

ACADEMIC PROFILE

1. **Full name of the faculty member:** **DR. SUKHENDU MANDAL**
2. **Designation:** Assistant Professor
3. **Specialisation :** Molecular Bacteriology
4. **Passport size photograph :**



5. **Contact information :**

Molecular Bacteriology Lab, Room No. MB-756, Dept of Microbiology, University of Calcutta, 35-Ballygunge Circular Road, Kolkata -700019 ; e-mail: sukhendu1@hotmail.com; smmicrobio@caluniv.ac.in; Ph No: 08509141790

6. **Academic qualifications:**

College/ university from which the degree was obtained	Degree	
Suri Vidyasagar College, West Bengal, India	B.Sc	1998
Visva- Bharati University, West Bengal, India	M.Sc	2000
Bose Institute, West Bengal, India	Ph.D	2007
Waksman Institute, New Jersey, USA	Postdoc	2012

7. **Positions held/ holding:**

Assistant Professor; Dept. of Microbiology, Tripura University; June'12 to Dec'12.

Assistant Professor; Dept. of Microbiology, University of Calcutta; Dec'12 to present

8. **Research interests:**

- Isolation and characterization of novel bacterial species based on their hydrocarbon or rubber degradation properties.
- Exploration of endophytic and rhizospheric bacteria in order to assess their role in mutualism or antibiosis.
- Bacterial Taxonomy and molecular systematics.
- Analysis of arctic microbial flora.
- Identification of novel Actinomycetes for their unique antimicrobial components.
- Role of alternate sigma factors in Mycobacterial gene expression. Studies on the alternate RNAP holoenzymes and transcription factors involved during stress.
- Identification and characterization of novel inhibitors of *M. tuberculosis* and *S. aureus* RNA Polymerase.
- Bacterial genomics.

9. **Research guidance:** Number of researchers pursuing M.Phil/ Ph.D : **06** PhD students of which **04** are registered.

10. PG Dissertation guided: 07

11. Extrameural research grants: 04

Name of the project	Name of PI	Duration	Year	Agency
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Selective exploration of diverse soil, symbiotic and marine actinomycetes on the basis of their unique bioactive compound production	Dr. S. Mandal	3 yrs	2014-2017	DST
Characterization of the alternate gene locus that regulates chemolithotrophic sulfur oxidation in a novel bacterium <i>Pseudaminobacter salicylatoxidans</i> KCT 001	Dr. S. Mandal	2 yrs	2014-2016	UGC
Structural and biochemical analysis of Mycobacterial ECF sigma and evaluation of its role on gene expression	Dr. S. Mandal	3 yrs	2016-2018	WB-DST
Studies on rhizospheric and endophytic Actinobacteria from Rice and Arachis plant to explore the possible antibiosis or mutualism with overlapping microbial flora	Dr. S. Mandal	2 yrs	2017-2018	UGC- UPE-II

12. Details list of publications:50

a) Journals:

1. Lin W, **Mandal S**, Degen D, Cho M, Feng Y, Das K and Ebright RH (2019). Structural basis of ECF-sigma-factor-dependent transcription initiation. **Nature Communication**. DOI:10.1038/s41467-019-08443-3.
2. Dey BC, Rai N, Das S, **Mandal S**, and Mandal V. (2019). Partial purification, characterization and mode of action of bacteriocins produced by three strains of *Pediococcus sp.* **Journal of Food Science and Technology**, DOI:10.1007/s13197-019-03744-3.
3. Maiti P and **Mandal S** (2019). Majority of Actinobacterial Strains Isolated from Kashmir Himalaya Soil Are Rich Source of Antimicrobials and Industrially Important Biomolecules. **Advances in Microbiology**. 09(03):220-238; DOI:10.4236/aim.2019.93016
4. Mukhopadhyay BC, Mitra S, Kazi TA, **Mandal S**, Biswas SR. (2019). Draft genome sequence of cold-tolerant *Kurthia gibsonii* B83, isolated from spinach leaf. **Microbiol Resour Announc** 8:e01480-18.
5. Mitra S, Mukhopadhyay BC, Kazi TA, Bhattacharya R, **Mandal S**, Biswas SR. (2018). Draft Genome Sequence of *Lactococcus lactis subsp. lactis* W8, a Potential Nisin-Producing Starter Culture for Indian Traditional Fermented Milk (Dahi). **Microbiol Resour Announc**. 7(23). pii: e01305-18. doi: 10.1128/MRA.01305-18.
6. Siddiqui N, Masum AA, Uddin MR, **Mandal S**, Sengupta M, Islam MM, Mukhopadhyay S. (2019) Elucidating the chemical and biochemical applications of *Citrus sinensis* mediated silver nanocrystal. **Journal of Biomolecular Structure & Dynamics**; DOI:10.1080/07391102.2018.1559763
7. Biswas J, Bose P, **Mandal S**, Paul AK. (2018). Reduction of hexavalent chromium by a moderately halophilic bacterium, *Halomonas smyrnensis* KS802 under saline environment. **Environmental sustainability**. DOI:10.1007/s42398-018-00037-x.
8. Sarkar HS, Kundu S, Das S, Maiti PK, **Mandal S**, Sahoo P. (2018). 2'-Deoxy-5-(hydroxymethyl)cytidine: estimation in human cancer cells with a simple chemosensor. **RSC Advances**, 8(18):39893-39896; DOI:10.1039/C8RA08391F.
9. Das S, Himadri Sarkar HS, Uddin MR, **Mandal S**, and Sahoo P, (2018) A chemosensor to recognize N-acyl homoserine lactone in bacterial biofilm. **Sensors and Actuators B: Chemical**.

