# Arupam Biswas

**Date of birth:** 20 Apr 1999 | **Nationality:** Indian | **Gender:** Male | **Phone number:** (+91) 7384540931 (Mobile) | **Email address:** arupambiswas007@gmail.com |

**Address:** Palpara Purba Loknath Nagar, PS-Chakdaha, Nadia, West Bengal, 741222, India (Home)

## RESEARCH INTERESTS

### Developmental Biology and Neuroscience

1. Neurodegenerative Diseases.
2. Stem Cells and Regenerative Biology.

## EDUCATION AND TRAINING

19 AUG 2025 – CURRENT Mainz, Germany
**PHD STUDENT** Institute of Developmental Biology and Neurobiology (iDN), Johannes Gutenberg University Mainz

**Field of study** Functional Neurobiology, AG Heine

2019 – 2025 Santiniketan, India
**FIVE-YEAR INTEGRATED MASTERS IN SCIENCE IN LIFE SCIENCE** Integrated Science Education and Research Centre (ISERC), Visva-Bharati

**First Two Years**
- Studied Physics, Chemistry, Mathematics, and Life Sciences with equal emphasis.

**Third and Fourth Years**
- Majored in Life Sciences, with coursework in Biochemistry, Genetics, Cell and Molecular Biology.
- Gained expertise in molecular and biochemical assays, including Western Blotting and DNA/RNA isolation.

**Final/Fifth Year**
- Developed a strong interest in Neurosciences and completed a master's thesis on Spinal Cord Injury (SCI).

**Website** https://www.visvabharati.ac.in/ | **Field of study** Life Science | **Final grade** A+ |

**Thesis** High-Content Screening for neurite growth analyses: Evaluating gene treatments.

2009 – 2017 Chakdaha, India
**HIGHER-SECONDARY AND SECONDARY EDUCATION** Chakdah Purbachal Vidyapith (H.S.)

**Field of study** Stream: Science | **Final grade** Higher Secondary Examination, 2017 (Grade "B") & Secondary Examination, 2015 (Grade "A")

## WORK EXPERIENCE

**CSIR - CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY (CCMB)** – HYDERABAD, INDIA

**DISSERTATION RESEARCH TRAINING PROGRAM (DRTP)** – 10 AUG 2023 – 10 AUG 2024

**Project Title**: *High-Content Screening for Neurite Growth Analyses: Evaluating Gene Treatments.*
**Supervisor**: Dr. Ishwariya Venkatesh, Ph.D. (Senior Scientist & Group Leader, Laboratory of Axon Growth and Regeneration).
**Project Summary**:
- Evaluated the role of Nuclear Hormonal Receptors (NHRs) in axonal regeneration following Spinal Cord Injury (SCI).
- Executed *in-vitro* neurite outgrowth assays and performed image analysis for screening 'activators' or 'repressors' post-NHR-gene treatment.
- Mastered techniques such as stereotactic surgeries, mammalian cell cultures, behavioural assays and bioinformatics.

**INDIAN INSTITUTE OF TECHNOLOGY KANPUR** – KANPUR, INDIA

**VISITING RESEARCH INTERN** – 11 MAY 2023 – 11 JUL 2023

**Project Title**: *Analysing Electrodermal Activity for Standardising the Pre-Processing Pipeline.*
**Supervisor**: Dr. KM Sharika, Ph.D. (Assistant Professor & Group Leader, Social and Affective Cognition Lab).
**Project Summary**:
- Assisted in developing a collective decision-making task and collected neurophysiological data, such as electrodermal activity (EDA) and heart rate (HR) data from participants.
- Applied machine learning algorithms and evaluated the neurophysiological datasets using Neurokit-2, a Python toolbox for signal processing.
- Presented findings at IIT-Kanpur Students-Undergraduate Research Graduate Excellence(SURGE)'23 Symposium.

