

RESUME OF DR. MD. REZAUL KARIM

Contact Address

Dr. Md. Rezaul Karim
Ph.D. in Biotechnology (Kyung Hee University),
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Objective

As a Post-Doctoral candidate, I completed my PhD from Kyung Hee University, South Korea, in Biotechnology, my goal is to advance creative research and development in pharmacology, clinical sciences, nanotechnology, microbiology, gut microbiota and probiotics, cancer and oncology, molecular genetics, health sciences, cell biology, biochemistry, genetic diagnostics, nutrition and dietetics, medical microbiology, omics, bioinformatics and therapeutic biotechnology. With a strong background in scientific research, they aim to pursue post-doctoral position abroad, in academic institutions, research entities, biotech sectors, or other sectors to further develop their skills and contribute to science and technology advancement.

Educational Qualifications

Degree Name	Major	Institute	University/ School/ College	Passing Year	Result
Ph.D.	PhD in Biotechnology	Kyung Hee University, South Korea	Kyung Hee University, South Korea	2024	4.254 (out of 4.3)
M.Sc.	Biotechnology & Genetic Engineering	Islamic University	Islamic University	2008 (Held in 2010)	3.89 (Out of 4.00)
B.Sc. (Hon's)	Biotechnology & Genetic Engineering	Islamic University	Islamic University	2007 (Held in 2009)	First Class Position: 1 st Faculty First

Job Experiences

- In Islamic University Bangladesh, Kushtia as an **Associate Professor (Dept. of Biotechnology & Genetic Engineering)**. (From 21st August 2024, to **still now**).
- In Islamic University Bangladesh, Kushtia as an **Assistant Professor (Dept. of Biotechnology & Genetic Engineering)**. (From 1st March, 2020 to 20th August 2024).
- **Former PhD research scholar**, College of Life Science, Kyung Hee University, Suwon-si, Seoul, South Korea. (Completed at 2024)
- In Islamic University, Kushtia as a **Lecturer (Dept. of Biotechnology & Genetic Engineering)**. (From 30th September, 2013 to 29th February, 2020).
- In PepsiCo Group as a **Microbiologist (QA department)**. (From 30th March, 2013 to 25th August, 2013).
- In PRAN-RFL Group as a **Microbiologist (QA department)**. (From 30th March, 2011 to 25th March, 2013).

Strength

- Capable of adapting in any type of environment
- Capable of handling various sports and cultural program
- Dynamic and self-motivated
- Ability to cope with people at every level
- Ambitious and target oriented

Awards and Scholarships

- Awarded President Fellowship, Kyung Hee University, Suwon-si, Seoul, South Korea.
- Best Researcher Award 2022, Korea Ginseng Center (KGCMVP), Hanbangbio lab, Kyung Hee University, Suwon-si, Seoul, South Korea.
- Awarded ‘A’ Grade scholarship from the Islamic University, Kushtia-7003, Bangladesh, due to Bright Academic Performance in the B.Sc. (Hons.) level.
- “UGC-University Grand Commission” scholarship for faculty first in B.Sc (Applied Science & Technology Faculty).
- Bongobondhu **Gold Medal** for first class first in BSc.
- President Scholarship in the session of 2003-04 (B.Sc.) for faculty first position.
- Awarded Junior Scholarship & Primary Scholarship.

Recent Ongoing Research Projects

- Identify the gene targets based on probiotic strain and its compounds to alleviate colorectal cancer (from 2025/01/12~ research going on).
- Identify *Withania somnifera* (*Ashwagandha*) Plant Compounds-Based Gene Targets to Treat Alzheimer's Disease: An In Silico Study (from 2025/03/09 ~ research going on).
- Exploring Multi-Target Therapeutic Effects of *Foeniculum vulgare* in Gastric Cancer and Associated Related Diseases: An *In Vitro* and Network Pharmacology Study (from 2025/04/02~ research going on).

Project Experience

- Ministry of Science and Technology Project. Research Fund under Medical Biotechnology Branch. (From 1st July 2025~ until 30th June 2026).
- The Higher Education Acceleration and Transformation (HEAT) Project, a joint initiative of the Government of Bangladesh and the World Bank. (From 1st July, 2025 ~ going on): Project based on Discovery of Drug against cancer through the regulation of autophagy.
- Ministry of Science and Technology Project. (From 1st July 2021~ 30th June 2022).

