# **Curriculum Vitae**



**Subrata Sau**

Professor

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*Educational qualifications*

1. Ph.D. (Biochemistry) in 1995 from the University of Calcutta, Kolkata, India.

2. M.Sc (Biochemistry) in 1988 from the University of Calcutta, Kolkata, India.

3. B.Sc (Chemistry) in 1986 from the University of Calcutta, Kolkata, India.

4. H. S. (10+2) in 1983 from WBHSC, West Bengal, India.

5. Madhyamik (10) in 1981 from WBBSE, West Bengal, India.

##### *Fellowships and Profession/experience*

1. Jan 2014- present: Professor, Dept of Biochemistry, Bose Institute, Kolkata, India.

2. Feb 2009-Jan 2011: Visiting Associate Professor, Dept of Microbiology, UAMS, LR, AR, USA.

3. Sept 2007-Dec 2013: Associate Professor, Dept of Biochemistry, Bose Institute, Kolkata, India.

4. Sept 2003-Aug 2007: Senior Lecturer, Dept of Biochemistry, Bose Institute, Kolkata, India.

5. Aug 2003-Nov 2003: Visiting Scientist, Dept of Microbiology, KUMC, KC, KS, USA.

6. May 2001-August 2001: Visiting Scientist, Dept of Microbiology, KUMC, KC, USA.

7. Sept 2000-Aug 2003: Lecturer, Dept of Biochemistry, Bose Institute, Kolkata, India.

8. Feb 1998-Sept 2000: Scientific Officer, Bangalore Genei Pvt. Ltd., Bangalore, India.

9. Nov 1994-Jan 1998: Postdoctoral fellow, Dept of Microbiology, KUMC, KC, KS, USA.

10. Sept 1989-Aug 1994: JRF/SRF, Dept. of Biochemistry, Bose Institute, Kolkata, India.

***List of Publications***

1. Polley S, Seal S, Mahapa A, Jana B, Biswas A, Mandal S, Sinha D, Sau K and **Sau S** (**2017**) Identification and characterization of a cyclosporin binding cyclophillin from *Staphylococcus aureus* Newman. ***Bioinformation*** (*In Press*).
2. Mandal S, Mahapa A, Biswas A, Jana B, Polley S, Sau K, **Sau S** (**2016**). A Surfactant-Induced Functional Modulation of a Global Virulence Regulator from *Staphylococcus aureus*. ***PLoS One***. **11**:e0151426.
3. Polley S, Chakravarty D, Chakrabarti G, **Sau S** (**2016**). Determining the roles of a conserved tyrosine residue in a Mip-like peptidyl-prolyl *cis-trans* isomerase. ***Int J Biol Macromol.*** **87**:273-80.
4. Polley S, Chakravartya D, Chakrabarti G, Chattopadhyaya R, **Sau S** (**2015**) Proline substitutions in a Mip-like peptidyl-prolyl *cis-trans* isomerase severely affect its structure, stability, shape and activity. ***Biochimie Open***. **1**: 28–39.
5. Mahapa A, Mandal S, Biswas A, Jana B, Polley S, **Sau S**, Sau K. (**2015**) Chemical and thermal unfolding of a global staphylococcal virulence regulator with a flexible C-terminal end. ***PLoS One.*** **10**: e0122168. IF: 3.234
6. Polley S, Jana B, Chakrabarti G, **Sau S.** (**2014**) Inhibitor-induced conformational stabilization and structural alteration of a mip-like peptidyl prolyl cis-trans isomerase and its C-terminal domain. ***PLoS One***. **9**: e102891. IF: 3.234
7. Biswas A, Mandal S, **Sau S.** (**2014**) The N-terminal domain of the repressor of Staphylococcus aureus phage Φ11 possesses an unusual dimerization ability and DNA binding affinity. ***PLoS One***. **9**: e95012. IF: 3.234
8. Jana B and **Sau S** (**2012**) The helix located between the two domains of a Mip-like peptidyl prolyl *cis-trans* isomerase is crucial for its structure, stability and the protein folding ability. ***Biochemistry.*** **51**:7930-9. IF: 3.377