10. Lin W, Das K, Degen D, Mazumder A, Duchi D, Wang D, Ebright YW, Ebright RY, Sineva E, Gigliotti M, Srivastava A, **Mandal S**, Jiang J, Liu Y, Yin R, Zhang Z, Eng ET, Thomas D, Donadio S, Zhang HB, Zhang C, Kapanidis AN, Ebright RH. (2018) Structural Basis of Transcription Inhibition by Fidaxomicin (Lipiarmycin A3). **Molecular Cell**. 70(1); DOI:10.1016/j.molcel.2018.02.026.
11. Sarkar HS, Ghosh A, Das S, Maiti PK, Maitra S, **Mandal S**, Sahoo P. (2018) Visualisation of DCP, a nerve agent mimic, in Catfish brain by a simple chemosensor. **Sci Rep**. 21;8(1):3402. doi: 10.1038/s41598-018-21780-5.
12. A. M. Gupta, S. Mukherjee, A. Dutta, J. Mukhopadhyay, D. Bhattacharyya* and **S. Mandal*** (2017) Identification of suitable promoter for sigma factor of *Mycobacterium tuberculosis*, **Molecular BioSystems**, DOI: 10.1039/C7MB00317J.
13. Sarkar HS, Das S, Mandal D, Uddin MR, **Mandal S**, and Sahoo P (2017) "Turn-on" fluorescence sensing of cytosine: development of a chemosensor for quantification of cytosine in human cancer cells. **RSC Advances** 7(85):54008-54012
14. Mondal S, Ali SS, Manna S, **Mandal S**, Mahapatra AK (2017). Benzopyrylium-phenothiazine-conjugate of flavylum derivative as fluorescent chemosensor for cyanide in aqueous media and its bioimaging. **New Journal of Chemistry**.
15. Ali SS, Gangopadhyay A, Maiti K, Mondal S, Pramanik AK, Guria UN, Uddin MR, **Mandal S**, Mandal D, Mahapatra AK. (2017) A chromogenic and ratiometric fluorogenic probe for rapid detection of a nerve agent simulant DCP based on a hybrid hydroxynaphthalene-hemicyanine dye. **Org Biomol Chem**. 15(28):5959-5967. (IF: 3.52)
16. Das S, Sarkar HS, Uddin MR, Rissanen K, **Mandal S***, Sahoo P*. (2017) Differential detection and quantification of cyclic AMP and other adenosine phosphates in live cells. **Chem Comm**. 53(54):7600-7603. (IF: 6.32)
17. Lin W, Mandal S, Degen D, Liu Y, Ebright YW, Li S, Feng Y, Zhang Y, **Mandal S**, Jiang Y, Liu S, Gigliotti M, Talaue M, Connell N, Das K, Arnold E, Ebright RH. (2017). Structural Basis of *Mycobacterium tuberculosis* Transcription and Transcription Inhibition. **Molecular Cell**. 66(2):169-179.e8. (IF: 14.71)
18. Naskar B, Modak R, Maiti DK, Bauza A, Frontera A, Maiti PK, **Mandal S** and Goswami S. (2017). A highly selective "ON-OFF" probe for colorimetric and fluorometric sensing of Cu²⁺ in water. **RSC Advances** 7(19):11312-11321.(IF: 3.84)
19. Mondal S, Manna SK, Maiti K, Maji R, Ali SS, Manna S, **Mandal S**, Uddin MR, Mahapatra AK*. (2017) Phenanthroline-fluorescein molecular hybrid as a ratiometric and selective fluorescent chemosensor for Cu²⁺ via FRET strategy: synthesis, computational studies and in vitro applications. **Supramolecular Chemistry**. DOI: 10.1080/10610278.2017.1301452.(IF: 2.39)
20. Sahoo P, Das S, Sarkar HS, Maiti K, Uddin MR, and **Mandal S**. (2017) Selective fluorescence sensing and quantification of Uric acid by Naphthyridine-based receptor in biological sample. **Bioorganic Chemistry**. DOI: 10.1016/j.bioorg.2017.03.002.(IF: 3.23)
21. Sarkar HS, Das S, Uddin MR, **Mandal S** and Sahoo P. (2016). Selective recognition and quantification of 2,3-bisphosphoglycerate in human blood sample by a rhodamine derivative. **Asian Journal of Organic Chemistry**. DOI: 10.1002/ajoc.201600516. (IF: 3.20)
22. Gupta AM and **Mandal S***. (2016). *Mycobacterium tuberculosis* H37 Rv1222: structural insight in transcription inhibition. **Journal of Biomolecular Structure & Dynamics**. DOI:

