Curriculum Vitae

Mohammad Riazul Islam

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Google Scholar link: https://scholar.google.com/citations?user=E1tZSIEAAAAJ&hl=en

Date of Birth: 22 October, 1976

Field of Specialization:

Microbial Biotechnology, Antimicrobial Peptide, Peptide Engineering

Academic Qualification:

Degree	Year	Institute	Subject/Department
BSc	1998	University of Dhaka	Biochemistry and Molecular Biology
MSc	1999	University of Dhaka	Biochemistry and Molecular Biology
Diploma in Biotechnology	2005	Osaka University, Japan	Biotechnology
PhD	2009	Kyushu University, Japan	Microbial Biotechnology

Post-Doctoral fellowship:

- Georg Forster Fellowship for Experienced Researcher, Supported by Humboldt Foundation, Germany (2014-2015 and 2016) at University Hospital Bonn
- Japan Society for Promotion of Science (JSPS) post-doctoral fellowship (2010-2012) at Kyushu University

Employment:

March 2018 – Till now: Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

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January 2017 – February 2018: Associate Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

May 2016 – December 2016: Humboldt Fellow for Experienced Researcher, Institute for Medical Microbiology Immunology and Parasitology, University Hospital Bonn, Bonn, Germany

November 2015 – April 2016: Associate Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

November 2014 – October 2015: Humboldt Fellow for Experienced Researcher, Institute for Medical Microbiology Immunology and Parasitology, University Hospital Bonn, Bonn, Germany

May 2013 – October 2014: Associate Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

July 2012- May, 2013: Assistant Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

July 2010- June 2012: JSPS Post-doctoral Research Fellow, Laboratory of Microbial Technology, Faculty of Agriculture, Kyushu University, Japan

June 2010- July 2010: Assistant Professor, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

April 2004 - June 2010: Lecturer, Department of Biochemistry and Molecular Biology, University of Dhaka, Bangladesh

July 2002 – April 2004: Research Officer, Tuberculosis Laboratory, International Center for Diarrheal Disease Research, Bangladesh (ICDDR'B)

Awards and Fellowships:

- Georg Forster Fellowship for Experienced Researcher, Supported by Humboldt Foundation, Germany (2014-2015 and 2016)
- Young Scientist Fellowship for joining Young Scientist Program and FAOBMB congress 2012 in Bangkok, Thailand.
- Japan Society for Promotion of Science (JSPS) post-doctoral fellowship (2010-2012)
- Distinction of Young Scientist in 'Second International Symposium on Antimicrobial Peptide, Saint-Malo, France', June 2009
- 'MONBUKAGAHUSHO (MEXT, Japan) scholarship' for completion of PhD in Kyushu University, Japan, 2006-2009
- 'UNESCO Post Graduate Inter-University Course in Biotecnology, 2004'fellowship, ICBiotech, Osaka University, Japan, 2004-2005.

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Professional Memberships:

- Humboldt Foundation, Germany
- Japan Society for Bioscience, Biotechnology, and Agrochemistry (JSBBA)
- American Chemical Society (ACS)
- Bangladesh Society for Biochemistry and Molecular Biology (BSBMB)
- Graduate Biochemist Association (GBA)

Research projects:

