

Sreelakshmi Bindu Jyothikumar

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Education

- 2016-2018** **Master of Science** | Human Genetics and Molecular Biology | Bharathiar University | India
CGPA-8.2/10.0 First class with distinction.
- 2013-2016** **Bachelor of Science** | Plant Biology and Plant Biotechnology | PSGR Krishnammal College | India
CGPA-8.2/10.0 First class with distinction.

Research Experience

- 2024-present** **Project associate | National Centre for Biological Sciences (NCBS-TIFR) | India**
- Generated and characterized patient-derived induced pluripotent stem cells (iPSCs) for biorepository.
 - Generated cortical neurons from iPSCs through directed differentiation.
 - Investigation of lithium sensitivity in bipolar disorder using iPSC-derived cortical neurons.
 - Introducing point mutation in bipolar disorder patient-derived iPSC using base editing.
- 2021-2024** **Junior research fellow | Rajiv Gandhi Centre for Biotechnology (RGCB) | India**
- Delineated mechanoresponsive signaling pathways in altered flow-induced vascular malformations.
 - Identified potential drug targets.
- 2019** **Project trainee | University of Madras | India**
- Studied toxicological effects of various phytochemicals using zebrafish embryos.
- 2018** **Master's thesis | Bharathiar University | India**
- Investigated mutational screening and chromosomal alteration in autism spectrum disorder.
 - Performed karyotype analysis and identified gene mutation.
- 2017** **Summer internship | CSIR-Cellular and Molecular Biology (CCMB) | India**
- Studied the impact of maternal prenatal stress during adolescence using a mice model.
 - Conducted animal behavioural tests.

Publications

- Ahalya S, Karthika CL, **Sreelakshmi BJ**, et al. Altered venous flow drives endothelial to mesenchymal transition in varicose veins by suppressing PIEZO1-KLF2 signaling. *Manuscript submitted*.
- B.J. Sreelakshmi**, C.L. Karthika, S. Ahalya, et al. Mechanoresponsive ETS1 causes endothelial dysfunction and arterialization in varicose veins via NOTCH4/DLL4 signaling. *European Journal of Cell Biology*, Volume 103, Issue 2, 2024,151420, ISSN 0171-9335. <https://doi.org/10.1016/j.ejcb.2024.151420>.
- Karthika CL, Venugopal V, **Sreelakshmi BJ**, et al. Oscillatory shear stress modulates Notch mediated endothelial mesenchymal plasticity in cerebral arteriovenous malformations. *BMC Cellular and Molecular Biology Letters* 28, 22 (2023). <https://doi.org/10.1186/s11658-023-00436-x>.

Achievements

- Best poster award - International Conference on Emerging Trends in Genomics and Biomedicine (ETGB 2023).
- Certification course on Laboratory Animal Science, Animal Research Facility, RGC B.
- Qualified Graduate Aptitude Test in Engineering (GATE 2021).
- TOEFL iBT Score – 94/120.

Conferences

- **BJ Sreelakshmi**, CL Karthika, S Sumi. "Aberrant mechanosensitive signaling pathway induces venous endothelial dysfunction in varicose veins". *International Conference on Emerging Trends in Genomics and Biomedicine (ETGB 2023)*, University of Kerala, India, 15th -17th November 2023 (Poster).
- **Sreelakshmi BJ**, Karthika CL, Sumi S. "Altered venous shear stress induce endothelial mechanosensitive Ets1-Notch4/Dll4 signaling in varicose veins". *International conference on Advances in Biotechnology: Current Discoveries and Future Perspectives (ICAB- 2023)*, Amity University, India, 17th -18th October 2023 (Oral).
- **BJ Sreelakshmi**, CL Karthika, S Sumi. "Disturbed hemodynamics activates aberrant endothelial Notch signaling via mechanosensitive Ets1 in varicose veins". *International Conference on Advances on Cardiovascular Medicine and Research (ACMR 2023)*, PGIMER, India, 16th – 18th February 2023 (electronic poster).

Technical Skills

Mammalian cell culture	hiPSCs, cortical neurons, LCL, HUVEC, HCMEC, EA.hy926, U87MG; LCL to iPSC generation, iPSC to cortical neuron differentiation; <i>In vitro</i> fluid shear stress experiments.
Molecular biology techniques	DNA/RNA isolation, cDNA synthesis, PCR, qRT-PCR, SDS-PAGE, Western blot, Immunofluorescence, siRNA knockdown, Immunohistochemistry, Electroporation, Base editing.
Biophysical instrumentation	Basic level: Confocal microscopy, NMR spectroscopy.
Model organisms handled	Mice, Zebrafish, C.elegans. Animal behavioural tests: open field, forced swim.
Microbiology techniques	Bacterial transformation, Plasmid isolation.
Data analysis software	ImageJ, Graphpad prism.
Programming languages	Basic level: Python.