Name: **Ravikrishnan Elangovan**
Designation: Associate Professor
Department: Department of Biochemical Engineering & Biotechnology
Institute/University: INDIAN INSTITUTE OF TECHNOLOGY DELHI
Contact: Elangovan@dbeb.iitd.ac.in Ph:+91 11 26591057; 09899998968

Education (Post-Graduation onwards & Professional Career)

Sl No.	Institution Place	Degree Awarded	Year	Field of Study
1	University of Florence, Italy	PhD	Jan 2008	Physiology
2	IIT-Delhi	M.Tech	1999-2004	Biochemical Engg and Biotechnology
3	IIT-Delhi	B.Tech	1999-2004	Biochemical Engg and Biotechnology

Position and Employment

Sl No.	Institution Place	Position	From (Date)	To (date)
1	IIT Delhi	Associate Professor	July 2018	Present
2	IIT Delhi	Assistant Professor	March 2010	July 2018
3	TIFR, Mumbai	Post-Doctoral Fellow	July 2009	March 2010
4	University of Florence, Italy	Post-Doctoral Fellow	Jan 2008	Dec 2008
5	University of Florence, Italy	PhD graduate	Sep 2004	Jan 2008
6	University of Kent, UK	Lab visitor	Dec 2005	May 2006

Honors/Awards

1. Spin-off from my Lab "Valetude Primus Health Care Pvt Ltd" has received Pfizer Innovation award for the year 2016 http://pidiip-fitt-iitd.in/ .
2. Spin-off from my Lab "Valetude Primus Health Care Pvt Ltd" has received Longitude Prize Discovery award in 2016 https://longitudeprize.org/blog-post/winners-discovery-awards .
3. Selected as top 20 social innovators to present our technology in Nation conference on Social Innovation by Pune International center, on 17th November 2016.
4. Technology developed by us has been innovation award by IIT Delhi 1989 batch Alumini (http://iitdinnovationaward.org/2014-15)
5 My PNAS paper is evaluated by f1000 and acknowledge our contribution in throwing light on stretching of muscle

Professional Experience and Training relevant to the Project

Publications (Numbers only) 11, Books chapter: 1, Patents : 4

1 SeeTB: A novel alternative to sputum smear microscopy to diagnose tuberculosis in high burden countries, V Pandey, P Singh, S Singh, N Arora, N Quadir, S Singh, A Das, ..., Scientific reports 9 (1), 1-10
2. Antibiotic resistance and epigenetics: more to it than meets the eye". Antimicrobial agents and chemotherapy, D Ghosh, B Veeraraghavan, R Elangovan, P Vivekanandan, 2019.
3. Simultaneous and high sensitive detection of Salmonella typhi and Salmonella paratyphi a in human clinical blood samples using an affordable and portable device, A Kaur, A Ruhela, P Sharma, H Khariwal, S Seth, A Kumar, A Kapil, ..., Biomedical microdevices 21 (4), 95 2019
4. "Rapid Detection Device for Salmonella typhi in Milk, Juice, Water and Calf Serum", Indian Journal of Microbiology, 2018, Kaur, A., Nigam NM., Pandya D., Elangovan, R., Jha, S. & Kalyanasundaram. DOI: 10.1007/s12088-018-0730-4
5. A Kaur, A Kapil, R Elangovan, S Jha, D Kalyanasundaram. Highly-sensitive detection of Salmonella typhi in clinical blood samples by magnetic nanoparticle-based enrichment and in-situ measurement of isothermal amplification. PloS one 13 (3), e0194817
6. Pandey, V., Gupta, S. & Elangovan, R. Compact 3D printed module for fluorescent and label-free imaging using evanescent excitation. *Methods and applications in fluorescence* (2017).

