

**Rudra Prasad Saha, Ph.D.**

Dean, School of Life Science & Biotechnology

Professor, Department of Biotechnology

School of Life Science & Biotechnology

Adamas University

Kolkata 700126

Email: [rudraprasad.saha@adamasuniversity.ac.in](mailto:rudraprasad.saha@adamasuniversity.ac.in) / [rudrasaha@gmail.com](mailto:rudrasaha@gmail.com)

Mobile: +91-8100193105

**Area of Research**

1. Protein-protein and protein-nucleic acid interactions
2. Metal homeostasis in bacteria and metalloregulation of transcription
3. Development of bacteria-mediated wastewater cleanup system
4. Bacteriophage/Virus-host interactions
5. Development of phage-based gene therapy system
6. New generation antibiotic development

**Research Projects**

1. Title: "Development of Novel Antimicrobials"  
Sponsor: DST-SERB  
Duration: 2023-2026
2. Title: "Resources for Internationalization of Higher Education Institutions in India (RISHII)" – (Contributor)  
Sponsor: Erasmus & European Union  
Duration: 2020-2023
3. Title: "Metal homeostasis in bacteria: A comprehensive study understanding the role of ArsR-SmtB family of transcriptional repressors in combating varying metal concentrations in the environment"  
Sponsor: DST-SERB (Grant No. ECR/2016/001598)  
Duration: 2017-2020
4. NVIDIA GPU Grant 2017  
Sponsor: NVIDIA, USA  
Duration: 2017-2018

**Publications****A) Journal Publications**

1. Anirban Debnath, Abinit Saha, Manoj Kumar Singh, **Rudra P Saha**, Arpita Das. *Avian influenza virus: Prevalence infection and therapy. **Viral, Parasitic, Bacterial, and Fungal Infections*** (2023), 141-149. doi: 10.1016/B978-0-323-85730-7.00035-7
2. Chiranjib Chakraborty, Manojit Bhattacharya, Srijan Chatterjee, Ashish Ranjan Sharma, **Rudra P Saha**, Kuldeep Dhama, Govindasamy Agoramoorthy. *Integrative Bioinformatics Approaches Indicate a Particular Pattern of Some SARS-CoV-2 and Non-SARS-CoV-2 Proteins. **Vaccines*** (2022), 11(1): 38. doi: 10.3390/vaccines11010038

