

## CURRICULUM VITAE

**Prof. Jayanta Halder**, PhD, FRSC, FASc, FNA

Editor-in-Chief, ACS Infectious Diseases

Professor, New Chemistry Unit, JNCASR and  
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Associate Chair, New Chemistry Unit, JNCASR

Nationality: Indian

Date of birth: 28<sup>th</sup> November, 1974

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### Antimicrobial Research Laboratory at JNCASR

My research integrates various interdisciplinary approaches for understanding and countering antimicrobial resistance (AMR). My group has developed various novel therapeutics and new synergistic strategies for tackling infections caused by pathogenic bacteria, fungi and viruses, and infection associated inflammation. We have also developed smart biomaterials which aid in preventing the spread of infectious diseases, as well as cure infections and enhance wound healing. The specific aims are:

#### **Novel Therapeutics**

- Peptidomimetic small and macromolecular antimicrobial agents
- Semisynthetic glycopeptide and  $\beta$ -lactam antibiotics and  $\beta$ -lactamase inhibitors
- Antibiotic adjuvants
- Antibiofilm and anti-persister agents
- Dual-functional antimicrobial and immunomodulatory agents
- Antiviral therapeutics against Influenza, Ebola

#### **Smart Biomaterials**

- Antimicrobial paints and coatings
- Antimicrobial coatings for invasive biomaterials (catheters, ventilator tubing, etc.)
- Antiviral coatings and sheets
- Antimicrobial sealants
- Antimicrobial and haemostatic sponges
- Shear-thinning materials for wound dressing
- Injectable antimicrobial wound healing hydrogels

### CURRENT POSITION

2021-present    Professor, New Chemistry Unit and School of Advanced Materials, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India

### PREVIOUS POSITIONS

2015–2021    Associate Professor, New Chemistry Unit and School of Advanced Materials, JNCASR, Bangalore, India

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- 2009–2015 Assistant Professor, New Chemistry Unit, JNCASR, Bangalore, India
- 2004–2009 Postdoctoral Associate, Massachusetts Institute of Technology (MIT), Cambridge, USA; *With Prof. Alexander M. Klibanov (Chemistry) and Prof. Jianzhu Chen (Koch Institute for Integrative Cancer Research at MIT)*

## EDUCATION

- 2005 PhD (Bioorganic Chemistry), Indian Institute of Science, Bangalore, India  
*With Prof. Santanu Bhattacharya*
- 1999 M.S. (Chemistry, Int. PhD), Indian Institute of Science, Bangalore, India
- 1996 B.Sc. (Chemistry), Presidency College, University of Calcutta, India

## FELLOWSHIPS AND AWARDS

- 2025 Fellow, Indian National Academy of Sciences (INSA), New Delhi
- 2024 BIRAC-SRISTI-Gandhian Young Technological Innovation (GYTI) award
- 2024 Fellow, Indian Academy of Sciences (IASc), Bangalore
- 2023 The Materials Research Society of India (MRSI) Medal
- 2021 Fellow, Royal Society of Chemistry
- 2020 Indo-U.S. Science & Technology Forum (IUSSTF) Award for COVID-19 Virtual Networks
- 2018 8th National Award for Technology Innovation, Ministry of Chemicals & Fertilizers, Govt. of India
- 2018 Sheikh Saqr Career Award Fellowship
- 2018 Chemical Research Society of India (CRSI) Bronze Medal
- 2017 Central Drug Research Institute (CDRI) award for Excellence in Drug Research (In the Chemical Sciences category)
- 2016 BIRAC-SRISTI-Gandhian Young Technological Innovation (GYTI) award
- 2016 BIRAC-SRISTI appreciation award
- 2015 BIRAC-SRISTI-Gandhian Young Technological Innovation (GYTI) award

## MEMBERSHIPS/FELLOWSHIPS OF SCIENTIFIC SOCIETIES

- 2025 Fellow, Indian National Academy of Sciences (INSA), New Delhi
- 2025 Contributing expert for REVIVE, GARDP
- 2024 Member of British Society for Antimicrobial Chemotherapy (BSAC)
- 2024 Member of American Society of Microbiology (ASM)
- 2024 Fellow, Indian Academy of Sciences (IASc), Bangalore
- 2021 Fellow, Royal Society of Chemistry
- 2019 Member, The Society for Polymer Science, India
- 2018 Member, Chemical Research Society of India

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2018 Member, American Chemical Society

## COMMISSIONS OF TRUST/MEMBERSHIPS OF EVALUATION BOARD

### *Editorial Responsibilities:*

- Editorial board member of the journal “Microbial Pathogenesis” of Elsevier (2024-)
- Editorial advisory board member for “Biochemistry” of ACS (2025)
- Editorial advisory board member for “Bioconjugate Chemistry” of ACS (2025)
- Advisory board member of the journal “RSC Medicinal Chemistry” (2024)
- Editor-in-chief of “ACS Infectious Diseases” (June 2023- onwards)
- Guest editor for special issue on Antimicrobial Resistance for “RSC Medicinal Chemistry” (up to June 2023)
- Member of search committee for Editor-in-chief for two ACS journals
- Guest editor for the journal “Microbial Pathogenesis” of Elsevier
- Editorial board member of the journal “RSC Medicinal Chemistry” (up to June 2023)
- Editorial advisory board member of the journal “Biomacromolecules” of ACS
- Editorial advisory board member of the journal “ACS Infectious Diseases” (up to June 2023)
- Editorial board member of the journal “Microbial Pathogenesis” of Elsevier

### *Expert Committee:*

- Committee member of Nomination to assess the Annual performance of Chief Scientist of CSIR-IICB, 2025
- Committee member and one of Chairpersons for ACS ID Young Investigator Award Winners, 2025
- Committee member and one of Chairpersons for ACS ID Young Investigator Award Winners, 2024
- Served as an expert for reviewing the progress and promotion of faculty member in IISER Thiruvananthapuram, August 2024
- Served as a reviewer for faculty promotion in IIT Kanpur, September, 2024