7. Singh, S. *et al.* A portable immunomagnetic cell capture system to accelerate culture diagnosis of bacterial infections. *The Analyst* **141**, 3358-3366 (2016).
8. Singh, S. *et al.* Spot Immunomagnetic Enrichment Device for Rapid Detection of Pathogens in Peripheral Blood. *Advanced Materials Technologies* **1** (2016).
9. Rastogi, K., Puliyakodan, M. S., Pandey, V., Nath, S. & Elangovan, R. Maximum limit to the number of myosin II motors participating in processive sliding of actin. *Scientific reports* **6** (2016).
10. Soni, U. *et al.* Simultaneous type-I/type-II emission from CdSe/CdS/ZnSe nano-heterostructures. *ACS nano* **8**, 113-123 (2013).
11. Elangovan, R. *et al.* An integrated in vitro and in situ study of kinetics of myosin II from frog skeletal muscle. *The Journal of physiology* **590**, 1227-1242 (2012).
12. Nath, S. & Elangovan, R. New perspectives on photosynthetic phosphorylation in the light of a torsional mechanism of energy transduction and ATP synthesis. *Journal of bioenergetics and biomembranes* **43**, 601-610 (2011).
13. Fusi, L. *et al.* The mechanism of the resistance to stretch of isometrically contracting single muscle fibres. *The Journal of physiology* **588**, 495-510 (2010).
14. Brunello, E. *et al.* Skeletal muscle resists stretch by rapid binding of the second motor domain of myosin to actin. *Proceedings of the National Academy of Sciences* **104**, 20114-20119 (2007).
15. Toedt, G. H., Krishnan, R. & Friedhoff, P. Site-specific protein modification to identify the MutL interface of MutH. *Nucleic acids research* **31**, 819-825 (2003).

Book chapters:

1. Fusi, L. *et al.* in *Optical Fluorescence Microscopy* 183-189 (Springer Berlin Heidelberg, 2011)
2. P Singh et al. Mycobacterium Tuberculosis: Molecular Infection Biology, Pathogenesis, Springer, Singapore, 2019

Patents:

1. MAGNETIC CAPTURING OF RARE CELLS, 3465/DEL/2014 & PCT/IN2015/050155
2. MAGNETIC ENRICHMENT OF MAGNETICALLY MARKED CELLS, 485/DEL/2015 & PCT/IN2015/050168
3. EVANESCENT WAVE-BASED ILLUMINATION, 2673/DEL/2015
4. A COMPOSITION FOR MUCUS OR SPUTUM LIQUEFACTION AND A PROCESS THEREOF, 201811044208
5. COLLECTION DEVICE FOR SAMPLE COLLECTION, 2020 OCT
6. DEVICE FOR RNA EXTRACTION FOR SARS-COV2 DETECTION, 2020 OCT
7. MICROFLUIDIC ANALYSER FOR IN-VITRO BIOSENSING AND DIAGNOSTICS, 2020 OCT

C. Research Support

Completed Research Projects

Sl No.	Title of Project	Funding Agency	Amount	Date of completion
1	Development of single molecule fluorescence techniques to study molecular motors,	IIT Delhi	12	July 2011
2	In Vitro Reconstruction of Muscle Contraction	DST	22.7	June 2015
3	Development of a Novel Magnetic Tweezer to Measure Torque in Bacterial Flagella Motor	DBT	30	June 2016
4	Direct Detection of Enteric Fever in Blood by Evanescent Wave Optical Illumination	DBT	83.2	Sept 2017
5	Development of an affordable, automated and field deployable, point of care and contained system for rapid diagnosis of TB caused by Mycobacterium tuberculosis	MHRD	220 L	Feb 2020

Ongoing Research Projects (

Sl No.	Title of Project	Funding Agency	Amount	Date of completion

1	Catalysing diagnostics innovation from benchside to bedsie	MHRD-SPARC	54 Lakhs	March 2021
2	DOSA: Diagnostics for One health and User driven solutions for AMR	DBT-ESRC	3 Million pounds	September 2021
3	Reliable COVID diagnostics development	Industry	3.6 Cr	Jan 2021