# Asim Kumar Bepari, MPharm, PhD

PhD in Medical Sciences (Kumamoto University, Japan) asimbepari@gmail.com, asim.bepari@northsouth.edu, Mobile: +8801716089859

# **Career Highlights:**

**20 Years of Teaching Experience:** Extensive teaching experience, primarily focusing on Physiology, Pharmacology, and Pharmacotherapy at undergraduate and graduate levels.

**Mentorship**: Successfully mentored more than 50 undergraduate research projects (PHR422, PHR520) and more than 25 master's theses (PHR5110).

**Research Experience:** Extensive doctoral and postdoctoral research experience, including the development and execution of fundable grant proposals and research protocols in the fields of *Neuroscience, Molecular Biology, Pharmacology*, and *Drug Discovery*.

**Publications:** Authored more than 30 peer-reviewed publications in high-impact journals, including *Nature, Cell Death and Differentiation, Development, Scientific Reports,* and *PLOS ONE*. These publications have significantly contributed to pharmacology, cancer, and AI-driven drug discovery.

**Research Grants:** Served as Principal Investigator (PI) on several research grants, securing substantial funding to support innovative research projects.

# **Education:**

25-Mar-2013	<b>PhD in Medical Sciences</b> Faculty of Life Sciences, Kumamoto University, Japan
31-Jun-2002	Master of Pharmacy (MPharm) Department of Pharmacy, Jahangirnagar University, Dhaka, Bangladesh
01-Jan-2001	<b>Bachelor of Pharmacy (BPharm)</b> Department of Pharmacy, Jahangirnagar University, Dhaka, Bangladesh

## **Certification:**

01-May-2015 Postdoctoral Certificate in Research Southwestern Graduate School of Medical Sciences The University of Texas Southwestern Medical Center, Dallas, Texas, USA

## **Courses Taught:**

Graduate	PHR5001: Advanced Pharmacology I
	PHR5003: Advanced Statistics
Undergraduate	PHR112: Statistics in Pharmaceutical Sciences PHR120: Inorganic Pharmacy
	PHR120L: Inorganic Pharmacy Lab
	PHR211: Human Physiology II
	PHR211L: Human Physiology Lab

PHR224L: Pharmaceutical Analysis Lab II PHR327: Principles of Diagnostics and Monitoring PHR410: Advanced Pharmaceutical Analysis PHR411L: Pharmacology Lab PHR511: Pharmacotherapy IV

# **Major Research Areas:**

Neuroscience	Neuroanatomy, Neurobiology, Neurodegenerative Disorders, Molecular Biology of Neuropathology, Biochemical Analysis of CNS Proteins, Genetics of Neurodevelopmental Disorders
Pharmacology of Plant Extracts	Biochemical, Behavioral, Histopathological, and Genetic Characterization of Plant Extracts using Rodent Models of Diabetes, Hypertension, and Neurodegenerative Disorders
Computational Drug Discovery	Deep Neural Network Machine Learning Models, Molecular Docking, and Molecular Dynamics Simulations for Drug Discovery

