MD. HASANUR RAHMAN

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RESEARCH INTERESTS

Molecular and Cellular Biology, Cancer Biology, Molecular Genetics, Genomics/Bioinformatics, Neuroscience, Virology, Evolutionary Genetics.

RESEARCH EXPERIENCES

Dr. Hannan's Lab, Bangladesh Agricultural University, Mymensingh, Bangladesh
Research Assistant II — Apr 2023 - Present

- Define research questions to estimate the potential prevention of Dementia, Alzheimer's and Diabetes mellitus type 2 disease by molecular pathway analysis using network pharmacology and computational approaches.
- Provide support to complete current student projects.
- Perform molecular dynamic simulation and genome sequencing data analysis.
- Present: Weekly progress, Post simulation and genomics data figures, Meeting with collaborators.

ABEx Bio-Research Center, Dhaka, Bangladesh
Research Associate — Aug 2019 - Mar 2023

- Established bioinformatics facility within the lab and performed molecular dynamic simulations and analyzed genomics data for different collaborative projects.
- Studied different extracted phytochemicals and their pharmacological insights and therapeutic promises in human diseases.
- Systematically reviewed literatures on different types of cancer and it's advanced therapeutic strategies, autophagy modulation in cancer prevention and alzheimer's disease.

Kyung Hee University, College of Korean Medicine, Seoul, Republic of Korea
Research Assistant — Feb 2022 - Mar 2023

- Studied of korean plant extracted phytochemicals and their drug likeness activity via regulation of caspase-3 against pancreatic cancer patients.
- Analyzed western blot data, prepared the manuscript with results and figures.
- Analyzed LC-MS data, Cell culture data, Different assay (cytotoxicity, colony formation, caspase-3 activity, ROS) data.
- Created the program to corelate the wet lab experiment with bioinformatics approaches for further validations, e.g. Molecular docking and dynamic simulations.
- Presented: Practice, Weekly progress, Figures/Diagram drawing.

Ministry of Education Research Project on Breast Cancer, Dhaka, Bangladesh
Research Fellow — Mar 2021 - Jun 2021

- Collected breast cancer patient (diabetic) samples from Cancer Hospitals.
- Developed the project data collection plan and lead the team.
- Analyzed samples in laboratory and generated report.
- Prepared project report.

EDUCATION

Faculty of Life Sciences, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj, Bangladesh. Jan 2017 - Dec 2020

Bachelor of Science (Hons.), Biotechnology and Genetic Engineering

Result: 2.86/4.00 (Graduation conferred: Jan, 2022)

SKILLS

Linux, Python, R, Matplotlib, Computational Biology (Molecular Docking, Molecular Dynamic Simulations by Gromacs, NAMD, Schrödinger), Genomic Data Analysis (BLAST, Bowtie, BWA, SAMtools, and bioconductor in R), Scientific Figure Illustrations, PCR, Western Blot Analysis, Cell Culture, Biological Assay's and Animal Handling.

PUBLICATIONS (selected 13 out of 30)

1. T. Akter, M.S. Zahan, N. Nawal, **M.H. Rahman**, T.N. Tanjum, K.I. Arafat, A. Moni, M.N. Islam, and M.J. Uddin (2023). Potentials of curcumin against polycystic ovary syndrome: Pharmacological insights and therapeutic promises. *Heliyon*, DOI: 10.1016/j.heliyon.2023.e16957 **[JCR IF: 4.0]**

2. **M.H. Rahman**, P. Biswas, D. Dey, M.A. Hannan, M. Sahabuddin, Y. Araf, Y. Kwon, T.B. Emran, M.S. Ali, and M.J. Uddin (2022). An In-Silico Identification of Potential Flavonoids against Kidney Fibrosis Targeting TGFBR-1. *Life*, DOI: 10.3390/life12111764 **[JCR IF: 3.251]**

3. M.A. Hannan, A. Sultana, **M.H. Rahman**, A.A.M. Sohag, R. Dash, M.J. Uddin, M.J. Hossen, I.S. Moon, and M.F. Akhtar (2022). Dietary Carbohydrates: Protective Mechanisms of Nootropic Herb Shankhpushpi (Convolvulus pluricaulis) against Dementia: Network Pharmacology and Computational Approach. *Evidence-Based Complementary and Alternative Medicine*, DOI: 10.1155/2022/1015310 **[JCR IF: 2.629]**

4. S. Akter, H. Akhter, H.S. Chaudhury, **M.H. Rahman**, A. Gorski, M.N. Hasan, Y. Shin, Md. A. Rahman, M.N. Nguyen, T.G. Choi, and S. Kim (2022). Dietary carbohydrates: Pathogenesis and potential therapeutic targets to obesity associated metabolic syndrome. *BioFactors*, DOI: 10.1002/biof.1886 **[JCR IF: 6.00]**

5. M.S. Zahan, A. Hasan, **M.H. Rahman**, K.N. Meem, A. Moni, M.A. Hannan, M.J. Uddin (2022). Protective effects of fucoidan against kidney diseases: Pharmacological insights and future perspectives. *International Journal of Biological Macromolecules*, DOI: 10.1016/j.ijbiomac.2022.04.192 **[JCR IF: 8.2]**

6. M.A. Rahman, K.R. Ahmed, **M.H. Rahman**, M.N. Park, B. Kim (2022). Potential Therapeutic Action of Autophagy in Gastric Cancer Managements: Novel Treatment Strategies and Pharmacological Interventions. *Frontiers in Pharmacology*, DOI: 10.3389/fphar.2021.813703 **[JCR IF: 5.6]**

