

JOHIRUL ISLAM

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RESEARCH INTERESTS

My research interests lie in molecular biology, biotechnology, and bioinformatics, with a focus on developing advanced diagnostic tools and therapeutic strategies to improve human and animal health. I am particularly interested in applying molecular and computational approaches to disease detection and treatment, as well as exploring the potential of biomaterials and regenerative medicine for biomedical applications. My goal is to contribute to innovative solutions that address complex challenges in healthcare and life sciences.

ACADEMIC CREDENTIALS

Bachelor of Science in Biotechnology and Genetic Engineering

(Jan 2019- Jun 2024)

Noakhali Science and Technology University, Noakhali, Bangladesh

Result: CGPA 3.77 out of 4.00

Higher Secondary Certificate (HSC)

(Aug 2018)

Hamdard Public College, Dhaka, Bangladesh

Result: GPA 4.92 out of 5.00

Secondary School Certificate (SSC)

(May 2016)

Principal Kazi Faruky School, Lakshmipur, Bangladesh

Result: GPA 4.94 out of 5.00

RESEARCH EXPERIENCE

- Molecular Biology Techniques:** DNA extraction (Blood, Plant Leaves, Yeast), Polymerase Chain Reaction (PCR), Gel Electrophoresis, DNA Isolation, Bacterial DNA Isolation, Nucleic acid quantification, AFLP, RFLP.

- Biochemistry and Microbiology:** Essential Biochemical tests, Carbohydrate and Lipid estimation tests, pH and Conductivity, Microbial Cell culture and Isolation of pure Bacterial cell, Broth Culture, Antibiotic resistance testing.

- Computational Biology Techniques:** Characterization of Hypothetical Protein, Protein-protein interaction network construction, Protein-Ligand interaction network construction, Molecular Docking, Vaccine Design, NGS/WGS data analysis, Molecular Dynamics simulation using portals/websites like NCBI, ExPASy, GenBank, BLAST, ZINC15, SwissADME, pkCSM; **Software:** PyRx, PyMOL, SpDBV, Open Babel, Discovery Studio, GROMACS.

- Programming and Data Analysis Tools:** Experience with Python, R, MySQL (via XAMPP), SPSS, Git, and GitHub for basic data analysis, database management, statistical evaluation, and version control in research projects.

- Research Assistant**

(Apr 2024 - Nov 2024)

Bioinformatics Lab (NSTU), Dr. Md. Murad Hossain

- Investigating potential inhibitors of the beta-lactamase enzyme (*E. coli*) as part of a bioinformatics research project focused on combating antibiotic resistance.

- Conducting molecular docking studies using drug-like ligands from the ZINC database to identify promising candidates for further testing.

- Utilizing tools like PyRx, PyMOL, Discovery Studio, and SpDBV to analyze binding interactions, assess molecular stability, and identify high-potential drug candidates.

- Research Intern (Vaccine Design & Bioinformatics)**

(May 2025- Oct 2025)

BioLab Bangladesh (Remote)

- Participating in a 6-month internship focused on mRNA and saRNA vaccine design using reverse vaccinology.

- Trained in bioinformatics tools for cancer, antibacterial, antiviral, and antiparasitic vaccine development.

- Gaining hands-on experience in molecular dynamic simulation, ADME/toxicity prediction, and bioinformatics software.

PROJECTS

- CNS-Oriented Virtual Screening Identifies Putative AChE Inhibitors via an Open and Reproducible CADD Workflow – Computational drug-design project focused on acetylcholinesterase inhibition.
- An *In Silico* Pharmacological and Molecular Docking Approach for the Development of Potential Inhibitors Against CTX-M-9 Class A Beta-Lactamase from *Escherichia coli*.

STANDARDIZED TEST SCORE

International English Language Testing System (IELTS)					(Jan 2025)
Listening	Reading	Writing	Speaking	Overall Band	
7.5	6.5	6.5	6.5	7.0	

EXTRACURRICULAR ACTIVITIES & MEMBERSHIPS

- **Research Assistant and Bioinformatics Trainer, Neuro Bridge Research Bangladesh (Present):** Supporting neuroscience research and training initiatives in neuroimmunology, neurodegeneration, neurodevelopment, cognition, and neuropharmacology.
- **Member, Science Club, NSTU:** Participated in scientific poster presentations, gaining experience in research communication and visualization.
- **Member, Nature Conservation Club, NSTU:** Conducted a bird species survey, contributing to biodiversity documentation and conservation efforts.

CERTIFICATIONS AND AWARDS

- Hands-on Training in **R Programming for Biologists:** Biotech Association, *Department of Biotechnology & Genetic Engineering, Noakhali Science and Technology University* (13–15 November 2025)
- Hands-on Training on **NGS/WGS Analysis:** *University of Dhaka* (Organized by NYBB) — Practical workshop on **genomic data analysis, assembly, Linux, and computer-aided drug design.** (25 Oct 2025)
- **Complete Research Training: From Zero to Publication:** *Bangladesh Advanced Research Training Center (BARTC)* (18–31 Aug 2025)
- Molecular Dynamic Simulation with **GROMACS:** BioLab, Bangladesh (15–28 Aug 2025)
- Certificate of Achievement: **Bangladesh Botany Olympiad 2017:** Secured **10th position** in the Dhaka Division at the Bangladesh Botany Olympiad 2017, held at *Jagannath University, Dhaka*.
- Certificate of Appreciation: **Bangladesh Botany Olympiad 2017:** Selected as a **finalist** and participated in the **national round** at the Department of Botany, *University of Dhaka*.
- Certificate of Achievement: **Best Oral Presentation on “Introduction to Biochemistry”** Awarded by the Department of *Biotechnology and Genetic Engineering, Noakhali Science and Technology University (NSTU)*
- Certificate of Appreciation: **Scientific Poster Presentation (idea)** Awarded by *Noakhali Science and Technology University Science Club (NSTUSC)*

REFERENCES

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