

SYED MUKTADIR AL SIUM

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Research Interest

- Omics
- Molecular Biology
- Microbes
- Health & Diseases
- Computational Biology & Bioinformatics
- Food Science

Education

MS in Biotechnology	2019
Thesis in Bioinformatics From EMBL-EBI, UK <i>Institution: Bangladesh Agricultural University, Bangladesh</i>	
BSc (Hons.) Major in Genetic Engineering and Biotechnology	2016
Shahjalal University of Science and Technology, Bangladesh	
BSc Second Major in Computer Science and Engineering	2016
Shahjalal University of Science and Technology, Bangladesh	

Research and Work Experiences

Scientific Officer	May 2022 – Present
Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh <i>Full Time Permanent Position</i>	
Bioinformatic Officer	September 2021 – April 2022
Institute of Epidemiology, Disease Control and Research (IEDCR), Bangladesh <i>Full Time</i>	
Molecular Biologist	February 2020 – July 2021
Child Health Research Foundation (CHRF), Bangladesh <i>Full Time</i>	
Trainee	August 2019 – November 2019
European Bioinformatics Institute (EMBL-EBI), UK <i>Full Time</i>	

Research Grants

Project Leader

- AI Driven Development and Clinical Validation of Disease Prediction and Detection Methods (2024-26) BDT 6 lac
- Development of Food Products and Animal Feed from Suckermouth Catfish (2023-25) BDT 3.3 lac

Research Associate

- Pangenome analysis and horizontal gene transfer mediated antimicrobial resistance in clinical isolates of Bangladesh (2023-25)
- CRISPR-Cas9 mediated genome editing in Tomato (2024-27)
- Genomic insight into extensively drug-resistant *Acinetobacter baumannii* isolated from hospitals in Chattogram (2022-24)

Thesis Supervision

- Supervised 5 MS Thesis Students from JnU, SUST, NSTU, CVASU

Publications (Selected)

1. **Al Sium, S. M.** et al. Unraveling epigenetically deregulated lncRNAs FAM83A-AS2 and AC012213.1 as high-risk prognostic markers in lung adenocarcinoma. *Briefings in Bioinformatics*. **2025**, 26(Supplement_1), i39 (Abstract Only)
2. Chowdhury, S. F., et al. Metatranscriptomic analysis uncovers microbial and immune signatures underlying COVID-19 severity. *Briefings in Bioinformatics*. **2025**, 26(Supplement_1), i14-i15 (Abstract Only)
3. **Al Sium, S. M.** et al. An insight into the genome-wide analysis of bacterial defense mechanisms in a uropathogenic *Morganella morganii* isolate from Bangladesh. *PloS One*. **2025**, 20(1), e0313141.
4. Eranti P, et al. Impact of the COVID-19 pandemic on computational biology early career researchers: A global retrospective study. *PLoS Computational Biology*. **2025**, 21(10), e1013554.
5. Ananna, N. T. et al. Characterization of two lytic bacteriophages infecting carbapenem-resistant clinical *Klebsiella pneumoniae* in Dhaka, Bangladesh. *Virus Research*. **2024**, 350, 199491.
6. **Al Sium, S.M.**, et al. Adapting beyond borders: Insights from the 19th Student Council Symposium (SCS2023), the first hybrid ISCB Student Council global event. *Bioinformatics Advances*. **2024**, 4(1), vbae028.
7. Grover, A., et al. 1st ASCS: Expanding the ISCB Student Council Symposia to Asia. *F1000Research*. **2023**, 12, 703.
8. Aiemjoy, K., et al. Estimating typhoid incidence from community-based serosurveys: a multicohort study. *The Lancet Microbe*. **2022**, 3(8), e578-e587.
9. Akram A, **Al Sium SM** et al. Genome sequence of SARS-CoV-2 sublineage BA.2.12.1 strain from Bangladesh. *New Microbes New Infections*. **2022**, 49, 101050.
10. Kilpatrick, A. M., et al. Characterizing domain-specific open educational resources by linking ISCB Communities of Special Interest to Wikipedia. *Bioinformatics*. **2022**, 38(Supplement_1), i19-i27.
11. Saha, S., et al. New waves, new variants, old inequity: a continuing COVID-19 crisis. *BMJ Global Health*. **2021**, 6(8), e007031.
12. Saha, S., et al. COVID-19 rise in Bangladesh correlates with increasing detection of B.1.351 variant. *BMJ Global Health*. **2021**, 6(5), e006012.

Preprints

- Evaluating the accuracy of Salmonella Typhi Hemolysin E and lipopolysaccharide IgA to discriminate enteric fever from other febrile illnesses in South Asia - *Under Review at Emerging Infectious Diseases*
- Integrative Multi-omics Analysis Identifies Methylation-Associated lncRNAs FAM83A-AS2 and AC012213.1 as Candidate Prognostic Markers in Lung Adenocarcinoma - *Under Review at Bioinformatics Advances*

Database Entries

- 178 (out of 278 total) spurious protein families in **AntiFam**
- 1000+ SARS CoV-2 sequences in **GISAID**