**INTEGRATED SCIENCE EDUCATION AND RESEARCH CENTRE(ISERC), VISVA-BHARATI** – SANTINIKETAN, INDIA

**SEMESTER PROJECT** – 5 FEB 2023 – 12 MAY 2023

**Project Title**: *Bioinformatics Approach Towards Understanding Neurological Disorders: Insights into the Brain Extracellular Matrix (ECM).*
**Supervisor**: Dr. Gireesh Anirudhan, Ph.D. (Assistant Professor, ISERC, Visva-Bharati)
**Project Summary**:

- Reviewed proteomics-based studies from postmortem brain tissue to investigate changes in the extracellular matrix (ECM).
- Bioinformatic analysis revealed a total of 67 unique proteins with altered expression and dysregulated biological processes, including ECM organisation, glycosaminoglycan/proteoglycan metabolism, blood coagulation, etc.
- Collagen type I alpha 2 was found altered in all three (Alzheimer's, Parkinson and Huntington's) diseases, and its binding partners were identified.

**JAWAHARLAL NEHRU CENTRE FOR ADVANCED SCIENTIFIC RESEARCH (JNCASR)** – BENGALURU, INDIA

**VISITING RESEARCH INTERN** – 25 MAY 2022 – 30 JUN 2022

**Project Title**: *A Study to Understand the Effects of Larval Social Environment on Body Size in Drosophila melanogaster.*
**Supervisor**: Prof. Sheeba Vasu, Ph.D. (Professor and Group Leader, Chronobiology and Behavioural Neurogenetics Laboratory)
**Project Summary**:

- Investigated the effect of socialisation in *Drosophila* and the factors influencing it.
- Measured body, thorax, and abdomen dimensions in pupal and adult flies, using light microscopy and Image-J software.
- Applied statistical methods and behavioural analysis to demonstrate that early-stage socialisation leads to increased body length.

**ADVANCED CENTRE FOR TREATMENT, RESEARCH AND EDUCATION IN CANCER (ACTREC)** – MUMBAI, INDIA

**VISITING RESEARCH INTERN** – 4 AUG 2021 – 8 NOV 2021

**Project Title**: *Investigating the Copy Number Between the wild-type TP53 and mutant TP53 in SKOV3 ovarian cancer cell lines.*
**Supervisor**: Prof. Dr. Pritha Ray, Ph.D. (Scientific Officer "G" and Group Leader, Imaging Cell Signalling and Therapeutics Lab)
**Project Summary**:

- Genomic DNA and total RNA were isolated from SKOV3 cells using standard protocols.
- Specific primers for wild-type and mutant TP53 were used to assess copy number and mRNA expression. Housekeeping genes served as internal controls.
- Mutant TP53 shows genomic amplification and overexpression, suggesting a potential role in SKOV3 tumorigenesis and therapeutic relevance.

## CORE SKILLS

### Biochemical, immunological and molecular techniques

Isolation and Purification of DNA and RNA (Phenol/Chloroform method); Restriction Enzyme Digestion; Agarose Gel Electrophoresis and SDS-PAGE; Plasmid Purification with Miniprep and Maxiprep; Bacterial Culture and Gene Cloning (Designing Plasmid Vector, Transformation and Colony Screening); PCR (Colony, RT, Reverse transcriptase, and Quantitative); Determination of Protein Concentration with Bradford Assay and Immunoblotting; Immunohistochemistry (IHC); ELISA.

### Mammalian Tissue Culture

Cell Culture (Primary Neuron and cell lines) and Cell Maintenance (freezing, passage and cell counting); Transient transfection, Transduction: lentiviral, retroviral; Drug screening and Colony formation assay.

### Animal Handling Expertise

- Mice Handling, Dissection, Breeding, Weaning; Anesthetization and Sedation: Intraperitoneal, Intramuscular, Intravenous; Animal Diagnostics, Stereotactic Surgery: Retrograde and Anterograde.
- Drosophila Handling, Breeding and Stock Maintenance.

### Imaging Expertise

Light Microscope; Confocal and Fluorescence Stereo Microscope - Leica and Zeiss LSM 900; Widefield Fluorescence Microscopy (Zeiss ApoTome.2); Harmony High-Content Imaging and Operatta.