- **PI, UGC project, Bangladesh.** Title: Heterologous expression of novel peptide antibiotic 'Homicorcin' in *Escherichia coli* BL21(DE3) and *Escherichia coli* TOP10. Project duration: 1 Year (2022-2023)
- **PI, MOST project, Bangladesh.** Title: Purification and characterization of a novel antimicrobial compound from jute endophyte *Nigrospora oryzae* active against drug resistant pathogens. Project duration: 1 Year (2021-2022)
- **PI, ICT Innovation project, Ministry of ICT, Bangladesh. Title:** কৃত্রিম বুদ্ধিমত্তা ও ডিপ লার্নিং ব্যবহার করে ইলিশের জিনোম থেকে গুরুত্বপূর্ণ জিন চিহ্নিতকরন. Project duration: 1 Year (2021)
- **PI, MOST project, Bangladesh.** Title: Analysis of ACE2 receptor gene polymorphism and genetic susceptibility to SARS-CoV-2 infection. Project duration: 1 Year (2020-2021)
- **PI, MOST project, Bangladesh**. Title: Plant growth promotion activity of jute endophytic bacteria in salt stress condition. Project duration: 1 year (2018-2019)
- **Co-PI, ICGEB project.** Title: Elucidation of Taxol Biosynthetic Pathway in Entophytic Fungi *Grammothele lineata* -SDL-CO-2015-S1. Project duration: 3 years (2018-2020)
- **Co-PI, MOST project, Bangladesh**. Title: Isolation, purification, characterization and structure determination of antimicrobial substances from jute endophyte *Daldinia eschscholtzii*. Project duration: 1 year (2019-2020)
- **Co-PI, MOE project, Bangladesh**. Title: Identification of Volatile Organic Compounds (VOCs) of jute endophytic fungi for their effects on seed germination, plant growth promotion and disease resistance. Project duration: 2 years (2018-2020)
- **PI, Biotechnology Research Center, DU**. Title: Elucidation of antimicrobial mechanism of newly isolated antimicrobial compounds from jute endophytes, *Staphylococcus hominis* MBL1 and *Brachybacterium paraconglomeratum*. Project duration: 1 year (2016-2017)
- **PI, UGC project, Bangladesh.** Title: Investigation of antimicrobial efficacy of lantibiotics (*i.e.* nisin, nukacin ISK-1) to multi-drug resistant (MDR) *Mycobacterium tuberculosis*. Project duration: 1 year (2012-2013)

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Book Chapter:

1. Zaman, N.R., Chowdhury, F.T., Khan, H., **Islam, M.R.** (2023). Plant Microbiome Diversity and Potential for Crops and Sustainable Agriculture. In: Chhabra, S., Prasad, R., Maddela, N.R., Tuteja, N. (eds) Plant Microbiome for Plant Productivity and Sustainable Agriculture. Microorganisms for Sustainability, vol 37. Springer, Singapore. https://doi.org/10.1007/978-981-19-5029-2_14
2. Chowdhury, F.T., Islam, M.R., **Islam, M.R.,** Khan, H. (2018). Diversity of Plant Endophytic Volatile Organic Compound (VOC) and Their Potential Applications. In: Jha, S. (eds) Endophytes and Secondary Metabolites. Reference Series in Phytochemistry. Springer, Cham. https://doi.org/10.1007/978-3-319-76900-4_10-1
3. Ferdous, A.S., **Islam, M.R.**, Khan, H. (2017). Transkingdom Signaling Systems Between Plant and Its Associated Beneficial Microbes in Relation to Plant Growth and Development. In: Varma, A., Prasad, R., Tuteja, N. (eds) Mycorrhiza - Nutrient Uptake, Biocontrol, Ecorestoration. Springer, Cham. https://doi.org/10.1007/978-3-319-68867-1_24

Scientific Publications:

1. Chatterjee D, Al Rimon R, Chowdhury UF, **Islam MR**. (2023). A multi-epitope based vaccine against the surface proteins expressed in cyst and trophozoite stages of parasite Entamoeba histolytica. J Immunol Methods. 113475. doi: 10.1016/j.jim.2023.113475.
2. Chowdhury MAA, Islam MR, Amin A, Mou SN, Ullah KN, Baten A, Shoyaib M, Ali AA, Chowdhury FT, Rahi ML, Khan H, Amin MA, **Islam MR**. (2023). Integrated transcriptome catalog of Tenualosa ilisha as a resource for gene discovery and expression profiling. Sci Data. 10(1):214. doi: 10.1038/s41597-023-02132-z.
3. Ullah, M. E., Chowdhury, F. T., Aroni, S., Amin, A., Hossain, M., Khan, H., & **Islam, M. R**. (2022). Protease from jute endophyte Micrococcus luteus MBL-Bac7 functions as a potential bating agent for the leather industry. *Journal of Bangladesh Academy of Sciences*, *46*(1), 31–43. https://doi.org/10.3329/jbas.v46i1.60345
4. Zaman NR, Chowdhury UF, Reza RN, Chowdhury FT, Sarker M, Hossain MM, Akbor MA, Amin A, **Islam MR,** Khan H. (2021) Plant growth promoting endophyte *Burkholderia contaminans* NZ antagonizes phytopathogen *Macrophomina phaseolina* through melanin synthesis and pyrrolnitrin inhibition. PLoS ONE 16(9): e0257863. https://doi.org/10.1371/journal.pone.0257863
5. Uddin MA, Akter S, Ferdous M, Haidar B, Amin A, Molla AHMSI, Khan H and **Islam MR**. (2021) A plant endophyte *Staphylococcus hominis* strain MBL_AB63 produces a novel lantibiotic, homicorcin and a position one variant. *Sci. Rep.* 11, 11211. https://doi.org/10.1038/s41598-021-90613-9

6. Nath M, Chowdhury FT, Ahmed S, Das A, **Islam MR**, Khan H. (2021). Value addition to jute: assessing the effect of artificial reduction of lignin on jute diversification. *Heliyon*. 7(3):e06353. doi: 10.1016/j.heliyon.2021.e06353.

