




CURRICULUM VITAE

Name:	Dr. Shashikant Ray	
Designation:	Assistant Professor	
School:	Life Sciences	
Department:	Biotechnology	
Specialisation & Research Interests:	Biochemistry, Biophysics, Cell Biology and Microbiology Identification and Characterization of interacting proteins of FtsZ assembly and discovery of FtsZ-targeted antibacterial agents for drug development, Drug development	
Email IDs (Official & Personal)	shashikantray@mgcub.ac.in	
Mobile No.:		
Address:	Department of Biotechnology, Mahatma Gandhi Central University Motihari, Bihar-845401	

2. ACADEMIC QUALIFICATION (in reverse Chronological order):

Degree	Year	University / Board
Ph.D.	2014	Indian Institute of Technology Bombay, Powai, Mumbai
M.Sc	2007	Allahabad Agricultural Institute Deemed University, Allahabad , UP

Degree	Year	University / Board
B.Sc.(Hons.)	2003	College of Commerce, Arts and Science, Patna, Bihar

3. PROFESSIONAL EXPERIENCE:

Organisation/Institute/University	Position Held	Duration
University of Colorado Anschutz Medical Campus, Aurora, Denver, USA	Visiting Research Associate (ICMR-DHR International Postdoctoral Fellow)	February 2023-Till date
National Brain Research Centre Manesar, Gurgaon, India	Visiting Summer Research Fellow Selected by IASc-INSA-NASI	June 2019 to August 2019
A2O-Biology (Algae to oil), Reliance Industries Ltd	Research Scientist	April 2015 - October 2016
Department of Biosciences and Bioengineering, IIT Bombay	Research Associate	Sept 2014 - March 2015
Department of Biosciences and Bioengineering, IIT Bombay	Teaching Assistantship	January 2009 – Dec. 2009
School of Life sciences, JNU, New Delhi	Junior Research Fellow	May 2008 - Nov 2008

4. COURSES TAUGHT:

- Cell Biology
- Environmental Studies
- Genetics
- Molecular Biology
- Plant Physiology
- Bioanalytical Techniques and Biophysics Medical Microbiology

- Biochemistry and Metabolism
- Bioprocess Technology
- Industrial Fermentations
- Recombinant DNA Technology
- Enzymology
- Basics of Bioinformatics and Biostatistics
- Immunobiology

5. RESEARCH SUPERVISION:

A. Ph.D.:

- i. **Awarded** : NA
- ii. **Submitted** : NA
- iii. **Ongoing** : 2

B. M.Phil.:

- i. **Awarded** : NA
- ii. **Submitted** : NA
- iii. **Ongoing** : NA

C. Non-Degree Oriented (Master's Level Dissertation):

- i. **Awarded** : 5
- ii. **Submitted** :
- iii. **Ongoing** : 3

6. CONTRIBUTION TO CORPORATE LIFE OF THE UNIVERSITY:

- Member of the International Yoga Day 2022 organizing committee, Mahatma Gandhi Central University, Motihari, Bihar
- Member of the Board of Studies, Department of Zoology, Mahatma Gandhi Central University, Motihari, Bihar from March 2019
- Special invitee, Board of Studies, Department of Biotech, Mahatma Gandhi Central University, Motihari, Bihar from May 2017 to till date
- Member of the admission-cum-prospectus Committee in Academic Session 2019-20
- Actively participated in Preparation of syllabus for B.Sc. (Hons.) Biotech and M.Sc. Biotechnology courses at Mahatma Gandhi Central University, Motihari, Bihar
- Crisis Management during “Run for Champaran” & Champaran Satyagarh centenary celebration (in April 2017)

- Visited HPCL Sagauli for Biotech student field visit and training (in March 2017 and 16 February 2019)
- Member of Discipline Committee during Foundation Week (in February 2017)
- Member of Debate and elocution committee during Foundation week (in February 2017)
- Member of Placement cell (in November 2016)
- Member of Seminar Committee (in November 2016-17)
- Member of Infrastructure development (in November 2016)
- Member of Medical committee (in November 2016)
- Visited IIT Bombay for establishment of Biotech lab at MGCU Motihari in October 2016

7. MEMBERSHIP OF SOCIETIES / PROFESSIONAL BODIES:

- Member of the R &D cell, Bihar Pollution Control Board Patna
- Review Editor: Frontiers in Molecular Biosciences