# **Teaching & Research Experience:**

01-Nov-2023 to date	<ul> <li>Professor</li> <li>Department of Pharmaceutical Sciences</li> <li>School of Health and Life Sciences, North South University (NSU), Bangladesh</li> <li><i>Major responsibilities:</i> <ul> <li>Lead and coordinate original research addressing obesity, hypertension, neurodegeneration, cancer, and infectious diseases, using animal models and advanced computational methods.</li> <li>Develop and validate biochemical and molecular assays to investigate oxidative stress, inflammation, and fibrosis.</li> <li>Evaluate therapeutic effects of phytochemicals, nutraceuticals, and small-molecule inhibitors through detailed histopathological and molecular analyses.</li> <li>Employ virtual screening, molecular dynamics, and machine learning to discover and optimize novel drug candidates and analyze disease-relevant gene polymorphisms for precision medicine.</li> <li>Mentor and train students in research design, data analysis, and scientific writing, promoting critical thinking and evidence-based practices.</li> <li>Deliver lectures, supervise research, and mentor undergraduate and graduate students in pharmaceutical sciences, pharmacology, and physiology, using both in-person and online platforms (e.g., Canvas).</li> <li>Teach core and advanced courses, including pharmacotherapy, pharmaceutical analysis, statistics, and human physiology, with emphasis on integration of theory, practice, and patient care.</li> <li>Conduct preclinical research on obesity and related diseases using animal models, oxidative stress assays, histopathology, gene expression, and AI-driven drug discovery.</li> <li>Publish peer-reviewed articles, co-supervise PhD research on anticancer drug discovery, and contribute to scientific innovation in drug development.</li> </ul> </li> </ul>
01-Apr-2018 to 31-Oct-	biomedical and educational standards. Associate Professor Department of Pharmaceutical Sciences, School of Health and Life Sciences, NSU

**Department of Pharmaceutical Sciences, School of Health and Life Sciences, NSU** *Major responsibilities:* 

2023	• Conducted interdisciplinary research using genetic, biochemical, behavioral, histopathological, and computational models to study neurological, metabolic, and infectious diseases.
	<ul> <li>Led public health research initiatives on infectious diseases with a focus on translational impact.</li> </ul>
	<ul> <li>Supervised undergraduate and graduate student research projects, fostering independent inquiry and scientific rigor.</li> </ul>
	<ul> <li>Served as Research Coordinator for the School of Health and Life Sciences, developing a 5-year research strategy and overseeing research integrity investigations.</li> </ul>
	<ul> <li>Published 19 peer-reviewed articles in international journals between 2018 and 2023.</li> </ul>
	• Developed and taught undergraduate and graduate courses in pharmacotherapy, advanced pharmacology, and pharmaceutical analysis.
	• Conducted laboratory sessions in physiology, pharmacology, biopharmaceutics, and pharmaceutical analysis to provide hands-on scientific training.
	• Led university-wide implementation of Canvas LMS to address remote learning challenges during the COVID-19 pandemic.
	• Organized and contributed to major academic events, including the International Conference on Genomics, Nanotech, and Bioengineering (ICGNB-2022), involving 700 researchers from 15 countries.
	• Designed assessment tools, modernized course materials, and participated actively in curriculum development to enhance academic quality and student learning outcomes.
08-Jul-2013 to 31-Mar- 2018	Assistant Professor (on leave from April 2015 to May 2017) Department of Pharmaceutical Sciences, School of Health and Life Sciences, NSU
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• Contributed to departmental academic planning and student mentoring to support educational excellence.

#### Apr-2015 to Postdoctoral Researcher

May-2017 Department of Neuroscience

University of Texas Southwestern Medical Centre Dallas, Texas, USA

Supervisor: Prof. Dr. Mark Henkemeyer *Major responsibilities:* 

- Studied neurobiological and pathophysiological roles of Eph and Ephrin tyrosine kinase receptors.
- Performed genetic and molecular biology experiments for the generation, isolation, and purification of nucleic acids for transfection experiments.
- Designed and conducted biochemical experiments for qualitative and quantitative analysis of Ephs, Ephrins, and their partner proteins using different techniques such as spectrophotometry, ELISA, co-precipitation, and Western blot.
- Designed and conducted cell culture experiments to screen inhibitors of Eph-Ephrin signaling.
- Prepared protocols and conducted tissue culture experiments to study altered migration of inhibitory neurons in mutant mice.
- Used immunohistochemistry, confocal microscopy, and timelapse imaging to visualize the effects of Eph-Ephrin mutations.

#### 2013 Postdoctoral Researcher

Division of Neurobiology and Anatomy Graduate School of Medical and Dental Sciences, Niigata University, Japan. Supervisor: Prof. Dr. Hirohide Takebayashi *Major responsibilities:* 

- Studied the neurobiology of motoneuron development in vivo using chick embryos.
- Studied roles of olig2-binding proteins in neural development.
- Designed protocols and conducted chick embryo electroporation experiments.
- Analyzed changes in gene expression using in situ mRNA hybridization, immunohistochemistry, and confocal microscopy.