### *Research Grant Reviewing Committee:*

- Technical expert committee member for BIG TEP panel projects, BIRAC, India
- Referee for Wellcome Trust Team Science Grants
- Reviewer for project proposals for Science Foundation of Ireland SFI Frontiers for the Future Projects
- Referee for Medical Research Council, UK Grants
- Referee for DAE Grants
- Expert Panel Member for evaluation, monitoring and review of COVID-19 related international research Projects of DST-SERB
- Referee for Agence Nationale de la Recherche funded projects from France
- Referee for FONDECYT Program-Chile ´s Research Council- ANID

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- Reviewer for Core Research Grants from DST-SERB, India
  - Reviewer for research projects funded by DBT India
  - Referee for International Project evaluation NSF-USA and USA-Austria bilateral project
  - Reviewer for Start-up Company Evaluation, Biotechnology Ignition Grant (BIG) Scheme, DBT India
  - Reviewer for GYTI and BIRAC-SRISHTI projects from Govt. of India

#### *Peer Review Contributions:*

Contributed as reviewer for international journals such as PNAS USA, Nature Chemistry, Advanced Material, ACS Applied Materials & Interfaces, MedChemComm, Nanoscale, Journal of Medicinal Chemistry, Chemical Sciences, ACS Infectious Diseases, Journal of Polymers and Environment, Comments on Inorganic Chemistry, Polymer, ACS Bio and Med Chem Au, Frontiers in Medical Technology, RSC Advances, Food and function, Biomaterial Science, Materials Chemistry Frontiers, Journal of Biomaterial Sciences, ACS Applied Biomaterials, Chemical Engineering Journal, Organic and Biomolecular Chemistry, European Journal of Medicinal chemistry, ChemBioChem, Journal of Food Sciences, Advanced Functional Materials, ACS Med Chem Letters, ACS Biomaterial Science and Engineering, Emerging Microbes and Infections, British Journal of Pharmacology, Small, Bioorganic Chemistry, Journal of American Ceramic Society, Scientific Reports, Biochemistry, Biochimica et Biophysica Acta, Journal of American Chemical Society, Angewandte Chemie, Bioconjugate Chemistry, Biomacromolecules, ACS Omega, Nature Communications, Biomaterials, Chemical Communication, Journal of Chemical Sciences, Langmuir, RSC Medicinal Chemistry, Pharmaceutical Research, Molecular Pharmaceuticals, Journal of Biological Engineering, International Journal of Antimicrobial Agents, ACS Applied Materials and Interfaces, Journal of Cellular and Molecular Medicine, PLoS One, Frontiers in Microbiology, Letters in Applied Microbiology, Microbial pathogenesis, etc.

#### *Research Thesis Review for Post-graduate and PhD Students:*

Contributed as reviewer for PhD and master's Theses for students from various institutes such as IIT Roorkee, IISER Kolkata, IISER Pune, NCL Pune, CSIR-CSMCRI, IIT Bombay, IISER Bhopal, IICT Hyderabad, IIT Kanpur, IISc Bengaluru, BITS Pilani, IIT Madras, SASTRA University, NCBS Bengaluru, IIT Hyderabad, IACS Kolkata, IIT Delhi, INST Mohali, IISER Mohali, IMTECH Chandigarh, Bangalore University, Nanyang Technological University, Singapore.

### **ORGANISATION OF SCIENTIFIC MEETINGS**

- 2025 National Advisory Committee member for First Nucleic Acid Therapeutics Regional Meeting - India 2025 @ JNCASR, Bengaluru from 18<sup>th</sup> to 21<sup>st</sup> February 2025
- 2025 Key Resource Person for International Conference on "Advances in Chitin and Chitosan Research" & "11<sup>th</sup> Indian Chitin and Chitosan Society Symposium – 2025 (ICACCR-2025)" at University of Hyderabad, 31<sup>st</sup> January to 2<sup>nd</sup> February 2025
- 2024 Organizing and chairing a symposium at ACS Fall Meeting, Denver, 2024 "Celebrating 10 Years of ACS Infectious Diseases & the Young Investigator Award Winners"

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2024 Arranged India Road Show, ACS on Campus, JNCASR on 1<sup>st</sup> March 2024

Arranged a special lecture by Editor-in-Chief, ACS Materials Letters and Chemistry of Materials, Prof. Sara E. Skrabalak from Indiana University, USA, "*Nanoparticle Conversion Pathway to High Entropy Alloy Electrocatalysts*" at JNCASR on 29<sup>th</sup> February 2024

2024 Arranged a special lecture by Director, Centre for Engineered Therapeutics, Brigham and Women's Hospital, Prof. Shiladitya Sengupta from Harvard Medical School, USA, "*When small things matter*" at JNCASR on 12th February 2024

2024 Arranged a special lecture by Editor-in-Chief of Biomacromolecules, Prof. Sébastien Lecommandoux from Université de Bordeaux, France, "Harnessing Biomimicry with Self-Assembled Bioconjugates: from therapeutics to Protocells" at JNCASR on 31st January 2024

2024 ACS on Campus, Scripps Institute, California, USA

2018 Bangalore Healthcare Summit, Bangalore, India, Advisory board member

2017 Newton Bhabha Workshop in collaboration with Public Health of England, Bangalore

2010 Coordinator of In-house Symposium, JNCASR

## TEACHING ACTIVITIES

2010-Present Bioorganic and Medicinal Chemistry (for Masters, Int. PhD and PhD students, JNCASR)

2010-Present Organic Chemistry Practical (for Masters and Int. PhD students, JNCASR)

2010-Present Molecules in Life (for Undergraduate POCE Students, JNCASR)

## INSTITUTIONAL RESPONSIBILITIES

### *Scientific Responsibilities:*

2023-Present Associate Chair, New Chemistry Unit, JNCASR

2022-Present Member, Institutional Biosafety Committee (IBSC)

