FOYSAL AHAMMAD
Education City, Qatar Foundation, Doha – Qatar;
Address: Fayrus Building-03 (FB3), Building 07, Street 2731, Zone 52,
Contact No: +97439931945; Email: foysalgebt@gmail.com

EDUCATION

2020-2022 **King Abdul Aziz University, Saudi Arabia**
MSc in Biological Science (Microbiology); CGPA: 4.95/5.00
Thesis Title: Viral and Host Protein-Targeted Identification of Potential Natural Antiviral Drug Candidates Against MERS-CoV and SARS-CoV-2

2013-2018 **Jessore University of Science & Technology, Bangladesh**
BSc in Genetic Engineering & Biotechnology; CGPA: 3.10/4.00
Thesis Title: Isolation and Characterization of *Lactic Acid* Bacteria from Arsenic-Contaminated Soil and Milk in Jashore for Environmental Detoxification and Microbial Bioremediation

RESEARCH EXPERIENCE

2023-2025 **Hamad Bin Khalifa University (HBKU), Qatar**
Position: Research Assistant
Project Title: A Precision Medicine Initiative To Target Paediatric Cerebral Palsy, A Movement Disorder (NPRP14S-0319-210075)

- Collected samples, PBMC isolation, and gDNA extraction from 110 families.
- Conducted whole-exome, RNA sequencing, and downstream analysis.
- Conducted Sanger sequencing for mutation validation and variant confirmation.
- Performed epigenomic (DNA methylation) and scRNA-seq data analysis
- Supported the development of AI-driven tools for biomarker discovery and precision diagnosis in cerebral palsy.

2021-2022 **Center for Artificial Intelligence in Precision Medicine (KAU), Saudi Arabia**
Position: Research Assistant

- Contributed to the development of ML/AI-driven pipelines for target identification
- Participated in virtual large-scale drug screening for candidate molecule identification against prioritized targets.
- Targeted viral proteins from SARS-CoV-2 and MERS-CoV for structure- and ligand-based drug discovery.
- In-vitro validation of screened compounds against the target protein

2019-2020 **International Islamic University Malaysia, Malaysia**
Position: Research Assistant
Project: Interrogating Novel Compounds for Improved Anti-dengue Therapies via Inhibition of Host's Glycolytic Pathway(FRGS/1/2016/STG04/UIAM/02/1/)

- Conducted molecular cloning, expression, and purification of the human Hexokinase 2 (**HK2**) enzyme.
- Performed inhibition assays on virtual-screened compounds
- Contributed to the validation of anti-dengue therapeutic candidates using enzyme activity-based profiling.

2017-2018 **Central Laboratory of Biotechnology, Bangladesh**
Position: Research assistant

- Isolated and screened LAB strains for arsenic resistance probiotic.
- Characterized potential for environmental detoxification and microbial bioremediation.
- Evaluated functional probiotic traits (acid/bile tolerance, antimicrobial activity).

TRAINING & WORKSHOP ATTENDED

2024, Sep **Variant Effect Prediction Training Course 2024**
Organized by: Human Genome Organization (HUGO), Italy

2024, Apr **Hands-on training in the Next Generation Sequencing Technology**
Organized by: Qatar Biomedical Research Institute (QBRI), Qatar

2019, Feb **Training on Molecular cloning, expression, and purification**
Organized by: National Institutes of Biotechnology Malaysia, Four (4) months

2017, Apr **Overview & safe use of laboratory ventilation equipment**
Organized by: ESCO Life Sciences Bangladesh Pvt. Ltd

2016, May **Workshop on Human Genome Project**
Organized by: Military Institute of Science & Technology

AWARDS & ACHIEVEMENTS

2024, Sep **Travel Grant Award – VEPTEC Conference 2024**
Host Organization: Human Genome Organization (HUGO), Italy
Award Type: International Travel Grant

2021, Nov **Student Exchange Award – Artificial Intelligence and Drug Discoveries**
Host Institutions: Oxford University and King Abdul Aziz University
Award Type: Student Exchange Program

2020-2022 **Graduate Scholarship – King Abdul Aziz University**
Degree: MSc in Biological Sciences
Funding: Fully Funded

2013-2018 **Undergraduate Scholarship – Bangladesh Army Welfare Trust**
Degree: BSc in Genetic Engineering & Biotechnology
Funding: Fully Funded

EDUCATIONAL OUTREACH & TRAINING LEADERSHIP

2024, May **Genome-wide Microarray data analysis and genetic effects on disease**
Host Organization: BioSol Centre
Session Type: Training

2021, Aug **Computer-Aided Antiviral Peptide Identification and Design**
Host Organization: BioSol Centre
Session Type: Training & Project (04) Months

2021, Jan **Discovery of Bioactive Compounds against Human Virus and Bacteria**
Host Organization: BioSol Centre
Session Type: Training & Project (04) Months