#### 2009 to 2013 Doctoral Researcher

Department of Morphological Neural Science Faculty of Life Sciences, Kumamoto University, Japan. Supervisor: Prof. Dr. Hirohide Takebayashi *Major responsibilities:* 

- Studied brain asymmetry using anatomical, genetic, and behavioral experiments.
- Developed methods for sensitive detection of immediate early genes using biochemical, immunohistochemical, and optogenetics.
- Generated in situ hybridization probe sets for precise identification of immediate early genes following neuronal activation.
- Performed genetic and molecular biology experiments for the generation, isolation, and purification of nucleic acids for transfection experiments.
- Published two research articles in international journals.

#### 28-Jan-2007 Junior Lecturer (on study leave from 2009 to 2013)

to 07-Jul- Department of Pharmacy, North South University, Dhaka.

#### Major responsibilities:

- Developed course materials and conducted undergraduate classes on human physiology, inorganic chemistry, and pharmaceutical calculations.
- Conducted laboratory classes on human physiology and inorganic chemistry.

#### 2004 to 2006 Lecturer

Department of Pharmacy, Stamford University Bangladesh, Dhaka, Bangladesh

2013

# Major responsibilities:

- Developed course materials and conducted undergraduate classes on human physiology, inorganic, and medicinal chemistry.
- Conducted laboratory classes on human physiology and inorganic chemistry.

#### Awards and Grants:

2025-2025	Bangladesh Medical Research Council (BMRC) Research Grant (BMRC/Revenue/Research Grant/2025/191(1-10))
	Grant Amount: USD 4,104 (BDT 500,000)
	Role: Principal Investigator
2022-2024	United International University Institute for Advanced Research (UIU-IAR) Research Grant (UIU-IAR-01-2022-SE-15)
	Grant Amount: USD 4,204 (BDT 496,158)
	Role: Principal Investigator
2022-2023	North South University CTRG Grant 2022
	Grant amount: USD 3,822 (BDT 451,000)
	Role: Principal Investigator
2019-2020	North South University CTRG Grant (CTRG-19/SHSL/19)
	Grant amount: USD 3,397 (BDT 400,900)
	Role: Principal Investigator
2018-2019	North South University CTRG Grant (NSU-RP-18-08)
	Grant amount: USD 3,390 (BDT 400,000)
	Role: Principal Investigator
2015-2017	Postdoctoral Fellowship at UT Southwestern Medical Center, Dallas, Texas, USA
	Funded by the Department of Defense (DAMD 11115013) (PI: Prof. Dr. Mark Henkemeyer)
	Fellowship amount: USD 92,000
	Role: Postdoctoral Researcher
2009-2013	Japanese Government (Monbukagakusho: MEXT) Scholarship
	Stipend amount: USD 43,758 (JPY 6,435,000)
	Role: Doctoral Researcher
2011	G-COE Research Funding Project for Young Scientists
	Kumamoto University, Japan
	Grant amount: USD 3,400 (JPY 500,000)
	Role: Investigator (Young Scientist)
2011	Fellowship of Global COE, Kumamoto University, Japan

	Fellowship amount: USD 2,040 (JPY 300,000)
	Role: Global COE Jr. Research Associate
2011	GCOE Travel Award for Young Scientists, Global COE, Kumamoto University, Japan.
2001-2022	Jahangirnagar University Postgraduate Scholarship for excellent academic results in M.Pharm.
1996-2000	Jahangirnagar University Undergraduate Scholarship for excellent academic results in B.Pharm (Honours).
Research Profiles:	

## **Research Profiles:**

Google Scholar	https://scholar.google.com/citations?user=jzEv7lcAAAAJ&hl=en
Scopus	ID: 54398230600
ORCID	0000-0001-5656-1833
ResearcherID	ID: D-4001-2013