2021-2025 Member, Academic Council, JNCASR

2019-2020 Selection committee for Best Thesis in Biological Sciences, JNCASR

2018-Present Master's Student selection committee, New Chemistry Unit, JNCASR

2014-Present Master's Student selection committee, New Chemistry Unit, JNCASR

2010-Present Summer research fellowship (SRFP) program selection committee, JNCASR

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2009-Present	PhD Student selection committee, New Chemistry Unit, JNCASR
2009-Present	Internal comprehensive examiner of many PhD, Int. PhD, MS students

#### *Administrative Responsibilities:*

2021	Chairperson, Technical Sub-committee for procurement items for Hostel, JNCASR
2019-2023	Warden, JNCASR
2018-2025	M.Sc. Coordinator, New Chemistry Unit, JNCASR
2017	Member of Electrical Committee, JNCASR
2015-2017	Chairman of the Dining Hall Committee, JNCASR
2014-2015	New Chemistry Unit Seminar Coordinator, JNCASR
2013-2015	Member of the Dining Hall Committee, JNCASR

#### **PROJECTS UNDERTAKEN AS PRINCIPAL INVESTIGATOR**

Indo-U.S. (IUSSTF for COVID-19), JNCASR-RAK-CAM, DST-SERB Fast Track, Indo-French (CEFIPRA), DBT, India-China-Russia-Brazil (BRICS), DAE-BRNS, Indo-Portugal (DST), Indo-German (DST-DAAD), DST-BIRC, BIRAC-SRISTI-PMU, TRC-JNCASR, Indo-Belgian

#### *Ongoing:*

##### *A. National Projects*

1. DST-BIRAC COVID-19 SURAKSHA: Antibiotic-adjuvant therapy to target bacterial pulmonary infections and associated infection
2. ICMR Project: Dual functional COX-2 inhibiting and antimicrobial NSAID-peptidomimetic conjugates as novel therapy to tackle septic infections
3. DBT project: In-aqueous fabrication of antimicrobial covalent coating on catheters to mitigate catheter-associated urinary tract infections (CAUTIs)
4. DST Project on Advanced Materials: AMP-inspired rapid point-of-care detection platform for lipopolysaccharide and Gram-negative bacteria.

##### *B. International Collaborative Projects*

1. Indo-Belgian Joint Networking Call: Repurposing Vancomycin Analogues as Anti-Mycobacterial Agents

#### *Completed:*

##### *A. National Projects*

1. DST-SERB CRG Project: Development of adjuvants for potentiating and repurposing obsolete antibiotics against multidrug resistant Gram-negative pathogens

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2. DBT project: Small Molecular Mimics of Antimicrobial Peptide to Tackle Eye Infections
  3. JNCASR and RAK-CAM: Antimicrobial polymeric paint for pavers
  4. DST-TRC Project: Antimicrobial and haemostatic sponge: Point of care Technology to tackle infection and haemorrhage for traumatic injuries
  5. JNCASR and RAK-CAM: Antimicrobial hydrophobic coatings for tiles
  6. DST-SERB Special Call Project on CoVID-19: Development of antiviral surface coatings to prevent the spread of infections caused by influenza virus
  7. BRNS project: Development of Cationic Cleavable Amphiphiles and Study Aggregation and Antibacterial Properties
  8. SERB-EMR (DST) project: Acyclic and Cyclic Lipopeptides to Combat Bacterial Resistance and Eradicate Biofilms
  9. TRS-JNCASR Project: Injectable sealant: new technology to prevent surgical site infections
  10. BIRAC-SRISTI-PMU Project: Development of a Powerful New Antibiotic that Kills All Drug Resistant Bacteria
  11. BIRAC-SRISTI-PMU Project: Develop a novel compound restores obsolete antibiotics to NDM superbugs
  12. DST-BIRAC CRS Project: Development of a new class of glycopeptide antibiotics for tackling drug resistance bacterial infections
  13. SERC Fast Track Proposals for Young Scientists: Development of Novel Biodegradable Surface Coatings for Biomedical Application

#### *B. International Collaborative Projects*

1. Indo-French (CEFIPRA) Joint project: Development and Biophysical Investigations of Small Antimicrobial Peptide Mimetics
2. IUSSTF Award for COVID-19 Indo-U.S. Virtual Networks Project: Development of Antiviral Coatings to Prevent the Transmission of SARS-CoV-2 Viruses
3. BRICS Research project: MBLI development of new approaches to overcome MBL-related resistance in bacteria
4. Indo-German Joint (DST) Project: Investigating Mechanism of Action of Membrane Targeting Antibacterial Agents
5. Indo-Portugal (DST) Joint project: Development of novel organic-inorganic antimicrobial composites for bone infections: using Lanthanides doped novel glassy materials associated with hydroxyapatite and antimicrobial polymer

## **MAJOR COLLABORATIONS**

#### *International Collaborations:*

- Prof. Shiv Pillai, Medicine and Health Sciences & Technology (HST), Ragon Institute of MGH, MIT and Harvard, Cambridge, MA, USA – Development of Antiviral Coatings to Prevent the Transmission of SARS-CoV-2.
- Prof. L. W. Hamoen, University of Amsterdam, Netherlands - Cell division protein inhibition.
- Prof. Cristiano Marcelo Espinola Carvalho, Dom Bosco Catholic University, Brazil - Development of semisynthetic glycopeptide and betalactam derivatives.
- Prof. Tatiana V. Ovchinnikova, Institute of Bioorganic Chemistry Russian Academy Sciences (RAS),

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Russia - Development of semisynthetic glycopeptide and betalactam derivatives.