3. Rajib Majumder, Sanmitra Ghosh, Arpita Das, Manoj Kumar Singh, Saikat Samanta, Abinit Saha, **Rudra P Saha\***. *Prokaryotic ncRNAs: Master regulators of gene expression*. **Current Research in Pharmacology and Drug Discovery** (2022), 3: 100136. doi: 10.1016/j.crphar.2022.100136 [\*Corresponding author]
4. **Rudra P Saha\***, Manoj K Singh, Abinit Saha, Arpita Das. *Impact of poly-histidine tag on HlyU protein of Vibrio cholerae*. **Journal of Sustainable Science and Transformative Research** (2022), 1(1): 9-10. doi: 10.56703/OKGY7002/RVFI6033/ZQYW3002 [\*Corresponding author]
5. Shagufta Quazi, **Rudra P. Saha\***, and Manoj Kumar Singh\*. *Applications of Artificial Intelligence in Healthcare*. **Journal of Experimental Biology and Agricultural Sciences** (2022), 10(1): 211–226. doi: 10.18006/2022.10(1).211.226 [\*Joint corresponding author]
6. Manoj Kumar Singh, Arpita Das, **Rudra P. Saha**, Joydeep Paul, and Debkumar Nandi. *Leishmaniasis: Plants as a source of antileishmanial agents*. **Journal of Experimental Biology and Agricultural Sciences** (2022), 10(1): 227–247. doi: 10.18006/2022.10(1).227.247
7. Sanchita Baisya, Abinit Saha, Joydeep Paul, **Rudra P. Saha**, and Arpita Das. *Food Pattern Link to COVID19: The Role of Diet and Nutritional Supplement During a World Wide Health Catastrophe*. **Journal of Microbiology, Biotechnology and Food Sciences** (2022), e3503. doi: 10.55251/jmbfs.3503
8. Priyanka Jana, **Rudra P. Saha**, and Arpita Das. *A Review on Isolation of Keratin Protein from Non-conventional Resources and Its Application in Daily Diet to Enhance Hair Quality*. In: Mukherjee M., Mandal J., Bhattacharyya S., Huck C., Biswas S. (eds) *Advances in Medical Physics and Healthcare Engineering. Lecture Notes in Bioengineering* (2021), pp 405-414. Springer, Singapore. doi: 10.1007/978-981-33-6915-3\_40
9. Saikat Samanta, Ashish Ranjan Sharma, Abinit Saha, Manoj Kumar Singh, Arpita Das, Manojit Bhattacharya, **Rudra P. Saha\***, Sang-Soo Lee, and Chiranjib Chakraborty. *The bacteriophage mu lysis system—A new mechanism of host lysis?* **BIOCELL** (2021), 45(5): 1175-1186. doi: 10.32604/biocell.2021.015537 [\*Corresponding author]
10. Sanmitra Ghosh, Abinit Saha, and **Rudra P. Saha\***. *Genome Structure and Genetic Diversity in the Ebola Virus*. **Current Opinion in Pharmacology** (2021), 60: 83-90. doi: 10.1016/j.coph.2021.06.010 [\*Corresponding author]
11. Chiranjib Chakraborty, Ashish Ranjan Sharma, Manojit Bhattacharya, **Rudra P. Saha**, Sanmitra Ghosh, Soham Biswas, Saikat Samanta, Garima Sharma, Govindasamy Agoramoorthy, and Sang-Soo Lee. *SARS-CoV-2 and other human coronaviruses: Mapping of protease recognition sites, antigenic variation of spike protein and their grouping through molecular phylogenetics*. **Infection, Genetics and Evolution** (2021), 89: 104729. doi: 10.1016/j.meegid.2021.104729
12. Chiranjib Chakraborty, Ashish Ranjan Sharma, Manojit Bhattacharya, Garima Sharma, **Rudra P. Saha**, and Sang-Soo Lee. *Ongoing Clinical Trials of Vaccines to Fight against COVID-19 Pandemic*. **Immune Network** (2021), 21(1): e5. doi: 10.4110/in.2021.21.e5
13. Saikat Samanta, and **Rudra P Saha\***. *The Genomes of SARS-CoV-2 and Related Coronaviruses: Are Accessory Proteins Key for Pathogenesis?* **Coronaviruses** (2021), 2(7): e250621188925. doi: 10.2174/2666796701999201209143320 [\*Corresponding author]