Please find the full publication list at: *Personal Website or Google Scholar*

Technical and Relevant Skills

- **Sequencing and Omics Data Analysis:** Illumina, Nanopore and Ion Torrent based Sequencing, QC and analysis and visualization: Sequence Assembly, Genomic-Metagenomic-Epigenomic-Transcriptomic Analysis, Genomic Epidemiology etc. (Experience Level: *****)
- **Programming Languages:** C, Python, R, Bash Script and awk (Experience Level: ***)
- **Computer Science Knowledge:** Data Structure, Algorithm Design & Analysis, Database Systems, Software Engineering, Computer Networking, Web Engineering (Experience Level: **)
- **Machine Learning:** Scikit-Learn, Neural Networks (Experience Level: **)
- **Other Wet Lab Experiences:** qPCR, ELISA, Gene Expression Analysis, Oligo Synthesis, Microbial Culture and Characterization, AST, Microscopy, Marker Analysis etc. (Experience Level: *****)

Relevant Prestigious Training/Internship/Summit Attended

- Alphafold Education Summit 2025 Jan 2025 Google DeepMind & EMBL-EBI, UK
- Bioinformatics Education Summit 2023 May 2023 Wellcome Connecting Science & EMBL-EBI
- Training - Viral Genomics and Bioinformatics 2022 Aug 2022 Wellcome Connecting Science, UK
- Training - Human Genomic Epidemiology in Asian Populations 2022 Jun 2022 Wellcome Connecting Science, UK
- Microbial Community Analysis Workshop Feb 2022 Earlham Institute, UK
- EMBL-EBI Internship 2019 Aug-Nov 2019 EMBL-EBI, UK

Awards and Scholarships

- **Best Oral Presentation Award** - Jagannath University, ICLESSD 2025
- **Best Oral Presentation Award** - ISCB Student Council, 4th ISCB ASCS 2025
- **ISCB SC Travel Fellowship** - ISCB Student Council, GIW-ISCB ASIA 2025 and ISCB ASCS 2025
- **ISCB Registration Fellowship** - ISCB
- **Bursary to cover all relevant expenses** - Google DeepMind & EMBL-EBI, Alphafold Education Summit 2025
- **Young Scientist Grant** - ISCB Student Council, GIW-ISCB ASIA 2023
- **Bursary to cover all relevant expenses** - Wellcome Connecting Science, UK, Bioinformatics Education Summit 2023
- **Best Poster Award** - ISCB Student Council, 6th ISCB ESCS 2020
- **Fellowship Award** - International Society for Computational Biology (ISCB), 19th European Conference on Computational Biology 2020
- **Best Poster Award** - ISCB Student Council, 16th ISCB SCS 2020
- **Fellowship Award** - ISCB, 28th International Conference on ISMB 2020
- **Anna Tramontano Travel Fellowship** - ISCB and EMBL-EBI, EMBL-EBI Internship 2019
- **EMBL-EBI Internship Grant** - ISCB and EMBL-EBI, EMBL-EBI Internship 2019
- **NST Fellowship** - Ministry of Science and Technology, MS Thesis 2018-2019
- **Best Poster Award** - MOST and NIB, 1st National Biotechnology Fair 2018
- **Idea Competition Winner (25000 BDT)** - Bangladesh Brand Forum, Bangladesh Youth Fest 2017
- **Best Editor Award '15** - SUSTNews24.com, Annual Performance
- **Best Reporter Award '14** - SUSTNews24.com, Annual Performance

Highlighted Scientific Community Leadership and Activities

AlphaFold Recognized Trainer and Tutorial Translator

- Translated "AlphaFold: A Practical Guide" in Bangla

Community Leadership

- **Founder & Advisor**, International Society for Computational Biology (ISCB) Regional Student Group – Bangladesh
- **Symposium Chair**, 19th ISCB Student Council Symposium (SCS2023) at Lyon, France
- **Symposium Chair**, 1st ISCB RSG Bangladesh CompBio Symposium 2023
- **Program Chair**, 1st Asian Student Council Symposium 2022

Scientific Membership

- **Member**, International Society for Computational Biology, Membership ID - 34434
- **Member**, American Society of Microbiology, Membership ID - 54481753

Judging Committee Member

- 11th & 10th ISCB Student Wikipedia Competition

Invited Speaker/Trainer

- Invited speaker/trainer in many events/symposiums/workshops/webinars/talks

Event Organization

- Organized many Genomics and Bioinformatics related in-person, online and hybrid events

Public Awareness

- Created and shared many infographics, videos and written content on COVID-19 and Bioinformatics

Acknowledged By

- **Nextstrain** (bug report in Nextclade version 0.10.1)
- **AntiFam Database** (large improvement - generated large number of new families added to release 6.0)

Please find more at: Personal Website

Conference Presentations

- GIW ISCB Asia 2023 Singapore
- GIW ISCB Asia 2025, Hong Kong
- ASCS 2025, Hong Kong
- "Metatranscriptomic Analysis Uncovers Microbial and Immune Signatures Underlying COVID-19 Severity", Oral Presentation, 34th GIW-ISCB Asia Conference, Hong Kong 2025
- "An insight into the genome-wide analysis of bacterial defense of *Morganella morganii* isolated in Bangladesh", Lightning Talk, 32nd GIW-ISCB Asia Conference, Singapore 2023
- Poster Presentation: ICGNB 2022 Conference held at North South University 2022
- Oral Presentation: 39th BSM Annual International Conference held at Dhaka University 2025

Professional Memberships

- International Society for Computational Biology (ISCB), Membership ID - 34434
- American Society of Microbiology, Membership ID - 54481753

Professional Trainings

- See "Relevant Prestigious Training/Internship/Summit Attended" section above

References

- Available upon request

Last Updated: Tuesday 24th February, 2026