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VIDWAN

Dr. Sayak Ganguli

Assistant Professor

Postgraduate and Research Department of Biotechnology

St. Xavier's College (Autonomous) Kolkata

PROFILE

I am a biologist, with background in Plant Biology, specialization in Plant Tissue Culture; Cytogenetics, Bioinformatics, Computational Biology, Genomics and Ethnomedicine.

CURRENT RESEARCH

COURSES TAUGHT

1. Plant Biotechnology, Plant Breeding, Intellectual Property Rights (Theory and Practical)
2. Genomics and Bioinformatics, (Theory and Practical)
3. Quantitative Genetics, Biostatistics and R (Theory)
4. Ethnomedicine and Computer Aided Drug Discovery (Theory and Practical)
5. Plant Systematics, Plant Developmental Anatomy. (Theory and Practical)

WORK EXPERIENCE

TEACHING

Currently in my twentieth year of teaching; I have taught at various institutions prior to my current assignment as Visiting Faculty for both academic and professional courses. Some of the institutes where I have taught include:

1. Postgraduate Department of Botany, Barasat Government College, Barasat, 24 Pgs (N)
2. Postgradaute Department of Botany, Lady Brabourne College, Kolkata
3. Department of Biochemistry, West Bengal State University, Barasat, 24 Pgs (N)

4. Postgraduate Department of Microbiology, St. Xavier's College (Autonomous) Kolkata
5. Institute of Social Welfare and Business Management (IISWBM), Kolkata

CONSULTANCY

1. DBT – BIRAC Traineeship Program at APT Software Pvt. Ltd (2010 – 2012) and
2. AIIST – Barrackpore (2015 – 2020)
3. WIPRO – EARTHIAN Program in collaboration with PUPA, West Bengal (2024 onwards)

ACADEMIC EXTENSION AND OTHER ADMINISTRATIVE RESPONSIBILITIES

1. National Advisory Committee Member for the International Conference titled 'Innovations in sustainable drug discovery and development to combat the crisis of AMR" held on 27th and 28th February 2025; organized by Central Council for Research in Ayurvedic Sciences-Kolkata, and the Bioequivalence Study Centre-JU, Kolkata.
2. Convener – International Symposium on Biotechnology (ISBT) organized by the Postgraduate and Research Department of Biotechnology, St. Xavier's College (Autonomous) Kolkata in 2023 and 2024
3. Course Coordinator for the Two Day Workshop on Gut Microbiome Analyses organized by the Postgradaute and Research Department of Biotechnology for Scientists of Anthropological Survey of India (ANSI) in 2023
4. Organizing Committee Member for the Professional Scientific Development Program organized by St. Xavier's College (Autonomous) Kolkata under the DBT Star College Program and RUSA 2022
5. Co – Convener for the International Conference on Climate Change – Global Cooperation, organized by St. Xavier's College (Autonomous) Kolkata – 2021
6. MEMBER, Ethical Committee for Animal Research (ECAR), St. Xavier's College (Autonomous) Kolkata.
7. MEMBER, Institutional Biosafety Committee (IBSC) under the approval of DBT- GoI (2025 to 2028) at St. Xavier's College (Autonomous) Kolkata.
8. Research Advisory Committee Member at the Department of Physiology, West Bengal State University (2022 onwards)
9. Research Advisory Committee Member at the Department of Biotechnology, University of Engineering and Management, Kolkata (2025 onwards)

RESOURCE PERSON AND SESSION CHAIR

1. Session Chair, International Conference on Chemical and Environmental Sciences 2022
2. Session Chair, International Conference on Chemical and Environmental Sciences 2024
3. Session Chair, International Conference on theme Drug Discovery and Development for Infectious diseases 2023
4. Session Chair, 'Innovations in sustainable drug discovery and development to combat the crisis of AMR" 2025
5. Resource Person for Faculty Development Program on Biostatistics and Bioinformatics 2021 organized by St. Xavier's College (Autonomous) Kolkata
6. Resource Person at "NATIONAL LEVEL TRAINING PROGRAM ON GENOMICS AND PROTEOMICS RESEARCH" ORGANIZED BY "Bioinformatics Centre; Biotechnology Division; Sikkim State Council of Science and Technology, Department of Science and Technology, Government of Sikkim", 25th to 27th of November 2024
7. Resource Person at the " Value Added Course in Bioinformatics" organized by the Postgradaute Department of Botany, Bidhannagar College, Kolkata 2024

