Indian Institute of Technology Delhi

School of Interdisciplinary Research (SIRe)

SIRe Project Number

2024-01-42

(will be assigned by SIRe)

PhD Project

Project Details	
Project Title	**Development of automated Ct-DNA extraction system for minimal residual disease detection in Lung cancer**
Project Summary	Lung cancer remains a formidable challenge, often diagnosed at advanced stages with grim prognoses. Traditional methods such as surgical biopsies face limitations in accessibility or availability of relevant tumor tissue, particularly in advanced stages. As an alternative, we are pioneering the use of patient-derived cell-free DNA (cfDNA) for detecting clinically actionable mutations, guiding precise and personalized therapy strategies. We are developing an automated multiplexed platform technology for efficient cfDNA extraction, offering reduced cost and minimized risk of contamination. By leveraging pneumatically controlled microfluidics, our method enables processing of larger plasma volumes, resulting in higher cfDNA yields. If you are passionate about making a difference in cancer research and eager to contribute to cutting-edge advancements in precision medicine, apply now for our PhD position. Join us in shaping the future of lung cancer diagnosis and treatment.

PhD Supervisors

Role	Faculty	Academic Unit in IITD	Email ID
Supervisor 1	Ravikrishnan Elangovan	Department of Biochemical Engg and Biotechnology	elangovan@dbeb.iitd.ac.in
Supervisor 2	Prabhat Singh Mallik	Department of Medical Oncology All India Institute of Medical Sciences, New Delhi	drprabhatsm@gmail.com

Project requirements (Student qualications, experience required, etc)

The prospective candidate for this Ph.D. position should ideally possess a background in Biotechnology 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 lung cancer.

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

Candidate with his/her own fellowship /institute assistantship

Role of Faculty Members involved:

Ravikrishnan Lab: Dr Ravi will be mentoring student in biological sample processing and preparation of samples.

Prabhat S Mallik Lab: Dr Prabhat will be mentoring student in lung cancer liquid biopsy approaches and making samples for validation