7. M.A. Rahman, M.N. Park, **M.H. Rahman**, M.M. Rashid, R. Islam, M.J. Uddin, M.A. Hannan, B. Kim (2022). p53 Modulation of Autophagy Signaling in Cancer Therapies: Perspectives Mechanism and Therapeutic Targets. *Frontiers in Cell and Developmental Biology*, DOI: 10.3389/fcell.2022.761080 **[JCR IF: 5.5]**

8. P. Biswas, D. Dey, A. Rahman, M.A. Islam, T.F. Susmi, M.A. Kaium, M.N. Hasan, **M.H. Rahman,** S. Mahmud, M.A. Saleh, P. Paul, M.R. Rahman, M.A.A. Saber, H. Song, M.A. Rahman, B. Kim (2021). Analysis of SYK Gene as a Prognostic Biomarker and Suggested Potential Bioactive Phytochemicals as an Alternative Therapeutic Option for Colorectal Cancer: An In-Silico Pharmaco-Informatics Investigation. *Journal of Personalized Medicine*. DOI: 10.3390/jpm11090888 **[JCR IF: 4.945]**

9. M.A. Rahman, M.A. Hannan, R. Dash, **M.H. Rahman**, R. Islam, M.J. Uddin, A.A.M. Sohag, M.H. Rahman, H. Rhim (2021). Phytochemicals as a Complement to Cancer Chemotherapy: Pharmacological Modulation of the Autophagy-Apoptosis Pathway. Frontiers in Pharmacology, DOI: 10.3389/fphar.2021.639628 **[JCR IF: 5.6]**

10. B. Sarkar, M.A. Ullah, S.S. Islam, **M.H. Rahman**, Y.A (2020). Analysis of plant-derived phytochemicals as anti-cancer agents targeting cyclin dependent kinase-2, human topoisomerase IIa and vascular endothelial growth factor receptor-2. *Journal of Receptors and Signal Transduction*, DOI: 10.1080/10799893.2020.1805628 **[JCR IF: 2.8]**

11. B. Sarkar, M.A. Ullah, Y.A, S. Das, **M.H. Rahman**, A.T. Moin (2020). Designing Novel Epitope-based Polyvalent Vaccines Against Herpes Simplex Virus-1 and 2 Exploiting the Immunoinformatics Approach. *Journal of Biomolecular Structure and Dynamics*, pp.1–21. DOI: 10.1080/07391102.2020.1803969 **[JCR IF: 3.549]**

12. **M.H. Rahman**, M. Rahman, M.S. Zahan, T. Hasib, K. Ahmed, M. Khanam, M. Omit, A. Moni, M.J. Uddin (2020). Current knowledge on mechanisms involved in SARS-CoV-2 infection and kidney diseases. *Journal of Advanced Biotechnology and Experimental Therapeutics*, DOI: 10.5455/jabet.2020.d153

13. M.A. Ullah, F.T. Johora, B. Sarkar, Y. A, **M.H. Rahman** (2020). Curcumin analogs as the inhibitors of TLR4 pathway in inflammation and their drug like potentialities: a computer-based study. *Journal of Receptors and Signal Transduction*, DOI: 10.1080/10799893.2020.1742741 **[JCR IF: 3.549]**

CONFERENCE POSTERS

Designing Novel Epitope Based Vaccine Against Human *Respiratory Syncytial Virus*, Presented in "4th Latin American Student Council Symposium (LA-SCS) 2020"

Computional Exploration of Curcumin Analogs to Identify Natural Anti-inflammatory Drugs, Presented in "European Student Council Symposium 2020"

DATABASE PROJECTS

National Database for Genetic Disease, powered by ICTD R&S and Shahjalal University of Science and Technology.

Global Database for Rice Genome Editing, powered by Institute of Biotechnology and Genetic Engineering (IBGE).

HONORS & AWARDS

1.	Top 25 Research Training Fellow, Compbio Bangladesh by University of Montana.	Feb 2023
2.	7th Position out of Top 10 Researchers List 2022, BSMRSTU, Published by Scopus.	Jan 2023
3.	4th Position out of Top 15 Researchers List 2021, BSMRSTU, Published by Scopus.	Jan 2022
4.	Best Performing Research Assistant Award of 2020, ABEx Bio-Research Center, East Azampur, Dhaka-1230, Bangladesh.	Dec 2021

ADDITIONAL ONLINE COURSES

Programming for Everybody (Getting Started with Python) (19 hrs) Instructed by: Charles Russell, University of Michigan	Credential	Jul 2020
Python Data Structures (19 hrs) Instructed by: Charles Russell, University of Michigan	Credential	Jul 2020
Genomic Data Science with Galaxy (16 hrs) Instructed by: James Taylor, PhD, Johns Hopkins University	Credential	May 2020
Introduction to Genomic Technologies (6 hrs) Instructed by: James Taylor, PhD & Jeff Leek, PhD, Johns Hopkins University	Credential	Apr 2020

VOLUNTEERING EXPERIENCES

Chief Operating Officer, Sep 2020 - Present
Communiy of Biotechnology (COB)

Editorial Assistant, Jun 2020 - Feb 2023
Journal of Advanced Biotechnology and Experimental Therapeutics

Founding Licensee & Organizer, Nov 2020 - Feb 2022
TEDx BSMRSTU, TEDx BSMRSTU-Women

Steering Committee Core Member, May 2020 - Dec 2021
ISCB RSG-Bangladesh

REFERENCES

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