- Prof. Hixen Xie, East University Science Technology, China - Development of semisynthetic glycopeptide and betalactam derivatives.
- Prof. Julia Bandow, Rhur-Univ. of Bochum, Germany - Development of semisynthetic glycopeptide and betalactam derivatives.
- Prof. Octávio L. Franco, Universidade Catolica Dom Bosco, Campo Grande, Brazil - In vivo infection study.
- Prof. Lorenzo Stella, University of Rome, Italy – Investigation of antibacterial mechanism of actions.
- Prof. Peter Monk, Department of Infection, University of Sheffield, UK - Ex-vivo infection study.
- Prof. M. N. Seleem, Department of Comparative Pathobiology, Purdue University, USA - Antifungal studies.
- Prof. Bechinger Burkhard, Chemistry Institute, University of Strasbourg, France - Biophysical investigations of small antimicrobial peptide mimetics.
- Dr. Mark Sutton, Public Health of England (PHE), UK - Anti-Ebola activity.
- Dr. Nandyala Sooraj Hussain, University of Porto, Portugal - Antimicrobial composites for bone infections.
- Prof. Naresh Kumar, The University of New South Wales, Australia - Antimicrobial surface coatings for eye lenses
- Prof. Mark Willcox, University of New South Wales, Australia – Development of peptidomimetic antibacterial small molecules
- Prof. Sonia Henriques, Queensland University of Technology, Australia – Biophysical investigations into mechanism of action of antibacterial peptidomimetics
- Prof. Veronique Fontaine, Universite Libre de Bruxelles, Belgium – Investigation of antimycobacterial properties of glycopeptide antibiotics
- Prof. Rafał Ślusarz, University of Gdansk, Poland – Investigating the mechanisms of action and binding of novel vancomycin derivatives
- Prof. Luiz Alvarez de Cienfuegos, University of Granada, Spain – Development of antimicrobial hydrogels

#### *National Collaborations:*

- Prof. B. R. Shome & Dr. P. Krishanmoorthy, ICAR-NIVEDI, Bengaluru, India – In-vivo infection study.
- Dr. Prashant Garg, LV Prasad Eye Institute, Hyderabad, India - Ex-vivo eye infection study.
- Dr. V. K. Aswal, BARC, Mumbai, India - SANS studies for aggregation behavior of gemini surfactants.
- Dr. Utpal Tatu, Biochemistry, Indian Institute of Science, Bangalore, India - Antimalarial study.
- Dr. Shridhar Narayanan, FNDR, Bangalore, India - Activity against Mycobacterium tuberculosis.
- Dr. Suresh Kumar Jewrajka, CSIR-CSMCRI, India - Development of antibacterial filtration membrane.
- Dr. Colin Jamora, In-Stem Joint Laboratory, NCBS, India - In vivo study on wound healing by hydrogel.
- Prof. Satyavani Vemparala, Institute of Mathematical Sciences, Chennai, India - Theoretical study (MD Simulation) for Membrane
- Dr. Chandra, Vipragen Biosciences, India – Outlicenced our inventions

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- Dr. Randhir Yedle, TheraIndx Lifesciences, India – In-vivo antibacterial activity and toxicity studies
  - Prof. Siddharth Chopra, CSIR-CDRI, Lucknow, India - Antibacterial studies.
  - Prof. Nisanth N Nair, IIT-Kanpur, India - Theoretical study (MD Simulation) for betalactamase.
  - Dr. R Ravikumar, NIMHANS, Bangalore, India - Development of novel antimicrobial agents to overcome microbial resistance against clinical isolates.
  - Prof. Somenath Roy, Vidyasagar University, Midnapore - Studies against clinical isolates of Vancomycin resistant bacteria.
  - Dr. Ganesh, Anthem biosciences, Bangalore, India - Antibacterial activity against vancomycin resistant bacteria.
  - Prof. C. Narayana, JNCASR, Bangalore, India - Mechanism of action through Raman spectroscopic studies.
  - Dr. Meher K Prakash, JNCASR, Bangalore, India - Theoretical study (MD Simulation)- for Membrane
  - Dr. Ravi Manjithaya, MBGU, JNCASR, Bangalore, India – Autophagy studies.
  - Prof. Kaustav Sanyal, MBGU, JNCASR, Bangalore, India – Antifungal studies.
  - Dr. Kushagra Bansal, MBGU, JNCASR, Bangalore, India – immunomodulatory studies
  - Dr. Richa Priyadarshini, Shiv Nadar University, Delhi, India – Mechanisms of antibacterial action
  - Dr. Anirban Bhunia, Bose Institute, Kolkata, India – Biophysical studies to elucidate mechanisms of antibacterial action of peptidomimetics
  - Prof. Uday Maitra, IISc, Bangalore, India – Sensing of b-lactamase producing bacteria
  - Prof. Pinaki Talukdar, IISER Pune, India – Development of bactericidal ion channel mimics

## PUBLICATIONS

**Total Publications:** 151

Research Articles 112 (87 as corresponding author) + 14 Review articles (13 as corresponding author) + 16 Editorials (15 as corresponding author) + 10 Book Chapters (9 as corresponding author)

**Citations:** 7758, **h-index:** 49, **i-10 index:** 103 (According to Google Scholar as on 18<sup>th</sup> June 2025)

## Research Articles

### A. Publications on Antibacterial Therapeutics and Biomaterials

1. Mukherjee, S.; Chakravarty, S.; **Haldar J\***; Revitalizing Antibiotics with Macromolecular Engineering: Tackling Gram-negative Superbugs and Mixed Species Bacterial Biofilm Infections In-vivo. *Biomacromolecules*, **2025**, 26 (4), 2211–2226
2. Dhanda, G.; Singh, H.; Gupta, A.; Mohid, Sk. A.; Biswas, K.; Mukherjee, R.; Mukherjee, S.; Bhunia, A.; Nair, N. N.; and **Haldar, J\***; Dual-Functional Antibiotic Adjuvant Displays Potency against Complicated Gram-Negative Bacterial Infections and Exhibits Immunomodulatory Properties. *ACS Cent. Sci.* **2025**, 11 (2), 279–293.
3. Dey, R.; Mukherjee, R.; Mukherjee, S.; and **Haldar, J\***; Bactericidal hemostatic sponge: A point of care solution to combat traumatic injury. *Adv. Healthcare Mater.* **2025**, 14, 2404176