INVITED LECTURES AND PRESENTATIONS

Title of Lecture	Seminar/ Conference/ Workshop Details	Organized by
Bioinformatics for Therapeutic Interventions	DBT Sponsored Workshop on Bioinformatics for Therapeutic Interventions [16th January 2020]	Lady Brabourne College
Current Challenges in Biotechnology and Bioinformatics	One day State Level Interactive Student Seminar (webinar) on "Insights into Biotechnology - UG & PG level" to be held on 11th July, 2020	Bangabasi College
Understanding plant associated microbiome and predicting the microbiome cycle	Invited Lecture on 20th July 2020	Department of Botany and IQAC; Government General Degree College Singur
Covid 19: Computational Challenges	International Webinar on Current Insight on Global Pandemic; 16th August 2020	Dept of Microbiology and IQAC, Kulti College.
"Bioinformatics – Case Studies"	Current Research Progress in the area of Biotechnology and Bioinformatics; 21st December 2021	Department of Botany, Siliguri College
Bioinformatics for Beginners	One Day Popular talk on Bioinformatics for Beginners 11th September 2021	Department of Botany and IQAC, Rabindra Mahavidyalaya
Dietary Intake and Nutritional Status of adult Kheria Sabar Males of West Bengal	Indian Anthropology Congress ; 21st – 22nd February 2022	Department of Anthropology, University of Hyderabad
Computational Biology – From organisms to Precision Medicine	DBT Sponsored Workshop held on 30th March 2023	Department of Botany, Lady Brabourne College
Restriction Digestion	DBT Sponsored workshop on Restriction Digestion of DNA held on 27th April 2023	Department of Botany, Lady Brabourne College
Community Genomics - An Emerging Paradigm for Environmental Monitoring	Invited Lecture on 28th December 2023	Department of Environmental Science; University of Calcutta
Community Genomics a paradigm for Environmental Monitoring	21st All India Congress of Genetics and Genomics (AICGG) International Symposium Environmental Toxicogenomics: Ecosystem Health and Sustainability - Challenges and Way Forward 5th to 7th February 2024	*Joint Collaboration with Archana Sharma Foundation of Calcutta & Kolkata Nivedita Shakti*
"RNAi mediated crop improvement"	DBT sponsored seminar on 19.03.2025	PG Department of Botany, Lady Brabourne College.

FACULTY DEVELOPMENT PROGRAMS, REFRESHER COURSES, WORKSHOPS AND SEMINARS/WEBINARS ATTENDED

1. International Webinar on Food and Lifestyle Changes 29th June 2020
2. India I EMBO Lecture Course July 03rd – 2020
3. India I EMBO Lecture Course July 17th – 2020

4. National Webinar on Intellectual Property Rights: 18th July 2020
5. International Webinar, Bangabasi College, July 25th 2020
6. Two Day Webinar, SXC Kolkata, NAAC Assessment 30th and 31st July 2020
7. National Webinar on COVID 19 Challenges, University of Calcutta
8. India I EMBO Lecture Course 15th December 2020
9. International Symposium APBGE 2021
10. Faculty Development Program 2021 on Bioinorganic Chemistry 29th and 30th September 2021
11. Newton Bhaba researcher Link Workshop [Early Career Researcher] 2nd to 6th January 2022
12. 12th FACULTY INDUCTION PROGRAM; NBU, West Bengal [3rd January – 6th February 2023]
13. Faculty Development Program on Integrating Artificial Intelligence in Higher education [6th October 2023]
14. IP Awareness/Training program under NATIONAL INTELLECTUAL PROPERTY AWARENESS MISSION; 21st November 2024
15. Refresher Course, MMTTC, Jamia Miliya Islamia [2nd to 15th January 2024]
16. International Symposium on Biological Sciences [FIBS 2025] – 14th February 2025