- 10.1080/07391102.2016.1189357. (IF: 2.98)
23. K. Maiti, A. K. Mahapatra, R. Maji, S. Mondal, S. S. Ali, A. Gangopadhyay, S. K. Manna, and **Mandal S. (2016)** A Fluorophore-Free Chemodosimeter for H₂S with Luminescence Turn-on Response: Hydrogen Sulphide Sensing in Garlic Extract. **Chemistry Select**, 1, 5066.
 24. Sahoo P, Sarkar HS, Das S, Maiti K, Uddin MR and **Mandal S. (2016)**. Pyrene appended thymine derivative for selective turn-on fluorescence sensing of uric acid in live cells. **RSC Advances**. 6(71): 66774. (IF: 3.84)
 25. Ghosh S, Ganguly A, Uddin MR, **Mandal S**, Akhtarul AM and Guchhait N. (2016). Dual mode selective chemosensor for copper and fluoride ions: A fluorimetric, colorimetric and theoretical investigation. **Dalton Transactions**. DOI: 10.1039/C6DT00968A. (IF: 4.1)
 26. Guha S, Sarkar M, Ganguly P, Uddin MR, **Mandal S**, and DasGupta M. (2016) Segregation of nod-containing and nod-deficient bradyrhizobia as endosymbionts of *Arachis hypogaea* and as endophytes of *Oryza sativa* in intercropped fields of Bengal Basin, India **Environmental Microbiology**; DOI: 10.1111/1462-2920.13348. (IF: 6.20)
 27. Mahapatra AK, Ali SS, Maiti K, Mondal S, Maji R, Manna S, Manna SK, Uddin MR, and **Mandal S.(2016)**. Highly Sensitive Ratiometric Fluorescence Probes for Nitric Oxide Based on Dihydropyridine and Potentially Useful in Bioimaging. **RSC Advances** 6(114); DOI:10.1039/C6RA23139J . (IF: 3.84)
 28. Mahapatra AK, Manna S, Karmakar P, Maiti K, Maji R, Mandal D, Uddin MR, and **Mandal S. (2016)**. Installation of efficient quenching groups of a fluorescent probe for the specific detection of cysteine and homocysteine over glutathione in solution and imaging of living cells. **Supramolecular Chemistry**. DOI: 10.1080/10610278.2016.1170127. (IF: 2.39)
 29. Mahapatra AK, Mondal S, Manna SK, Maiti K, Maji R, Ali SS, **Mandal S**, Md. Uddin MR, and Maiti DK. (2016). Highly selective ratiometric fluorescent probes for detection of perborate based on excited-state intramolecular proton transfer (ESIPT) in environmental samples and living cells. **Chemistry Select**. DOI: 10.1002/slct.201500032. (IF: 3.2)
 30. Mandal M, Paul S, Uddin MR, Mondal MA, **Mandal S**, Mandal V. (2016) In vitro antibacterial potential of *Hydrocotyle javanica* Thunb. **Asian Pacific Journal of Tropical Disease**. 6(1): 54-62.
 31. Mahapatra AK, Mondal S, Manna SK, Maiti K, Maji R, Ali SS, Mandal D, Uddin MR and **Mandal S. (2016)** Reaction-based sensing of fluoride ions using desilylation method for triggering excited-state intramolecular proton transfer, **Supramolecular Chemistry**, DOI: 10.1080/10610278.2015.1122195. (IF: 2.39)
 32. Maji R, Mahapatra AK, Maiti K, Mondal S, Ali SS, Sahoo P, **Mandal S**, Uddin MR, Goswami S, and Fun. HK (2016). A highly sensitive fluorescent probe for detection of hydrazine in gas and solution phase based on the Gabriel mechanism and its bio-imaging. **RSC Advances**. DOI: 10.1039/C6RA14212E. (IF: 3.84)
 33. Mahapatra AK, Ali SS, Maiti K, Manna SK, Maji R, Mondal S, Uddin MR, **Mandal S** and Sahoo P.(2015) Aminomethylpyrene-based Imino-Phenol as Primary Fluorescence Switch-on Sensors for Al³⁺ in Solution and in Vero Cells and their Complexes as Secondary Recognition Ensemble toward Pyrophosphate. **RSC Adv.**, DOI:10.1039/C5RA16641A (IF: 3.84)
 34. Mahapatra AK, Maji R, Maiti K, Manna SK, Mondal S, Ali SS, Manna S, Sahoo P, **Mandal S**, Uddin MR and Mandal D (2015) A BODIPY/pyrene-based chemodosimetric fluorescent chemosensor for selective sensing of hydrazine in the gas and aqueous solution state and its imaging in living cells. **RSC**

Adv., DOI:10.1039/C5RA10198K (IF: 3.71)