2020, Nov **Bioinformatics for Beginners**
Host Organization: BioSol Centre
Session Type: Training

2020, Aug **Identifications of Novel Compounds by CADD Approaches**
Host Organization: BioSol Centre
Session Type: Training

2020, Jan **Computer-aided drug design and research methodology**
Host Organization: Jessore University of Science & Technology (JUST)
Session Type: Seminar

PEER-REVIEWED PUBLICATIONS

2025, Feb Molecular docking, QSAR, and simulation analyses of EGFR-targeting phytochemicals in non-small cell lung cancer
Published: Journal of Molecular Structure (IF: 4.00)
DOI: 10.1016/j.molstruc.2024.139924

2025, Jan Investigating new drugs from marine seaweed metabolites for cervical cancer therapy by molecular dynamic modeling approach
Published: Scientific Reports (IF: 3.80)
DOI: s41598-024-82043-0

2024, Dec *In-vitro* and *in-silico* evaluation of rue herb for SARS-CoV-2 treatment
Published: International Immunopharmacology (IF: 4.80)
DOI: 10.1016/j.intimp.2024.113318

2024, Jul Cheminformatics-based identification of phosphorylated RET tyrosine kinase inhibitors for human cancer
Published: Frontiers in Chemistry (IF: 3.80)
DOI: 10.3389/fchem.2024.1407331

2023, Oct Natural defense against multi-drug resistant *Pseudomonas aeruginosa*: Cassia occidentalis L. *in vitro* and *in silico* antibacterial activity
Published: RSC Advances (IF: 3.900)
DOI: 10.1039/D3RA03923D

2023, Jul The ortholog of human ssDNA-binding protein SSBP3 influences neurodevelopment and autism-like behaviors in Drosophila melanogaster
Published: PLoS Biology (IF: 9.800)
DOI: 10.1371/journal.pbio.3002210

2023, Jun Computational formulation of a multiepitope vaccine unveils an exceptional prophylactic candidate against Merkel cell polyomavirus
Published: Frontiers in Immunology (IF: 8.786)
DOI: 10.3389/fimmu.2023.1160260

2023, Feb In-silico formulation of a next-generation multiepitope vaccine for use as a prophylactic candidate against Crimean-Congo hemorrhagic fever
Published: BMC Medicine (IF: 11.150)
DOI: 10.1186/s12916-023-02750-9

2022, Dec GC-MS analysis of phytoconstituents from *Ruellia prostrata* and *Senna tora* and identification of potential antiviral activity against SARS-CoV-2
Published: RSC Advances (IF: 4.036)
DOI: 10.1039/D1RA06842C

2022, Jun Application of Mathematical Modeling and Computational Tools in the Modern Drug Design and Development Process
Published: Molecules (IF: 4.927)
DOI: 10.3390/molecules27134169

2021, Sep Evaluation of in vitro and in silico anti-inflammatory potential of some selected medicinal plants of Bangladesh against cyclooxygenase-II enzyme
Published: Journal of Ethnopharmacology (IF: 4.360)
DOI: 10.1016/j.jep.2021.114900

2021, Sep A systematic analysis of ATPase Cation transporting 13A2 (ATP13A2) transcriptional expression and prognostic value in human brain cancer
Published: Biomedical Signal Processing and Control (IF: 5.076)
DOI: 10.1016/j.bspc.2021.103183

2021, Sep Spike protein recognizer receptor ACE2 targeted identification of potential natural antiviral drug candidates against SARS-CoV-2
Published: International Journal of Biological Macromolecules (IF: 8.025)
DOI: 10.1016/j.ijbiomac.2021.09.146

2021, Aug Pharmacophore-Based Virtual Screening, Quantum Mechanics Calculations, and Molecular Dynamics Simulation Approaches Identified Potential Natural Antiviral Drug Candidates against MERS-CoV S1-NTD
Published: Molecules (IF: 4.927)
DOI: 10.3390/MOLECULES26164961

2021, Apr Pharmacoinformatics and molecular dynamics simulation-based phytochemical screening of neem plant (*Azadiractha indica*) against human cancer by targeting MCM7 protein
Published: Briefings in Bioinformatics (IF: 13.994)
DOI: 10.1093/BIB/BBAB098

2021, Feb Structure-based pharmacophore modeling, virtual screening, molecular docking and ADMET approaches for identification of natural anti-cancer agents targeting XIAP protein
Published: Scientific Reports (IF: 4.996)
DOI: 10.1038/S41598-021-83626-X

2020, Dec High expression of bone morphogenetic protein 1 (BMP1) is associated with a poor survival rate in human gastric cancer, a dataset approach
Published: Genomics (IF: 5.736)
DOI: 10.1016/J.YGENO.2020.11.012

