BIOGRAPHICAL SKETCH

NAME: **Dr. Rajkrishna Mondal**

POSITION TITLE: Assistant Professor

CONTACT:
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EDUCATION/TRAINING

INSTITUTION	DEGREE	COMPLETION YEAR	FIELD OF STUDY
Haldia Institute of Technology, WBUT	B.Tech	2008	Biotechnology
Bose Institute, Jadavpur University	Ph.D	2015	Molecular Biology
Indian Institute of Information Technology- Allahabad	M.Tech by Research	2023	Bioinformatics
University of Chicago, USA	Post-Doc.	2024	Molecular Biology

RESEARCH INTERESTS:

I. Understanding Sequence-Structure-Function relationship of *S. aureus* druggable proteins.
II. Development of plant-based assay system for screening anti-cancer lead molecules.
III. Understanding role of Bromodomain and WD repeat-containing protein 1 in cohesin conversion.

AWARDS AND FELLOWSHIP:

- Recipient of **SIRE (SERB International Research Experience)** Fellowship (2023).
- Awarded Junior Institute Research Scholarship by Bose Institute, Kolkata (December 2008- January, 2011).
- Qualified GATE-2007, 2008.

COMPLETED EXTERNALLY FUNDED PROJECTS:

1. "Characterization and purification of Lactoferrin from Mithun (*Bos frontalis*) milk and its antimicrobial potency on different pathogenic bacteria of Mithun", DBT, Govt of India (Completed)- Principal Investigator **(49.12 lacs)**
2. "Physicochemical characterization of the primary sigma factor of *Vibrio cholerae*", DBT, Govt of India (Completed)- Principal Investigator **(31.75 lacs)**
3. "Concurrent evaluation and monitoring of functioning of National Food Security Act, 2013 across the country", Ministry of consumer affairs food and public distribution, (Sub-Nodal officer)
4. "Development of plant based assay system for primary screening of lead molecule(s) from medicinal plants of Nagaland" DBT, Govt of India - Principal Investigator **(94.6424 lacs)**

PUBLICATIONS:

16. Chaurasiya D, Mondal R, Lahiri T, Tripathi A, Ghinmine T. IDPpred: a new sequence-based predictor for identification of intrinsically disordered protein with enhanced accuracy. J Biomol Struct Dyn. 2023 Dec 11:1-9. doi: 10.1080/07391102.2023.2290615
15. Ozukum, A., Laskar, D., Datta, S., Ghosh, R., Dam, S., Nagi, R., Deb CR, Mondal, R. (2023). Methanolic root peel extract of Potentilla fulgens L. shows anti-proliferative activity on root meristematic cells of *Lathyrus sativus* L. and antiamoebic activity on trophozoites of *Entamoeba histolytica*. *Suid-Afrikaanse Tydskrif Vir Plantkunde [South African Journal of Botany]*, *163,* 523–530.

doi:10.1016/j.sajb.2023.11.008
14. Tripathi A, Mondal R, Lahiri T, Chaurasiya D, Pal MK. TemPred: A Novel Protein Template Search Engine to Improve Protein Structure Prediction. IEEE/ACM Trans Comput Biol Bioinform. 2023 May-Jun;20(3):2112-2121. doi: 10.1109/TCBB.2022.3233846.
13. Kumar R, Mondal R, Lahiri T, Pal MK. Application of sequence semantic and integrated cellular geography approach to study alternative biogenesis of exonic circular RNA. BMC Bioinformatics. 2023 Apr 17;24(1):148. doi: 10.1186/s12859-023-05279-z. PMID: 37069509; PMCID: PMC10108499.
12. Dipten L, Amenti, Rajkrishna M. Molecular docking analysis of juglone with parvulin-type PPiase PrsA from *Staphylococcus aureus*. Bioinformation. 2023 Jan 31;19(1):48-52. doi: 10.6026/97320630019048.
11. Amenti. Rajkrishna Mondal, (2021). Potential application of phage ϕ11 lytic proteins in rapid detection and elimination of *Staphylococcus aureus*. *International Journal of Current Microbiology and Applied Sciences, 10*(10), 142–155. doi:10.20546/ijcmas.2021.1010.017
10. Sinha D, Sinha D, Dutta A, Chakraborty T, Mondal R, Seal S, Poddar A,Chatterjee S, Sau S. Alternative Sigma Factor of *Staphylococcus aureus* Interacts with the Cognate Antisigma Factor Primarily Using Its Domain 3.Biochemistry. 2021 Jan 19;60(2):135-151. doi: 10.1021/acs.biochem.0c00881.
9. Sinha D, Mondal R, Mahapa A, Sau K, Chattopadhyaya R, Sau S. A staphylococcal anti-sigma factor possesses a single-domain, carries different denaturant-sensitive regions and unfolds via two intermediates. PLoS One. 2018 Apr 5;13(4):e0195416. doi: 10.1371/journal.pone.0195416.
8. Jana B, Bandhu A, Mondal R, Biswas A, Sau K, Sau S. Domain structure and denaturation of a dimeric Mip-like peptidyl-prolyl cis-trans isomerase from *Escherichia coli*. Biochemistry. 2012 Feb 14;51(6):1223-37. doi: 10.1021/bi2015037.
7. Chanda PK, Bandhu A, Jana B, Mondal R, Ganguly T, Sau K, Lee CY, Chakrabarti G, Sau S. Characterization of an unusual cold shock protein from *Staphylococcus aureus*. J Basic Microbiol. 2010 Dec;50(6):519-26. doi: 10.1002/jobm.200900264.
6. Mondal R, Chanda PK, Bandhu A, Jana B, Lee CY, Sau S. Detection of the cell wall-affecting antibiotics at sublethal concentrations using a reporter *Staphylococcus aureus* harboring drp35 promoter - lacZ transcriptional fusion. BMB Rep. 2010 Jul;43(7):468-73. doi: 10.5483/bmbrep.2010.43.7.468.
5. Bandhu A, Ganguly T, Jana B, Mondal R, Sau S. Regions and residues of an asymmetric operator DNA interacting with the monomeric repressor of temperate mycobacteriophage L1. Biochemistry. 2010 May 18;49(19):4235-43. doi: 10.1021/bi9020956.
4. Mondal R, Ganguly T, Chanda PK, Bandhu A, Jana B, Sau K, Lee CY, Sau S. Stabilization of the primary sigma factor of *Staphylococcus aureus* by core RNA polymerase. BMB Rep. 2010 Mar;43(3):176-81. doi: 10.5483/bmbrep.2010.43.3.176. PMID: 20356457; PMCID: PMC6532765.
3. Ganguly T, Das M, Bandhu A, Chanda PK, Jana B, Mondal R, Sau S.Physicochemical properties and distinct DNA binding capacity of the repressor of temperate *Staphylococcus aureus* phage phi11. FEBS J. 2009 Apr;276(7):1975-85.doi: 10.1111/j.1742-4658.2009.06924.x. Epub 2009 Feb 23.
2. Das M, Ganguly T, Bandhu A, Mondal R, Chanda PK, Jana B, Sau S. Moderately thermostable phage Phi11 Cro repressor has novel DNA-binding capacity and physicochemical properties. BMB Rep. 2009 Mar 31;42(3):160-5. doi: 10.5483/bmbrep.2009.42.3.160.
1. Chanda PK, Mondal R, Sau K, Sau S. Antibiotics, arsenate and H2O2 induce the promoter of *Staphylococcus aureus* cspC gene more strongly than cold. J Basic Microbiol. 2009 Apr;49(2):205-11. doi: 10.1002/jobm.200800065.