35. Gupta AM, Pal P, and **Mandal S*** (2015) Structural analysis of sigma E interactions with core RNA polymerase and its cognate P-hsp20 promoter of *Mycobacterium tuberculosis*. **Journal of Biomolecular Structure and Dynamics**. 34(4):792-9; DOI:10.1080/07391102.2015.1054432. (IF: 2.98)
36. Gupta AM, Bhattacharya S, Bagchi A and **Mandal S*** (2015) Implication from the predicted docked interaction of sigma H and exploration of its interaction with RNA polymerase in *Mycobacterium tuberculosis*. **Bioinformation**. 11(6): 296-301. DOI: 10.6026/97320630011296 (IF: 0.62)
37. Biswas J, **Mandal S** and Paul AK. (2015) Production, purification and some bio-physicochemical properties of EPS produced by *Halomonas xianhensis* SUR308 isolated from a saltern environment. **Journal of Biologically Active Products from Nature**. DOI: 10.1080/22311866.2015.1038852.
38. Das R, Pal A, **Mandal S** and Paul AK. (2015) Screening and Production of Biodegradable Polyester Poly(3-hydroxybutyrate) by Bacteria Endophytic to *Brassica nigra* L. **British Biotechnology Journal**, 7, 134-146, Article no.BBJ.2015.054.
39. Mahapatra AK, Mondal S, Manna SK, Maiti K, Maji R, Uddin R Md, **Mandal S**, Deblina Sarkar, Tapan K. Mondal and Dilip K. Maiti. (2015) A New Selective Chromogenic and Turn-On Fluorogenic Probe for Copper (II) in Solution and Vero Cells: Recognition of Sulphide by [CuL]. **Dalton Trans.**, 44(14):6490-501. (IF: 4.1)
40. Mahapatra AK, Mondal S, Maiti K, Manna SK, Maji R, Mandal D, **Mandal S**, Goswami S, Quah SK and Fun HK. (2014) A pyrenethiazole conjugate as a ratiometric chemosensor with high selectivity and sensitivity for tin (Sn⁴⁺) and its application in imaging live cells. **RSC Adv.**, 4, 56605-56614. (IF: 3.71)
41. Mahapatra AK, Manna SK, Maiti K, Mondal S, Maji R, Mandal D, **Mandal S**, Uddin MR, Goswami S, Quah CK, and Fun HK. (2014) An azodye-rhodamine-based fluorescent and colorimetric probe specific for the detection of Pd(2+) in aqueous ethanolic solution: synthesis, XRD characterization, computational studies and imaging in live cells. **Analyst**. 140, 1229-1236. (IF: 3.91)
42. Degen D, Feng Y, Zhang Y, Ebright KY, Ebright YW, Gigliotti M, Vahedian-Movahed H, **Mandal S**, Talaue M, Connell N, Arnold E, Fenical W, Ebright RH. (2014). Transcription inhibition by the depsipeptide antibiotic salinamide A. **Elife**. e02451. DOI: 10.7554/eLife.02451. (IF: 8.52)
43. **Mandal S*** and Das Gupta S. K. (2012) Interactions of SoxR with its promoters involve different binding geometries. **Archives of Microbiology** 194, 737-747. (IF: 1.86)
44. **Mandal S*** and Ghosh W (2012). The mechanism of regulation of chemolithotrophic sulfur oxidation in *Pseudaminobacter salicylatoxidans* KCT001. **Research & Reviews: A Journal of Microbiology & Virology**. 2, 24-29. (IF: NA)
45. **Mandal S*** (2012) The sulfur oxidation operon repressor-function is influenced by the product of its adjacent upstream ORF in *Pseudaminobacter salicylatoxidans* KCT001. **Current Microbiology**. 64, 259-264. (IF: 1.4)
46. **Mandal S**, Chatterjee S, Dam B, Roy P, and Das Gupta S. K. (2007) The dimeric repressor SoxR binds cooperatively to the promoter(s) regulating expression of the sulfur oxidation (*sox*) operon of *Pseudaminobacter salicylatoxidans* KCT001. **Microbiology**, 153, 80-91. (IF: 3.23)
47. Dam B, **Mandal S**, Ghosh W, Das Gupta S. K, and Roy P. (2007). Mutation in a molybdopterin cofactor biosynthetic locus impairs chemolithotrophic oxidation of thiosulfate as well as tetrathionate in the betaproteobacterium *Tetrathio bacter kashmirensis*: Evidence for sulfite inhibition of the tetrathionate intermediate (S₄I) pathway of sulfur oxidation. **Research in Microbiology**, 158, 330-338. (IF: 2.99)