9. Bandhu A, Ganguly T, Jana B, Chakravarty A, Biswas A, and **Sau S** (**2012**) Biochemical characterization of L1 repressor mutants with altered operator DNA binding activity. ***Bacteriophage.*** **2**:79-88.
10. Jana B, Bandhu A, Mondal R, Biswas A, Sau K, **Sau S** (**2012**) Domain Structure and Denaturation of a Dimeric Mip-like Peptidyl-Prolyl *cis-trans* Isomerase from Escherichia coli. ***Biochemistry.*** **51**:1223-37. IF: 3.377
11. Luong TT, Sau K, Roux C, **Sau S**, Dunman PM, and Lee CY (**2011**) *S. aureus* ClpC divergently regulates capsule via *sae* and *codY* in strain Newman but activates capsule via *codY* in strain UAMS-1 and in *saeS*-repaired strain Newman. ***J Bacteriol*.** **193**: 686-94. IF: 3.594
12. Bandhu A, Ganguly T, Jana B, Mondal R and **Sau S** (**2010**) Regions and residues of an asymmetric operator DNA interacting with the monomeric repressor of temperate mycobacteriophage L1. ***Biochemistry*.** **49**: 4235-43. IF: 3.377
13. Mondal R, Chanda PK, Bandhu A, Jana B, Lee CY, and **Sau S** (**2010**). Detection of the cell wall-affecting antibiotics at sublethal concentrations using a reporter *Staphylococccus aureus* harboring *drp35* promoter – *lacZ* transcriptional fusion. ***BMB Rep*. 43**: 468-473. IF: 1.948
14. Chanda PK, Bandhu A, Jana B, Mondal R, Ganguly T, Sau K, Lee CY, Chakrabarti G, and **Sau S** (**2010**) Characterization of an unusual cold shock protein from *Staphylococcus aureus*. ***J Basic Microbiol*. 50**: 1-8. IF: 1.198
15. Mondal R, Ganguly T, Chanda PK, Bandhu A, Jana B, Sau K, Lee CY, and **Sau S** (**2010**). Stabilization of the primary sigma factor of *Staphylococcus aureus* by core RNA polymerase. ***BMB Rep*** **43**: 176-181. IF: 1.948
16. Ganguly T, Das M, Bandhu A, Chanda PK, Jana B, Mondal R, and **Sau S** (**2009**) Physicochemical properties and distinct DNA binding capacity of the repressor of temperate *Staphylococcus aureus* phage phi11*.* ***FEBS J.*** 276: 1975-85. IF: 4.25
17. Majumdar T, Chattopadhyay P, Saha DR, **Sau S** and Mazumder S (**2009**). Virulence plasmid of Aeromonas hydrophila induces macrophage apoptosis and helps in developing systemic infection in mice. ***Microb Pathog*.** **46**: 98-107. IF: 2.007
18. Das M, Ganguly T, Bandhu A, Mondal R, Chanda PK, Jana B and **Sau S** (**2009**). Moderately thermostable Cro repressor of the temperate *S. aureus* phage ф11 possessed novel DNA-binding capacity and physicochemical properties. ***BMB Rep*** **42**: 160-65. IF: 1.948
19. Bandhu A, Ganguly T, Chanda K P, Das M, and **Sau S** (**2009**) Antagonistic effects of Na+ and Mg2+ on the structure, function and stability of repressor of temperate mycobacteriophage L1. ***BMB Rep*** **42**: 293-298. IF: 1.948
20. Chanda PK, Mondal R, Sau K, and **Sau S** (**2009**) Antibiotics, arsenate and H2O2 induce the promoter of *Staphylococcus aureus* *cspC* gene more strongly than cold. ***J Basic Microbiol****.* **49**:205-11. IF: 1.198
21. Mandal P, Datta HJ, **Sau S** and Mandal NC (**2008**) The delayed early gene G23 of temperate mycobacteriophage L1 regulates the expression of deoxyribonuclease, the product of another delayed early gene of the phage. ***Pol J Microbiol***. **57**:113-119. IF: 0.76
22. **Sau S**, Chattoraj P, Ganguly T, Chanda PK, and Mandal NC (**2008**) Inactivation of bacterial indispensable proteins by early /delayed early proteins of bacteriophages: Implication in antibacterial drug discovery. ***Curr Protein Pept Sci* 9**: 284-90. IF: 3.512