FELLOWSHIPS AND AWARDS

1. Department of Biotechnology, Government of India funded Research Assistantship at the DBT Centre for Bioinformatics, Presidency University (erstwhile Presidency College), Kolkata [2007 – 2015] under the BTBI scheme.
2. Aurobindo Guha Life Science Endowment (GOLD MEDAL) for Highest marks in BSc. Examination (2003)
3. DST Award for Invited lecture at Next Generation Sequencing Congress Asia (2012) at Singapore
4. Selected and participated as an Early Career Researcher in the Newton Bhabha Researchers Link Workshop titled "Building Ecological Resilience in Vulnerable Mangroves of the Indian Sundarbans: Sustainable and Equitable Management of Biodiversity and Ecosystem Services in the era of Climate Change"jointly organised by WBSU, INDIA and NEWCASTLE UNIVERSITY, UK, funded by DBT – GoI and British Council held in Indian Sunderbans 2nd to 6th January 2022.
5. BEST POSTER AWARD for the poster titled:*"Rhizospheric Metagenome Dataset of the terrestrial mangrove Nypa fruticans Wurmb from Indian Sunderbans"* at the National Seminar on Water Conservation and Harvesting: Focusing Biodiversity Issues and Management held on 8thFebruary 2020 at Jadavpur University, Kolkata.
6. Best Presenter Award (Science Group) in the FIP -12 conducted by UGC - HRDC, North Bengal University (3rd January to 6th February 2022).

ACHIEVEMENTS OF STUDENTS FROM SGLAB

1. BEST POSTER AWARD (UG and PG students category): Arunima Bhattacharya (Research Intern); @ICCCGC, Kolkata
2. 3rd Prize in Poster (Research Scholar Category): Sarmishta Mukhopadhyay (WBDST – JRF) @ICCCGC, Kolkata
3. Second Prize in Young Researcher (s) Category: Nabarun Dawn and Souptik Ghosh (Student Intern) @ICCCGC, Kolkata
4. Judges 'Special Appreciation Award. "Creating a Mangrove endophyte bacterial collection for targeted genome editing. International Seminar and Workshop on CRISPR/Cas-based Plant Functional Genomics & Computational Modelling,

organised by CSIR – North East Institute of Science and Technology, Jorhat, Assam (17th to 21st January 2023): Gaurab Aditya Dhar (DBT – JRF)

5. Souradip Basu (DST – SRF) presented a paper titled " Insights into the gut, dietary practices and subsistence patterns from an Indian foothill tribe at Students Conference on Conservation Science (SCCS2023) in University of Cambridge; 28th – 30th March 2023.
6. THIRD PLACE IN POSTER Presentation received by Mr. Sampreet Manna (Research Intern) for the poster titled " Synergistic Inhibition ……. antibiotic formulation" at the Two Day International Conference on Sustainable Management for Better Future: Recent Advancement and prospects" organized by East Calcutta Girl's College 25th and 26th November 2024.
7. Ms. Rupsha Karmakar (Research Scholar); received the Joint 1st Prize in poster presentation in International Symposium on Biotechnology, organised by Department of Biotechnology, St. Xavier's College (Autonomous) Kolkata; November 2024."Resistome Identification and Mapping from Urban Wastewaters – A Comparative Study"
8. Mr. Baibhab Chakraborty and Ms Sampoorna Dey (Student Interns) received the 1st runner up prize for Poster Presentation at the International Symposium on Biotechnology, 2024 organised by the Postgraduate and Research Department of Biotechnology of St. Xavier's College (Autonomous), Kolkata titled "Quest for improving Gut Health – A Probiotic consortium formulated from gut microbes identified from tribes of West Bengal, India"
9. Ms. Sarmishta Mukhopadhyay (WBDST SRF) received the 2nd Prize in poster presentation in International Symposium on Biotechnology, organised by Department of Biotechnology, St. Xavier's College (Autonomous) Kolkata; November 2024: "Evaluation of the antibacterial and anticancer properties of *Psidium guajava* leaf extract
10. Debava Chaudhuri (CSIR – JRF) received the Joint 3rd Prize in poster presentation in International Symposium on Biotechnology, organised by Department of Biotechnology, St. Xavier's College (Autonomous) Kolkata; November 2024. "Unique Bacterial Consortia Regulate Salinity Adaptation in True Mangrove Endospheres - Insights from Indian Sundarbans"
11. Debava Chaudhuri (CSIR – JRF) received the Best Poster Award for the poster titled " Community Genomics Guided Development ……..Indian Sundarbans" at the International Conference titled 'Innovations in sustainable drug discovery and development to combat the crisis of AMR" on 28th February 2025

RESEARCH PROJECTS

1. Recipient of INTRAMURAL RESEARCH GRANT FROM St. Xavier's College (Autonomous), Kolkata for two consecutive years - 2023 and 2024.
2. Collaborative Projects funded by DST – Government of West Bengal; DST – SERB; with University of Calcutta (Anthropology and Biotechnology, PG Department of Microbiology, SXC Kolkata; PG Department of Zoology, Rammohan College, Kolkata)
3. Joint project with PUPA (NGO) for Sustainable Development in Indian Sundarbans.

