



MEGHNA C RAO

India
+91-9108770627

meghnachennojirao.github.io
meghnacrao@gmail.com

Medium
Google Scholar

Saliency network

Behaviour

Memory

Epigenetics

ABOUT

A final-year M.Sc. Biomedical Sciences student with hands-on experience in CRISPR-Cas9-mediated gene knockout and neuronal gene expression analysis, with over a decade of clinical medicine exposure, focused on advancing neuroscience research.

My clinical training shapes how I approach neuroscience, allowing me to study the brain not in isolation, but as part of a broader, interacting system underlying mind and behavior.

LONG TERM GOAL

To spend the next few years working on Molecular Neuroscience, Epigenetics, and Behavioral Neuroscience. Hoping to run my own research lab someday!

EDUCATION

- | | |
|--|------------|
| Master of Science in Biomedical Science [Current CGPA: 8.88]
Nitte University Centre for Science Education & Research, Deralakatte | 2024-2026 |
| Bachelor of Homoeopathic Medicine and Surgery
Fr Muller Homeopathic Medical college & Hospital, Mangalore | 2013-2019 |
| Pre University- Science (Physics, Chemistry, Math, Biology)
St. Aloysius PU, Mangalore | 2011- 2013 |

MASTER'S THESIS

Effects of *tprkb* deficiency on the expression of neuronal transcription factors in zebrafish. (ongoing)

Under the guidance of Dr. Gunimala Chakraborty, HOD & Associate Professor
Dept. of Molecular genetics & Cancer.

Through this project we are expecting to Generate stable *tprkb* mutants using CRISPR-Cas9, confirmed via HRMA and HD assays. The Phenotypic analysis may reveal developmental anomalies similar to those in GAMOS. Altered expression of neuronal transcription factors is assessed by WISH and validated through RNA-based analysis. The techniques involve CRISPR-Cas9, HRMA, HD assay, 28-point developmental screening, WISH, cDNA synthesis.

INTERNSHIPS

RESEARCH INTERN (Manipal School of Lifesciences)
Department of Public Health Genomics

June 2025- July 2025

Techniques learnt: Mammalian cell culture, DNA & RNA extraction, cDNA synthesis, Bradford Assay, Immunohistochemistry, Primer dilution, Masson's Trichrome staining, Mitochondrial staining.
Instruments: Fluorescent microscope, Nano-spectrophotometer, Stereo microscope.

BACHELOR'S DISSERTATION

Assessment of treatment outcome in eczema with homoeopathic constitutional medicine using SCORAD.

Under the guidance of Dr. Vilma D'souza, BHMS, MD(Hom), MS (Counselling & Psychotherapy)
HOD & Prof. Dept. Of Obstetrics & Gynaecology | May 2019

A case series of 25 individuals with eczema was conducted to evaluate the effects of individualized homoeopathic constitutional treatment in potentized form. Disease severity was assessed using the SCORAD index before and after treatment. A statistically significant reduction in SCORAD scores was observed ($p = 0.006$), with 22 patients showing improvement and 3 showing no change. These findings indicate a potential association between the intervention and symptom improvement; however, due to the absence of a control group, small sample size, and lack of blinding, causal conclusions regarding efficacy cannot be established.

PROJECTS

Measure Chronotype

A 19-question Morningness-Eveningness Questionnaire (MEQ) to determine sleep chronotype, aiding in better scheduling and identifying potential sleep disorders.
Consultant for the app, providing input on chronotype categorization and health risks, conducting research, and collaborating on user experience design.

Neuro Navigator

Designed an interactive game exploring the functions of place cells within the hippocampus, providing users with a hands-on insight into its role in cognitive processes and spatial navigation.

Temporal Binding Game

Developed an interactive game centered on the concept of temporal binding, challenging players to discern and link events based on perceived temporal connections and causally related occurrences, while evaluating the time required to recognize or differentiate such bindings.

Flash Lag Illusion

Analyzed the Flash-Lag Illusion, inspired by David Eagleman, to study motion perception and highlight the nuances and constraints of our visual system in neuroscience.

Motion After Effect

An interactive demonstration of the Motion After-Effect illusion, showcasing how prolonged exposure to a specific motion impacts neural responses, leading to perceived motion in static objects due to neural adaptation.

Psychometry

A minimal online quiz platform designed to assess personality traits through self-reported answers.

CERTIFICATIONS

Neuroscience of Human Movements

Prof. Varadhan, *IIT Madras*

Brief Introduction to Psychology

Prof. Braj Bhushan, *IIT Kanpur*

Introduction to Basic Cognitive Processes

Prof. Ark Verma, *IIT Kanpur*

Neurobiology

Prof. Nitin Gupta, *IIT Kanpur*

Molecular Biology

Prof. Vishal Trivedi, *IIT Guwahati*

Genetic Engineering: Theory & Application

Prof. Vishal Trivedi, *IIT Guwahati*

Demystifying The Brain

Prof. Srinivas Chakravarthy, *IIT Madras*

WORK EXPERIENCE

PHYSIOLOGY LECTURER (Visiting Faculty)

Dec 2023- Jun 2024

Niramaya College of Nursing & Allied Health Sciences, Udupi

Instructing first-year bachelor's students in physiology, adhering to educational standards. Employed various teaching methodologies, including those inspired by Fiorella and Mayer, to enhance comprehension.