23. Chattoraj P, Ganguly T, Nandy RK, and **Sau S** (**2008**). Overexpression of a delayed early gene hlg1 of temperate mycobacteriophage L1 is lethal to both *M. smegmatis* and *E. coli.* ***BMB Rep.*** **41**: 363-8. IF: 1.948
24. Chanda PK, Ganguly T, Das M, Lee CY, Luong TT and **Sau S** (**2007**) Detection of antistaphylococcal and toxic chemicals by biological assay systems developed with a reporter *Staphylococcus aureus* strain harboring a heat shock promoter – *lacZ* fusion. ***J Biochem Mol Biol.*** **40**:936-43. IF: 1.948
25. Datta HJ, Mandal P, Bhattacharya R, Das N, **Sau S**, and N. C. Mandal. (**2007**) The G23 and G25 genes of temperate mycobacteriophage L1 are essential for the transcription of its late genes. ***J Biochem Mol Biol.*** **40**:156-62. IF: 1.948
26. Das M, Ganguly T, Chattoraj P, Chanda PK, Bandhu A, Lee CY and **Sau S** (**2007**) Overexpression, purification and characterization of repressor of temperate *S. aureus* phage ф11. ***J Biochem Mol Biol***  **40**: 740-8. IF: 1.948
27. Sau K, Gupta SK, **Sau S**, Mandal SC and Ghosh TC. (**2007**). Factors influencing the synonymous codon and amino acid usage bias in a broad-host-range Vibrio phage KVP40. ***J Microbiol.*** **45**: 58-63. IF: 1.276
28. Ganguly T, Bandhu A, Chanda PK, Chattoraj P, Das M, Mandal NC and **Sau S** (**2007**). Purification and characterization of repressor of temperate mycobacteriophage L1. ***Virol J.*** **4**:64. IF: 2.09
29. Ganguly T, Chanda PK, Bandhu A, Chattoraj P, Das M and **Sau** S (**2006**). Effects of physical, ionic, and structural factors on the binding of repressor of mycobacteriophage L1 to its cognate operator DNA. ***Protein Pept Lett*** 13: 793-798. IF: 1.124
30. K. Sau, **S. Sau**, S. C. Mandal and T. C. Ghosh. (**2006**). Factors influencing synonymous codon and amino acid usage biases in *Mimivirus*. ***Biosystems*** 85: 107-13. IF: 1.548
31. P. Mandal, P. Chakraborty, **S. Sau**, and N. C. Mandal (**2006**). Purification and Characterization of a Deoxyriboendonuclease from *Mycobacterium smegmatis.* ***J Biochem Mol Biol*** 39: 140-4. IF: 1.948
32. K. Sau, **S. Sau**, S. C. Mandal and T. C. Ghosh. (**2005**). Factors influencing the synonymous codon and amino acid usage bias in an AT-rich *P. aeruginosa* phage PhiKZ. ***Acta Biochim Biophys Sin***(Shanghai) 37: 625-33. IF:2.191
33. K. Sau, S. K. Gupta, **S. Sau**, and T. C. Ghosh. (**2005**). Synonymous codon usage bias in sixteen *Staphylococcus aureus* phages: Implication in phage therapy. ***Virus Res*** 113: 123-31. IF: 2.324
34. K. Sau, S. K. Gupta, **S. Sau**, and T. C. Ghosh. (**2005**). Comparative analysis of the base composition and codon usages in fourteen mycobacteriophage genomes. ***J Biomol Struct Dyn.*** **23**: 63-72. IF:1.43
35. S.K. Gupta, T. Banerjee, S. Basak, K. Sahu, **S. Sau**, and T.C. Ghosh (**2005**). Studies on codon usage in *Thermoplasma acidophilum* and its possible implications on the occurrences of lateral gene transfer. ***J Basic Microbiol*.** **45**: 344-354. IF: 1.00
36. I. Datta, **S. Sau**, A. Sil and N. C. Mandal. (**2005**). The Bacteriophage λ DNA Replication Protein P Inhibits the *oriC* DNA- and ATP-binding Functions of the DNA Replication Initiator Protein DnaA of *Escherichia coli.* ***J Biochem Mol Biol* 38**: 97-103. IF: 1.948