Completed Projects:

1. ICMR and Department of Biotechnology – Ministry of Science and Technology, Government of India (GOI) entitled: Identification of Regulatory elements in the HIV genome and designing of *in silico* designed aptamers against them (2013 – 2016);
2. West Bengal Biodiversity Board on "Mango Germplasm Conservation" (2017 - 2020).
3. Identification of major pathogenic microbes in hospital effluents using metagenomic screening and design of

potent inhibitors using virtual screening of medicinal plant library against them" funded by Department of Science and Technology and Biotechnology, Government of West Bengal.

PH.D SUPERVISION

1. Dr. Meesha Singh awarded in 2023 – currently working as Senior Medical Writer at CLIMET, Kolkata
2. Dr. Sarmishta Mukhopadhyay awarded in 2024 – currently in a career break
3. Dr. Souradip Basu awarded in 2024 – currently working as Visiting Faculty at THK Jain College, Kolkata
4. Ms. Rupsha Karmakar – Research Fellow in Wastewater Surveillance
5. Mr. Wrick Chakraborty – IPCR Fellow in COPD Microbiome
6. Mr. Debava Chaudhuri – UGC – JRF – Sundarban Metagenome Project

PUBLICATIONS: (2020 – 2025)

JOURNAL ARTICLES:

1. Mukherjee, A., Ghosh, S., Ganguli, S., Basu, J., & Basu, B. (2025). Antiproliferative and Apoptotic Efficacy of Nano-PLGA Encapsulated Quercetin Molecules by Downregulation of Akt in K-ras Mutated NSCLC Cell Lines, A549 and H460. *Journal of Biochemical and Molecular Toxicology*, *39*(4), e70240.
2. Mukherjee, P., Chakraborty, W., Chowdhury, S., Ganguli, S., & Dasgupta, J. (2025). Bioinformatic and genomic analyses on FlrB–FlrC-type TCS orthologs involved in flagellar synthesis of monotrichous Gram-negative bacteria. *Journal of Proteins and Proteomics*, 1-16.
3. Mukhopadhyay S, Singh M, Ghosh MM, Chakrabarti S, Ganguli S. Comparative Genomics and Characterization of *Shigella flexneri* Isolated from Urban Wastewater. Microbes Environ. 2024; 39(2). doi: 10.1264/jsme2.ME23105. PMID: 38839365.
4. Basu, S., Das, K., Ghosh, M. M., Banerjee, R., Bagchi, S. S., & Ganguli, S. (2024) Comparative Analysis Of Gut Bacterial Abundance And Dietary Habits Of Two Ethnic Communities Of West Bengal, India - a pilot study . (2024). *Applied Biological Research*, *26*(4), 482–492. https://doi.org/10.48165/abr.2024.26.01.56
5. Roy, C., Ganguli, S., & Ghosh, P. (2024). Exploring the Potential of Phytoconstituents for Immunomodulation as Natural Inhibitors of P-glycoprotein-A Computational Study. *Journal of Natural Remedies*, 2779-2793.
6. Das, K., Basu, S., Mukherjee, K., Ganguli, S., & Bagchi, S. S. (2024). Assessment of nutritional status, energy intake and energy requirement: a cross-sectional study among sabar males of West Bengal, India. *Papers on Anthropology*, *33*(1), 47-71.
7. Samanta, D., Das, D., Sinha, S. *et al.* Transcriptome analysis reveals upregulated secondary metabolite pathways in micropropagated *Lawsonia inermis* L. *Vegetos* **36**, 1130–1138 (2023). https://doi.org/10.1007/s42535-023-00613-5
8. Chakraborty, A., Ganguli, S., De, P. *et al.* An insight into the structural analysis of α-crystallin of habitat-specific fish: a computational approach. *J Proteins Proteom* **14**, 111–127 (2023). https://doi.org/10.1007/s42485-023-00107-7
9. Bhattacharya A, Bhowmick P, Ganguli S, Mitra AK. Evolutionary Insights into the Enzymes involved in the Biosynthesis of the Volatile Organic Compounds Isoprene and Pinene in Plants. Plant Sci. Today. (2023);10(2):253-62
10. Bhowal P, Roy B, Ganguli S, Igloi GL, Banerjee R. Elucidating the structure-function attributes of a trypanosomal arginyl-tRNA synthetase. Mol Biochem Parasitol. 2023 Dec;256:111597. doi: 10.1016/j.molbiopara.2023.111597. Epub 2023 Oct 16. PMID: 37852416.