8. PUBLICATIONS :

A. BOOKS/MONOGRAPHS:

1. Authored:

- Chatterjee A, Rajarshi K, Ghosh H, Singh MK, Roy OP and **Ray S*** (2019) Molecular chaperones in protein folding and stress management in cyanobacteria: Advances in Cyanobacterial Biology. ISBN 9780128193112 (**ELSEVIER**).
- Khan R, **Ray S*** (2019) Bacterial Cell Division Machinery: An Insight for Development of New Antibacterial Agent. In: Kumar S., Egbuna C. (eds) Phytochemistry: An *in-silico* and *in-vitro* Update. ISBN 978-981-13-6919-3 (**Springer, Singapore**).
- Khan R, Chatterjee A, Ghosh H, Kapoor S and **Ray S*** (2019) Phytochemicals as anticancer drugs: Targeting the microtubular network of cancer cells. In: Kumar S., Egbuna C. (eds) Phytochemistry: An *in-silico* and *in-vitro* Update. ISBN 978-981-13-6919-3 (**Springer, Singapore**).
- Chatterjee A, Ghosh H and **Ray S*** (2018) Carotenoids- a dietary compound with multiple health benefits. ISBN 978-1-53613-186-4 (**Nova Science Publishers, New York, USA**).
- Rai S, Shrivastava AK and **Ray S*** (2018) Secondary metabolites from algae: benefits and future perspectives. ISBN 978-1-53613-186-4 (**Nova Science Publishers, New York, USA**).

- Rai LS, Narayanan A and **Ray S*** (2017) Gluconeogenesis regulation, measurements, and disorders. ISBN 978-1-53612-908-3 (**Nova Science Publishers, New York, USA**).
- **Ray S***, Agnihotri T * and Rathore SS*(2017) TCA Cycle: History, Working and Disease Implications. ISBN 978-1-53612-908-3 (**Nova Science Publishers, New York, USA**).
- Narayanan A, Rai LS and **Ray S*** (2017) Protein Regulation in Signal Transduction. ISBN 978-9384502-47-8 (**Prashant publishing house New Delhi**).

B. PAPERS IN REFEREED/PEER REVIEWED JOURNALS:

- Singh R, Kumar A, Rane, JS, Khan, R, Tripathi G, Ajay AK, Prakash A & **Ray S** (2022). Arylcoumarin perturbs SARS-CoV-2 pathogenesis by targeting the S-protein/ACE2 interaction. *Scientific Reports*, 12, 17038. <https://doi.org/10.1038/s41598-022-20759-7>
- Khater S, Kumar P, Dasgupta N, Das G, **Ray S**, Prakash A (2021) Combining SARS-CoV-2 Proofreading Exonuclease and RNA-Dependent RNA Polymerase Inhibitors as a Strategy to Combat COVID-19: A High-Throughput in silico Screening. *Front Microbiol.* 2021; 12: 647693. doi:10.3389/fmicb.2021.647693.
- Rajarshi K, Chatterjee A, **Ray S** (2020) Combating COVID-19 with Mesenchymal Stem Cell therapy. *Biotechnol Rep (Amst)*.26:e00467. doi:10.1016/j.btre.2020.e00467.
- Rajarshi K, Chatterjee A, **Ray S** (2020) BCG vaccination strategy implemented to reduce the impact of COVID-19: Hype or Hope? *Med Drug Discov*.100049. doi:10.1016/j.medidd.2020.100049.
- Pandey P, Rane JS, Chatterjee A, Kumar A, Khan R, Prakash A and **Ray S** (2020) Targeting SARS-CoV-2 spike protein of COVID-19 with naturally occurring phytochemicals: an in silico study for drug development. *J Biomol Struct Dyn*. 1-11. doi:10.1080/07391102.2020.1796811
- Rane JS, Pandey P, Chatterjee A, Khan R, Kumar A, Prakash A and **Ray S** (2020) Targeting virus-host interaction by novel pyrimidine derivative: an in silico approach towards discovery of potential drug against COVID-19. *J Biomol Struct Dyn*. 1-11. doi:10.1080/07391102.2020.1794969.