Communication & Language Proficiency

- Good command in English and Bengali – both written and spoken.
- Hindi: Good in communication
- N.B: B.Sc., M.Sc., and Ph.D. all in English medium.

Computer Skills

- MS word, MS Excel, PowerPoint, Data Analysis, Internet Browsing, SEO Network pharmacology, Protein-Protein Interaction, Molecular Dynamic Simulation, Docking, Omic data analysis, Transcriptomic data analysis, seq- data analysis, BLAST, GO analysis, KEGG pathway analysis, String data analysis, Cytoscape, etc.

Technical Skills

- Bioinformatics (network pharmacology, gut microbes/ plant metabolites and interaction with diseases).
- Drug design, protein structure prediction, molecular docking and simulation validation.
- *In-vitro* and *in-vivo* validation.
- Cell Culture: (293HEK), 293T-cell line, A486, Raw 264.7, Cacao Cell, HaCaT cell line.
- Cell transfection and gene expression observation in cell line after transfection.
- *In vivo* research experience with mice, frog (*Xenopus tropicalis/laevis*), Zebra fish model.
- RNA-seq data analysis.
- Electrophoresis, Plasmid isolation, plasmid transformation, gene cloning etc.
- Chromatography technique (HPLC, GLC, TLC) etc.
- Fluorescent microscopy and confocal analysis of transgenic cell line.
- DNA isolation, PCR technique, qPCR, q-RT PCR, Immunoassay etc.
- Different microbiological assays, and Isolation, Identification and characterization of bacteria.
- Competent cell (TG1) preparation, and Bacterial growth curve study.
- Cloning, and gene expression analysis.
- Western blot, and southern blot analysis.
- Genomics, Proteomics.
- Transgenic animal establishment.
- ChIP assay
- Flow cytometry.
- Whole mount *In situ* hybridization.
- Microinjection into *Xenopus* embryo.
- Transcription Factor binding sites (TFBSs) prediction.
- Different biochemical analysis and other microbiological & biochemical tests.
- *Agrobacterium* mediated gene transfer.
- In-vitro fertilization of goat.
- Fungi culture in both solid and liquid medium.
- Microbial count in product. (Bacteria, yeast, coliform, mould, etc.)

Publications

1. Experimental evaluation and GC–MS guided computational identification of potential antidiabetic compounds from *Heritiera fomes* leaves. Musab Shahariar, Arghya Prosun Sarkar, Lamia Hasan, Barsha Joarder, Naem Islam Abhi Sheikh, Md. Abdullah Al Mashud, Panna Roy, Arjyabrata Sarker, Farhana Islam, **Md. Rezaul Karim**, Muhammad Shamsuzzaman, Mst. Muslima Khatun, Sukalyan Kumar Kundu. (**Submitted, Under Review-BMC, 2026**).
2. Nanoparticles: Creating the Future of Cancer Treatment through Smarter Drug Delivery. Safia Iqbal, Md Sarowre Hossen, Md Kamrul Sheikh, Md Yeakub Shakil, Shaharin Sultana, Abdullah Al Nafiz, Md Rezaul Karim*. Journal of Biosciences and Public Health (**Submitted, Under Review, 2026**).
3. *In-silico* identification of anti-cholera phytochemicals from Indian medicinal plants. Khalilur Rahman, Yasmin Akter, Md Selim Reza, Md. Al Amin Pappu, **Md. Rezaul Karim**, Marzia

