



AYANTHI BHATTACHARYA

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EDUCATION

Ph.D. in Biotechnology

Tata Institute for Genetics
and Society, Bangalore
Amrita University, Kerala
2020 - Present

M.Sc. in Biochemistry

Savitribai Phule Pune
University
2015-2017

B.Sc. in Chemistry

Fergusson College, Pune
2012-2015

EXPERTISE

Model systems

- *Drosophila melanogaster*
- Mammalian cell culture
(NIH3T3, mIMCD-3)

Data and Analysis

- Bioinformatics
- Handling -omics data
- R

Imaging & Visualization

- Confocal Microscopy
- ImageJ

Experimental Biology

- *Drosophila* genetics
- Molecular biology
- Protein biochemistry
- Microbiology

BIO

I am currently a graduate student jointly hosted by the Tata Institute for Genetics and Society and Amrita University, working on neurodevelopment in *Drosophila*. More broadly, my research interests span developmental biology, behaviour, and evolutionary developmental biology (Evo-Devo).

CURRENT RESEARCH

Ph.D. Student | Tata Institute for Genetics and Society (TIGS), Bengaluru | Amrita University, Amritapuri

Oct 2020 - Present

Supervisor: Sonia Sen

Project:

Investigating how spatial and temporal patterning information is integrated within individual neural stem cells during *Drosophila* neurodevelopment.

Approaches:

- Applied Targeted DamID (TaDa) to map chromatin accessibility and transcription factor occupancy *in vivo* in specific neural stem cell populations.
- Performed bioinformatic analysis of datasets derived from TaDa experiments.
- Performed genetic manipulations of transcription factor expression and assessed effects on neural stem cell lineages.
- Visualized lineage-specific outcomes using immunohistochemistry and confocal imaging.

This work is available as a pre-print.

PREVIOUS RESEARCH EXPERIENCE

Research Assistant | Tata Institute for Genetics and Society (TIGS), Bengaluru

Aug 2019 - Sep 2020

Supervisor: Sonia Sen

Project:

Validating Targeted DamID (TaDa) as a reporter of transcription factor occupancy and chromatin accessibility *in vivo*.

- Optimized the experimental pipeline for Targeted DamID (TaDa) in *Drosophila* neural stem cells.
- Analyzed high-throughput sequencing data to assess TaDa performance.
- Validated TaDa tools for two candidate transcription factors.
- Demonstrated that TaDa reliably reports transcription factor occupancy and chromatin accessibility *in vivo*.

Junior Research Fellow | School of Biotechnology | Jawaharlal Nehru University (JNU), New Delhi

July 2018 – July 2019

Supervisor: Suneel Kateriya

Project:

Development of optogenetic tools to probe the role of cGMP in ciliogenesis and ciliary Maintenance.

- Developed and validated optogenetic tools to modulate cGMP signalling in mammalian cell models.
- Performed molecular cloning, protein purification, and biochemical validation in NIH3T3 and mIMCD3 cells.

M.Sc. Thesis Project | Savitribai Phule Pune University, Pune | National Centre for Cell Science (NCCS)

Dec 2016 – Mar 2017

Supervisor: Amitava Majumdar and Suvidya Ranade

Project:

Cloning and expression of Amyotrophic Lateral Sclerosis-associated proteins: FUS and TDP43.

- Performed cloning and protein purification.

Summer Research Fellow | School of Environmental Sciences | Jawaharlal Nehru University (JNU), New Delhi

May 2016 – July 2016

Supervisor: Kasturi Mukhopadhyay

Project:

Comparative activity of different classes of antibiotics (using drop plate method)

- Generated growth curves for methicillin-susceptible *Staphylococcus aureus* (MSSA, ATCC 25923) and compared antibiotic killing activity in buffer and media using drop-plate assays

GRANTS AND AWARDS

- **Junior Research Fellowship, Government of India – Awarded via national competitive examination**
 - CSIR-NET (June 2018): All India Rank 52 (~99.97th percentile)
 - GATE 2018: All India Rank 102 (~99th percentile)
- **Science Academies' Summer Research Fellowship Programme (2016)** – jointly organized by the Indian Academy of Sciences, Indian National Science Academy, and The National Academy of Sciences, India
- **CSIR-National Chemical Laboratory Merit Scholarship:** Top of the class, M.Sc.
- **Gunvant Merit Scholarship:** Second in class, B.Sc.