11. Mukhopadhyay M, Mukherjee A, Ganguli S, Chakraborti A, Roy S, Choudhury SS, Subramaniyan V, Kumarasamy V, Sayed AA, El-Demerdash FM, Almutairi MH, Şuţan A, Dhara B, Mitra AK. Marvels of Bacilli in soil amendment for plant-growth promotion toward sustainable development having futuristic socio-economic implications. Front Microbiol. 2023 Dec 7;14:1293302. doi: 10.3389/fmicb.2023.1293302. PMID: 38156003; PMCID: PMC10752760.
12. Ganguly, K., Dutta, T., Ganguli, S. *et al.* Common structural attributes of tyrosinase variants are unlikely to determine differential retentions within endoplasmic reticulum: a homology modelling study with 45 variants. *Proc.Indian Natl. Sci. Acad.* **89**, 825–836 (2023). https://doi.org/10.1007/s43538-023-00196-4
13. Das D, Mallick B, Sinha S, Ganguli S, Samanta D, Banerjee R, Roy D. Unearthing the inhibitory potential of phytochemicals from *Lawsonia inermis* L. and some drugs against dengue virus protein NS1: an *in silico* approach. J Biomol Struct Dyn. 2023 Dec 29:1-18. doi: 10.1080/07391102.2023.2298730. Epub ahead of print. PMID: 38157248.
14. Sarkar N, Chakravarty R, Ganguli S, Singh SP, Narayan J, Banerjee A. A pilot study on some critical immune elements in HBV infection: evidence of Alpha-1 Antitrypsin as an immunological biomarker. Gastroenterol Hepatol Bed Bench. 2022; 15(4):377-386. doi: 10.22037/ghfbb.v15i4.2587
15. Mukhopadhyay, S., Chakrabarti, S., & Ganguli, S. (2022). Insights into the structure and dynamics of Shigella invasion proteins for use as potential drug targets. Journal of Environment and Sociobiology, 19(1), 37-42.ISSN: 0973-0834
16. Bhattacharyya, S., De, S., Basu, S., Dhar, G. A., & Ganguli, S. (2022). Comparative Profiling of Rice Endospheric Bacterial Assemblages to Identify Climate Independent Core. *Journal of Environment and Sociobiology*, 137-145.
17. Dhar,G.A., Ganguli,S., &Mallick, B.(2022).First insights into the rhizospheric bacterial abundance data of *Ceriops tagal* (Perr.) C.B.Rob. from Indian Sundarbans. Data in brief, 43, 108468. https://doi.org/10.1016/ j.dib.2022.108468 ISSN 2352-3409
18. Mukhopadhyay, S., Chakrabarti, S., & Ganguli, S. (2022). Exploring undeciphered *Shigella* proteins for identifying potential drug targets. International Journal of Computational Biology and Drug Design,15(1), 60-75. 10.1504/IJCBDD.2022.10049591ISSN online:1756-0764; ISSN print:1756-0756
19. Gupta, S. G., Basu, S., & Ganguli, S. (2022). Repetitive Sequences in Monocot MICRORNAs Targets for Future Bioengineering Strategies for Climate Resilient Crops. *Journal of Environment and Sociobiology*, 295-306.
20. Basu, S., Das, K., Ghosh, M. M., Banerjee, R., Bagchi, S. S., & Ganguli, S. (2022). First report of gut bacterial dataset of a tribal Bhutia family from West Bengal, India. Data in brief,41,107859.https://doi.org/10.1016/j.dib.2022.107859 ISSN 2352-3409
21. Ghosh, S., Dawn, N., Basu, S., & Ganguli, S. (2022). Microbial Enrichment in Global Wastewater Niches Under Impact of Climate Change â€“A Computational Study. *Journal of Environment and Sociobiology*, 221-243.
22. Das, K., Mukherjee, K., Ganguli, S. et al. The association between somatotype and nutritional status: a cross-sectional study among the adult Sabar males of Purulia, West Bengal, India.Int. j. anthropol. ethnol. 5, 5 (2021). https://doi.org/10.1186/s41257-021-00046-5
23. Mukhopadhyay M, Mitra KA, Choudhury SS, Ganguli S, 2021; Metagenome Dataset of Lateritic Soil Microbiota from Sadaipur, Birbhum, West Bengal, India; Data in Brief; DOI:10.1016/j.dib.2021.107041
24. Ganguli S, Mullick R, Das D, Samanta D, Roy D (2021): A review on the potential of Bacosides as therapeutic lead molecules. International Research Journal of Plant Science. Vol 12 (4): 1-10