# Administrative and Extracurricular Appointments:

2024~	Life Member (ID: 0878), Japanese Universities Alumni Association
	in Bangladesh (JUAAB)
2022~	Member, NSU IACUC
2021~2022	Canvas Coordinator, SHLS, NSU
2021~2022	Member, Canvas Rollout Steering Committee, NSU
2021~2022	Member, SHLS Core Research Facility Coordination Committee
2021	Member, NSU Pathology Lab Coordination Committee
2021	Member, NSU Brochure Committee
2020-2021	Member, Research Misconduct Investigation Committee (RMIC)
2020	Head, Graduate Defense Summer 2020 Committee
	Department of Pharmaceutical Sciences
2020	Head, Graduate Defense Spring 2020 Committee
	Department of Pharmaceutical Sciences
2019-2021	Research Coordinator, School of Health and Life Sciences
2017-2018	Coordinator, Spring 2018 Undergraduate Examination Committee
	Department of Pharmaceutical Sciences
2017-2018	Graduate Program Coordinator (GPC)
	Department of Pharmaceutical Sciences
	Department of Finannaceutical Sciences

2017	Coordinator, Academic Support Sub-committee
	Department of Pharmaceutical Sciences
2014	Faculty advisor
	North South University Pharmacy Club

# **Industry Experience:**

## 2002 to 2004 Executive

Division of International Marketing The ACME Laboratories Limited, Dhaka, Bangladesh

- Coordinated international marketing operations of pharmaceutical finished products for countries like Australia, China, India, Sri Lanka, and Pakistan.
- Major duties involved identifying and developing international markets for medical products, drafting business agreements, preparing marketing plans, creating promotional materials, preparing reports, and participating in international meetings and exhibitions.

# **Publications:**

#### Research articles in peer-reviewed international journals:

- Namme, J. N.; Reza, H. M.; Bepari, A. K. Unraveling the Impact of ZG16B Missense Mutations: Computational Prediction of Structural and Functional Consequences. *In Silico Pharmacol.* 2025, 13 (2), 79. https://doi.org/10.1007/s40203-025-00366-w.
- Hossain, N.; Shabnam, S.; Emran, T.; Zahid, Z. I.; Alam, S.; Bepari, A. K.; Sayedur Rahman, G. M.; Reza, H. M. Coenzyme Q10 Alleviates Oxidative Stress, Inflammation and Fibrosis via Activation of TGFβ1/TNF-α in FCA-Salt Hypertensive Rats. *Arch. Biochem. Biophys.* 2025, 769, 110444. https://doi.org/10.1016/j.abb.2025.110444.
- Biswas, A. M.; Emran, T.; Khan, S. I.; Shabnam, S.; Jain, P.; Bepari, A. K.; Shill, M. C.; Hossain, M. M.; Reza, H. M. Transforming Growth Factor-β-Mediated Attenuation of Cardio-Renal Oxidative Stress, Inflammation and Fibrosis by L-Arginine in Fludrocortisone Acetate Induced-Hypertensive Rats. *Eur. J. Pharmacol.* 2025, *996*, 177559. https://doi.org/10.1016/j.ejphar.2025.177559.
- Tondar, A.; Irfan, M.; Sánchez-Herrero, S.; Athar, H.; Haqqi, A.; Bepari, A. K.; Liñán, L. C.; Marin, D. H. In-Silico Structural and Functional Analysis of Nonsynonymous Single Nucleotide Polymorphisms in Human FOLH1 Gene. *In Silico Pharmacol.* 2025.
- Shama, A. T.; Shova, L. M.; Bristy, A. T.; Emran, T.; Shabnam, S.; Shill, M. C.; Bepari, A. K.; Reza, H. M. Anti-Obesity Effects and Underlying Molecular Mechanisms of the Ethanolic Extract of Figs from Ficus Hispida Using High Fat-Fed Wister Rats. *Heliyon* 2024, *10* (15). https://doi.org/10.1016/j.heliyon.2024.e35392.
- Tondar, A.; Sánchez-Herrero, S.; Bepari, A. K.; Bahmani, A.; Calvet Liñán, L.; Hervás-Marín, D. Virtual Screening of Small Molecules Targeting BCL2 with Machine Learning, Molecular Docking, and MD Simulation. *Biomolecules* 2024, *14* (5), 544. https://doi.org/10.3390/biom14050544.
- 7. Bepari, A. K.; Shatabda, S.; Reza, H. M. Virtual Screening of Flavonoids as Potential RIPK1 Inhibitors for Neurodegeneration Therapy. *PeerJ* 2024, *12*.

