

FORMAT FOR BIOGRAPHICAL SKETCH

(To be submitted separately for the Project Coordinator and each Key Investigator)

1.	GENERAL PARTICULARS
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Name the Co Investigator: **Suman Laal**

Designation/Current Position: **Chief Scientific officer and Director**

Name of the Applicant: **Stellar Diagnostics India Private Ltd**

Date of Birth: **Sept 13, 1955**

Sex (M/F): **F**

	Is the Co Investigator hold any of the following position in any company
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- Director NO
- Promoter NO
- Founder NO
- Shareholder having a functional/managerial role

3.	Other affiliation with any other company/Institution (Please provide the most updated information)
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S. No.	Institution	Degree Awarded	Year	Field of Study
1	Punjab University, Chandigarh, India	B.S. (Hon.)	1975	Microbiology
2	Punjab University, Chandigarh, India	M.S. (Hon.)	1977	Microbiology

3	All India Institute of Medical Sciences, New Delhi	Ph.D.	1985	Immunology
4	All India Institute of Medical Sciences, New Delhi	Post-Doc	1990	Immunology
3.	PROFESSIONAL CAREER (STARTING WITH THE MOST RECENT EMPLOYMENT)			
S. No.	Institution	Position	From (Date)	To (Date)
1	Dept Pathology New York University School of medicine, New York, NY	Associate Professor (tenured)	2006	current
2	Dept of Microbiology, New York University School of Medicine, New York, NY	Associate Professor (Trenured)	2006	current
3	, VA New York Harbor Healthcare System, New York, NY	Research Microbiologist	1997	Current
4	Dept of Pathology, New York University School of Medicine, NY, NY	Assistant Professor	1997	2006
4.	HONORS/ AWARDS			
<p>i. - Research Incentive Award for Academic excellence, Academic Excellence Committee, NYU School of Medicine 2009, 2010, 2014</p> <p>ii) Member Panel: Discussion on establishing a process for new tool development, validation and policy in India. Workshop on Evaluation of New TB Diagnostics, Capacity Building in Public Sector Institutions in India; National Institute for Research on Tuberculosis, Chennai, India (2014)</p> <p>iii). Member, Panel: Establishing a process for new TB diagnostics, Capacity Building in Public Sector Institutions in India, National Institute for Research on TB, Chennai, India (2014).</p> <p>iv). Research Career Scientist Award by the Veterans Affairs Medical Center (2010-2015)</p>				

- v). . **Member**, WHO Expert Group Review Committee on Interferon Gamma Release Assays, (IGRAs), Geneva, Switzerland **(2010)**.
- vi). **Member**, WHO Expert Group Review Committee on Commercial Serodiagnostic Tests for Tuberculosis, Geneva, Switzerland **(2010)**
- vii). **Member**: Expert Meeting on Defining Test Specifications for a TB Point of Contact Test” Organized by Medicine Without Frontiers/Treatment Action Group/Partners in Health – IUATLD Offices, Paris, France, **(2009)**
- viii) **Member**, AIDS and Rights Alliance for Southern Africa & Treatment Action Group – Developing an Agenda for Expediting Development of Point-of-Care Assays for Diagnosing Active TB in Resource-Poor Settings, St. Catherine’s College, Cambridge University, Cambridge, UK **(2008)**

5. PUBLICATIONS (NUMBERS ONLY)	
i. Books: 10	ii. Research Papers, Reports: 51 iii. General articles:
iv. Patents : 6	v. Others (Please specify): Editorial 1

6.	<p style="text-align: center;">LIST FIVE MOST RECENT PUBLICATIONS WITH IMPACT FACTOR RELEVANT TO THE PROPOSED AREA OF WORK (IN CHRONOLOGICAL ORDER)</p> <p>Details should include: Title, Authors, name of the Journal, issue & page no. year of publication. Also provide summary of the work reported in the publication in not more than 100 words.</p>
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NOTE: Only publications related to the work on TB diagnosis have been cited.