25. Basu S, Das R, Gupta S, Ganguli S; Does Air Quality Influence the Spread of the SARS - COV2 In Metropolitan Cities? - A Case Study from Urban India; Current World Environment DOI: 10.12944/CWE.16.2.27
26. Das, K., Mukherjee, K., Ganguli, S. et al. (2021): The association between somatotype and nutritional status: a cross-sectional study among the adult Sabar males of Purulia, West Bengal, India.Int. j. anthropol. ethnol. 5, 5 (2021). https://doi.org/10.1186/s41257-021-00046-5
27. S Mukhopadhyay, S Ganguli, S Chakrabarti *Shigella* pathogenesis: molecular and computational in- sights AIMS Molecular Science, 7 (2): 99–121. DOI: 10.3934/molsci. 2020007
28. S Guha, S Das, S Ganguli A Comparative Genomics Pipeline for In Silico Characterization and Func- tional Annotation of Short Hypothetical Proteins - Journal of Tropical Life Science, 2020 Volume 10 Issue 2 Pages141-148
29. K Das, K Mukherjee, M Chanak, S Pal, S Ganguli: Age Trends in Under nutrition among Sabar Males of Purulia, West Bengal, India - J Hum Ecol, 2020 Volume 70 Issue 1-3 Pages 110-117
30. Das K, Mukherjee K, Ganguli S, Pal S, Bagchi SS: Age-related Variations in Anthropometry, Body Composition and Nutritional Status among the Adult Kheria Sabar Males of Purulia,West Bengal, India Collegium Antropologicum 2020;44(2):73–80
31. Das D, Samanta D, Banerjee R, Sinha S, Mallick B, Ganguli S, Roy D: Insights into the phytochemical potential of *Lawsonia inermis* L. for future small molecule based therapeutic applications (2020) Vol. 11(1) pp. 1-7, June, 2020 DOI: http:/dx.doi.org/10.14303/irjps. 2020.0
32. Sengupta D, Bhattacharya G, Ganguli S and Sengupta M "Structural insights and evaluation of the potential impact of missense variants on the interactions of SLIT2 with ROBO1/4 in cancer progression" (2020) Nature Scientific Reports https://doi.org/10.1038/s41598-020-78882-2

BOOK CHAPTER

1. Dhar, G. A., Karmakar, R., Mukhopadhyay, S., Basu, S., Ghosh, M. M., & Ganguli, S. (2025). Insights into Natural Product–Based Drug Discovery Using a Systems Biology Approach. In *Bioactive Ingredients for Healthcare Industry Volume 1: Extraction strategies, Stability and Medicinal Properties* (pp. 159-180). Singapore: Springer Nature Singapore.
2. Basu, S., Bhattacharyya, S., De, S., Ghosh, M. M., & Ganguli, S. (2024). Data sources and data integration in reproductive health. Systems Biology and Machine Learning Methods in Reproductive Health (1st ed.). Chapman and Hall/CRC. eBook ISBN: 9781003487548, pp 22-42. https://doi.org/10.1201/9781003487548
3. Bhattacharyya, S., De, S., Gupta, S. G., & Ganguli, S. (2025). Advantages and limitations of exogenously supplied non-coding RNA in plants. In *Non-coding RNA in Plants* (pp. 319-331). Academic Press.
4. Chaudhuri, D., Ciura, J., Tyrka, M., & Ganguli, S. (2025). An Omics Perspective on Fenugreek: An Ancient Medicinal Wonder. In *Genetics, Genomics and Breeding of Seed Spices* (pp. 147-160). Singapore: Springer Nature Singapore.
5. Mukhopadhyay, S., Karmakar, R., Chakrabarti, S., Ghosh, M.M., Ganguli, S. (2024). Evaluating the Impact of Climate Change on Antimicrobial Resistance and Rise in Dysentery Using Next Generation Sequencing Based Approaches. In: Gupta, J., Verma, A. (eds) Microbiology-2.0 Update for a Sustainable Future. Springer, Singapore. https://doi.org/10.1007/978-981-99-9617-9_17
6. Dhar, G. A., Chaudhuri, D., Mallick, B., & Ganguli, S. (2024). Insights into economically important endophytic and rhizospheric bacteria of true mangroves of Indian Sundarbans using high throughput mapping. In *Biotechnology of Emerging Microbes* (pp. 299-325). Academic Press.