- Bepari, A. K.; Rabbi, G.; Shaon, H. R.; Khan, S. I.; Zahid, Z. I.; Dalal, K.; Reza, H. M. Factors Driving Antimicrobial Resistance in Rural Bangladesh: A Cross-Sectional Study on Antibiotic Use-Related Knowledge, Attitude, and Practice Among Unqualified Village Medical Practitioners and Pharmacy Shopkeepers. *Adv. Ther.* 2023, *40* (8), 3478–3494. https://doi.org/10.1007/s12325-023-02547-5.
- Johra, F. T.; Hossain, S.; Jain, P.; Bristy, A. T.; Emran, T.; Ahmed, R.; Sharker, S. M.; Bepari, A. K.; Reza, H. M. Amelioration of CCl4-Induced Oxidative Stress and Hepatotoxicity by Ganoderma Lucidum in Long Evans Rats. *Sci. Rep.* 2023, *13* (1), 9909. https://doi.org/10.1038/s41598-023-35228-y.
- Namme, J. N.; Reza, H. M.; Bepari, A. K. Computational Analysis and Molecular Dynamics Simulation of High-Risk Single Nucleotide Polymorphisms of the *ADAM10* Gene. J. Biomol. Struct. Dyn. 2023, 1–13. https://doi.org/10.1080/07391102.2023.2192890.
- Hossain, M.; Suchi, T. T.; Samiha, F.; Islam, M. M. M.; Tully, F. A.; Hasan, J.; Rahman, M. A.; Shill, M. C.; Bepari, A. K.; Rahman, G. M. S.; Reza, H. M. Coenzyme Q10 Ameliorates Carbofuran Induced Hepatotoxicity and Nephrotoxicity in Wister Rats. *Heliyon* 2023, 9 (2), e13727. https://doi.org/10.1016/j.heliyon.2023.e13727.
- Shill, M. C.; Biswas, B.; Kamal, S.; Islam, M.; Rima, S. S.; Ferdausi, F. A.; Chowdhury, Q.; Reza, H. M.; **Bepari, A. K.** Screening of Plasma IL-6 and IL-17 in Bangladeshi Lung Cancer Patients. *Heliyon* 2023, 9 (10).
- Bepari, A. K.; Takebayashi, H.; Namme, J. N.; Rahman, G. M. S.; Reza, H. M. A Computational Study to Target Necroptosis via RIPK1 Inhibition. *J. Biomol. Struct. Dyn.* 2022, 1–16. https://doi.org/10.1080/07391102.2022.2108900.
- Rahman, M. A.; Shuvo, A. A.; Bepari, A. K.; Apu, M. H.; Shill, M. C.; Hossain, M.; Uddin, M.; Islam, M. R.; Bakshi, M. K.; Hasan, J.; Rahman, A.; Rahman, G. M. S.; Reza, H. M. Curcumin Improves D-Galactose and Normal-Aging Associated Memory Impairment in Mice: In Vivo and in Silico-Based Studies. *PLOS ONE* 2022, *17* (6), e0270123. https://doi.org/10.1371/journal.pone.0270123.
- Bizen, N.; Bepari, A. K.; Zhou, L.; Abe, M.; Sakimura, K.; Ono, K.; Takebayashi, H. Ddx20, an Olig2 Binding Factor, Governs the Survival of Neural and Oligodendrocyte Progenitor Cells via Proper Mdm2 Splicing and P53 Suppression. *Cell Death Differ.* 2022, 1–14. https://doi.org/10.1038/s41418-021-00915-8.
- Bepari, A. K.; Reza, H. M. Identification of a Novel Inhibitor of SARS-CoV-2 3CL-PRO through Virtual Screening and Molecular Dynamics Simulation. *PeerJ* 2021, *9*, e11261. https://doi.org/10.7717/peerj.11261.
- Bari, R.; Bepari, A. K.; Reza, H. M. COVID-19: Lessons from Norway Tragedy Must Be Considered in Vaccine Rollout Planning in Least Developed/Developing Countries. *Open Med.* 2021, *16* (1), 1168–1169.
- Namme, J. N.; Bepari, A. K.; Takebayashi, H. Cofilin Signaling in the CNS Physiology and Neurodegeneration. *Int. J. Mol. Sci.* 2021, 22 (19), 10727. https://doi.org/10.3390/ijms221910727.
- Shill, M. C.; Bepari, A. K.; Khan, M.; Tasneem, Z.; Ahmed, T.; Hasan, M. A.; Alam, M. J.; Hossain, M.; Rahman, M. A.; Sharker, S. M.; Shahriar, M.; Rahman, G. M. S.; Reza, H. M. Therapeutic Potentials of Colocasia Affinis Leaf Extract for the Alleviation of Streptozotocin-Induced Diabetes and Diabetic Complications: In Vivo and in Silico-Based Studies. J. Inflamm. Res. 2021, 14, 443–459. https://doi.org/10.2147/JIR.S297348.

