Personal Information:

Nam	:	**Dr. Ranjana Srivastava**
Highest Degree	:	M.Sc., PhD
Date of Birth	:	5.4.1951
Present Position	;	Deputy Director & Head, Microbiology Division, Central Drug Research Institute, Lucknow.
Home Address	:	2/79 Vijay Khand, Gomti Nagar, Luckinow-226010.
Family	:	Husband (Dr. Brahm S. Srivastava) Daughter (Ms. Radha Srivastava) Son (Mr. Harsh Srivastava)

Education:

University (B.Sc., M.Sc.)	Christ Church College, Kanpur
\Pre PhD	University of Brussels, Belgium
PhD	Kanpur University
Post-PhD	Brown University, Providence, RI, USA.

Area of Research

Genetic/regulation of DNA dependent RNA Polymerase of *Escherichia coli* K12

Tuberculosis : Screening of antitubercular compounds, diagnosis, development of DNA based diagnostic for TB, vaccine development, latency and reactivation.

Pathogenesis of Cholera: Adhesion and virulence factors

Number of research Publication: 50
Number of Patents :

Honourrs and Awards:

Shakuntala Amirchand Award of ICMR 1986

New Idea Fund of CSIR- 2005-07

Membership of Academic Societies

Society of Biological Chemists of India
Association of Microbiologists of India

Academic Positions:

- Deputy Director & Head of the Microbiology Division, Central Drug Research Institute, Lucknow.
- Visiting Scientist, Center for Vaccine Development, University of Maryland at Baltimore, USA>
- Visiting Scientist Pasteur Institute, Lille France.
- Editor , Indian Journal of Microbiology
- DBT nominee, Institutional Biosafety Committee, IIT, Kanpur.

Teacher and Research Supervisor

Guided Ph.D. Thesis :
Guided MD Thesis of KGMU, Lucknow, GSV Medical College, Kanpur.
Supervised M.Sc., M.Pharma students of BITS , Pilani and various other Universities of India.
Administrative Experience as:
Deputy Director & Had, Microbiology Division, Central Drug Research Institute, Lucknow.

Managerial Experience:

Member Store & Purchase Committee, CDRI
Member, Biomedical Committee, CDRI
Chairman, Institutional Biosafety Committee, ITRC, Lucknow.
Member, Task Force on Biotech products and process development, DBT.

Technolog6y Transfer

MTB Real ^{TM} an indigenous rapid test system for early diagnosis of Tuberculosis, a technology developed by Dr. Ranjana Srivastava and her group at Central Drug Research Institute, Lucknow was licensed to Biotron Healthcare Pvt., Ltd, Mumbai in 2005. It has been commercialized on "MycoView" MTB Real Time PCR Kit.

The MTB^{TM} is a Real Time DNA Amplification Test for the qualitative detection of Mycobacterium tuberculosis directly in clinical specimens of TB patients. The clinical specimens could be sputum, urine, bronchial lavages, tissues and other biological materials. The detection of Mycobacterium tuberculosis is based on pathogen specific DNA sequence developed in Division of Microbiology, Central Drug Research Institute, Lucknow , a constituent laboratory of CSIR. The sequence has been patented internationally and nationally. The company Biotron Healthcare Pvt. Ltd, Mumbai has developed Real Time MTB test in which DNA is extracted from clinical specimens, amplified using Real Time Amplification

methodology and detected using fluorescent reporter dye probes specific for Mycobacterium tuberculosis . The kit contains appropriate internal control to eliminate false positives. The detection by DNA based amplification was evaluated at various institutions, prominent among them are Central JALMA Institute for leprosy and other mycobacterial diseases (a laboratory of ICMR) PGIMER, Chandigarh, Sanjai Gandhi Post Graduate Institute (SGPGI), Lucknow, Command Hospital, Lucknow, clinical trials were conducted by DBT independently and by Biotron Healthcare in different clinics.

Tuberculosis popularly called TB, is mycobacterial disease caused by *Mycobacterium tuberculosis*. Tuberculosis usually affects the lungs, but it can spread to the kidneys, bones, spine, brains and other parts of the body. The symptoms of pulmonary TB include cough, chest pain, and hemoptysis, the specific symptoms of extrapulmonary TB depend on the site of disease. Systemic symptoms consistent with TB also include fever, chills, night seats, easy fatigability, loss of appetite, and weight loss. TB accounts for nearly two million deaths each year. Indian statistics with respect to tuberculosis are alarming as India has the most TB cases in the world, two million Indians develop TB each year, one sputum positive person can infect 10-15 persons per year and one thousand persons die every day from TB. Active disease must be treated for a long time (at least 6 months for most clients) compared with many other infectious diseases. For most persons, the preferred regimen for treating TB disease consists of an initial 2 month phase of four drugs: Isoniazid, rifampin, pyrazinamide, and ethambutol followed by a 4 month continuation.

Early and rapid detection of the disease is very important for effective management of disease. Smear microscopy provide the first bacteriologic clue for active disease detection, but the sensitivity of acid fast microscopy is not optimal and it does not confirm diagnosis of TB because all acid-fast bacilli are not *M.tuberculosis*. Hence microscopic examination of clinical samples is followed by culture examinations regardless of AFB smear results. However, if a solid medium and conventional biochemical tests are used, the isolation of the organism can take 6 to 12 weeks.

Nucleic acid probes specific for *M,tuberculosis* provide a rapid method of *M.tuberculosis* directly in clinical specimens by amplification of *M.tuberculosis* specific sequence by PCR and can provide results within 8 h of sample collection as compared to 6-12 weeks by conventional culture method. Real Time PCR enables the user to monitor the amplification of PCR product simultaneously, in real-time and no line. In addition since the risk of carry over and cross-contamination is minimized as both amplification and detection are performed in a single tube as well as visual demonstration of PCR products not requiring instrumentation. The development of MTB^{TM} kit is a landmark development in this area as it combines real-time PCR with sequence specific fluorogenic probes for sensitive and specific detection of *M,.tuberculosis* in sputum, bronchoalveolar lavage, cerebrospinal fluid, pleural fluid or tissue samplos.