BOOK CHAPTER:

2. Lahiri T, Mondal, R, Tripathi A. (2024). Machine learning fundamentals to explore complex omics data. In *Integrative Omics :Concept, Methodology, and Application*. Paperback ISBN: 9780443160929, eBook ISBN: 9780443160936
1. Mondal, R. (2021). Nanotechnology in Microbiology. In *Nanotechnology for Advances in Medical Microbiology* (pp. 269–293). doi:10.1007/978-981-15-9916-3_11

PUBLICATION IN CONFERENCE:

6. Rajkrishna Mondal, Tapobrata Lahiri* (2022) Prospective application of Prot-PCV: a numerical vector representation of protein in alignment-free gene phylogenetics. National Conference On Anthropology: Biological Diversity And Affinities-A Critical Rethinking Of The Enduring Issues In India (ABDACREII_2022). 16-18 March, 2022, Department of Zoology,St. Joseph University,Dimapur, Nagaland.
5. Nagi, R., Dutta, S., Deb CR., Mondal, R.Prospective application of Prot-PCV: a numerical vector representation of protein in alignment-free gene phylogenetics.National Conference On Anthropology: Biological Diversity And Affinities-A Critical Rethinking Of The Enduring Issues In India (ABDACREII_2022). 16-18 March, 2022, Department of Zoology,St. Joseph University,Dimapur, Nagaland.
4. Amenti and Rajkrishna Mondal*. (2022) *Staphylococcus aureus* transcriptional regulator of membrane lipid biosynthesis, FapR: a prospective drug target. International conference 5th BioSangam, "BioSangam 2022: Emerging trends in Biotechnology", MNNIT
3. Deepak Chaurasiya, Rajkrishna Mondal*, Tapobrata Lahiri* (2022) Deciphering role of intrinsically disordered regions of RNA polymerase beta subunit in rifampin resistance by pathogenic bacteria. International conference 5th BioSangam, "BioSangam 2022: Emerging trends in Biotechnology", MNNIT
2. Ekonthung Ezung, Raja Banerjee, Rajkrishna Mondal* (2022) Potential role of rare codons in *Staphylococcus aureus* extracytoplasmic function sigma factor (σS) expression. International conference 5th BioSangam, "BioSangam 2022: Emerging trends in Biotechnology", MNNIT
1. Rajkrishna Mondal* (2019) Application of PCR-Denaturing Gradient Gel Electrophoresis (DGGE) To Study the Microbial Biodiversity. BIODIVERSITY FOR HUMAN WELFARE: CURRENT AND FUTURE TRENDS-INDIA Page:63 ISBN 978-81-935866-3-1.

REVIEWER OF PEER REVIEWED JOURNALS:

- Biologia (Springer)

PH.D SUPERVISION ONGOING:

1. Ms. Rokono Nagi (as Co-Supervisor)
2. Ms. Amenti
3. Mr. Dipten Laskar
4. Mr. Ekonthung Ezung (as Co-Supervisor)

Declaration: I hereby declare that all the details furnished above are true to the best of my knowledge and belief.

RAJKRISHNA MONDAL