

# Ahnaf Tajwar

## Senior Research Assistant

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### 📄 RESEARCH PROFILE

Translational researcher dedicated to closing the gap between the laboratory and life. I contribute across the full research pipeline, connecting upstream molecular engineering and computational biology (Python, R, Linux) with the downstream execution of Phase I-IV clinical trials. Focused on building robust systems and clear protocols, I translate complex biological data into conclusive insights with meticulous precision and resolve.

### 🎓 ACADEMIC BACKGROUND

Oct 2022 – Jan 2024  
Dhaka, Bangladesh

**Master of Science in Genetic Engineering and Biotechnology**  
*University of Dhaka*   
**CGPA: 3.73** (on a scale of 4.00)

Jan 2018 – Sep 2022  
Dhaka, Bangladesh

**Bachelor of Science (Honors) in Genetic Engineering and Biotechnology**  
*University of Dhaka*   
**CGPA: 3.77** (on a scale of 4.00)

Jul 2015 – Jun 2017  
Dhaka, Bangladesh

**Higher Secondary School Certificate in Science**  
*Dhaka Residential Model College*   
**GPA: 5.00** (on a scale of 5.00)

Jan 2013 – May 2015  
Dhaka, Bangladesh

**Secondary School Certificate in Science**  
*Dhaka Residential Model College*   
**GPA: 5.00** (on a scale of 5.00)

### 🏢 EXPERIENCE

#### IDD Special Activities, icddr,b

Aug 2025 – Present  
Dhaka, Bangladesh

*Senior Research Assistant*

- Managed lab equipment maintenance and calibration to ensure operational readiness.
- Independently managed the complete biospecimen lifecycle, guaranteeing sample integrity.
- Steered complex molecular/microbiological procedures and optimized lab workflows.
- Drove QA/QC implementation and mentored junior staff on best practices.
- Provided operational oversight and mentorship to clinical trial staff.
- Served as a key liaison with international sponsors to facilitate project collaboration.
- Organized digital documentation systems and led translation of critical research documents.

Sep 2024 – Jul 2025  
Dhaka, Bangladesh

*Research Assistant*

- Performed routine maintenance and troubleshooting of lab equipment.
- Handled biospecimen processing and storage according to protocol.
- Conducted standard microbiological and molecular laboratory procedures.
- Supported quality assurance processes by adhering to team protocols.
- Provided daily operational support to clinical trial staff.
- Assisted with communications and document preparation for international partners.
- Maintained digital records and provided translation support.

#### Department of Genetic Engineering and Biotechnology, University of Dhaka

Jan 2024 – Sep 2024  
Dhaka, Bangladesh

*Research Assistant*

- Actively contributed to the design, execution, and analysis of various cutting-edge research projects within the field of genetic engineering and biotechnology.
- Provided mentorship and guidance to novice researchers, fostering their scientific development and helping them navigate project-related activities effectively.

Aug 2021 – Dec 2023  
Dhaka, Bangladesh

*Student Researcher*

- Conducted comprehensive research into the antimicrobial properties of *Costus woodsonii* for a Master's thesis, exploring its potential as a source of novel therapeutic agents.
- Engaged in bioinformatics analyses to investigate the virulence factors of *Tsukamurella paurometabola* and *Enterobacter cloacae*, shedding light on their pathogenic mechanisms.

Feb 2024 – Present  
Khushab, Pakistan

**Notesnook**

*Community Moderator*

- Provided frontline user support on Telegram, Discord, and Reddit, troubleshooting software issues and resolving user queries.
- Cultivated a positive online community by enforcing guidelines and fostering respectful discussion.
- Relayed key user feedback and insights to the development team to guide app improvements.

Jun 2021 – Apr 2022  
Dhaka, Bangladesh

**Al-Quraner Vasha Institute**

*Virtual Classroom Assistant*

- Moderated live Zoom sessions for the "Comprehensive Arabic 21" course, ensuring a seamless and engaging learning environment.

- Managed the live question queue, efficiently relaying student queries to the instructor in real time.
- Maintained a focused learning atmosphere by promptly addressing any disruptions during live classes.