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4. Sarkar, P.; Xu, W.; Vázquez-Hernández, M.; Dhanda, G.; Tripathi, S.; Basak, D.; Xie, H.; Schipp, L.; Dietze, P.; E. Bandow, J.; N. Nair, N.; and **Haldar, J.\***; Enhancing the Antibacterial Efficacy of Vancomycin Analogues: Targeting Metallo- $\beta$ -lactamases and Cell Wall Biosynthesis. *Chem. Sci.*, **2024**, *15*, 16307-16320.
  5. Bhattacharjee, B.; Tabbasum, K.; Mukherjee, R.; Garg, P.; **Haldar, J.\***; Functionalized chitosan based antibacterial hydrogel sealant for simultaneous infection eradication and tissue closure in ocular injuries. *Int. J. Biol. Macromol.* **2024**, *273*, 132838.
  6. Barman, S.; Dey, R.; Ghosh, S.; Mukherjee, R.; Mukherjee, S.; **Haldar, J. \***; Amino Acid-Conjugated Polymer-Silver Bromide Nanocomposites for Eradicating Polymicrobial Biofilms and Treating Burn Wound Infections. *ACS Infect. Dis.* **2024**, *10* (8), 2999-3012.
  7. Dey, R.; Mukherjee, R.; Biswas, S.; **Haldar, J.\***; Stimuli-responsive Release-active Dressing: A promising Solution for Eradicating Biofilm-mediated Wound Infections. *ACS Appl Mater Interfaces*. **2024**, *16* (29), 37795-37805.
  8. Patra, D.; Ghosh, S.; Mukherjee, S.; Acharya, Y.; Mukherjee, R.; **Haldar, J.\***; Antimicrobial Nanocomposite Coatings for Rapid Intervention of Catheter-Associated Urinary Tract Infections. *Nanoscale*, **2024**, *16*, 11109 – 11125.
  9. Mukherjee, S.; Shinde, S.V.; Talukdar, P.; **Haldar, J.\***; Unveiling the potent activity of a synthetic ion transporter against multidrug-resistant Gram-positive bacteria and biofilms. *RSC Med. Chem.*, **2024**, *15*, 2127-2137.
  10. De, K.; Dey, R.; Acharya, Y.; Aswal, V.K.; **Haldar, J.\***; Cleavable Amphiphilic Biocides with Ester-Bearing Moieties: Aggregation Properties and Antibacterial Activity. *Langmuir*. **2024**, *40*(7), 3414–3428.
  11. Dutta, A.; Mukherjee, S.; **Haldar, J.**; Maitra, U\*.; Augmenting Antimicrobial Resistance Surveillance: Rapid Detection of  $\beta$ -Lactamase-Expressing Drug-Resistant Bacteria through Sensitized Luminescence on a Paper-Supported Hydrogel. *ACS Sensors*. **2024** *9* (1), 351-360.
  12. Ghosh, S.; Patra, D.; Mukherjee, R.; Biswas, S.; **Haldar, J.\***; Multifunctional Suture Coating for Combating Surgical Site Infections and Mitigating Associated Complications. *ACS Appl. Bio Mater*. **2024**, *7* (2), 1158-1168.
  13. Dey, R.; Mukherjee, S.; Mukherjee, R.; **Haldar, J.\***; Small Molecular Adjuvant Repurposes Antibiotics towards Gram-negative Bacterial Infections and Multispecies Bacterial Biofilm. *Chem. Sci.* **2024**, *15*, 259 – 270.
  14. Bhattacharjee, B.; Ghosh, S.; **Haldar, J.\***; Versatile and User-Friendly Anti-infective Hydrogel for Effective Wound Healing. *ACS App. Bio. Mat.* **2023**, *6*(11), 4867-4876.

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15. Ghosh, S.; Mukherjee, R.; Patra, D.; **Haldar, J.\***; Engineering Photo-Crosslinked Antimicrobial Coating to Tackle Catheter-Associated Infections In Vivo. *ACS Biomater. Sci. Eng.* **2023**, 9 (7), 4404–4414.
  16. Barman, S.; Mukherjee, S.; Jolly, L.; Troiano, C.; Grottesi, A.; Basak, D.; Calligari, P.; Bhattacharjee, B.; Bocchinfuso, G.; Stella, L.; **Haldar, J.\***, Isoamphipathic Antibacterial Molecules Regulating Activity and Toxicity through Positional Isomerism. *Chem. Sci.* **2023**, 14 (18), 4845–4856.
  17. Xu, W; Ma, Z; Dhanda, G; **Haldar, J.\***; Xie, H; Selective inhibition of resistant bacterial pathogens using a  $\beta$ -lactamase-activatable antimicrobial peptide with significantly reduced cytotoxicity. *Chinese Chemical Letters*, **2023**, 34(5), 107847
  18. Sarkar, P.; De, K.; Modi, M.; Dhanda, G.; Priyadarshani, R.; Bandow, J. E.; **Haldar, J.\***. Next-generation membrane-active glycopeptide antibiotics that also inhibit bacterial cell division. *Chem. Sci.* **2023**, 14, 2386-2398.
  19. De, K.; Aisenbrey, C.; **Haldar, J.\***; Faure, S.; Forestier, C.; Charbonnel, N.; Bechinger, B. Biophysical investigations of antimicrobial peptide mimics for mechanistic studies. *Biophys. J.* **2023**, 122, 368a.
  20. Barman, S.; Mukherjee, S.; Bhattacharjee, B.; De, K.; Mukherjee, R.; **Haldar, J.\***. Biocide loaded shear-thinning hydrogel with anti-biofilm efficacy cures topical infection. *Biomater. Sci.* **2023**, 11, 998-1012.
  21. Bortolotti, A.; Troiano, C.; Bobone, S.; Konai, M. M.; Ghosh, C.; Bocchinfuso, G.; Acharya, Y.; Santucci, V.; Bonacorsi, S.; Di Stefano, C.; **Haldar, J.\***; Stella, L. Mechanism of lipid bilayer perturbation by bactericidal membrane-active small molecules. *Biochim. Biophys. Acta Biomembr.* **2023**, 1865, 184079.
  22. Dey, R.; Mukherjee, R.; **Haldar, J.\***. Photo-crosslinked Antimicrobial Hydrogel Exhibiting Wound Healing Ability and Curing Infections In-vivo. *Adv. Healthc. Mater.* **2022**, 11, 2200536.
  23. Ghosh S.; Mukherjee, R.; Mahajan, V. S.; Boucau, J.; Pillai, S.; **Haldar, J.\***. Permanent, Antimicrobial Coating to Rapidly Kill and Prevent Transmission of Bacteria, Fungi, Influenza, and SARS-CoV-2. *ACS Appl Mater Interfaces.* **2022**, 14, 42483-42493.
  24. Bhattacharjee, B.; Mukherjee, R.; **Haldar, J.\***. Biocompatible Hemostatic Sponge Exhibiting Broad-Spectrum Antibacterial Activity. *ACS Biomater. Sci. Eng.* **2022**, 8, 3596–3607.
  25. Bhattacharjee, B.; Mukherjee, S.; Mukherjee, R.; **Haldar, J.\***. Easy Fabrication of a Polymeric Transparent Sheet to Combat Microbial Infection. *ACS Appl. Bio Mater.* **2022**, 5, 3951–3959.
  26. Dhanda, G.; Mukherjee, R.; Basak, D.; **Haldar, J.\***. Small-Molecular Adjuvants with Weak Membrane Perturbation Potentiate Antibiotics against Gram-Negative Superbugs. *ACS Infect. Dis.* **2022**, 8, 1086-1097.
  27. Bhattacharjee, B.; Jolly, L.; Mukherjee, R.; **Haldar, J.\***. An easy-to-use antimicrobial hydrogel effectively kills bacteria, fungi, and influenza virus. *Biomater. Sci.* **2022**, 10, 2014-2028