37. I. Datta, S. Banik-Maiti, L. Adhikari, **S. Sau**, N. Das, and N. C. Mandal (**2005**). The Mutation that makes *Escherichia coli* Resistant to λ *P* Gene Mediated Host Lethality is Located within the DNA Initiator Gene *dnaA* of the Bacterium. ***J Biochem Mol Biol* 38**: 89-96. IF: 1.948
38. N. C. Mandal, R. Bhattacharyya, S. Sau, and B. Chaudhuri (2004) Studies on Temperate Mycobacteriophage L1: Its Physical Map, Site of Deletion in one of its Mutant, and Organization of Early, Delayed Early and Late Genes. *Perspective in Cytology & Genetics* 11: 81-100. Ed. G. K. Manna & S. C. Roy; AICCG Publications, Kolkata.
39. T. Ganguly, P. Chattoraj, M. Das, P. Chanda, N.C. Mandal, C. Y. Lee, and **S. Sau** (**2004**). A point mutation at the C-terminal half of the repressor of temperate Mycobacteriophage L1 affects its binding to the operator DNA. ***J Biochem Mol Biol* 37**: 709-714. IF: 1.948
40. K. Sahu, S. K. Gupta, **S. Sau**, and T. C. Ghosh (**2004**). Synonymous Codon Usage Analysis of Mycobacteriophage Bxz1 and its plating bacteria *M. smegmatis*: identification of the Highly and Lowly Expressed Genes of Bxz1 and the possible function of its tRNA species. ***J Biochem Mol Biol* 37**: 487-92. IF: 1.948
41. **S. Sau**, P. Chattoraj, T. Ganguly, C. Y. Lee, and N. C. Mandal (**2004**). Cloning and Sequencing Analysis of the Repressor Gene of Temperate Mycobacteriophage L1**. *J Biochem Mol Biol* 37:** 254 -259. IF: 1.948
42. C. Chattopadhyay, **S. Sau**, and N. C. Mandal. (**2003**). Cloning and Characterization of the Promoters of Temperate Mycobacteriophage L1. ***J Biochem Mol Biol* 36:** 586 - 592. IF: 1.948
43. L. Thanh, **S. Sau,** Gomez M, J. C. Lee and C. Y. Lee (**2002**). Regulation of *Staphylococcus aureus* Capsular Polysaccharide Expression by agr and sarA. ***Infect Immun* 70:** 440 -50. IF: 3.933
44. J.L. Snodgrass, N. Mohammad, J.M. Ross, **S. Sau**, Chia. Y. Lee and M.S. Smeltzer (**1999**). Functional analysis of the *S.aureus* collagen adhesin B domain. ***Infect Immun*.** **67**:3952-9. IF: 3.933
45. Ouyang Shu, **S. Sau** and Chia Y. Lee (**1999**). Promoter analysis of the cap8 operon involved in type 8 capsular polysaccharide production in *Staphylococcus aureus*. ***JBacteriol***, **181:** 2492 –2500. IF: 3.712
46. P. Gilpsey, Chia Y. Lee , **S. Sau** and M.S. Smeltzer (**1998**). Factors Affecting the Collagen Binding Capacity of *Staphylococcus aureus.* ***Infect Immun****,* **66:** 3170-3178. IF: 4.034
47. **S. Sau**., Navneet Bhasin, Elisabeth R.Wann, J. C. Lee, T. J. Foster and C. Y. Lee (**1997**). The *Staphylococcus aureus* Allelic Genetic Loci for Serotype 5 and 8 Capsule Expression Contain the Type-specific Genes Flanked by Common Genes. ***Microbiology***, **143:** 2395-2405. IF: 2.307
48. **S. Sau**, Jiwen Sun and Chia Y. Lee (**1997**). Molecular Characterization and Transcriptional Analysis of Type 8 Capsule Genes in *S. aureus*. ***JBacteriol***, **179:** 1614-1621. IF: 3.639
49. **S. Sau** and Chia Y. Lee (**1996**). Cloning of Type 8 Capsule Genes and Analyses of Gene Clusters for the Production of Different Capsular Polysaccharides in *Staphylococcus aureus*. ***JBacteriol***, **178:** 2118-2126. IF: 3.889
50. B. Chaudhuri, **S. Sau**, H. J. Datta and N.C. Mandal (**1993**). Isolation, Characterization and Mapping of Temperature Sensitive Mutations in the Genes Essential for Lysogenic and Lytic growth of the Mycobacteriophage L1. ***Virology***, **194**: 166-172.