## SKILLS AND COMPETENCIES

### Drug Discovery and Clinical Research

- **Preclinical drug and vaccine development**, including candidate screening, *in vitro/in vivo* efficacy studies, and immunogenicity assessment.
- **Phase I-IV clinical trial management**, covering the full lifecycle, data integrity, ethical standards, and regulatory compliance.

### Molecular Engineering and Biochemistry

- Advanced **recombinant DNA techniques**, including PCR, gene cloning, custom vector design, and targeted protein expression.
- **Microbiological and phytochemical methods** for microbial culture, antimicrobial activity assessment, and bioactive compound screening.

### IT Infrastructure and Version Control

- **Linux** environment administration, task automation with shell scripting, and familiarity with cloud platforms (GCP, Azure).
- Collaborative code management via **Git** workflows, including branching, merging, and pull requests on GitHub and GitLab.

## RESEARCH INTERESTS

### Translational Medicine and Therapeutics

- Preclinical drug and vaccine development, including *in silico/in vitro/in vivo* studies.
- Design, implementation, and regulatory compliance of Phase I-IV clinical trials.

### Genomics and Microbiome Analysis

- Functional and population genomics to analyze genetic variation and evolutionary patterns.
- Metagenomic analysis of microbial communities and host-microbe interactions.

## RESEARCH PROJECTS

2025 – Present

### **A Phase I/II, Randomized, Double-Blind, Single center, Multi-site, Single-Dose Study to Assess the Safety, Tolerability, and Efficacy of Subcutaneous EV25 Compared with Placebo and Oseltamivir in Adults with Uncomplicated Influenza Virus Infection**

*Clinical Trial*

Designed investigational product (IP) and sample documentation for the study, established standard operating procedures for laboratory and clinical testing, and supported the creation and organization of justification dossiers for regulatory authorities.

2024 – Present

### **A Randomized, Double-Blind, Placebo-Controlled, Safety, Tolerability and Pharmacokinetic Phase I Study of Escalating Single Doses of VPO-227 in Healthy Volunteers**

*Clinical Trial*

Directed lab operations and sample logistics for a Phase I healthy volunteer study. Developed protocols and automated labeling systems to manage the full lifecycle of biospecimens (plasma, urine, stool, and sweat) from collection to disposal, ensuring strict biosafety compliance. Supported trial execution by collaborating on ICF development, training health workers in collection techniques, managing IP temperature controls, designing study documents, and maintaining digital patient records (CRFs).

2024 – Present

### **A Global Low- and Middle-Income Country Primary Care (PC) Antimicrobial Stewardship Trial using WHO AWaRe system – the AWaRe 1 Trial**

*Clinical Trial*

Facilitated the localization of this global trial in Bangladesh by translating essential documents and surveillance software questionnaires into Bangla. Supported logistical planning by mapping facility locations and identifying key personnel for training. Collected and verified demographic data across paper and digital forms and assisted in organizing ToT programs for the intervention.

2024 – Present (Project initiated 2023)

### **Clinical Trial on Detection of hepatocellular carcinoma (HCC) with non-invasive method based on DNA methylation of circulated tumor DNA, PBMC and T cells**

*Clinical Study*

Processed blood specimens for ctDNA methylation analysis and standardized handling procedures to ensure regulatory compliance and specimen integrity during shipment. Built and managed digital documentation systems for patient records, ICFs, and test reports.

### Bioinformatics and Computational Modeling

- **Sequence analysis**, phylogenetic mapping, and functional annotation using bioinformatics suites such as BLAST, MEGA, and Cytoscape.
- **Molecular docking and dynamics simulations** for analysis of protein-ligand interactions and prediction of structural conformations.

### Programming and Data Science

- **R** (ggplot2) and **Python** (Pandas, NumPy) for data wrangling, advanced statistical analysis, and publication-quality visualization.
- **SQL** for relational database querying, with **C/Perl** for script automation and manipulation of biological sequence files.

### Project Management and Technical Communication

- Research workflow and task management using productivity systems and tools including **Asana, Notion, and Jira**.
- High-quality technical documentation, academic writing, and expert multilingual communication with translation (**English ↔ Bangla**).

### Bioinformatics and Predictive Modeling

- Molecular docking and dynamics simulations for structural interaction studies.
- Data wrangling, statistical analysis, and predictive modeling of large-scale biological datasets.

