMER	MVDRC	CMC	Total	BJGMC	NIRT	JIPMER	Total	BJGMC	NIRT	Total	CMC	
N=	232	217	606	304	53	1412	87	9	3	99	85	50	135	139	1785
TB Tx Failure	19	21	15	8	3	66	3	1	0	4	3	0	3	0	73
TB Recurrence	14	6	0	7	1	28	5	0	0	5	2	1	3	0	36
TB Death	13	4	14	8	3	42	0	0	0	0	1	3	4	10	56
MDR-TB Case	12	3	2	1	1	19	2	1	0	3	1	0	1	2	25
HIV+	12%	1%	0.3%	0	0%		7%	0%	0%		20%	4%		13%	
DM+	12%	65%	28%	74%	33%		0%	0%	0%		4%	26%		15%	

COHORT B OUTCOMES	BJGMC	NIRT	JIPMER*	LEPRA	Total
N=	454	499	867	700	2520
TB incidence	7	2	1	6	16
TB prevalence	13	5	7	2	27
LTBI incidence	31	60	n/a	57	148
LTBI prevalence	263	349	519	397	1528
HIV+	3%	1.0%	0%	0%	
DM+	6%	12%	3%	n/a	
Child <5	39	32	n/a	n/a	71
Adolescent 5-<15	109	82	183	71	445

Definitions

DM+ : Ctriumph: Hb₁Ac>6.5, JIPMER: Self reported
 LTBI : Ctriumph: TST or QGIT, LEPRA: IGRA, JIPMER: TST ≥5mm

*->6 years