2020, Oct Computational assessment of MCM2 transcriptional expression and identification of the prognostic biomarker for human breast cancer
Published: Heliyon (IF: 3.776)
DOI: 10.1016/J.HELIYON. 2020.E05087

2020, Jul Designing a multi-epitope vaccine against SARS-CoV-2: an immunoinformatics approach
Published: Biomolecular Structure and Dynamics (IF: 5.235)
DOI: 10.1080/07391102.2020.1792347

2019, Sep Contemporary Strategies and Current Trends in Designing Antiviral Drugs against Dengue Fever via Targeting Host-Based Approaches
Published: Microorganisms (IF: 4.926)
DOI: 10.3390/MICROORGANISMS7090296

2019, Apr Anti-inflammatory, antinociceptive and antidiarrhoeal activities of methanol and ethyl acetate extract of Hemigraphis alternata leaves in mice
Published: Clinical Phytoscience
DOI: 10.3390/MD19050253

UNDER REVIEW

2025, Feb Machine Learning Driven Modeling of Synergistic Perinatal Risk Profiles in Early Onset Pediatric Cerebral Palsy
Published: BMC Medical Informatics and Decision Making (IF:3.80)
Manuscript Number: f1fe7e87-5cd9-4bc0-9c70-826005c543fa

UNDER PREPARATION

2025, Aug AutoML-Guided Discovery of Hub Genes in Cerebral Palsy Reveals Shared Pediatric Disease Mechanisms

PRESENTATIONS & CONFERENCES

- 8th Variant Effect Prediction Training Course (VEPTC) -2024, Oral Presentation, Palermo, Italy (Pathogenic disease-causing mutations in BRG1 domain of SMARCA4 destabilize the SWI/SNF complex and lead to neurodevelopmental disorders)

RESEARCH INTERESTS

- Artificial intelligence-driven target and biomarker discovery across multi-omics datasets
- Computational drug and peptide discovery and design (Pharmacophore modeling, MD simulation)
- Machine learning-based precision medicine models and large-scale drug screening
- Whole-exome sequencing (WES), DNA methylation, and single-cell omics data analysis
- Network pharmacology and systems biology modeling of disease mechanisms
- Integration of spatial transcriptomics and single-cell RNA-seq for cellular heterogeneity
- Translational applications in virology, oncology, and neurodevelopmental disorders

SKILLS

- Computational Biology & Multi-omics Analysis: WES, RNA-seq, DNA methylation, scRNA-seq
- Molecular Modeling: Pharmacophore modeling, Docking, MD Simulation, QSAR, ADMET
- Artificial Intelligence: ML/DL-based Biomarker, Drug Target Discovery, and Virtual Screening
- Bioinformatics Tools: GSEA, Enrichr, Cytoscape, Bioconductor (R), Seurat
- Programming: Python, R, Shell scripting
- Operating system: Linux, Windows
- Molecular Biology: Proficient in PCR, gel electrophoresis, cloning, expression, purification (IMAC, HPLC), qPCR, DNA/RNA extraction, and Sanger sequencing.
- Data Science: Feature selection, SHAP, UMAP, PCA, scikit-learn
- Clinical Genomics: Variant Annotation, Gene Prioritization, Disease Risk Modeling
- Data Visualization: ggplot2, seaborn, matplotlib, UCSF ChimeraX, PyMOL, Biorender, plotly

LEADERSHIP & SERVICE

- Founder & CEO, Biological Solution Centre (BioSol Centre): Leading computational biology and bioinformatics research projects, collaborations, and training initiatives.
- Peer Reviewer: Reviewed 70+ manuscripts for journals including Scientific Reports, Briefings in Bioinformatics, and NPJ Breast Cancer.
- Event Organizer: Coordinated academic seminars, workshops, and community outreach in biotechnology and computational biology.

ACADEMIC REFERENCES

Dr. Ishtiaq Qadri. Professor (Thesis Supervisor / Master's)
Department of Biological Science, King Abdulaziz University, Jeddah, Saudi Arabia.
Email: mqadery@kau.edu.sa / ishtiaq80262@yahoo.com

Dr. Md. Al Amin. Associate Professor (Thesis Co-supervisor / BSc)
Department of Industrial Engineering and Management
Khulna University of Engineering & Technology, Khulna, Bangladesh
Email: m.alamin@iem.kuet.ac.bd

Dr. Mohammad Farhan. Associate Professor (Project Supervisor / Research Lead)
Division of Biological and Biomedical Sciences, College of Health and Life Sciences
Hamad Bin Khalifa University, Doha 34110, Qatar
Email: mohammadfarhan@hbku.edu.qa

Rahat Alam. Associate Researcher (Co-Founder/ BioSol Centre)
Icahn School of Medicine at Mount Sinai, New York, USA
Department of Oncological Sciences
Email: rahat.alam@mssm.edu