7. Singh M, Karmakar R, Ganguli S, Ghosh M.M. (2023). Metagenomics – Based Characterization of Microbial Diversity Across Industrial Waste Dumping Sites. In Biohydrometallurgical Processes edited by Satarupa Dey CRC Press 1st Edition; Chapter 5 (pp. 90 – 107).
8. Sarkar, M., Mondal, M., Bhattacharya, D., Basu, S., Mitra, A. K., & Ganguli, S. (2023). Computational modeling for exploring the therapeutic repertoire of lantibiotics. In *Lantibiotics as Alternative Therapeutics* (pp. 337-352). Academic Press.
9. Chakravarty D, Bhattacharya D, Ganguli S and Das Ghosh U (2023). Targeting microbial biofilms using genomics guided drug discovery. In Microbial Biofilms: Challenges and Advances in Metabolomic Study (pp 315 – 321) edited by Sanket Joshi, Dibyajit Lahiri, Rina Rani Ray, Mubarak Ali Davoodbasha, Academic Press
10. Ganguli, S., Karmakar, R., Singh, M., & Ghosh, M. M. (2022). Metagenomics-guided assessment of water quality and predicting pathogenic load. In *Handbook of Research on Monitoring and Evaluating the Ecological Health of Wetlands* (pp. 71-91). IGI Global.
11. Souradip Basu, Sohini Gupta, Kaustav Das, Subrata Sankar Bagchi, & Sayak Ganguli. (2022). Tribal ethnomedicine: a rich source for future drugs. In Indigenous Traditional Knowledge (pp. 21–29). Ambika Prasad Research Foundation. https://doi.org/10.5281/zenodo.6418656
12. Kundu, A., Ganguli, S., Pal, A. (2022). Genomic Designing Towards Biotic Stress Resistance in Mungbean and Urdbean. In: Kole, C. (eds) Genomic Designing for Biotic Stress Resistant Pulse Crops. Springer, Cham. https://doi.org/10.1007/978-3-030-91043-3_8
13. Mondal, S. *et al.* (2021). A Pipeline for Assessment of Pathogenic Load in the Environment Using Microbiome Analysis. In: Nath, M., Bhatt, D., Bhargava, P., Choudhary, D.K. (eds) Microbial Metatranscriptomics Belowground. Springer, Singapore. https://doi.org/10.1007/978-981-15-9758-9_23
14. Bera, A.R., Chakraborty, W., Rahaman, S., Datta, P.N., Ganguli, S. (2021). Exploration of Rhizospheric Microbial Diversity of the Indian Sundarbans: A World Heritage Site. In: Nath, M., Bhatt, D., Bhargava, P., Choudhary, D.K. (eds) Microbial Metatranscriptomics Belowground. Springer, Singapore. https://doi.org/10.1007/978-981-15-9758-9_20
15. Ganguli, S., Singh, P. K., & Pal, A. (2020). Transcriptome-based identification of small RNA in plants: The need for robust prediction algorithms. In *Plant Small RNA* (pp. 65-97). Academic Press.