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#### *B. Publications on Antifungal Therapeutics and Biomaterials*

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2. Bhattacharjee, B.; Jolly, L.; Mukherjee, R.; **Haldar, J.\***. An easy-to-use antimicrobial hydrogel effectively kills bacteria, fungi, and influenza virus. *Biomater. Sci.* **2022**, 10, 2014-2028.

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#### C. Publications on Antiviral Therapeutics and Biomaterials

1. Ghosh S.; Mukherjee, R.; Mahajan, V. S.; Boucau, J.; Pillai, S.; **Haldar, J.\***. Permanent, Antimicrobial Coating to Rapidly Kill and Prevent Transmission of Bacteria, Fungi, Influenza, and SARS-CoV-2. *ACS Appl Mater Interfaces.* **2022**, *14*, 42483-42493.
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12. **Haldar, J.**; Deqiang, A.; De Cienfuegos, L. A.; Chen, J.\* and Klibanov, A. M.\*. "Polymer coatings that inactivate both influenza virus and pathogenic bacteria", *Proc. Natl. Acad. Sci. USA* **2006**, 103, 17667-17671. [Featured in *Scientific American* (13<sup>th</sup> Nov, 2006), *Chemical Engineering News*, *American Chemical Society* (20<sup>th</sup> Nov, 2006, Vol. 84, 17), *MIT TechTalk* (6<sup>th</sup> Dec, 2006), *BBC News* (29<sup>th</sup> Dec 2006)]

#### *D. Publications on Host Modulatory Therapeutics*

1. Sarkar, P.; Samaddar, S.; Ammanathan, V.; Yarlagadda, V.; Ghosh, C.; Shukla, M.; Kaul, G.; Manjithaya. R.; Chopra, S.; **Haldar, J.\***. Vancomycin Derivative Inactivates Carbapenem-Resistant *Acinetobacter baumannii* and Induces Autophagy. *ACS Chem Biol.* **2020**, 15, 884-889.
2. Barman, S.; Dhanda, G.; Naik, P.; Mukherjee, R.; Joseph, J.; **Haldar, J.\***. Multi-Functional Small Molecules with Temporal Charge-Switchability Tackle Infection and Inflammation *Adv. Therap.* **2022**, 2100234, 1-14.
3. Ghosh, C.; Sarkar, P.; Samaddar, S.; Uppu, D. S. S. M.; **Haldar, J.\***. L-lysine based lipidated biphenyls as agents with anti-biofilm and anti-inflammatory properties that also inhibit intracellular bacteria. *Chem. Comm.*, **2017**, 53, 8427-8430.
4. Ghosh, C.; Harmouche, N.; Bechinger, B.; **Haldar, J.\***. Aryl-Alkyl-Lysines Interact with Anionic Lipid Components of Bacterial Cell Envelope Eliciting Anti-Inflammatory and Antibiofilm Properties. *ACS Omega*, **2018**, 3, 9182-9190.

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5. Uppu, D. S. S. M.; **Haldar, J.\*** Lipopolysaccharide Neutralization by Cationic-amphiphilic Polymers through Pseudo-aggregate Formation. *Biomacromolecules*, **2016**, *17*, 862–873.

