



Ahnaf Tajwar

Research Assistant

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CAREER OBJECTIVE

Inquisitive life science graduate with expertise in molecular biology, bioinformatics, and wet lab techniques, including microbiology and phytochemistry. Proficient in genomic and proteomic data analysis, and experienced in laboratory operations such as sample processing, microbiological analyses, and molecular diagnostics. Driven by a passion for advancing scientific knowledge and sharing insights, with a commitment to continuous learning and staying up-to-date with emerging computational tools in both academia and industry. Eager to contribute to impactful research and inspire the next generation of scientists.

EDUCATION

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

Sep 2024 – Present
Dhaka, Bangladesh

IDD Special Activities, icddr,b

Research Assistant

- **Maintaining laboratory equipment**, performing minor troubleshooting, and ensuring optimal operation
- **Processing, labeling, and storing samples** under appropriate conditions according to study requirements, ensuring sample integrity
- **Conducting microbiological analyses** to isolate and identify enteric pathogens using rapid diagnostic tests, culturing techniques, and molecular methods like PCR
- **Extracting nucleic acids**, identifying bacteriophages through phenotypic and molecular tests, and updating standard operating procedures (SOPs) and project-related documents
- **Collaborating with senior colleagues and doctors** to ensure adherence to quality assurance processes, assisting with laboratory tests, and creating project presentations and spreadsheets
- **Overseeing the activities** of field workers, medical technologists, and nurses during clinical trials
- **Communicating and engaging with sponsors and foreign advisors** to ensure effective communication and proper conduct of research projects
- **Translating and developing key documents**, presentations, and other relevant research, office and logistics materials

Department of Genetic Engineering and Biotechnology, University of Dhaka

Jan 2024 – Sep 2024
Dhaka, Bangladesh

Research Assistant

- Assistance in various research projects, contributing to experimental design, data collection, and data analysis
- Mentoring junior members in sub-projects

Aug 2021 – Dec 2023
Dhaka, Bangladesh

Thesis Student and Researcher

- Performing research on the antimicrobial activity of *Costus woodsonii* samples for Master's Thesis
- Participating in bioinformatics projects on the virulence of *Tsukamurella paurometabola* and *Enterobacter cloacae*

Feb 2024 – Present
Khushab, Pakistan

Notesnook

Community Moderator

- Frontline user support and moderation of online communities
- Bug report handling and testing

Jun 2021 – Apr 2022
Dhaka, Bangladesh

Al-Quraner Vasha Institute

Virtual Classroom Assistant

- Moderation of virtual classroom for live "Comprehensive Arabic 21" course
- Management of course participants

RESEARCH INTERESTS

Drug and Vaccine Development

- Screening and identification of drug candidates
- *In vitro* and *in vivo* efficacy and toxicity studies
- Development of drug delivery systems
- Antigen discovery and vaccine design
- Immunogenicity and safety assessment

Microbiological Analyses

- Development, optimization and maintenance of pure cultures in diverse growth mediums
- Activity measurement of antimicrobial compounds (MIC and MBC)

Phytochemical Analyses

- Processing of raw plant sample for phytochemical studies
- Extraction and detection of phytochemicals
- Thin-layer chromatography

Functional Genomics and Bioinformatics

- Gene/Gene product identification and functional annotation
- Molecular docking and molecular dynamics simulation
- Gene/Protein interactome analyses

Clinical Trials and Translational Research

- Design and implementation of Phase I-IV clinical trials
- Evaluation of therapeutic efficacy and safety
- Regulatory compliance and ethical considerations
- Translational research from bench to bedside
- Patient recruitment and retention strategies

Metagenomics and Microbiome Analysis

- Analysis of diverse microbial communities
- Characterization of microbiome and its possible roles
- Microbiome-based therapeutics and diagnostics
- Host-microbe interactions

Population Genomics and Evolutionary Biology


- Analysis of genetic variants within animal populations
- Reconstruction of phylogenetic trees and adaptation patterns
- Evaluation of selective pressure on genetic inheritance

Data Wrangling, Analysis and Predictive Modeling

- Development of tools to clean raw biological data
- Visualizing cleaned datasets with codes and tools
- Identifying patterns and insights within large datasets

PUBLICATIONS

2022

Supantha Dey, Sazzad Shahrear, Maliha Afroj Zinnia, Ahnaf Tajwar, and Abul Bashir 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

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

Supported the clinical trial by collaborating with team members for developing informed consent forms (ICFs) and establishing protocols for blood, urine, and stool sample collection. Designed labeling for sample collection containers to ensure accurate identification and handling. Conducted a thorough count of required logistics items, compiling a detailed inventory list to facilitate smooth trial operations.