PUBLICATIONS

Bhattacharya A, Rao H, Sen S. *Chromatin priming and Hunchback recruitment integrate spatial and temporal cues in Drosophila neuroblasts*. bioRxiv, 2025. Preprint; under review.
<https://doi.org/10.1101/2025.11.25.690435>

ORAL AND POSTER PRESENTATIONS

- **Oral presentation at Annual Work Seminar**, hosted at NCBS, Bangalore, India. (2021, 2022, 2024, 2025) Ayanthi Bhattacharya, Hemalatha Rao, Sonia Sen. Neural stem cell-specific transcription factors specify lineage identity via modulating chromatin accessibility.
- **Poster presentation at Indian *Drosophila* Research Conference**, hosted at IISER-Thiruvananthapuram, Kerala, India. (2023) Ayanthi Bhattacharya, Hemalatha Rao, Sonia Sen. Neural stem cell-specific transcription factors specify lineage identity via modulating chromatin accessibility.
- **Poster presentation at conference on Stochasticity and Plasticity in Living Systems (SPLS)**, hosted by Simons Centre for Study of Living Machines, held in Sakleshpur, Karnataka, India. (2023) Ayanthi Bhattacharya, Hemalatha Rao, Sonia Sen. Neural stem cell-specific transcription factors specify lineage identity via modulating chromatin accessibility.
- **Poster presentation at conference on Cellular Lineages and Development: From Single Cells to Landscapes**, hosted by Simons Centre for Study of Living Machines, held in Alleppey, Kerala, India. (2022) Ayanthi Bhattacharya, Hemalatha Rao, Sonia Sen. Neural stem cell-specific transcription factors specify lineage identity via modulating chromatin accessibility.
- **Poster presentation at Asia-Pacific *Drosophila* Research Conference (APDRC5)**, held in Pune, India. (2020) Ayanthi Bhattacharya, Chinjusha Suresh, Sudipta Ashe, Sonia Sen. Neuronal Diversity: Gooseberry at the heart of integrating spatial and temporal cues in neural stem cells.

WORKSHOPS AND INTERNSHIPS

Workshop on Statistical Genomics

Aug 16 – Aug 19, 2023

- I was part of this [workshop](#) where we were taught the basics of how to work with -omics data

Social Media Intern at Club SciWri



Mar, 2025 – Present

- Social Media Fellow for [Club SciWri](#), an online science magazine.
 - I have been working on publicizing articles put out by Club SciWri, by writing poems related to the subject of the article.

Workshop on Popular Science Writing

- I was selected for a Science Writing Workshop organized by Club SciWri. We were taught various aspects of popular science writing and science communication.


SCIENCE COMMUNICATION

Bhattacharya A. Mirror, mirror on the wall... Club SciWri, October 21, 2025.

<https://sciwri.club/archives/14371>

COORDINATOR/VOLUNTEER

Teaching Assistant

- Courses on
 - Developmental Biology
 - Basic Neurobiology
- **The Development and Behaviour Journal Club (DBJC)**
 - I help coordinate this student-run journal club across the Bangalore Life Science Cluster (Blisc) campus
 - Duties include advertising upcoming talks, engaging with the community.
 - We like writing little poems accompanying the work being presented. Some of this can be viewed on DBJC's X-space (formerly Twitter).
- Helped organize **Science Outreach** events as part of Indian Society for Developmental Biology (InSDB).  @dbjc_bdbc
- **COVID Testing**
 - I volunteered at InStem's COVID testing facility, Bangalore, that performed sample collection and testing on samples obtained from different parts of Karnataka, India

EXTRA-CURRICULARS

Music

- Trained in Hindustani Classical Vocals for over 10 years
- Awarded the Firodiya Classical Music Prizes by Fergusson College and Deccan Education Society

Dance

- Trained in Manipuri dance form.

Theatre and Drama

- Active member of Stagecraft, the theatre group at NCBS, Bangalore.
- Performed, written and directed plays both for campus and for independent theatre groups.

Design

- A relatively new interest, I like doing illustrations and designing logos, posters. Some of this can be viewed on my website.