48. Lahiri, C., **Mandal S***, Ghosh, W., Dam, B. and Roy, P. (2006) Sulfur oxidation gene cluster, *soxSRT-soxVWXYZABCD*, essential for chemolithotrophic oxidation of thiosulfate and tetrathionate by *Pseudaminobacter salicylatoxidans* KCT001. **Current Microbiology**, **52**, 267-273. (IF: 1.4)
49. Ghosh W, **Mandal S**, and Roy P. (2005) *Paracoccus bengalensis* sp. Nov., a novel sulfur-oxidizing chemolithoautotroph from the rhizospheric soil of an Indian tropical leguminous plant. **Systematic and applied Microbiology**. **29**, 396-403. (IF: 3.5)
50. Ghosh W, Bagchi A, **Mandal S**, Dam B and Roy P. (2005) *Tetrathiobacter kashmirensis* gen. nov., sp. nov., a novel mesophilic, neutrophilic, tetrathionate-oxidizing, facultatively chemolithotrophic betaproteobacterium isolated from soil from a temperate orchard in Jammu and Kashmir, India. **Int J Syst Evol Microbiol**. **55**, 1779-1787. (IF: 2.8)

b) **Books/ book chapters :**

- Genomics of Bacterial Chemolithotrophy, October 2014; Publisher: Scholar's Press, ISBN: 978-3-639-66607-6

c) **Conference/ seminar volumes: 15**

13. Membership of Learned Societies:

Member of “**Society of Biological Chemistry**”, India.

Member of “**British Science Association**”, UK.

Member of **National Environmental Science Academy**, Delhi, India

14. Invited lectures delivered:

1. Gangarampore College, South Dinajpore, April 2019
2. Gour Banga University, February 2019
3. Vidyasagar University, August 2016
4. Raiganj University, March 2016
5. Gour Banga University, Feb 2019
6. VJR College, September 2015
7. Bose Institute, July 2015

15. Awards :

“**NESA Environmentalist of the year 2018**” award given by National Environmental Science Academy, Delhi, India

“**Outstanding scientist award-2018**” by Venus International research Foundation, Chennai, India: (2018)

“**HHMI Fellowship**” for postdoctoral research in Waksman Institute, Rutgers University, NJ, USA: (2011-2012)

“**NIH Fellowship**” for postdoctoral research in Rutgers University, NJ, USA: (2007-2011)

“**Prof B B Biswas outstanding scholar of the year**” award for the research work done during PhD tenure. By Bose Institute, India.(2007)

16. Other notable activities: Editor/ or Editorial Board Member etc

Editor of “**American Journal of Biochemistry**” by Scientific and Academic Publishing; Editor of

“**American Journal of Microbiology**” by Science Publications;

Editor of “**Asiatic journal of Biotechnology Resources**” by Pacific Publishers;

Editor of **International Journal of Plant, Animal and Environmental Sciences (IJPAES)**;

Editor of **World Research Journal of Biochemistry**

Editor of **Universal Journal of Biomedical Engineering**

Editor of **The Open Microbiology Journal**

Reviewer of “**African Journal of Microbiology Research**” by Academic Journals; Reviewer of “**Research & Reviews: A Journal of Life Sciences**” by STM Journals.;

Reviewer of “**Research & Reviews: A Journal of Microbiology & Virology**” by STM Journals, Reviewer of **Scientific Reports**;

Reviewer of **Frontiers of Microbiology**;

Reviewer of **Gene**;

Reviewer of **Symbiosis**.

Reviewer of **Vaccine**.

Reviewer of **Microbial Ecology**

Administrative Experience:

1. Associated with the P.G. Board of studies (as an external member), Department of Microbiology, University of Calcutta.
2. Associated with the P.G. Board of studies (as an external member), Department of Marine Science, University of Calcutta. (as an external member).
3. Associated with the U.G. Board of Studies Microbiology (Hons.) (as an external member), Panskura Banamali College, Vidyasagar University.
4. Associated with the U.G. Board of Studies Microbiology (Hons.) (as an external member), Rahara Ramkrishna College, West Bengal State University.
5. Associated with board of moderator and/or examiner in Vidyasagar University, Burdwan University, Visva-Bharati University, Gour Banga University, Raiganj University, North Bengal University St Xavier’s College.