- Sultana, Mohammad Tarequl Islam, Munirul Alam , Md Nurul Haque Mollah*, Md. Mamun Monir*. PLOS ONE 21(2): e0342058; **2026**.
4. Identification and evaluation of phytochemicals as potential inhibitors for lung cancer targeting EGFR exon-19 deletion: a comprehensive study utilizing computational biology approaches. Tanvir Ahmmed, **Md Rezaul Karim**, Apon Chandra Paul, Rizone Al Hasib, Shovon Shaha, Md. Monir Hossen, Md. Rezuhanul Islam, Nilufa Akhter Banu & Mohammad Abu Hena Mostofa Jamal. Netw Model Anal Health Inform Bioinforma 14, 115; **2025**.
 5. A Network Pharmacological Approach to Identify Biomarker Genes of Gastric Cancer & Trigger by Using Natural Compound of *Foeniculum Vulgare*. Md Sarowre Hossena, Safia Iqbal, Mohammad Abu Hena Mostofa Jamal, Tanvir Ahmmed, Apon Paul, Farhana Israt Rimi, **Md Rezaul Karim***, (Submitted, Under review, **2025**).
 6. Jung Hyeok Lee, Anjali Kariyarath Valappil, Seung Jin Lee, Dongik Lee, **Md Rezaul Karim**, Shahnawaz Mohammad, Li Ling, Dong Uk Yang, Daewon Jeon, Deok Chun Yang, Seulah Lee. Processing of fermented black ginseng by highly efficient and safe LED process and its in vitro biological activities. **Food Chemistry**. 489, 144991; **2025**.
 7. Shahnawaz Mohammad, **Md Rezaul Karim**, Safia Iqbal, Abdus Samad, Muhammad Awais, Ramya Mathiyalagan, Yeon Ju Kim, Dong Uk Yang, Deok Chun Yang. Network pharmacology and molecular docking approach to predict the oral and topical therapeutic mechanisms of *Panax ginseng*'s active compounds on atopic dermatitis. **Journal of Bimolecular Structure and Dynamics**, 1-16, 2497467; **2025**.
 8. Shahnawaz Mohammad, Anjali Kariyarath Valappil, **Md Rezaul Karim**, Safia Iqbal, Deok Chun Yang, Changbao Chen, Li Ling, Dong Uk Yang. Protective roles of genistein and icaritin in skin barrier integrity and hydration in an atopic dermatitis model. **European Journal of Integrative Medicine**, 76, 102483; **2025**.
 9. Safia Iqbal, Dong UK Yang, Shahnawaz Mohammad, Md Nijaj Morshed, Md Sarowre Hossen, Abdus Samad, Deok Chun Yang, Hyocheol Bae, Yeon Ju Kim, **Md Rezaul Karim***. The Anti-Cancer Effect of Ginsenoside Compound K (CK) Against Kidney and Colon Cancers by Suppressing PHLDA Gene Family-an In Silico and In Vitro Validation Research. Submitted, under review (**2025**). (**Preprints** 2025, 2025031254).
 10. **Md. Rezaul Karim**, Safia Iqbal, Shahnawaz Mohammad, Jong-Hoon Kim, Li Ling, Changbao Chen, Abdus Samad, Md. Anwarul Haque, Jong Chan Ahn, Deok-Chun Yang, Yeon Ju Kim, and Dong Uk Yang. Upgrading Isoquercitrin Concentration via Submerge Fermentation of Mulberry Fruit Extract with Edible Probiotics to Suppress Gene Targets for Controlling Kidney Cancer and Inflammation. **Journal of Microbiology**, 62, 10, 919-927; **2024**.
 11. Safia Iqbal, **Md. Rezaul Karim**, Shahnawaz Mohammad, Ramya Mathiyalagan, Md. Nijaj Morshed, De-ok-Chun Yang, Hyocheol bae, Esrat Jahan Rupa, and Dong Uk Yang. Multiomics analysis of the PHLDA gene family in different cancers and their clinical prognostic values. **Current Issues in Molecular Biology**, 46, 6, 5488-5510; **2024. (equal)**
 12. Safia Iqbal, Md. Rezaul Karim, Shahnawaz Mohammad, Jong Chan Ahn, Anjali Kariyarath Valappil, Ramya Mathiyalagan, Deok-Chun Yang, Dae-Hyo Jung, Hyocheol Bae, and Dong Uk Yang. In Silico and In Vitro Study of Isoquercitrin against Kidney Cancer and Inflammation by Triggering Potential Gene Targets. **Curr. Issues Mol. Biol.** 46, 3328–3341; **2024. (equal)**.
 13. **Md. Rezaul Karim**, Safia Iqbal, Shahnawaz Mohammad, Md. Nijaj Morshed, Md. Anwarul Haque, Ramya Mathiyalagan, Deok Chun Yang, Yeon Ju Kim, Joong Hyun Song & Dong Uk Yang. Butyrate's (a short-chain fatty acid) microbial synthesis, absorption, and preventive roles against colorectal and lung cancer. *Archives of Microbiology*. 206, 137; **2024**.
 14. Md. Nijaj Morshed, Reshmi Akter, **Md. Rezaul Karim**, Safia Iqbal, Se Chan Kang and Deok Chun Yang. Bioconversion, Pharmacokinetics, and Therapeutic Mechanisms of Ginsenoside Compound K and Its Analogues for Treating Metabolic Diseases. **Curr. Issues Mol. Biol.** 46, 2320–2342; **2024**.
 15. Shahnawaz Mohammad, **Md. Rezaul Karim**, Safia Iqbal, Jung Hyeok Lee, Ramya Mathiyalagan, Yeon Ju Kim, Dong Uk Yang, Deok Chun Yang. Atopic dermatitis:

- Pathophysiology, microbiota, and metabolome – A comprehensive review. **Microbiological Research**. 281, 127595; 2024. (equal).
16. Md. Nijaz Morshed, **Md. Rezaul Karim**, Reshmi Akter, Safia Iqbal, Ramya Mathiyalagan, Jong Chan Ahn, Deok Chun Yang, Joong Hyun Song, Se Chan Kang, and Dong Uk Yang. Potential of Gut Microbial Metabolites in Treating Osteoporosis and Obesity: A Network Pharmacology and Bioinformatics Approach. **Med Sci Monit**. 30: e942899-1–e942899-24; 2024. (equal)
 17. Safia Iqbal, **Md. Rezaul Karim**, Deok-Chun Yang, Ramya Mathiyalagan, Se Chan Kang. Tuft cells - the immunological interface and role in disease regulation. **International Immunopharmacology**. 118, 110018; 2023. (equal).
 18. **Md. Rezaul Karim**, Md. Nijaz Morshed, Safia Iqbal, Shahnawaz Mohammad, Ramya Mathiyalagan, Deok Chun Yang, Yeon Ju Kim, Joon Hyun Song, and Dong Uk Yang. A Network Pharmacology and Molecular-Docking-Based Approach to Identify the Probable Targets of Short-Chain Fatty-Acid-Producing Microbial Metabolites against Kidney Cancer and Inflammation. **Biomolecules**. 13, 1678; 2023.
 19. **Md. Rezaul Karim**, Safia Iqbal, Shahnawaz Mohammad, Jung Hyeok Lee, Daehyo Jung, Ramya Mathiyalagan, Deok-Chun Yang, Dong Uk Yang, Se Chan Kang. Impact of dietary interventions, drugs, and traditional herbal supplements on the gut microbiome. **Microbiological Research**. 271, 127346; 2023.
 20. Md. Nijaz Morshed, Jong Chan Ahn, Ramya Mathiyalagan, Esrat Jahan Rupa, Reshmi Akter, **Md. Rezaul Karim**, Dae Hyo Jung, Dong Uk Yang, Deok Chun Yang, and Seok Kyu Jung. Antioxidant Activity of Panax ginseng to Regulate ROS in Various Chronic Diseases. **Applied Science**, vol 13, 2893; 2023.
 21. Safia Iqbal, A.K.M. Nazmul Huda, A.N.K. Mamun, Md. Rezuanul Islam, Mohammad Abu Hena Mostofa Jamal, and **Md. Rezaul Karim***. Effects of Phytohormone and Regulators on Shoot Tip and Nodal Explants for In Vitro Shoot and Root Clonal Propagation of *Vitex negundo* L. **American Journal of Pure and Applied Biosciences**, Vol 3(4), 65-78; 2021.
 22. M. A. Milon, M. M. Rahman, M. L. Rana, M. L. Khatun, **M. R. Karim**, M. E. Ali, A. K. M. N. Huda, M. A. Islam, M. M. Rahman. Addressing Sex and Gender Bias in COVID-19 Epidemiology in Bangladesh. **Journal of Agriculture, Food and Environment (JAFE)**, Vol 2(1), 125-129; 2021.
 23. Lin Liu, Zhouwen Xu, Yuyan Jiang, **Md. Rezaul Karim**, Xiao Huang. Cell cycle regulation through primary cilium: A long-forgotten story. **Biocell**, Vol 45(4), 823-833; 2021.
 24. Kun Hou, Hui Jiang, **Md. Rezaul Karim**, Chao Zhong, Zhouwen Xu, Lin Liu, Minxin Guan, Jianzhong Shao and Xiao Huang. A Critical E-box in *Barhl1* 3. Enhancer Is Essential for Auditory Hair Cell Differentiation. **Cells**, Vol (8), 458; 2019.
 25. Pulak Maitra, M. Abu Hena Mostofa Jamal, **Md. Rezaul Karim**, Md. Rezuanul Islam, Safia Iqbal, Rashedul Haque. A comparative study on microscopy, RDT and RT-PCR for detection of malaria parasites. **International Journal of Biosciences**, Vol (5), 366-371; 2014.
 26. **Md. Rezaul Karim**, Zinat Mahal, Safia Iqbal, Harun or Rashid, M. Abu Hena Mostofa Jamal, Md. Azizul Islam, Md. Mafizur Rahman, “ **Solid state fermentation of *Lathyrus sativus* and sugarcane bagasse by *Pleurotus sajor-caju***”, **International Journal of Agronomy and Agriculture Research**, Vol (4), 1:9; 2014.
 27. Md. Azizul Islam, Md. Abul Kalam Azad, **Md. Rezaul Karim**, Sudhangsu Kumar Biswas, Md. Mostafizur Rahman, Md. Mafizur Rahman, “ Antibacterial Effects of *Ocimum sanctum* L Leaves, Flowers and Shoot against *Bacillus spp* from soil”, **Malaysian Journal of Medical and Biological Research**, Vol (1), 35:41; 2014.
 28. M. Abu Hena Mostofa Jamal, Shahedur Rahman, Md. Azizul Islam, **Md. Rezaul Karim**, Md. Samsul Alam , Md. Ziaur Rahman, “ Minimum Inhibitory Concentration Analysis of *Nerium oleander* against Bacterial Pathogen”, **Asian Pacific Journal of Tropical Biomedicine**, S 1664:S1666; 2012.