- Piyush R, Rajarshi K, Chatterjee A, Khan R and **Ray S** (2020) Nucleic acid-based therapy for coronavirus disease 2019. *Heliyon*. 6(9):e05007. doi:10.1016/j.heliyon.2020.e05007.
- Chatterjee A, Ghosh H, Khan R, Kapoor S and **Ray S** (2020) An intimate alliance of DNA-damage response network with cell-cycle checkpoints amid events of uncontrolled cellular proliferation- a mini review. *Endocr Metab Immune Disord Drug Targets*. doi: 10.2174/1871530320999200918143856.
- Piyush R, Rajarshi K, Khan R and **Ray S** (2020) Convalescent plasma therapy: a promising coronavirus disease 2019 treatment strategy. *Open Biol*. 200174.doi:10.1098/rsob.200174.
- Rajarshi K, Khan R, Singh MK, Ranjan T, Ray S, **Ray S** (2020) Essential functional molecules associated with SARS-CoV-2 infection: Potential therapeutic targets for COVID-19. *Gene*.;768:145313. doi: 10.1016/j.gene.2020.145313.
- Dhaked HPS, **Ray S**, Battaje RR, Banerjee A and Panda D (2019) Regulation of *Streptococcus pneumoniae* FtsZ assembly by divalent cations: Paradoxical effects of Ca²⁺ on the nucleation and bundling of FtsZ polymers. *FEBS J*. 286(18) 3629-3646.
- **Ray S**, Jindal B, Kunal K Surolia A and Panda D (2015). BT-Benzo-29 inhibits bacterial cell proliferation by perturbing FtsZ assembly. *FEBS J*.280 (20) 4015-4033.
- Bhattacharya A, **Ray S**, Singh D and Panda D (2015) ZapC promotes assembly and stability of FtsZ filaments by binding at a different site on FtsZ than ZipA. *Int.J Biol Macromol*.81;435-442.
- **Ray S**, Dhaked HP and Panda D (2014) Antimicrobial peptide CRAMP (16-33) stalls bacterial cytokinesis by inhibiting FtsZ assembly. *Biochemistry*. 21; 53(41): 6426-6429.
- **Ray S**, Kumar A and Panda D (2013) GTP Regulates the Interaction between MciZ and FtsZ: A Possible Role of MciZ in Bacterial Cell Division. *Biochemistry*. 15; 52 (2):392-401

9. INVITED TALKS:

- Online Invited Guest Lecture on “Overview of Enzymology” at Department of Biotechnology, Guru Ghasi Das Central University, Bilaspur on 15th February 2022.

- Invited Guest Lecture at Langat Singh College Muzaffarpur (BRABU University Muzaffarpur, Bihar) on 28th May 2019.
- Invited Guest Lecture at TNB College Bhagalpur (TM Bhagalpur University) at Department of Biotechnology on 22th February 2019.
- Invited Guest Lecture at Langat Singh College Muzaffarpur (BRABU University Muzaffarpur, Bihar) on 12th February 2019.
- Invited Guest Lecture at Department of Chemistry, University of Rajasthan, Jaipur on 2nd August 2017.

10. PARTICIPATION & PRESENTATIONS IN SEMINARS/SYMPOSIA/WORKSHOPS/CONFERENCES:

- Resource Person at Department of Biotechnology (Central University of South Bihar) DST-STUTI Sponsored Hands “Advanced Immunological Tools and Techniques” from 19-25th September 2022.
- Oral presentation in International Seminar on “Recent Advances in Biotechnology and its implications in modern medicine” at Laxmi Narayan Dubey College, Motihari, Bihar (BRABU University Muzaffarpur, Bihar) on 28th July 2022.
- Online oral presentation in the National Conference on the occasion of “International Microorganism Day” at Department of Microbiology, Govt. VYT PG Autonomous College, Durg, Chhattisgarh on 17th September 2021.
- Online oral presentation in the National Webinar on “Recent Pandemic and Environmental Alterations” at Department of Zoology of Government College, Kotri, Chhattisgarh on 27th March 2021, in the collaboration of Zoological Society of Chhattisgarh, India.
- Online oral presentation in the National webinar on “Loss of Biodiversity” at Dept. of Zoology & Botany with IQAC cell of Govt. Shivnath Science College, Rajnandgaon (C.G.) on 18th June 2021.
- Online oral presentation in the National webinar at the Department of Botany, TPS College, Patna on 01st August 2020.
- Online oral presentation in the National webinar on “Health and Environmental Protection during Pandemic Outbreak of COVID -19” at the Department of Chemistry, Sam Higginbottom University of Agriculture, Technology & Sciences (U.P.) ALLAHABAD - 211007, U.P., INDIA on 25th June 2020.
- Online oral presentation in the international Webinar on “Recent Problem and Prospects of COVID-19” held at the Department Of Biotechnology, Govt. V.Y.T. PG. Autonomous College, Durg, Chhattisgarh, India on 31st May 2020.

