Indian Institute of Technology Delhi

School of Interdisciplinary Research (SIRe)

SIRe Project Number

2025-01-16

(will be assigned by SIRe)

PhD Project

Project Details	
Project Title	Development of a microfluidics platform for automation of in vitro diagnostics
Project Summary	Join us in advancing in vitro diagnostic assays for resource-limited settings. We aim to revolutionize diagnostics by developing a micro/millifluidic platform integrating multiple functions on a single chip or cartridge. This includes liquid addition, size or affinity-based separation, and incorporating valves and pumps. Our focus is on streamlining sample-to-result processes, especially for urine or blood samples, to isolate protein, DNA, or cell biomarkers. This innovative approach promises affordability and efficiency, addressing current challenges of manual or costly automated machinery. If you're passionate about cutting-edge research in diagnostics, apply now to contribute to this transformative project.

PhD Supervisors			
Role	**Faculty**	**Academic Unit in IITD**	**Email ID**
Supervisor 1	Dr. Ravikrishnan Elangovan	Department of Biochemical Engg and Biotechnology, IIT Delhi	elangovan@dbeb.iitd.ac.in,
Supervisor 2	Prof Hariprasad	Professor, Department of Biophysics, All India Institute of Medical Science, New Delhi	dr.hariprasadg@gmail.com

Project requirements (Student qualifications, experience required, etc)

The prospective candidate for this Ph.D. position should ideally possess a background in **Mechanical/Electronics Engineering** 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 medical devices, 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 applications in in-vitro diagnostics.

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

Candidate with his/her own fellowship

Role of Faculty Members involved:

Dr. Ravikrishnan Elangovan Lab: Dr. Ravi will be mentoring student in development of automated LAB-ON-A-CHIP development.

Dr. Hariprasad Lab: Dr Hariprasad will be mentoring student in development of ICMR assay protocols and clinical sample validation.