14. **Rudra P Saha\***, Manoj K Singh, Saikat Samanta, Swarnav Bhakta, Snehasish Mandal, Manojit Bhattacharya, Ashish Ranjan Sharma, Sang-Soo Lee\*, Chiranjib Chakraborty\*. *Repurposing drugs, ongoing vaccine and new therapeutic development initiatives against COVID-19. **Frontiers in Pharmacology*** (2020), 11: 1258. doi: 10.3389/fphar.2020.01258 [\*Joint corresponding authors]
15. Manojit Bhattacharya, Ashish Ranjan Sharma, Prasanta Patra, Pratik Ghosh, Garima Sharma, Bidhan Chandra Patra, **Rudra P Saha**, Sang-Soo Lee, Chiranjib Chakraborty. *A SARS-CoV-2 vaccine candidate: In silico cloning and validation. **Informatics in Medicine Unlocked*** (2020), 20: 100394. doi: 10.1016/j.imu.2020.100394
16. Chiranjib Chakraborty, Ashish Ranjan Sharma, Garima Sharma, Manojit Bhattacharya, **Rudra P.Saha** and Sang-Soo Lee. *Extensive Partnership, Collaboration, and Teamwork is Required to Stop the COVID-19 Outbreak. **Archives of Medical Research*** (2020). doi:10.1016/j.arcmed.2020.05.021
17. Rima Roy, Saikat Samanta, Surajit Patra, Nav Kumar Mahato and **Rudra P. Saha\***. *In silico identification and characterization of sensory motifs in the transcriptional regulators of ArsR-SmtB family. **Metalomics*** (2018), 10(10):1476-1500. [\*Corresponding author] doi: 10.1039/C8MT00082D
18. **Rudra P. Saha\***, Saikat Samanta, Surajit Patra, Diganta Sarkar, Abinit Saha, Manoj Kumar Singh. *Metal homeostasis in bacteria: the role of ArsR–SmtB family of transcriptional repressors in combating varying metal concentrations in the environment. **Biomaterials*** (2017), 30(4):459-503. [\*Corresponding author] doi: 10.1007/s10534-017-0020-3
19. Wonyoung Choi\*, **Rudra P. Saha\***, Sooin Jang, and Rasika M. Harshey. *Controlling DNA degradation from a distance: a new role for the Mu transposition enhancer. **Molecular Microbiology*** (2014), 94(3): 595-608. [\*Equal contribution] doi: 10.1111/mmi.12781
20. **Rudra P. Saha\***, Zheng Lou\*, Luke Meng, and Rasika M. Harshey. *Transposable prophage Mu is organized as a stable chromosomal domain of E. coli. **PLOS Genetics***, (2013), 9(11): e1003902. [\*Equal contribution] doi: 10.1371/journal.pgen.1003902
21. Tanaya Chatterjee, Aritrika Pal, Devlina Chakravarty, Sucharita Dey, **Rudra P. Saha** and Pinak Chakrabarti. *Protein L-isoaspartyl-O-methyltransferase of Vibrio cholerae: Interaction with cofactors and effects of osmolytes on unfolding. **Biochimie***, (2013), 95(4): 912-921. doi:10.1016/j.biochi.2012.12.013
22. Debadrita Mukherjee, **Rudra P. Saha** and Pinak Chakrabarti. *Structural and unfolding features of HlyT, a tetrameric LysR type transcription regulator of Vibrio cholerae. **Biochim Biophys Acta.***, (2009), 1794(8): 1134-1141. doi:10.1016/j.bbapap.2009.04.013
23. Tanaya Chatterjee, **Rudra P. Saha** and Pinak Chakrabarti. *Structural studies on Vibrio cholerae ToxR periplasmic and cytoplasmic domains. **Biochim Biophys Acta.***, (2007), 1774(10): 1331-1338. doi:10.1016/j.bbapap.2007.08.003
24. **Rudra P. Saha**, Rajasri Bhattacharyya and Pinak Chakrabarti. *Interaction geometry involving planar groups in protein-protein interfaces. **PROTEINS: Structure, Function, and Bioinformatics***, (2007), 67: 84-97. doi: 10.1002/prot.21244
25. **Rudra P. Saha\*** and Pinak Chakrabarti\*. *Molecular modeling and characterization of Vibrio cholerae transcription regulator HlyU. **BMC Structural Biology***, (2006), 6: 24. [\*Joint corresponding authors] doi:10.1186/1472-6807-6-24

26. **Rudra P. Saha**, Gautam Basu and Pinak Chakrabarti. *Cloning, expression, purification, and characterization of Vibrio cholerae transcriptional activator, HlyU*. **Protein Expression and Purification**, (2006), 48: 118-125. doi:10.1016/j.pep.2006.02.008
27. **Rudra P. Saha**, Ranjit P Bahadur, Arumay Pal, Saptarshi Mandal and Pinak Chakrabarti. *ProFace: a server for the analysis of the physicochemical features of protein-protein interfaces*. **BMC Structural Biology**, (2006), 6: 11. doi:10.1186/1472-6807-6-11
28. **Rudra P. Saha** and Pinak Chakrabarti. *Parity in the number of atoms in residue composition in proteins and contact preferences*. **Current Science**, (2006), 90: 558-561. Link: <http://repository.ias.ac.in/89220/1/89220.pdf>
29. **Rudra P. Saha**, Ranjit P Bahadur and Pinak Chakrabarti. *Interresidue contacts in proteins and protein-protein interfaces and their use in characterizing the homodimeric interface*. **Journal of Proteome Research**, (2005), 4: 1600-1609. doi: 10.1021/pr050118k
30. Rajasri Bhattacharyya\*, **Rudra P. Saha\***, Uttamkumar Samanta and Pinak Chakrabarti. *Geometry of interaction of the histidine ring with other planar and basic residues*. **Journal of Proteome Research**, (2003), 2: 255-263. [\*Equal contribution] doi: 10.1021/pr025584d