- ORAL presentation at 2019 Academic Conference of Henan International Joint Laboratory for Development and Application of Veterinary Products, on "Emerging Trends, Technologies and Applications" organized by CHINA College of biology and food engineering, Anyang Institute of Technology from 24th -25th October 2019.
- Presented a poster at Young Scientist Conference organized by India International Science Festival held at Kolkata from 5-8 November 2019.
- ORAL presentation at National Symposium on "Recent Trends in Chemical Sciences (RTCS-2019)" organized by Department of Chemistry, Mahatma Gandhi Central University, Motihari on 1st March 2019.
- Participated in the 2015 Nextgen Genomics, Biology, Bioinformatics and Technologies (NGBT) Conference Organized by SciGenom Research Foundation, CCMB and IOB at Hyderabad ICC, Hyderabad, India from 1st -3rd October, 2015.
- Presented a poster at Experimental Biology-2013 (23th April 2013), Boston MA, USA, 19th -24th April 2013.
- ORAL presentation at 8th National Research Scholars Meet in Life Sciences 2012 organized by ACTREC Mumbai on 22nd December 2012.
- Presented a poster at 25th Anniversary symposium of the Protein society, Boston Marriott Copley Place (24th July 2011), Boston, MA, USA, 23rd -27th July 2011.
- Participated in the International conference on Nano sciences and technology, ICONSAT 2010.
- Attended the International symposia on emerging areas in Biotechnology & Bioengineering IIT Bombay, Mumbai in 26th -28th February-2009

11. AWARDS, FELLOWSHIPS & OTHER DISTINCTIONS:

AWARDS

- Long Term ICMR-DHR International Fellowships for Young Indian Biomedical Scientist 2022-2023.
- Young Visiting Researcher Award by School of Biological and Food Engineering, Anyang Institute of Technology, China
- Long Term ICMR-DHR International Fellowships for Young Indian Biomedical Scientist 2019-2020.
- Selected for Science Academies' Summer Research Fellowship Programme for Students and Teachers 2019 by Indian Academy of

Sciences for National Brain research Centre Manesar Gurgaon at Prof. Neeraj Jain Lab.

- Got award from Reliance Industry Ltd. for the significant and valuable contribution to the A2O Biology vertical R&D year 2015-16.
- Got award from Reliance Industry Ltd. for excellence and valuable contribution to the A2O Biology vertical R&D year 2015-16.
- Travel grant from Department of Biotechnology India to attend Experimental Biology-2013, Boston MA, USA.
- Travel grant from Council of Scientific and Industrial Research, Govt. of India to attend Experimental Biology-2013, Boston MA, USA.
- Travel grant from Indian Council for medical Research, Govt. of India to attend Experimental Biology-2013, Boston MA, USA.
- Travel grant from Indian Institute of Technology Bombay for participation in at 25th Anniversary symposium of the Protein society, Boston Marriott Copley Place, Boston, MA, USA, 23rd -27th July 2011.
- Senior Research Fellow, Indian Council for medical Research, Govt. of India, 2011–2014.
- Junior Research Fellow, Indian Council for medical Research, Govt. of India, 2009–11.
- Junior Research Fellow, Council of Scientific and Industrial Research, Govt. of India, May 2008 to November 2008.

Academic Achievements:

- Qualified ICMR-JRF
- Qualified CSIR
- Qualified GATE
- Secured 1st Rank in Orientation Programme conducted by HRDC-University of Allahabad April 2018
- Qualified All India entrance for Postgraduate programs conducted by Allahabad Agriculture Institute Allahabad (2005).
- Qualified Combined Entrance examination of Biotechnology (CEEB) conducted by JNU New Delhi for M.Sc. Biotechnology (2004)

12. ANY OTHER SIGNIFICANT INFORMATION:

- Question Paper setters of semester examination of Microbiology Courses of Dr. Shyama Prasad Mukherjee University Ranchi
- Question Paper setters of semester examination of Biotechnology courses of Bihar Agricultural University, Sabour, Bhagalpur
- Answer sheet evaluator of B.Tech. Biotechnology courses of Dr. Rajendra Prasad Central Agricultural University, Pusa from January 2017 to till date

- Answer sheet evaluator of M.Sc. Environmental Science of Nalanda Open University, Patna, Bihar from September 2022 to till date
- Question Paper setters of semester examination of Biotechnology courses of Dr. Rajendra Prasad Central Agricultural University, Pusa from April 2017 to till date
- Course reviewer of B.Sc. and M.Sc. Neuroscience of Amity Institute of Neuropsychology and neurosciences (AINN), Amity University, Noida

Dr Shashikant Ray

(Name of Faculty)