#### *E. Publications on Bioorganic Chemistry*

1. Hoque, J.; Gonuguntla, S.; Yarlagadda, V.; Aswal, V. K.; **Haldar, J.\*** Effect of Amide Bonds on the Self-assembly of Gemini Surfactants. *Phys. Chem. Chem. Phys.* **2014**, *16*, 11279-11288.
2. Hoque, J.; Kumar, P.; Aswal, V. K.; **Haldar, J.\*** Aggregation Properties of Amide Bearing Cleavable Gemini Surfactants by Small Angle Neutron Scattering and Conductivity Studies. *J. Phys. Chem. B* **2012**, *116*, 9718-9726.
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4. Bhattacharya, S.; **Haldar, J.** “Microcalorimetric and conductivity studies with micelles prepared from multi-headed pyridinium surfactants”, *Langmuir*, **2005**, *22*, 5747-5751.
5. **Haldar, J.**; Aswal, V. K.; Goyal, P. S.; Bhattacharya, S. Aggregation properties of novel cationic surfactants with multiple pyridinium headgroups. Small-angle neutron scattering and conductivity studies. *J. Phys. Chem. B*, **2004**, *108*, 11406-11411.
6. Bhattacharya, S.; **Haldar, J.** Thermodynamics of micellization of multiheaded single-chain cationic surfactants. *Langmuir*, **2004**, *20*, 7940-7947.
7. **Haldar, J.**; Aswal, V. K.; Goyal, P. S.; Bhattacharya, S. Small-angle neutron scattering study of aggregate structures of multi-headed pyridinium surfactants in aqueous solution. *Pramana*, **2004**, *63*, 303-307.
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9. Bhattacharya, S; **Haldar, J..** “Molecular design of surfactants to tailor its aggregation properties”, *Colloids Surf. A: Physiochem. Eng. Aspects*, **2002**, *205*, 119-126.
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11. **Haldar, J.**; Aswal, V. K.; Goyal, P. S.; Bhattacharya, S. Role of incorporation of multiple headgroups in cationic surfactants on micellar properties. Small angle neutron scattering and fluorescence studies. *J. Phys. Chem. B*, **2001**, *105*, 12803-12808.
12. **Haldar, J.**; Aswal, V. K.; Goyal, P. S.; Bhattacharya, S. Molecular modulation of surfactant aggregation in water. Effect of incorporation of multiple headgroups on micellar properties. *Angew. Chem. Int. Ed.* **2001**, *40*, 1228-1232.

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## Review Articles

1. Acharya, Y.; Taneja, K. K.; **Haldar, J.** Dual Functional Therapeutics: Mitigating Bacterial Infection and Associated Inflammation. *RSC Med. Chem.* **2023**, *14* (8), 1410–1428.
2. Dhanda, G.; Acharya, Y.; **Haldar, J.\***. Antibiotic adjuvants: A versatile approach to combat antibiotic resistance, *ACS Omega* **2023**, *8*(12), 10757–10783.
3. Ghosh S.; Mukherjee, S.; Patra, D.; **Haldar, J.\***. Polymeric Biomaterials for Prevention and Therapeutic Intervention of Microbial Infections, *Biomacromolecules* **2022**, *23*, 592–608.
4. Acharya, Y.; Dhanda, G.; Sarkar, P.; **Haldar, J.\***. Pursuit of Next-generation Glycopeptides: A Journey with Vancomycin. *Chem. Commun.* **2022**, *58*, 1881-1897.
5. Acharya, Y.; Bhattacharyya, S.; Dhanda, G.; **Haldar, J.\***. Emerging roles of glycopeptide antibiotics: moving beyond Gram-positive bacteria. *ACS Infect. Dis.* **2022**, *8*, 1-28.
6. Dey, R.; Mukherjee S.; Barman S.; **Haldar, J.\***. Macromolecular Nanotherapeutics and Antibiotic Adjuvants to Tackle Bacterial and Fungal Infections. *Macromol. Biosci.* **2021**, *21*, 2100182–2100217.
7. Bhattacharjee, B; Ghosh, S; Patra, D; **Haldar, J.\***. Advancements in release-active antimicrobial biomaterials: A journey from release to relief. *Wiley Interdiscip. Rev. Nanomed. Nanobiotechnol.* **2021**, *14*, e1745-e1783
8. Ghosh, C.; Sarkar, P.; Issa, R.; **Haldar, J.\***. Alternatives to Conventional Antibiotics in the Era of Antimicrobial Resistance. *Trends. Microbiol.* **2019**, *27*, 323-338.
9. Dhanda, G.; Sarkar, P.; Samaddar, S.; **Haldar, J.\*** . Battle against Vancomycin-Resistant Bacteria: Recent Developments in Chemical Strategies. *J. Med. Chem.* **2018**, *62*, 3184-3205.
10. Konai, M. M.; Bhattacharjee, B.; Ghosh, S.; **Haldar, J.\***. Recent Progress in Polymer Research to Tackle Infections and Antimicrobial Resistance. *Biomacromolecules* **2018**, *19*, 1888–1917
11. Sarkar, P.; Yarlagadda, V.; Ghosh, C.; **Haldar, J.\***. A Review on Cell Wall Synthesis Inhibitors with an Emphasis on Glycopeptide Antibiotics. *Med. Chem. Comm.* **2017**, *8*, 516-533.
12. Ghosh, C.; **Haldar, J.\***. Membrane Active Small Molecules: Designs Inspired from Antimicrobial Peptides. *ChemMedChem* **2015**, *10*, 1606-1624.
13. Uppu, D. S. S. M.; Ghosh, C.; **Haldar, J.\***. Surviving Sepsis in The Era of Antibiotic Resistance: Are There Any Alternative Approaches to Antibiotic Therapy? *Microb. Pathog.* **2015**, *80*, 7-13.
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## Editorials

