**SANGITA SARMA**

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**Objective**

Having 5+ years of research experience in **Clinical Microbiology and Molecular Biology** in addition to **Phenotypic tests and enzymatic assessment for β-lactamase mediated resistance,** **Molecular characterization of genes, Molecular cloning, Genomics, Molecular docking and Molecular dyanamic simulation**. Currently, looking forward to working in an organization that will allow me to apply my subject knowledge and research experience in a consistently stable and positive environment. The primary goal will be to achieve the best possible outcome for the organisation through hard work and innovative thinking.

**Educational credentials**

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| **COURSE** | **INSTITUTION** | **BOARD**  **/UNIVERSITY** | **CGPA**  **/PERCENTAGE** |
| Ph.D. | CSIR-NEIST,Jorhat | AcSIR (2017) | May, 2022 |
| M.Sc.  (Bioscience and Bioinformatics) | Tezpur University | Tezpur University (2016) | 8.24 |
| B.Sc.  (Bioscience and Bioinformatics) | Tezpur University | Tezpur University  (2014) | 8.31 |
| H.S. | Chapar H.S. School | A.H.S.E.C (2009) | 73.4% |
| H.S.L.C | Chapar Girls’ High School | S.E.B.A (2007) | 81.6% |

**Areas of research**

* Clinical Microbiology of *Enterobacteriaceae* pathogens
* Molecular Biology
* Computational Biology
* Genomics

**Research Experience**

* **Project title:** **Resistome characterization of clinically relevant enteric bacteria for β-lactam antibiotics resistance**

**Organization:** CSIR-North East Institute of Science and Technology (NEIST), Jorhat, Assam, India

**Period:** August 2017 – present

**Summary:** The project aims to characterize the molecular and genome-wide features of WHO critical group *Enterobacteriaceae* family clinical isolates from diarrheic children of 1.5-5 year age group from North-East India. Chromosomal and plasmid mediated β-lactam resistance pattern were well studied by means of phenotypic and genotypic tests for ESBL and carbapenamse detection. The chromosomal mutational assessment was carried out through in-silico approach. Further, the plasmid adaptation pattern was investigated by performing *in vitro* conjugation and transformation, plasmid stability, segregational loss rate determining test and maximum growth rate test of plasmid carrying versus plasmid free strains. Finally, genome-wide elucidation was done for highly resistant and high conjugative plasmid carrying isolates from *Escherichia* and *Klebsiella* genera.

* **Project title:** ssDNA assisted functionalisation and self assembly of N-Core PETIM dendrimer

**Organization:** Tezpur University

**Period:** December 2015-May 2016

**Summary:** In this project, DNA linked dendrimer nanoparticles were studied which can be used to drive the self-assembly of dendrimer nanoparticles using Molecular Dynamics Simulation with AMBER 12 software package and GAFF force field for G3 and G4 generation. The study infers that the G3 is the most suitable building block over G4 dendrimer depicting less partial charge over its surface.

* **Project title:** Identification of luminal endoplasmic reticulum resident protein disulfide isomerase ERp57 as a major target of a small molecule cardioprotective agent in the antithrombotic

**Organization:** Tezpur University

**Period:** June 2015- December 2015

**Summary:** ERp57 is a multifunctional thiol oxidoreductase and endoplasmic reticulum(ER) resident protein under protein disulfide isomerase(PDI) family.ERp57 mediates platelet aggregation and develop as novel targets for anti-thrombotic treatments.A unique derivative of danshensu (3-(3,4-dihydroxyphenyl lactic acid),DSS),well-known as ADTM ((R)-(3,5,6-Trimethylpyrazinyl) methyl-2-acetoxy-3-(3,4-diacetoxyphenyl) propanoate ), found to be a strong cardioprotective agent. In this study, biotinylated-ADTM analogue (BAA) was employed as small molecular probe for the identification of the protein targets of ADTM using Molecular Docking and Molecular Dynamics Simulation.

**Publications**

* **Sarma S**, Deka B, Panyang PP, Singh AK. Identification of Arg32Ser, His92Tyr and Leu147Phe novel mutations in chromosomally mediated β-lactamase SHV and in silico characterization to understand their substrate activity imparting resistance. J Biomol Struct Dyn. 2021 Sep 25:1-15. doi: 10.1080/07391102.2021.1978321. Epub ahead of print. PMID: 34569415.
* Bhattacharjee A#, **Sarma S#**, Sen T, Singh AK. Alterations in molecular response of Mycobacterium tuberculosis against anti-tuberculosis drugs. Mol Biol Rep. 2022 Jan 23. doi: 10.1007/s11033-021-07095-1. Epub ahead of print. PMID: 35066765.
* Deka B, Suri M, **Sarma S**, Devi MV, Bora A, Sen T, Dihingia A, Pahari P, Singh AK. Potentiating the intracellular killing of Staphylococcus aureus by dihydroquinazoline analogues as NorA efflux pump inhibitor. Bioorg Med Chem. 2022 Jan 15;54:116580. doi: 10.1016/j.bmc.2021.116580. Epub 2021 Dec 17. PMID: 34953341.
* Sen T, Neog K, **Sarma S**, Manna P, Deka Boruah HP, Gogoi P, Singh AK. Efflux pump inhibition by 11H-pyrido[2,1-b]quinazolin-11-one analogues in mycobacteria. Bioorg Med Chem. 2018 Sep 15;26(17):4942-4951. doi: 10.1016/j.bmc.2018.08.034. Epub 2018 Aug 29. Erratum in: Bioorg Med Chem. 2021 May 15;38:116152. PMID: 30190182.

**Conferences attended**

* S. Sarma, A.K. Singh, The plasmid mediated β-lactam resistance is dominant over chromosomal occurence in clinical *Escherichia fergusonii* isolated from enteric diseased children of Assam, International Conference on Engineering Science and Technologies for Environmental Care (ESTEC), 2020.
* S. Sarma, A.K. Singh, Identification of Biomarker from Drug resistant *Mycobacteria*, National Conference on The Frontiers in Chemical Biology in association with Materials Research Society of India, North-East Chapter,Jorhat and Assam Science Society, Jorhat, 2018.
* S. Sarma, M.V. Satish Kumar, Identification of luminal endoplasmic reticulum resident protein disulfide isomerase ERp57 as a major target of a small molecule cardioprotective agent in the antithrombotic treatment , NNMCB National Meeting at CSIR-NCL and IISER Pune, 2015

**Accolades**

* + Recipient of Gold Medal in Master of Science in Bioscience and Bioinformatics from Tezpur University, Assam, India,2017.
  + Recipient of DST-INSPIRE Fellowship, 2017-2021.

**References**

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