### Research Tools and Softwares

Ensembl & NCBI, Primer3 Plus, NebCutter, Neurokit2, BioVenn, ClueGO, Cytoscape, EvoPPI, ImageJ, Adobe Photoshop & Illustrator, GraphPad- Prism, Benchling, DeepLabCut, Single Neuron Tracer (SNT).

### Computational Languages

Python, R, MATLAB, LATEX.

## PUBLICATIONS

2025
**Nuclear Receptor Transcription Factors promote axon regeneration in the Adult Corticospinal Tract**

**Authors**: Yogesh Sahu, Soupayan Banerjee, Manojkumar Kumaran, Katha Sanyal, Meghana Konda, Shringika Soni, Anisha S Menon, Sneha Manjunath, Dhruva Kumar Kesireddy, Deepta Susan Beji, Prakash Chermakani, Arupam Biswas, Ishwariya Venkatesh

2022
**Clinicopathology Molecular Analysis of Diffuse Intrinsic Pontine Glioma (DIPG) in Children - Insights from Past, Present, and Future Directions**

A Biswas, Journal for Research in Applied Sciences and Biotechnology, Vol 1, 63–70, ISSN: 2583-4053

## CONFERENCES AND SEMINARS

12 NOV 2024 – 14 NOV 2024 National Institute of Mental Health and Neurosciences(NIMHANS), Bengaluru, India.
**International Conference on Advances In Mechanisms and Approaches to Neuro-Therapeutics (AIM-AT) & XLII Annual Meeting of Indian Academy of Neurosciences 2024 (IAN-2024)**

**Single-cell genomics analyses reveal the molecular code that governs axon regeneration in CNS neurons**
- **Authors:** Sneha Manjunath[1] , Yogesh Sahu[1] , Meghana Madhu[1] , Katha Sanyal[1], Soupayan Banerjee[1], Arupam Biswas[1], Manojkumar Kumaran[1], Shringika Soni[1], Dhruva Kesireddy[1], Anisha S Menon[1], and Ishwariya Venkatesh[1]
- **Affiliation:** [1]CSIR - Centre for Cellular and Molecular Biology, Hyderabad, India.

20 APR 2024 Indian Institute of Technology Hyderabad (IIT-H), India.
**Hyderabad Science (HySci) Conference 2024**

***P14: Evaluating The Role of Transcription Factors (TFs) in Promoting Axon Growth Using High-Content Screening (HCS).***
- **Authors:** Arupam Biswas[1], Yogesh Sahu[1], Dhruva Kasireddy[1], Meghana Madhu[1], Manojkumar Kumaran[1], and Ishwariya Venkatesh[1]
- **Affiliation:** [1]CSIR - Centre for Cellular and Molecular Biology, Hyderabad, India.

4 OCT 2023 – 6 OCT 2023 Jiwaji University, India.
**XLI Annual Meeting of the Indian Academy of Neurosciences and International Conference on BRAIN: CHEMISTRY TO COGNITION**

***P139: Transcriptional Control of Mammalian Axon Regeneration: Role of Nuclear Receptors (NR) Family of Transcription Factors.***
- **Authors:** Yogesh Sahu[1], Manojkumar Kumaran[1], Anisha Menon[1], Sneha Manjunath[1], Meghana Madhu[1], Arupam Biswas[1] and Ishwariya Venkatesh[1]
- **Affiliation:** [1]CSIR - Centre for Cellular and Molecular Biology, Hyderabad, India.

**Link** https://journals.sagepub.com/doi/epub/10.1177/09727531231205772

27 JUN 2022 – 29 JUN 2022 Leipzig, Germany
**11th Summer School of the International Max Planck Research School on Neuroscience of Communication: Function, Structure, and Plasticity (IMPRS NeuroCom)**

1. Attended lectures on computational models in language, communication, cognitive, affective, basic, and clinical neuroscience, as well as neuroimaging physics and signal processing, including ethical implications.
2. Participated in small-group workshops and interactive online poster sessions.

## HONOURS AND AWARDS

2011
**West Bengal Pre-Matric & Post-Matric Scholarship for SC ST Students – Government of West Bengal**

- **OASIS Fellowship:** Worth 5000 INR.