CHIEF PHYSICIAN (Self-Employed)

Feb, 2020 - Nov, 2023

Dr Rao's Homeopathic Clinic, Katapadi- Udupi.

Along with medical care, I promote holistic wellness through lifestyle counseling, including dietetics, nutrition, exercise, counseling and psychology.

By providing comprehensive care that addresses physical, mental, and emotional well-being, I help patients achieve optimal health and quality of life.

ASSISTANT PHYSICIAN

Nov, 2019 - Jan, 2020

BR Shetty Mother & Child Hospital, Udupi

Actively involved in providing comprehensive care during pregnancy, childbirth, and postpartum, including management of various health conditions that arise during this time.

Promoting women's hygiene and awareness about menopause.

Providing education and support to help women maintain good hygiene practices and understand the changes that occur during menopause, including the potential for associated health risks.

SKILLS

Wet Lab techniques: qPCR & genotyping,
Western Blot, Spectrophotometry, Nucleic
acid extraction, cDNA Synthesis, WISH,
Microinjection into zf embryos, Zebrafish
handling, CRISPR-Cas9 gene KO,
Phenotypic Screening, Plasmid Cloning.

Trinocular Stereomicroscope
Primer designing, sgRNA designing
Clinical Interpretation & Medical Diagnosis
Latex (Overleaf), JAMOVl
Python & HTML
Digital Art and Scientific Diagrams

CONFERENCES

NATIONAL CONFERENCE ON BIOCHEMISTRY CONNECT

St Aloysius (Deemed to be University) School of Life Sciences, 9th March 2026

UNDERSTANDING THE DYNAMIC INTERPLAY OF GENES, PATHOGENS & HOST RESPONSE IN DISEASES: A SYSTEMS BIOLOGY APPROACH

NUCSER, India-Netherlands Collaborative program, 19 Nov 2025

IMMUNE BIOLOGY & PRECISION MEDICINE: DECIPHERING CROSS-TALKS THROUGH MULTI-OMICS

NITTE(Deemed to be University) at NUCSER, 19-20th March 2025

CANCER EPIGENETICS: FROM LABORATORY STUDIES TO PRECISION MEDICINE

Manipal School of Life Science, 22-23rd Jan 2025

UTILIZING MICROBIOME & GENOMIC RESOURCES FOR UNDERSTANDING & MITIGATING ANTIMICROBIAL RESISTANCE IN ONE HEALTH CONTEXT

FAO reference Centre for Antimicrobial Resistance & Aquaculture Biosecurity, Nov 2024

MULTI-OMICS APPROACHES IN UNDERSTANDING ENVIRONMENTAL & LIFESTYLE INFLUENCES ON HEALTH

NITTE(Deemed to be University) at NUCSER, Oct 2024

CELL THERAPY CONCLAVE

Manipal Centre for Biotherapeutics Research & Consultancy & Entrepreneur Research Vertical, Oct 2024

WORKSHOPS

COMPUTATIONAL TECHNIQUES FOR DRUG DISCOVERY & DRUG DELIVERY

Dept of Pharmaceutical Chemistry, NGSMIPS, Jan 2026

NASA'S OPEN SCIENCE 101 CURRICULUM

Neuromatch X NASA- National Aeronautics and Space Administration, Nov 2024

WEBINARS

STRATEGIES TO ENHANCE PHONEMIC AWARENESS IN CHILDREN

Mrs Balasaraswathy Nair, Organized by Eblity, Jan 2025

AI FOR NEURO: HOW MODERN AI TECHNOLOGIES ENABLE ADVANCES IN NEUROSCIENCE

Chen Institute for Neuroscience at Caltech, Dec 2024

FRAMEWORK OF UNDERSTANDING CHILD DEVELOPMENT

Ms Rita Gendelman, Organized by Eblity, Feb 2023

ADHD

Dr. Sudipti Roy, Organized by Eblity, May 2022

UNDERSTANDING ADHD IN CLASSROOMS, AT HOME & IN OTHER SOCIAL SETTINGS

Ms. Shivani Wadhwa, Organized by Eblity, May 2022

HOW TO TEACH STUDENTS WITH DIFFERENT CHALLENGES IN CLASSROOM SETTING

Ms. Tobiloba Ajayi, Organized by Eblity, May 2022

INTERESTS

Singing

Electronic Keyboard

Gardening & Foraging

Fashion Designing

Botany

Physics

Writing

Research

Philosophy

Psychology

EXTRA CURRICULARS

Singing - Won several Intercollegiate competitions

Debating - Won several Intercollegiate competitions

Green Brigadier, 2024-25

Member of the College Magazine Editorial and Design Board, 2024-25

LANGUAGE SKILLS

English

Kannada

Hindi

Tulu

Urdu

Malayalam

French

Fluent - C1 (IELTS)

Mother tongue

Native

Native

Native

Conversational

Basic (Or you can say, just enough to sing 'Aux Champs Élysées')