#### B) Proceedings in National / International Conferences

31. Rima Roy, Saikat Samanta, Surajit Patra and **Rudra P. Saha**. *The role of ArsR-SmtB family of metallorepressors in regulating toxic concentrations of heavy metals in the environment for survival and detoxification*. **1<sup>st</sup> Regional Young Investigators' Meeting Kolkata**, February 5-6, 2019, Presidency University, Kolkata.
32. Rima Roy, Saikat Samanta, Surajit Patra and **Rudra P. Saha**. *Characterization of redox-sensing proteins in the AsrR-SmtB family of transcriptional repressors*. **106<sup>th</sup> Indian Science Congress**, Jalandhar, January 3-7 (2019), Section XII: New Biology, P-II.29, 167.
33. Surajit Patra, Saikat Samanta, Rima Roy and **Rudra P. Saha**. *Comparative study between metal-binding proteins of the ArsR-SmtB family*. **106<sup>th</sup> Indian Science Congress**, Jalandhar, January 3-7 (2019), Section XII: New Biology, P-II.30, 168.
34. Saikat Samanta, Rima Roy, Surajit Patra and **Rudra P. Saha**. *Characterization of the semi-essential region of Bacteriophage Mu*. **106<sup>th</sup> Indian Science Congress**, Jalandhar, January 3-7 (2019), Section XII: New Biology, P-II.28, 167.
35. **Rudra P. Saha**, Zheng Lou, Luke Meng and Rasika M. Harshey. *Transposable prophage Mu is segregated as a stable chromosomal domain of E. coli*. Workshop on **DNA Reactions and DNA/Chromosome Dynamics**, September 9-14 (2012), Marine Biological Laboratory, Woods Hole, Massachusetts, USA.
36. **Rudra P. Saha** and Anca M. Segall. *Mapping of Int Bridges between Recombination Intermediates in Bacteriophage lambda Integrase-mediated Site-specific Recombination*. **2nd ASM Conference on Mobile DNA**, April 24-28 (2010), Montreal, Canada.
37. **Rudra P Saha**, Namita Patel, Jeffrey L. Boldt and Anca M. Segall. *RecG-Derived Peptides Recognizes Branched DNA Substrates*. Workshop on **Site-Specific Recombination and Transposition**, September 14-19 (2008), Marine Biological Laboratory, Woods Hole, Massachusetts, USA.
38. **Rudra P. Saha**, Gautam Basu and Pinak Chakrabarti. *Purification, Characterization and equilibrium unfolding of Vibrio cholerae transcription activator HlyU*. National Symposium on

***Molecules, Interactions and Design: A Biophysical Perspective*** under the aegis of Indian Biophysical Society, Kolkata, January 7th – 9th (2006), organized by West Bengal University of Technology and Saha Institute of Nuclear Physics.

39. **Rudra P. Saha**, Ranjit P. Bahadur and Pinak Chakrabarti. *Residue contacts in protein structures and interfaces*. **FEBS Journal**, 272: 114 (2005).
40. **Rudra P. Saha**, Ranjit P. Bahadur and Pinak Chakrabarti. *Residue contacts in proteins and interfaces*. International Symposium on **NMR Drug Design and Bioinformatics (NMRS 2004)**, February 17th – 20th (2004), organized by Bose Institute and S. N. Bose National Centre for Basic Sciences, Kolkata.
41. Pinak Chakrabarti, Rajasri Bhattacharyya, **Rudra P. Saha** and Uttamkumar Samanta. *Stereospecific interactions of histidine with other planar groups in protein structures*. **Acta Cryst.** A58 (Supplement): C226 (2002).

