

Ahnaf Tajwar

Senior Research Assistant

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📁 RESEARCH PROFILE

A translational research professional with a background in **life sciences**, dedicated to bridging computational biology with hands-on experimental science. My expertise covers the full therapeutic pipeline, from preclinical drug discovery and molecular engineering to bioinformatics modeling and Phase I-IV clinical trial management. Proficient in **Python, R, and Linux** for robust data analysis, I am diligent to solve complex biological problems through meticulous lab work and data-driven insights. I am a collaborative communicator committed to advancing impactful global health innovations across both academic and industry settings.

🎓 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.

Feb 2024 – Present
Khushab, Pakistan

- Engaged in bioinformatics analyses to investigate the virulence factors of *Tsukamurella paurometabola* and *Enterobacter cloacae*, shedding light on their pathogenic mechanisms.

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.

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.

RESEARCH PROJECTS

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 essential lab operations and sample logistics for a Phase I healthy volunteer study. Developed effective protocols and automated labeling systems for thorough biospecimen management (plasma, urine, stool, sweat), covering collection through to shipment and disposal, ensuring sample and bioequipment integrity and strict biosafety compliance. Furthered trial execution by collaborating on ICF development, training health workers in collection techniques, precisely managing inventory and IP temperature control, designing vital labels and documents, and maintaining accurate patient record files (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 effort for this global primary care trial in Bangladesh, translating essential documents and questionnaires into Bangla for surveillance software for Upazila Health Complexes. Identified key personnel for advisory roles and training needs, and developed crucial facility location maps to support logistical planning.

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 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

Executed vital blood specimen processing and storage protocols for ctDNA methylation analysis in HCC detection. Architected and managed comprehensive digital documentation systems for patient records, ICFs, and test reports. Standardized sample handling and documentation procedures, ensuring regulatory compliance and optimal specimen integrity for shipment.

2024 –
Present (Project initiated
2023)

Study of Epigenetic Changes in Blood Samples in Breast Cancer Patients

Clinical Study

Managed the complete documentation lifecycle for this epigenetic research study, systematically organizing ICFs and patient records. Implemented efficient digital filing systems, enhancing data accessibility and retrieval. Ensured meticulous sample integrity verification and sorting prior to shipment.

2024

Analyzing Global Aquaculture Production Trends and Insights

Analytical Case Study

Analyzed global aquaculture datasets to identify and visualize production leaders between 2014-2018. Conducted a focused investigation into Bangladesh's aquaculture sector growth (1960-2018), highlighting the impact of biotechnology on industry expansion through graphical representation.

2023 – 2024

Evaluation of Phytochemical Properties and In Vitro Antimicrobial Activity of *Costus woodsonii* Extracts

Masters Thesis Project

Conducted comprehensive laboratory research for Masters thesis. Involved extracting bioactive compounds from *Costus woodsonii* using various solvent systems, performing qualitative phytochemical screening, and evaluating *in vitro* antimicrobial efficacy against pathogenic bacteria via bi-layer 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

Provided key support in data acquisition and processing stages for a project focused on 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

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| • Google Data Analytics Certification  | • Good Clinical Practices (GCP)  | • Protecting Human Research Participants  | • Biosafety and Biosecurity Training  |
| • Laboratory Hazard and Risk Assessments  | • Developing Research Grant Proposals  | • Standard Operating Procedure Writing  | • Programming in R for Biologists  |