- 20. Jain, P.; Bepari, A. K.; Sen, P. K.; Rafe, T.; Imtiaz, R.; Hossain, M.; Reza, H. M. High Prevalence of Multiple Antibiotic Resistance in Clinical E. Coli Isolates from Bangladesh and Prediction of Molecular Resistance Determinants Using WGS of an XDR Isolate. *Sci. Rep.* 2021, *11* (1), 1–13.
- 21. Emran, T.; Chowdhury, N. I.; Sarker, M.; Bepari, A. K.; Hossain, M.; Rahman, G. M. S.; Reza, H. M. L-Carnitine Protects Cardiac Damage by Reducing Oxidative Stress and Inflammatory Response via Inhibition of Tumor Necrosis Factor-Alpha and Interleukin-Ibeta against Isoproterenol-Induced Myocardial Infarction. *Biomed. Pharmacother.* 2021, *143*, 112139. https://doi.org/10.1016/j.biopha.2021.112139.
- 22. Bari, R.; Bepari, A. K.; Reza, H. M. Building Confidence in COVID-19 Vaccine Rollout: The Importance of Responsible Presentation and Follow-on Investigation of Adverse Events Following Immunization (AEFI) Reports for Elderly Patients. *Glob. J. Med. Public Health* 2021, 10 (1), 4.
- 23. Akash, S. Z.; Lucky, F. Y.; Hossain, M.; Bepari, A. K.; Rahman, G. M.; Reza, H. M.; Sharker, S. M. Remote Temperature-Responsive Parafilm Dermal Patch for On-Demand Topical Drug Delivery. *Micromachines* 2021, 12 (8), 975.
- 24. Reza, H. M.; Saleh, R.; Jain, P.; Rahman, G. M. S.; Bepari, A. K. C-MAF Expression in Adult Human Ocular Surface and Its Implication in Pterygium Pathogenesis. *Rep. Biochem. Mol. Biol.* 2020, 8 (4), 419–428.
- 25. Johra, F. T.; Bepari, A. K.; Bristy, A. T.; Reza, H. M. A Mechanistic Review of β-Carotene, Lutein, and Zeaxanthin in Eye Health and Disease. *Antioxidants* 2020, 9 (11), 1046. https://doi.org/10.3390/antiox9111046.
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