### Educational Qualifications:

- |             |   |
|-------------|---|
| 2001 - 2007 | Ph.D. (Science)<br>Jadavpur University (Bose Institute), Kolkata, India<br><u>Thesis Title:</u> <i>Analysis of interactions in proteins and structural studies on a few proteins from Vibrio cholerae</i><br><u>Thesis Advisor:</u> Prof. Pinak Chakrabarti, Dept. of Biochemistry, Bose Institute, Kolkata, India. |
| 1999 - 2001 | M.Sc. Biophysics & Molecular Biology - 1st Class (70%)<br>Rajabazar Science College (Rashbehari Siksha Prangan), University of Calcutta   |
| 1996 - 1999 | B.Sc. (Honours) Botany - 1st Class (63%)<br>Asutosh College, University of Calcutta   |
| 1996        | Higher Secondary Examination (10+2) (Science) - 1st Division (73%)<br>West Bengal Council of Higher Secondary Education, India  |
| 1994        | Madhyamik Pariksha (Secondary Examination) (10th Std.) - 1st Division (81%)<br>West Bengal Board of Secondary Education, India  |

### Employment:

1. Dean (September 2021 – present), School of Life Science & Biotechnology, **Adamas University, Kolkata**
2. Professor (Nov 2020 – present), Department of Biotechnology, **Adamas University, Kolkata**.
3. Associate/Officiating Dean (Dec 2019 – August 2021), School of Life Science & Biotechnology, **Adamas University, Kolkata**
4. Associate Professor (Nov 2017 – Oct 2020), Department of Biotechnology, **Adamas University, Kolkata**.
5. Assistant Professor (Aug 2015 - Oct 2017), Department of Biotechnology, **Adamas University, Kolkata**.
6. Assistant Professor (2014 - 2015), Department of Biotechnology, **Techno India University, Kolkata**.
7. Postdoctoral Research Scholar (2011 - 2014), Department of Molecular Biosciences, **The University of Texas at Austin, USA**.



8. Postdoctoral Research Scholar (2007 - 2010), Department of Biology, **San Diego State University, USA.**
9. Research Associate (2006 - 2007), Department of Biochemistry, **Bose Institute, Kolkata.**
10. Senior Research Fellow (2003 - 2006), Department of Biochemistry, **Bose Institute, Kolkata.**
11. Junior Research Fellow (2001 - 2003), Department of Biochemistry, **Bose Institute, Kolkata.**

### Professional Activities and Awards:

#### A) Professional Activities:

1. Dean, School of Life Science & Biotechnology, 2021 – present.
2. Associate/Officiating Dean, School of Life Science & Biotechnology, 2019 – 2021.
3. Head of the Department, Biotechnology, Adamas University, 2015 – 2021.
4. Member, Academic council of Adamas University (2016 - cont.).
5. Chairman, University Anti-Ragging Cell, Adamas University, 2018 – 2021.
6. Chairman, University Anti-Discrimination Cell for SC/ST, Adamas University, 2019 – present.
7. Member, University Research Committee, Adamas University, 2019 – present.
8. Attended various webinars of ABPEducation, EduMate.tv, Prohor.in, Policy Times, etc. as speaker from Adamas University, 2019-2020.
9. Attended various programs on CN News, CTVN, ABP Ananda, Zee 24 Ghanta, etc. as speaker from Adamas University, 2019-2020.
10. Attended Friends FM Radio program as a speaker from Adamas University, 2020.
11. Wrote articles in ABPEducation, Indian Express, Saptahik Bartaman, #IdeaPlus Magazine, AU Blog, etc., 2020.
12. Technical Committee Convener, International Conference on '*Current Trends in Higher Education (ICCTHE 2019)*', Adamas University, Kolkata, 21-22 January 2019.
13. Organizing Secretary, International Conference on '*Biotechnology: The Paradigm Shift in Health & Agriculture*', Adamas University, Kolkata, 9th April 2018.
14. Biography included in '*Asia Pacific Who's Who*', Volume 16, Rifacimento International, New Delhi.
15. Speaker, Educational Seminar organized by 'The Indian Express' in association with ICSE Schools of Kalimpong, November 23-24, 2017.
16. Received NVIDIA GPU Grant, 2017.
17. Awarded Sponsored Research Project, DST-SERB (ECR), 2017-2020.
18. Speaker, 2nd Adamas World Summit (2016 - 2017), Purulia, Chandannagar, Kalyani, Raiganj, Malda, Burdwan, Durgapur and Guwahati.
19. Member, Faculty council of Life Science & Biotechnology, Adamas University (2018 - present).
20. Member, Faculty council of Science, Adamas University (2016 - 2018).
21. Member, Ph.D. Committee, Adamas University (2016 - present).
22. Academic coordinator in-charge, Adamas University (2016 - 2017).
23. Member, Admission committee, Adamas University (2016 - 2017).
24. Coordinator, Adamas University Entrance Test (2016 - 2017).
25. Joint Convener, Draft Regulation Committee of University Examinations, Adamas University (2015 - 2016).
26. Rudra P. Saha, Ankur Biswas and Surojit Biswas. Represented Adamas University in the '*Actual Economy: Local Solutions for Global Challenges (ACE-2016)*' Conference, January 21-23, (2016), Bangkok, Thailand.
27. Session Judge (Biology), Student Research Symposium (SRS, 2009-2010), San Diego State University, USA.