7. Chowdhury, F. T., Zaman, N. R., **Islam, M. R.,** & Khan, H. (2021). Anti-fungal secondary metabolites and hydrolytic enzymes from rhizospheric bacteria in crop protection: a review. *Journal of Bangladesh Academy of Sciences*, *44*(2), 69–84. https://doi.org/10.3329/jbas.v44i2.51452

8. Akash M, Chowdhury UF, Khaleque FTZ, Reza RN, Howlader DC, **Islam MR**, Khan H. On the reappearance of the Indian grey wolf in Bangladesh after 70 years: what do we know? *Mamm Biol* (2020). https://doi.org/10.1007/s42991-020-00064-4

9. Zaman NR, Kumar B, Nasrin Z, **Islam MR**, Maiti TK, Khan H. (2020) Proteome Analyses Reveal *Macrophomina phaseolina*'s Survival Tools When Challenged by *Burkholderia contaminans* NZ. *ACS Omega*. 5(3):1352-1362. doi:10.1021/acsomega.9b01870

10. Tasneem Ehsan , Rifath Nehleen Reza , Avizit Das, Oly Ahmed, A K M Abdul Baten, Ahlan Sabah Ferdous, **Mohammad Riazul Islam,** Haseena Khan (2020) Genome and secretome analysis of jute endophyte Grammothele lineata strain SDL-CO-2015-1: Insights into its lignocellulolytic structure and secondary metabolite profile. *Genomics*. 112(4): 2794-2803

11. Das A, Ianakiev P, Baten A, Nehleen R, Ehsan T, Ahmed O, **Islam MR**, Naser MN, Marma MS, Khan H (2018) Genome of Tenualosa ilisha from the river Padma, Bangladesh. *BMC Res Notes* 11(1):921. doi: 10.1186/s13104-018-4028-8.

12. Daisuke Fujinami, Abdullah-Al-Mahin, Khaled M. Elsayed, **Mohammad R. Islam**, Jun-ichi Nagao, Urmi Roy, Sabrina Momin, Takeshi Zendo, Daisuke Kohda, and Kenji Sonomoto. (2018) A lantibiotic Nukacin ISK-1 exists in a slow dynamic equilibrium in solution between one active state and the other inactive state in lipid-II binding. *Communication Biology*. 1:150. DOI: 10.1038/s42003-018-0150-3

13. Uddin MKM, Ahmed M, **Islam MR**, Rahman A, Khatun R, Hossain MA, Maug AKJ, Banu S. (2018) Molecular characterization and drug susceptibility profile of Mycobacterium tuberculosis isolates from Northeast Bangladesh. *Infect Genet Evol*. 65:136-143. doi: 10.1016/j.meegid.2018.07.027.

14. Shaheena Amin, Ahlan Ferdous, Tanima Sharker, Samira Bushra, Al-Amin, Parag Palit, **Mohammad Islam** and Haseena Khan *(2018)* A Comparative Study of Host Response against *Macrophomina phaseolina* Infection in Sensitive and Resistant Jute (Corchorus sp) Species Unravels a Possible Defense Mechanism. J Plant Physiol Pathol 6:4. doi: 10.4172/2329-955X.1000185

15. Farhana Tasnim Chowdhury, Mrinmoy Sarker, Muhammad Saiful Islam, Husna Parvin Nur, **Mohammad Riazul Islam**, Haseena Khan. (2018). Investigation of antimicrobial activity and identification of bioactive volatile metabolites of jute endophytic fungus

Aspergillus flavus. Bioresearch Communication. 4(1): 476-482

16. Mumu NN, Sarker M, **Islam MR**, Akand S and Bashar MA. (2017) Some Morphological Aspects of Asian Honey Bee (*Apis Cerana*) and Isolation of Its Melittin Content. *J. Biodivers. Conserv. Bioresour. Manag.* 3(2)

17. Badrul Haidar, Mahbuba Ferdous, Babry Fatema, Ahlan Sabah Ferdous, **Mohammad Riazul Islam**, Haseena Khan. (2017). Population diversity of bacterial endophytes from jute (Corchorus olitorius) and evaluation of their potential role as bioinoculants. *Microbiological Research.* 208:43-53. doi: 10.1016/j.micres.2018.01.008.