### Natural Product and Antimicrobial Discovery

- Extraction, and analysis of phytochemicals for therapeutic potential.
- Assessing antimicrobial compounds (MIC/MBC) and maintaining pure microbial cultures.

- 2024 – Present (Project initiated 2023) **Study of Epigenetic Changes in Blood Samples in Breast Cancer Patients**  
*Clinical Study*  
Managed the documentation lifecycle for this epigenetic study, organizing ICFs and patient records into accessible digital filing systems. Verified sample integrity and conducted sorting prior to shipment.
- 2024 **Analyzing Global Aquaculture Production Trends and Insights**  
*Analytical Case Study*  
Analyzed global datasets to visualize production leaders from 2014–2018. Investigated the growth of Bangladesh’s aquaculture sector (1960–2018) using R, highlighting the impact of biotechnology on industry expansion.
- 2023 – 2024 **Evaluation of Phytochemical Properties and In Vitro Antimicrobial Activity of *Costus woodsonii* Extracts**  
*Masters Thesis Project*  
Conducted laboratory research to extract bioactive compounds from *Costus woodsonii* using various solvent systems. Performed qualitative phytochemical screening and evaluated *in vitro* antimicrobial efficacy against pathogenic bacteria using bi-layer agar diffusion and TLC bioautography.
- 2021 – 2022 **Exploring the Virulence of *Tsukamurella paurometabola* Through Functional Annotation of Hypothetical Proteins**  
*Bachelor’s Project*  
Executed a bioinformatics pipeline involving protein sequence retrieval, curation of hypothetical proteins, and computational functional annotation to predict potential virulence factors in *Tsukamurella paurometabola*.
- 2021 – 2022 **Functional Annotation of Hypothetical Proteins From the *Enterobacter cloacae* B13 Strain and Its Association With Pathogenicity**  
*Research Project*  
Supported data acquisition and processing for the functional annotation and virulence prediction of hypothetical proteins within the *Enterobacter cloacae* B13 strain.

## PUBLICATIONS

- 2022 **Supantha Dey, Sazzad Shahrear, Maliha Afroj Zinnia, Ahnaf Tajwar, and Abul Bashar Mir Md. Khademul Islam (2022). Functional Annotation of Hypothetical Proteins From the *Enterobacter cloacae* B13 Strain and Its Association With Pathogenicity**   
*Bioinformatics and biology insights, 16, 11779322221115535*












## ACCOLADES

- 2023 **National Science and Technology Fellowship**  
*Ministry of Science and Technology, Government of Bangladesh*
- 2020 **6th Prize in Dhaka University Seerat Reading and Competition**  
*Dhaka University Dawah Circle*
- 2020 **4th Prize, Essay Writing on Seerah**  
*National Siratunnabi (PBUH) Celebration Committee*
- 2019 **New India-Bangladesh Friendship Freedom Fighters Descendent Scholarship**  
*Ministry of Liberation War Affairs, Government of Bangladesh*
- 2014 **Second Runners-up in Quiz Competition of Annual Science Fair**  
*Dhaka College*
- 2014 **Regional Champion (Math and Computer, Dhaka Region, Bangabandhu Creative Talent Hunt Competition)**  
*Government of Bangladesh*

## EXTRACURRICULAR ACTIVITIES

- 2022 **Editor, Typesetter and Designer**  
*BioGen Magazine, Genetic Engineering and Biotechnology Club, University of Dhaka*
- 2014 – 2016 **Academic Volunteer**  
*DRMC Science Club, Dhaka Residential Model College*
- 2012 – 2016 **Quiz Team Member**  
*DRMC Inflammers, Dhaka Residential Model College*
- 2010 – 2011 **National Math Olympiad Participant**

## KEY CREDENTIALS

- Google Data Analytics Certification 
- Biosafety and Biosecurity Training 
- Programming in R for Biologists 
- Google Advanced Data Analytics Certification 
- Laboratory Hazard and Risk Assessments 
- Study Design and Sample Size Calculation 
- Good Clinical Practices (GCP) 
- Developing Research Grant Proposals 
- Scientific Poster Presentation 
- Protecting Human Research Participants 
- Standard Operating Procedure Writing 
- Biorepository Management 