1. Steingart KR, Flores LL, Dendukuri N, Schiller I, Laal S, Ramsay A, Hopewell PC, Pai M. 2011. Commercial serological tests for the diagnosis of active pulmonary and extrapulmonary tuberculosis: An updated systematic review and meta-analysis. PLoS Med 8:e1001062
The team of experts commissioned by the WHO to review all available data and conduct meta-analysis of the performance of serodiagnostic tests being sold in developing countries were asked to perform an updated analysis before the expert group were to deliberate on policy for recommending for or against these tests. This manuscript reports the updated metaanalysis.
2. Shen G, Singh K, Chandra D, Serveau-Avesque C, Maurin D, Canaan S, Singla R, Behera D, Laal S. 2012. LipC (Rv0220) Is an Immunogenic Cell Surface Esterase of Mycobacterium tuberculosis. Infect Immun. 80: 243-253. 48.
This manuscript reports the discovery, characterization and epitope mapping of LipC, whose peptides were later used for inclusion in a rapid tests for sputum-smear replacement test for TB.
3. Michelle B. Ryndak, Krishna K. Singh, Zhengyu Peng, Susan Zolla-Pazner, Hualin Li, Lu Meng, Suman Laal. 2014. Transcriptional Profiling of Mycobacterium tuberculosis Replicating ex vivo in Blood from HIV- and HIV+ subjects. PLoS One. 9: e94939 This manuscript reports on the adaptation of M. tb to blood, both from HIV- and HIV+ patients, and showed that M. tb enhances its virulence capacity during adaptation to an environment which reflects immune dysfunction. These studies are also important for devising biomarkers for reactivation of TB in HIV+ patients.
4. Michelle B. Ryndak, Krishna K. Singh, Zhengyu Peng, Suman Laal. Transcriptional Profile of *Mycobacterium tuberculosis* Replicating in Type II Alveolar Epithelial Cells. 2015. PLoS One. 10:e0123745 This study was designed to understand how the small dose of M.tb inhaled leads to establishment of infection, and identify potential candidates that may be used to devise strategies to prevent establishment of infection.

5. Jesus M. Gonzalez, Bryan Francis, Sherri Burda, Kaitlyn Hess, Digamber Behera, Dheeraj Gupta, Ashutosh Nath Agarwal, Indu Verma, Ajoy Verma, V.P. Myneedu, R. Sam Niedbala, Suman Laal. 2014. Development of a POC Test for TB Based on Multiple Immunodominant Epitopes of *M. tuberculosis* Specific Cell-Wall Proteins. *PLoS One*. [9:e106279](https://doi.org/10.1371/journal.pone.0106279).

This paper provides the proof-of-concept that immunodominant epitopes (peptides) from carefully selected highly immunogenic *M.tb* proteins can be used as a foundation for rapid tests, and that antibodies to immunodominant epitopes (peptides) can provide both high sensitivity and specificity.

7 **PROFESSIONAL EXPERIENCE RELEVANT TO THE PROJECT**
(DO NOT EXCEED 150 WORDS)

My research at NYUSoM/VA has focused on investigating the humoral immune responses in HIV- and HIV+ TB patients, and aerosol-infected animal models, with focus on antigen discovery, characterization and validation for developing a rapid diagnostic test(s) for TB. These studies have used a combination of immunological, biochemical, proteomic and molecular approaches and yielded *M. tuberculosis* antigens, and their immunodominant epitopes (peptides) that have been shown to be successfully engineered to a devise simple and rapid lateral flow test format.

I worked for the World Health Organization as the immunology expert on several meta-analysis projects for evaluating the antigen and antibody-detection based commercial tests that were being marketed in developing countries. I served on the WHO expert panels on evaluating immunological diagnostic tests for TB (serodiagnostic and Interferon gamma release assays), which recommended against the use of the current commercial serological assays, and the IGRAs for the diagnosis of TB.

I have co-founded Stellar Diagnostics India Pvt Ltd in Gurgaon, with the goal translate the existing candidates for TB diagnostic tests, both from my work and from other investigators, to commercial formats that conform to the highest international standards in performance, and are validated by rigorous diagnostic trials.

8. ONGOING RESEARCH PROJECTS

S. No.	Title of Project	Source of Funds	Amount	Duration (from – to --)
1	Non-sputum, biomarker-detection based point-of-care triage test for TB	USAID-BIRAC	50 L	Oct 2016-sept 2016

2	Research Training on Pathogenesis and Diagnosis of HIV-TB	NIH/FIC	1,522,000 USD	05/25/14-03/31/19
	Research Training on Pathogenesis and Diagnosis of HIV-TB (Supplement)	NIH/FIC	54,000 USD	04/01/15-03/31/16
9.	RESEARCH PROJECTS COMPLETED DURING THE LAST THREE YEARS			
S. No.	Title of Project	Source of Funds	Amount	Duration (from – to --)
1	Rapid Diagnosis of Early TB in HIV+ Patients	NIH/NIAID	463,434 USD	Sept 2011-Aug 2015
2	Rapid Diagnosis of Early TB in HIV+ Patients (Supplement)	NIH/NIAID	174,182 USD	08/15/13-08/14/15
3	Training Program in TB and HIV Prevention and Treatment	NIH/FIC	3,652,320 USD	Sept 2000-Jan 2015
4	Training Program in TB and HIV Prevention and Treatment (Suppl)	NIH/FIC	300,000 USD	08/15/11-05/31/12
5	Development of a Peptidomic Rapid Point of Care TB Diagnostic	NIH/NIAID	509,934 USD	July 2012-June 2015

It is certified that the above particulars submitted are true and correct.

Place: New Delhi
Date : Feb 15, 2016

Signature : 