18. Avizit Das, Oly Ahmed, A. K. M. Abdul Baten, Samira Bushra, M. Tariqul Islam, Ahlan Sabah Ferdous, **Mohammad Riazul Islam** and Haseena Khan (2017) Draft Genome Sequence of *Grammothele lineata* SDL-CO-2015-1, a Jute Endophyte with a Potential for Paclitaxel Biosynthesis. *Genome Announc* 5(33): e00825-17. doi: 10.1128/genome A.00825-17

19. Avizit Das, Mohammad Imtiazur Rahman, Ahlan Sabah Ferdous, Al- Amin, Nilufar Nahar, Md. Aftab Uddin, **Mohammad Riazul Islam**, Haseena Khan. (2017). An endophytic Basidiomycete, *Grammothele lineata* isolated from *Corchorus olitorius*, produces paclitaxel that shows cytotoxicity. PLoS ONE 12(6): e0178612.

20. **Mohammad R. Islam**, Kenji Sonomoto. (2017) Rapid screening and evaluation of site saturated structural variants of lantibiotic, nukacin ISK-1. *Bioresearch Communication*. 3(1): 354-361

21. Khaled M. Elsayed, **Mohammad R. Islam**, Abdullah-Al-Mahin, Jun-ichi Nagao, Takeshi Zendo and Kenji Sonomoto (2016) LiaRS reporter assay: A simple tool to identify lipid II binding moieties in lantibiotic nukacin ISK-1. J Biosci Bioeng. pii: S1389-1723(16)30353-X. doi: 10.1016/j.jbiosc.2016.10.002.

22. Roy U, **Islam MR,** Nagao J, Iida H, Mahin AA, Zendo T, Nakayama J, Sonomoto K. (2014): Bactericidal activity of nukacin ISK-1: an alternative mode of action. *Bioscience Biotechnology and Biochemistry* DOI: 10.1080/09168451.2014.918485

23. **Mohammad R. Islam**, Razia Khatun, Mohammad Khaja Mafij Uddin , Md. Siddiqur Rahman Khan, Md. Toufiq Rahman, Tahmeed Ahmed and Sayera Banu (2013) Yield of two consecutive sputum specimens for the effective diagnosis of pulmonary tuberculosis. *PLoS One* 8(7):e67678. doi: 10.1371/journal.pone.0067678

24. **Mohammad R. Islam**, Jun-ichi Nagao, Takeshi Zendo and Kenji Sonomoto (2012) Antimicrobial mechanism of lantibiotics. *Biochem Soc Trans* doi:10.1042/ BST20120190

25. **Islam MR**, Nishie M, Nagao J, Zendo T, Keller S, Nakayama J, Kohda D, Sahl HG, and Sonomoto K. (2012) Ring A of Nukacin ISK-1: A Lipid II-Binding Motif for Type-A(II) Lantibiotic. *J Am Chem Soc* **134(8)**:3687-90

26. Puramattathu TV, **Islam MR**, Nishie M, Yanagihara S, Nagao J, Okuda K, Zendo T, Nakayama J and Sonomoto K. (2012) Enhanced production of nukacin D13E in

Lactococcus lactis NZ9000 by the additional expression of immunity genes. *Appl Microbiol Biotechnol* **93(2)**:671-678

27. Banu S, Uddin MKM, **Islam MR**, Zaman K, Ahmed T, Talukder AH, Rahman MT, Rahim Z, Akter N, Khatun N, Brosch R, Endtz HP. (2012) Molecular epidemiology of tuberculosis in rural matlab, Bangladesh. *Int J Tuberc Lung Dis* **16(3)**: 319-326

28. Rumana Tasmin, **Mohammad R. Islam** (2011) Herbicide contamination and their effect on aquatic ecosystems: a case of concern. *ICEAB 2011 proceedings*109-111

29. **Islam MR**, Shioya K, Nagao J, Nishie M, Jikuya H, Zendo T, Nakayama J and Sonomoto K. (2009) Evaluation of essential and variable residues of nukacin ISK-1 by NNK scanning. *Mol Microbiol* **72(6)**: 1438–1447

30. Nagao J, Morinaga Y, **Islam MR**, Asaduzzaman SM, Aso Y, Nakayama J, Sonomoto K. (2009) Mapping and identification of the region and secondary structure required for the maturation of the nukacin ISK-1 prepeptide. *Peptides* **30(8)**:1412-20.

