



PhD Project

Project Details

Project Title

Development of diagnostics panel for the detection blood borne infections. .

Project Summary

Globally, hundreds of millions of people are affected by blood-borne infections each year, leading to significant health complications and deaths. In India alone, blood-borne infections contribute to a high disease burden. Antibiotics are often prescribed to treat suspected bacterial infections in both adults and children, particularly in primary care settings. Inappropriate use of antibiotics not only increases the risk of antimicrobial resistance (AMR) but also exacerbates the severity of infections, prolongs the duration of illness, leads to adverse effects, and increases the risk of complications and death. Blood samples will be collected and processed using culture methods and PCR to detect bacterial and viral pathogens, respectively. The performance of an automated cartridge system (developed in IIT-Delhi) will be evaluated for its ability to detect blood-borne pathogens. The study aims to reduce unnecessary antibiotic prescriptions, potentially lowering the emergence of AMR. Furthermore, clinical evaluation of the automated cartridge system will facilitate its use in resource-limited, point-of-care diagnostics, providing an effective solution for managing blood-borne infections in low-resource settings.

PhD Supervisors

Role	Faculty		Academic Unit in IITD	Email ID
Supervisor 1	Dr. Ravikrishnan Elangovan		Department of Biochemical Engg and Biotechnology	elangovan@dbeb.iitd.ac.in
Supervisor 2	Prof Vivekanandan Perumal		Kusuma School of Biological Science	vperumal@bioschool.iitd.ernet.in
Supervisor 3	Dr. Deepthi Nair		Department of Microbiology , Vardhman Mahavir Medical College and Safdarjung Hospital	deepthinair2@gmail.com

Project requirements (Student qualifications, experience required, etc)

The prospective candidate for this Ph.D. position should ideally possess a background in Biotechnology/related and demonstrate a strong track record in various aspects:

Academics: A solid academic foundation in Biotechnology or related fields is a prerequisite. The successful candidate should have excelled in coursework related to molecular biology, genetics, and biotechnological techniques.

Research Experience: We seek candidates who have actively engaged in research activities, preferably in areas relevant to molecular diagnostics, infectious diseases, or biotechnology-driven innovations. Previous research experience will be highly valued.

Experience in Industry/Innovation: While academic research is essential, candidates with exposure to the industry or innovation sector will have a distinct advantage. Practical experience in translating research into tangible solutions or products is desirable.

If you are a driven and highly motivated individual with a passion for biotechnology, a keen interest in addressing global health challenges, and a commitment to making a meaningful impact, we encourage you to apply. This Ph.D. opportunity offers a unique platform for research, innovation, and the advancement of scientific knowledge with real-world implications in the battle against blood borne infection.

Source of funding (IRD/FITT Project details, if any)

Candidate with his/her own fellowship/ Institute Fellowship

Role of Faculty Members involved:

Dr. Ravikrishnan Elangovan Lab: Dr. Ravi will be mentoring student in development of automated cartridge for respiratory viral detection.

Dr. Vivekanandan Perumal Lab: Dr Vivek will be mentoring student in development of PCR assay protocols and probes

Dr. Deepthi Nair Lab: Dr. Vikas will be mentoring student in biological sample processing and molecular work.