***Research Interests***

**Studies on the bacterial proteins involved in the transcription and pathogenesis**The primary objectives of our research are to study the structure, function, and stability of some bacterial proteins involved in the transcription and pathogenesis. We mostly employ biochemical, biophysical and genetic techniques to study our proteins of interest. Currently, we have been working to understand the (1) structure, function, stability of the immunophilins from both *Escherichia coli* and *Staphylococcus aureus*, (2) structure, function, stability of an anti-sigma factor from *Staphylococcus aureus*, (3) structure, function, stability of a global staphylococcal virulence regulator SarA, and (4)architecture of a bacteriophage repressor - operator DNA complex. The yielded data seem to develop tools suitable for gene expression and antibacterial drug discovery.

*Past PhD and MTech students*

1. Dr. Tridib Ganguly (2007), Postdoc fellow, USA.

2. Dr. Partho Chattoraj (2008).

3. Dr. Malabika Das (2008), Assistant Professor, BITS, Goa, India.

4. Dr. Palas K Chanda (2009), Postdoc fellow, USA.

5. Dr. Amitava Bandhu (2012), Assistant Professor, NIT, Warangal, India.

6. Dr. Biswanath Jana (2013), Postdoc fellow, USA.

7. Dr. Rajkrishna Mondal (2015), Assistant Professor, Nagaland University, India.

8. Mr. Sudip K Mitra (2016), Research Assistant, Virchow Biotech Pvt. Ltd., Hyderabad, India.

***Present PhD students***

1. Mr. Anindya Biswas (Submitted PhD thesis)

2. Mr. Sukhendu Mondal (Ready to submit PhD thesis)

3. Mr. Soumitra Polley (Ready to submit PhD thesis)

4. Mr. Debabrata Sinha (~2015-2020)

5. Mr. Soham Seal (~2015-2020)

***Summer students supervised (2002 – to date)***

1. Mr. Tufan Neiya (2001)

2. Mr. Arindam Dey (2002)

3. Ms. Nabanita Biswas (2003)

4. Ms. Sudeshna Poddar (2004)

5. Ms. Ritu Dhar (2007)

6. Ms. Smita Nandi (2007)

7. Mr. Rajkrishna Mondal (2008)

8. Mr. Nabendu Rakshit (2012)

9. Mr. Hareram Birla (2013)

10. Mr. P. Narasimha (2014)

11. Mr. Jeya Pandi (2015)

12. Mr. Anindya Dutta (2016)

***Other activities***

1. Teaching MSc/PhD students in Bose Institute and in University of Calcutta.

2. Acting as a Radio-Safety Officer in Bose Institute.

3. Acted as a Reviewer /Examiner in Bose Institute, University of Calcutta, Punjab University, IIT Bombay, IIT Kharagpur, Pondicherry University, Manipur University, and Heritage Institute of Technology.

4. Acted as a member in various committees of Bose Institute.

*Research Funds obtained from different agencies*

Research works in Dr. Sau’s laboratory have been funded by the following funding agencies:

1. Council of Scientific and Industrial Research, New Delhi, India.

2. Department of Biotechnology, New Delhi, India.

3. Department of Science & Technology, New Delhi, India.

4. Department of Atomic Energy, Mumbai, India.

5. Bose Institute, Kolkata, India.

##### *Meetings/workshop attended /posters presented/delivered talks*

1. Attended ADNAT workshop on “X-crystallography and homology modeling of proteins” in Hyderabad 2007. The workshop was conducted in CCMB, Hyderabad.

2. Attended in the 12th Annual Conference of Gwalior Academy of Mathematical Sciences (GAMS) in Bhopal 2007. The conference was organized by Maulana Azad National Institute of Technology, Bhopal.