28. Participated in the '*International Conference on Bioinformatics (INCOB-2006)*', December 18th – 20th (2006), Hotel Ashok, New Delhi, India, organized by Asia Pacific Bioinformatics Network (APBioNet), coordinated jointly by Department of Biotechnology (Ministry of Science & Technology, Govt. of India), Jawaharlal Nehru University and Indian Institute of Technology (Delhi).
29. Participated in the '*Tenth Transcription Assembly*', December 14th – 16th (2006), Vedic Village, Kolkata, organized jointly by Indian Institute of Chemical Biology, Saha Institute of Nuclear Physics, Bose Institute and Calcutta University.
30. Participated in the '*National workshop on Crystallography and structural biology*', 29th April – 8th May, 2002, organized by Central Drug Research Institute (CDRI), Lucknow.
31. Summer internship (May, 2000 – July, 2000), Laboratory of Prof. Amit Ghosh, Director, Institute of Microbial Technology (IMTECH), Chandigarh, India. Project: *Molecular characterization of a new variant of acfA and tcpA gene in two non-O1/non-O139 strains of Vibrio cholerae.*
32. Cleared Management Aptitude Test (MAT, December 1998) in Science stream conducted by All India Management Association (AIMA), New Delhi, with 90.83 scaled score.

### B) Awards / Honors:

1. DST-SERB Core Grant (2023-2026).
2. RISHII Project Contributor, Erasmus & European Union Funded (2020-2023).
3. Bentham Science Ambassador (2019-2021).
4. Asia Pacific Who's Who, Vol 16, Rifacimento International, New Delhi (2018)
5. NVIDIA GPU Grant Winner (2017-2018).
6. DST-SERB ECR Grant (2017-2020).
7. Received Sir Nilratan Sircar Award (2006), for outstanding research at Bose Institute, Kolkata.
8. Received Council of Scientific & Industrial Research (CSIR) Fellowship (2001-2006) for clearing JRF and eligibility for lectureship (NET, December, 2000) test, conducted by Human Resource Development Group, Govt. of India, in Life Science.
9. Cleared Graduate Aptitude Test in Engineering (GATE, February, 2001) conducted by Indian Institute of Technology (IIT), Kanpur, with 89.76 percentile in Life Science.
10. Received Narasinghadey Das Studentship Award (2000), University of Calcutta.
11. Received National Scholarship (1999-2000), Ministry of Human Resource Development, Govt. of India.
12. Cleared Management Aptitude Test (MAT, December 1998) in Science stream conducted by All India Management Association (AIMA), New Delhi, with 90.83 scaled score.

### Membership of Professional Bodies

1. Life Member - The Indian Science Congress Association (since 2015)
2. Life Member - Indian Biophysical Society (since 2015)

### Teaching Experience

1. Adamas University, Kolkata (7 years, continuing) - Teaching M.Sc., B.Sc. (Hons.) and B.Tech. students (Biotechnology, Microbiology, Biochemistry, Botany, LL.B. and Engineering). Courses - Biochemistry, Biophysics, Bioinformatics, Genomics, Virology, Genetics (Theory & Laboratory), etc.
2. Techno India University, Kolkata (1 year) - Taught M.Sc. and B.Tech. students (Biotechnology and Microbiology). Courses - Environmental Biotechnology, Biophysics, Bioinformatics, Cell Biology (Theory & Laboratory), etc.

**Personal Details**

Date of Birth: 18th December 1977

Marital Status: Married

Address: Flat A5, Purba Kalikata Cooperative Housing Society, 102 Maniktala Main Road,  
Kolkata 700054, West Bengal.