DATABASE ACCESSIONS

As extensions of different community genomics projects, my lab has contributed over 50 Metagenome and Transcriptome Libraries and more than 15 different 16srRNA sequences in NCBI Databases. Details can be accessed by scanning the QRs provided alongside

COLLABORATIONS

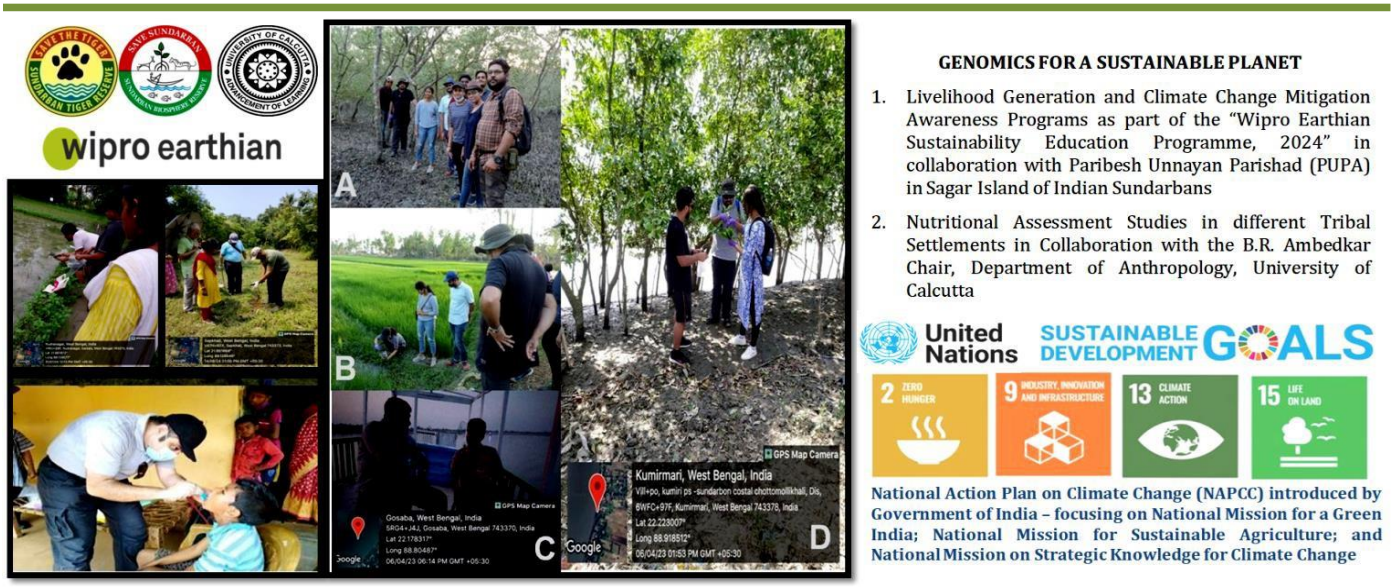
University of Calcutta (Department of Biotechnology); PUPA; Kolkata;
National University of Singapore (NUS); *Laboratório de Bioinformática e Química Medicinal - LABIOQUIM*
Centro de Estudos de Biomoléculas Aplicadas à Saúde - CEBio

MEMBERSHIPS

AICGG, INDIA
SOCIETY OF BIOLOGICAL CHEMIST, India
INDIAN SCIENCE CONGRESS ASSOCIATION
ALSOC, KOLKATA, India

ACTIVE RESEARCH PROJECTS

- Sundarban Metagenomics: Our team explores the genomic diversity of ecosystems, particularly the unique flora and fauna in regions like the Indian Sundarbans. We study the rhizospheric and endophytic microflora to support habitat restoration efforts and understand the intricate relationships between plants and microbes.
- Tribal Gut Microbiome: We investigate the gut microbiome of indigenous tribes in West Bengal to gain insights into their dietary habits and nutritional status. This research helps identify beneficial gut bacteria and provides a better understanding of how these communities interact with their environment.
- Wastewater Metagenomics: In response to the COVID-19 pandemic, SG Lab developed methods for pathogen surveillance in urban and rural wastewater. This work is crucial for predicting future pandemics and monitoring public health.
- Genomics Guided Drug Discovery: Our lab employs in-silico approaches to analyze the pangenome of different bacterial strains, aiming to identify therapeutic targets in COPD phenotypes.



HOBBIES

Collecting Folk Songs; Playing/Watching Cricket and Football, NGO Activities

I DECLARE THAT ALL THE ABOVE INFORMATION IS TRUE TO THE BEST OF MY KNOWLEDGE.