3. Delivered a talk in the International Conference on Emerging and Re-emerging Viral Diseases of Tropics and Sub-tropics in New Delhi 2007. The conference was organized by IARI, New Delhi.

4. Presented a poster (along with Chanda PK) in the international conference on “Perspectives of Cell Signaling and Molecular Medicine” organized by the Department of Molecular Medicine, Bose Institute 2008. Title of the poster: Characterization of the heat shock- and cold shock-inducible promoters / genes of *Staphylococcus aureus* and their biotechnological applications in antistaphylococcal drug screening. The poster was selected as one of the eight best posters in the conference.

5. Presented a poster (along with Biswas A, Das M, and Ganguly T) in the 1st International Science Congress organized by Research Journal of Chemical Science / Recent Sciences at Maharaja Ranjit Singh College of Professional Sciences, Indore, 2011. Title of the poster: Studies on the physicochemical properties and the DNA-binding capacities of the repressor proteins of temperate *Staphylococcus aureus* phage ɸ11.

6. Presented a poster (along with Jana B) in the 1st International Science Congress organized by Research Journal of Chemical Science / Recent Sciences at Maharaja Ranjit Singh College of Professional Sciences, Indore, 2011. Title of the poster: Domain structure and denaturation of a dimeric Mip-like peptidyl-prolyl *cis-trans* isomerase from *Escherichia coli.*

7. Presented a poster (along with Jana B) in the 2nd International conference on “Perspectives of Cell Signaling and Molecular Medicine” organized by the Department of Molecular Medicine, Bose Institute 2012. Title of the poster: Domain structure and denaturation of a dimeric Mip-like peptidyl-prolyl *cis-trans* isomerase from *Escherichia coli.*

8. Presented a poster (along with Chakravarty A, and Bandhu A) in the Acharya PC Ray National Young Scientists’ conference organized by the Presidency University, Vivekananda Vigan Mission (Kolkata), and University of Calcutta 2012. Title of the poster: Structure and the DNA binding capacity of the repressor protein of temperate mycobacteriophage L1.The poster was selected as the best poster in the conference.

9. Presented a poster (along with Jana B) in the International conference on “Biomolecular Forms and Functions” organized by the Indian Institute of Science, Bangalore 2013. Title of the poster: Studies on the structure, function and stability of a Mip-like peptidyl-prolyl *cis-trans* isomerase from *Escherichia coli.*

10. Presented a poster (along with Biswas A) in the Society of Biological Chemists organized by the University of Hyderabad, Hyderabad 2013. Title of the poster: Studies on the structures and functions of the repressor proteins of temperate *Staphylococcus aureus* phage ɸ11.

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11. Delivered a talk at the 101st Indian Science congress, held at the University of Jammu, Jammu, on 3rd -7th February 2014.

12. Presented a poster (along with Anindya Biswas) entitled “Purification and Characterization of the N-Terminal Domain of the Repressor of *Staphylococcus aureus* Phage Φ11” at the 83rd Annual Meeting of the Society of Biological Chemists held at the KIIT University, Bhubaneswar, on 18th-21st December 2014.

13. Presented a poster (along with Soumitra Polley) entitled “Rapamycin binding-mediated stabilization of a Mip-like peptidyl prolyl *cis-trans* isomerase and its C-terminal domain” at the 83rd Annual Meeting of the Society of Biological Chemists held at the KIIT University, Bhubaneswar, on 18th-21st December 2014.

14. Presented a poster (along with Sukhendu Mandal, Avisek Mahapa and Keya Sau) entitled “Purification and characterization of a global virulence regulator from *Staphylococcus aureus*” at the 83rd Annual Meeting of the Society of Biological Chemists held at the KIIT University, Bhubaneswar, on 18th-21st December 2014.

## *Member of the editorial board*

Advances in Molecular Medicine, published by Turkish Society of Molecular Medicine.

***Membership of the learned Society***

Life member of the Indian Science Congress Association, Kolkata.

Personal data

Name: Subrata Sau.

Father's name: Late Radhakrishna Sau.

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Sex/Marital Status: Male/Married with one child.

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India.