

Lakshmini Balachandar

<https://www.linkedin.com/in/lakshmini-balachandar/>

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SUMMARY

- Research Scientist with 8+ years of experience in hypothesis-driven research as demonstrated by 5 peer reviewed scientific publications with aspirations to translate novel ideas into practical solutions.
- High level strategic planner in neuroscience panning across *in vitro*, *in vivo* and *ex vivo* systems, optogenetics, confocal imaging, and statistical data analysis.
- Strong communication skills with the ability to interpret and effectively communicate complex scientific data evidenced by 20+ conference presentations, 2 grants and 3 awards.
- Highly organized, efficient in project management, maintaining deadlines consistently and thriving in a collaborative environment demonstrated by 5 cross functional collaborations.

WORK EXPERIENCE

In Vitro Research Specialist

Feb 2012 – July 2016

- **Florida International University (FIU), Miami, FL:** Performed gene editing, AAV gene delivery and assessed transfection/ transduction efficiency of viral vectors targeting rat neocortical astrocytes, resulting in 4 conference presentations and 1 award.
- **Indian Institute of Technology, Madras, IN:** Conducted research on the effect of microgravity on colon cancer cells resulting in 1 collaboration.
- **Harvard Medical School, Boston, MA:** Researched on cardiac stem cells resulting in 1 collaboration.
- Experience in handling primary glial cells, cancer cells and stem cells in a BSL-2 environment.
- Expertise with cell culture techniques, media preparation, and cellular and molecular biology methods.

In Vivo Research Specialist

May 2016 – Present

FIU (Miami, FL)

- Comprehensively studied transduction patterns targeting rat astrocytes resulting in 2 research grants.
- Monitored *in vivo* neuronal activity with a novel wireless bio-potential recorder resulting in 2 cross functional collaborations.
- Performed stereotaxic rat surgeries including craniotomies and durotomies, chronic animal care, perfusion, histology and microscopy as evidenced by 3 publications, 1 under review and 12 conference presentations.
- Managed lab operations and consumables worth \$150,000 to maximize productivity cost-effectively.

Ex Vivo Research Specialist

Aug 2018 – Present

FIU (Miami, FL)

- Spearheaded a Material Transfer Agreement (MTA) between RIKEN, Japan and FIU resulting in establishment of 2 transgenic lines in the United States.
- Developed a novel protocol for performing simultaneous optogenetics and astrocytic Ca²⁺ imaging in acute brain slice preparations as evidenced by 1 publication and 4 conference presentations.

- Evaluated the effect of light and electrical stimulation paradigms on neocortical astrocytes leading to 2 cross functional collaborations, 1 publication under preparation and 1 award.
- Created IACUC, IBC protocols and optimized protocols for DNA genotyping, including handling, breeding, maintenance and upkeep of the transgenic mice model colonies.

Teaching Fellow

Aug 2016 – Aug 2020

FIU (Miami, FL)

- Instructed and designed 2 BME undergraduate courses comprising of 500+ students, including follow-up by continuous mentoring and resolution of course difficulties for students.
- Extensively trained and mentored 2 incoming Ph.D. students and 6 undergraduate researchers on advanced scientific techniques and guided them in critical thinking applications in their research.

EDUCATION

Ph.D in Biomedical Engineering from Florida International University, FL, USA 2021
B. Tech in Bioengineering from SASTRA University, Thanjavur, India 2012

TECHNICAL EXPERTISE

Cell & Molecular Biology	Durotomies	Fluorescence Microscopy	Other skills
Cell culture	Brain Microinjections	Optical Microscopy	Project Management
Gene Editing	Perfusions	Data analysis skills	Teamwork & Collaboration
Transduction	Electrophysiology	Power analysis	Leadership
Transfection	Dissections	Statistics	Scientific Communication
Stem Cell Biology	Animal Handling	Image Processing	Strategic Planning
DNA maxi and minipreps	Optogenetics	Software	Adaptability
Genotyping	Histology Techniques	Image J/ FIJI	Organizational Skills
DNA extraction	Immunohistochemistry	Olympus Fluoview	Creative Problem Solving
PCR	Immunocytochemistry	G*Power	Time Management
Gel Electrophoresis	Vibratome sectioning	Gen-5	Stress Management
Acute Brain slices skills	Cryo-sectioning	GraphPad Prism	Teaching
In vivo skills	Imaging	MATLAB	Lab Management
Rodent Surgery	Calcium Imaging	Endnote	Scientific Writing
Craniotomies	Confocal Microscopy	MS-Office	Multitasking

AFFILIATION, AWARDS AND HOBBIES

- Treasurer, IEEE Engineering and Medicine in Biology Society (EMBS), FIU
- Dissertation Year Fellowship Award, Graduate Student Appreciation Week Award, FIU
- Hobbies: Painting, Reading, Cooking, Traveling

References, publications and conference presentations will be available upon request