Publications (Conference)

1. Poster Presentation: Identify the Gene Targets Based on Probiotic Strain and Its Compounds to Alleviate Colorectal Cancer. ID: BC20, NYBB 6th International Young Biotechnologists Congress, **2026**.
2. Poster Publication: Md Sarowre Hossena, Safia Iqbal, Mohammad Abu Hena Mostofa Jamal, Tanvir Ahmmed, Apon Paul, Farhana Israt Rimi, **Md Rezaul Karim***. Exploring Multi-Target Therapeutic Effects of *Foeniculum vulgare* in Gastric Cancer and Associated Related Diseases: An *In Vitro* and Network Pharmacology Study. IAAS Conference, **2025**.
3. Abstract and Poster Publication: Md Sarowre Hossena, Safia Iqbal, Mohammad Abu Hena Mostofa Jamal, Tanvir Ahmmed, Apon Paul, Farhana Israt Rimi, **Md Rezaul Karim***. A Network Pharmacological Approach to Identify Biomarker Genes of Gastric Cancer & Trigger by Using Natural Compound of *Foeniculum Vulgare*. International Biotechnology Conferences, **2025**.
4. Abstract Publication: Kanchi Afrin, Nilufa Akhter Banu, **Md. Rezaul Karim**, Yong Se Lee, Chi Hyun Song, Md Rezuhanul Islam, “ Biological Control Potential of Antibiotic Substances from *Streptomyces arenae* H33 Against Various Plant Pathogenic Fungi”, Conference on Biotechnology for Better Tomorrow 2014, 37; **2014**.
5. Abstract Publication: **Md. Rezaul Karim**, Harun or Rashid, Zinat Mahal, Safia Iqbal, Md. Rezuhanul Islam, Md. Shahedur Rahman, M. Abu Hena Mostofa Jamal “Fungal Conversion of Agrowaste into Nutritionally Enriched Animal Feed through Solid State Fermentation”, An international conference on Green chemistry for sustainable development, 39:40; **2012**.
6. Abstract Publication: Safia Iqbal, **Md. Rezaul Karim**, A.N.K. Mamun , Md. Rezuhanul Islam, M. Abu Hena Mostofa Jamal, A.K.M Nazmul Huda “*In vitro* Clonal Propagation of *Vitex negundo* L.”, An Important Native Medicinal Plant An international conference on Green chemistry for sustainable development, 115:116; **2012**.

Personal Details

Full name: Dr. Md. Rezaul Karim

Date of Birth: December 15, 1986

Father name: Md. Abdul Latif

Mother name: Mrs. Rezia Khatun

Spouse Name: Dr. Safia Iqbal

Permanent Address: Vill: Gor Amadi, Post: Amadi, P/S: Koyra, Dist: Khulna.

Nationality: Bangladeshi by birth

Marital Status: Married

Height: 5’11’’ (5 feet 11 inch)

Religion: Islam

Blood Group: A⁺

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