

Research Experience

Pulmonologist & Respiratory Medicine Specialist

Specializing in Respiratory Diseases, Mycobacterium Tuberculosis (M. tuberculosis), and Multidrug Resistance.

- **Overview:** Expertise in the field of Respiratory Medicine and various Chest diseases with a primary focus on the persistence, evolution, and mechanisms of multidrug resistance (MDR) in *Mycobacterium tuberculosis* (M. tuberculosis).
- **Research Focus:**
 - Investigating the stress response mechanisms in *M. tuberculosis* and its interaction with human hosts, aiming to understand its role in persistence and multidrug resistance.
 - Exploring therapeutic applications for combating the high mortality rates of tuberculosis in India through innovative research.

- **Key Research Areas:**

1. **Multidrug Resistance (MDR) in Tuberculosis:**

Focused on the persistence of *M. tuberculosis* in the host despite prolonged antitubercular treatment, contributing to the ongoing challenge of high mortality rates due to tuberculosis in India.

2. **Stress Response in M. Tuberculosis:**

Investigated the second messenger (p)ppGpp-mediated stress response in *M. tuberculosis*, a key factor in the pathogen's ability to survive under stressful conditions and its role in antibiotic resistance and persistence within human hosts.

Leadership Role in Research Projects

- **Research Project on (p)ppGpp-mediated Stress Response in *M. tuberculosis*:**
Led a project which focused on understanding the role of guanosine 3',5'-bis(diphosphate) (ppGpp) and guanosine 3'-diphosphate 5'-triphosphate (pppGpp) in the stress response and survival mechanisms of *M. tuberculosis* under hostile conditions.

Publications & Contributions

- **Case Reports:** Published multiple case reports on rare and unusual respiratory conditions.
- **Research Articles:** Contributed research articles on respiratory diseases, with particular emphasis on tuberculosis.

Vision for Future Research

- Continuously working toward developing innovative methodologies to expand clinical expertise and also open doors for future research.
- In developing more effective therapeutic strategies for tuberculosis and other respiratory diseases.