2024 – Present

The AWARe1 pragmatic cluster-randomised trial, economic evaluation and process evaluation of antibiotic stewardship in primary healthcare of acute respiratory infections in low- and middle-income countries using the WHO AWARe system (AWARe1-Trial)

Clinical Trial

Translated key documents and questionnaires to Bangla to support localization for Upazila Health Complexes and offices. Compiled a list of senior officers as potential advisors and identified Upazila Health Complex workers in need of training, alongside creating a detailed map of facility locations.

2024 – Present

Non-HCC Biomarker Analysis Study

Clinical Study

Spearheaded blood specimen processing and storage protocols for the study while managing comprehensive documentation systems. Established efficient digital organization of patient test reports, prescription records, and informed consent forms (ICFs). Implemented standardized procedures for both biological sample handling and document management to ensure optimal specimen integrity and regulatory compliance.

2023 – Present

Study of Epigenetic Changes in Blood Samples in Breast Cancer Patients

Clinical Study

Coordinated documentation management for an epigenetic breast cancer research study, including systematic organization of informed consent forms (ICFs) and patient prescription records. Implemented efficient digital filing systems to enhance data accessibility while maintaining regulatory compliance in clinical research documentation.

2024

Analyzing Global Aquaculture Production Trends and Insights

Analytical Case Study

This project explored the top aquaculture-producing countries from 2014 to 2018, visualizing their production data through graphs. Additionally, the remarkable growth of aquaculture production in Bangladesh from 1960 to 2018 was highlighted, emphasizing the impact of biotechnology in the industry.

2023 – 2024

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

Masters Thesis Project

Prepared ethyl acetate extracts from powdered leaves, stems and roots of *Costus woodsonii* and analyzed their phytochemical composition and potential antimicrobial activity against *Bacillus subtilis*, *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae* and *Salmonella paratyphi* through bi-layer diffusion assay and TLC bioautography assay.

2021 – 2022

Exploring the Virulence of *Tsukamurella paurometabola* Through Functional Annotation of Hypothetical Proteins

Bachelor's Project

Retrieved protein sequences of *Tsukamurella paurometabola* and after curation of the hypothetical proteins, carried out the functional annotation and virulence prediction.

2021 – 2022

Functional Annotation of Hypothetical Proteins From the *Enterobacter cloacae* B13 Strain and Its Association With Pathogenicity

Research Project

Assisted with data collection and processing of functional annotation and virulence analysis of hypothetical proteins of *Enterobacter cloacae* B13 Strain.

SKILLS

Laboratory Skills

- Clinical sample handling, processing and storage
- Techniques of molecular biology and rDNA technology
- Microbial assays, plant sample extraction, TLC

Teaching/Presentation Skills

- Tutoring school and college-level students
- Creating high-quality visuals, documents, presentations, and spreadsheets (Microsoft Office/OpenOffice).
- Graphic design using computer/mobile tools
- Typing and translation (English-Bengali)

Soft Skills

- Adaptability and critical thinking
- Finding creative solutions to issues
- Effective collaboration with diverse teams

Bioinformatics and Biostatistics

- BLAST, MEGA, phylogenetics, protein studies
- Bioinformatics pipeline/workflow development
- Genomic and proteomic data analysis

Programming/Data Analysis

- Python (IDLE, PyCharm), R (RStudio, VS Code, ggplot2, R Markdown), SQL, Perl, C++ (VS Code), Bash scripting
- Data analysis and visualization (Python and R)
- Data querying and functional programming (SQL, Perl, C++)
- Software development and problem-solving (C++)

Additional Skills

- Cloud computing, Linux/UNIX systems, CLI, file I/O
- Git, documentation, user support and beta testing
- Website deployment (Hugo/WordPress/Flask/Netlify)

AWARDS AND SCHOLARSHIPS

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

EXTRA-CURRICULAR 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

LANGUAGES

• Bengali

• English

• Arabic

• Hindi/Urdu

CERTIFICATIONS

• Master of Science in Genetic Engineering and Biotechnology

• Higher Secondary School Certificate in Science

• Bachelor of Science in Genetic Engineering and Biotechnology

• Secondary School Certificate in Science

• Good Clinical Practice (GCP) Training - National Institute on Drug Abuse (NIDA) [🔗](#)

• Protecting Human Research Participants Training [🔗](#)

• Biosafety and Biosecurity Trainings in Both Laboratory and Clinical Care Settings [🔗](#)

• Introduction to Programming in R for Biologists

REFERENCES

Dr. Abu Ashfaqur Sajib, *Professor and Chairperson*, Department of Genetic Engineering and Biotechnology, University of Dhaka
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Dr. Mohammed Nazmul Ahsan, *Professor and Former Chairperson*,
Department of Genetic Engineering and Biotechnology, University of Dhaka
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Dr. Hasan Muhammad Abdullah, *Associate Professor*,
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