31. **Islam MR**, Nagao J, Shioya K, Nakayama J, Sonomoto K. (2005) Characterization of nukacin ISK-1 biosynthetic enzymes by expressing nukacin ISK-1-lacticin 481 chimeric prepeptides. *Annual Report ICBiotech, Osaka University* **27**: 801-811

32. Banu S., Gordon S V, Palmer S, **Islam MR**, Ahmed S, AlamKM, Cole ST, Brosch R. (2004) Genotypic analysis of Mycobacterium tuberculosis in Bangladesh and prevalence of the Beijing strain. *J Clin Microbiol* **42(2)**:674-82.

Scientific conference/symposium attended:

1. **Mohammad R. Islam**. Cell wall biosynthesis pathway as antibiotic target: an effective approach against drug resistant pathogens. 2nd International South Asian Biotechnology Conference. (Feb 5-6, 2016, Dhaka, Bangladesh)
2. **Mohammad R. Islam**, Mami Nishie, Jun-ichi Nagao,Takeshi Zendo, Jiro Nakayama, Daisuke Kohda, Hans-Georg Sahl and Kenji Sonomoto. Ring A of nukacin ISK-1: a lipid II binding motif for type-A(II) lantibiotic. (YSP and FAOBMB congress 2012, Bangkok, Thailand, 22-29 Nov, 2012)
3. **Mohammad R. Islam**, Mami Nishie, Jun-ichi Nagao,Takeshi Zendo, Jiro Nakayama, Daisuke Kohda, Hans-Georg Sahl and Kenji Sonomoto. Ring A of nukacin ISK-1: a lipid II binding motif for type-A(II) lantibiotic. (Third International Symposium on Antimicrobial Peptides, Lille, France, 2012, Jun 15-17.)
4. **Mohammad R. Islam**, Mami Nishie, Jun-ichi Nagao,Takeshi Zendo, Jiro Nakayama, Daisuke Kohda, Hans-Georg Sahland Kenji Sonomoto. Ring A of nukacin ISK-1: a lipid II binding motif for type-A(II) lantibiotic. (Japan Society for Bioscience, Biotechnology and Agrochemistry Annual Meeting 2012, Kyoto, Japan, Mar 23-25.)
5. Rumana Tasmin, **Mohammad R. Islam**. Herbicide contamination and their effect on aquatic ecosystems: a case of concern. (International Conference on environmental aspect, Bangladesh,

2011, Kitakyushu, Japan, Sep 10-11.)

6. **Mohammad R. Islam**, MamiNishie, Akira Takano, Jun-ichi Nagao, Kouki Shioya, Takeshi Zendo, Daisuke Kohda and Kenji Sonomoto.Ring A of nukacin ISK-1: a lipid II binding motif. (International Union of Microbiological SocietyCongress 2011, Sapporo, Hokkaido, Japan, Sep 6-16.)
7. Kenji Sonomoto, Mami Nishie, **Mohammad R. Islam**, Ken-ichi Okuda, Jun-ichi Nagao, Takeshi Zendo, and Jiro Nakayama. New Insight of Lantibiotic Engineering: Characterization of the enzymes, design and mode of action of lantibiotics, and immunity proteins. (The Eleventh China-Japan-Korea Joint Symposium on Enzyme Engineering, 2010, Nov 07.)
8. **Islam MR**, Shioya K, Nagao J, Zendo T, Nakayama J, and Sonomoto K. Evaluation of essential and variable residues of nukacin ISK-1 by NNK scanning. (Second International Symposium on Antimicrobial Peptides, Saint-Malo, France, 2009, Jun 17-19.)

Referee:

- Prof. Haseena Khan, PhD
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- Prof. Kenji Sonomoto, PhD
  Laboratory of Microbial Technology
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  Department of Bioscience and Biotechnology, Faculty of Agriculture
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- Prof. Gabriele Bierbaum, PhD
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