1. Marcos, P.; Klein, M. L.; **Haldar, J.\***; Honoring Prof. William (Bill) F. DeGrado: An Inspiring Journey of a Transformative Chemist. *ACS Infect. Dis.* **2025**, *11*(6), 1268-1270
2. Liu, R.; Agarwal, R.; **Haldar, J.\***; Call for Papers: Biomaterials for Mitigating Infectious Diseases. *ACS Infect. Dis.* **2025**, *11*(5), 1032-1033
3. Sanyal K.; **Haldar, J.\***; Fungal Pathogens: Life Cycle, Infection, Host Immunity, and Drug Discovery *J. Med. Chem.* **2025**, *68*(8), 7852–7853
4. Cesar de la Fuente-Nunez; **Haldar, J.\***; Honoring Robert E. W. Hancock: A Legacy of Innovation in Microbiology and Infectious Disease Research. *ACS Infect. Dis.* **2025**, *11*(4), 796–798
5. **Haldar, J.\***; Ten Years of ACS Infectious Diseases – A Celebration of Excellence. *ACS Infect. Dis.* **2025**, *11*(1), 271–276
6. **Haldar, J.\***; A Decade of Dedication - Captains of ACS Infectious Diseases. *ACS Infect. Dis.* **2024** *10* (12), 4012-4014
7. Sundaramurthy V.; **Haldar, J.\***; Honoring a Legacy: “Vigyan Ratna” Prof. G. Padmanaban *ACS Infect. Dis.* **2024** *10* (11), 3712-3713
8. **Haldar, J.\***; Müller, C. E.\*; Proteau, P. J.\*; Biologically Active Natural Products: Source and Inspiration for Drug R&D *J. Nat. Prod.* **2024**, *87*(10), 2343
9. **Haldar, J.\***; Acknowledgment of “Star Reviewers” over the Past Decade for ACS Infectious Diseases. *ACS Infect. Dis.* **2024** *10* (8), 2443-2444
10. **Haldar, J.\***; Celebrating a Decade of Trailblazing Research-Collection of Highly Cited Articles Each Year from ACS Infectious Diseases. *ACS Infect. Dis.* **2024**, *10* (7), 2335-2335
11. Sundaramurthy V.; Strauss E.; **Haldar, J.\***; Call for Papers: Combating Tuberculosis: Obstacles, Innovations, and the Road Ahead *ACS Infect. Dis.* **2024**, *10* (4), 1024-1025
12. **Haldar, J.\***; Update on Journal Scope, Editorial Team, and Advisory Board Members for ACS Infectious Diseases *ACS Infect. Dis.* **2024**, *10*(4), 1023
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14. **Haldar, J.\***; Confronting the Rising Threat of Antimicrobial Resistance: A Global Health Imperative. *ACS Infect. Dis.* **2024**, *10*(1), 1–2.
15. **Haldar, J.\***; Combating Sepsis: A Call to Action. *ACS Infect. Dis.* **2023**, *9*(10), 1793–1794.
16. **Haldar, J.**; Garneau-Tsodikova\*, S.; Fridman, M.; Introduction to the themed collection on antimicrobial resistance. *RSC Med. Chem.* **2023**, *14*, 1398–1399.

## Book Chapters

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1. Mukherjee, S.; Maity, S.; Patra, D.; and **Haldar, J.\***. Harnessing Chitosan and Its Derivatives for Innovative Antimicrobial Biomaterials. A Chapter in a book entitled “Advances in Polymer Science”, Springer, 2024, pp 1-53
  2. Dey, R.; Mukherjee, S.; Barman, S.; Acharya, Y.; **Haldar, J.\***. Antimicrobial lipopeptides: Multifaceted designs to curb antimicrobial resistance. A Chapter in a book entitled “Antibiotics - Therapeutic Spectrum and Limitations”, *Macromol. Biosci.*, Elsevier, 2021, 21, 2100182-2100217
  3. Acharya, Y.; **Haldar, J.\***. Upgrading the antibiotic arsenal against Gram-positive bacteria: Chemical modifications of vancomycin. A Chapter in a book entitled “Alternatives to Antibiotics: Recent Trends and Future Prospects”, Springer, 2022, pp 199-222.
  4. Konai, M. M.; Barman, S.; Acharya, Y.; De, K.; **Haldar, J.\***. Recent development of antibacterial agents to combat drug-resistant Gram-positive bacteria. A Chapter in a book entitled “Drug Discovery Targeting Drug-Resistant Bacteria”, Elsevier, pp 71-104.
  5. Ghosh, S.; **Haldar, J.\***. Cationic Polymer Based Antimicrobial Smart Coatings. A Chapter in a book entitled "Advances in Smart Coatings and Thin Films for Future Industrial and Biomedical Engineering Applications", Elsevier, pp 557-582.
  6. Sarkar, P.; **Haldar, J.\***. Glycopeptide Antibiotics: Mechanism of Action and Recent Developments. A Chapter in a book entitled "Antibiotic Drug Resistance", John Wiley & Sons, Inc., 2019, pp 73-95.
  7. Konai, M. M.; Dhanda, G.; **Haldar, J.\***. Talking Through Chemical Languages: Quorum Sensing and Bacterial Communication. A Chapter in a book entitled "Quorum Sensing and its Biotechnological Applications", Springer, 2018, pp 17-42.
  8. Uppu, D. S. S. M.; Ghosh, C.; **Haldar, J.\***. Alternative Strategies to Target Quorum Sensing (QS): Combination of QS Inhibitors with Antibiotics and Nanotechnological Approaches. A Chapter in a book entitled "Quorum Sensing vs Quorum Quenching: A battle with no end in sight", Springer, 2015, pp 335-342.
  9. Uppu, D. S. S. M.; Hoque, J.; **Haldar, J.\***. Engineered Polymers and Organic-inorganic Hybrids as Antimicrobial Materials for Water Disinfection. A Chapter in a book entitled "Aquananotechnology: Global Prospects", CRC Press-Taylor and Francis Group, 2014, Chapter 12, pp 218-238.
  10. **Haldar, J.** and Bhattacharya, S.\*. “The molecular design of surfactant based Materials”, a Chapter in a book entitled ‘Materials research: current research future projections’, Eds. R. Chidambaram and S. Banerjee, Allied publishers-New Delhi, **2003**, p. 78.

#### Patents:

1. Maity, S.; Haldar, J.\*. “ Quaternary ammonium polymers, preparation and applications thereof”. Patent application no. 202441044869

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2. Mukherjee, S.; Singh, H.; Haldar, J.\*. "Antimicrobial immunomodulatory composite and uses thereof". Patent application no. 202341083890\
  3. Dey, R.; Haldar, J.\*. Hemostatic Composite, It's method and applications thereof. PCT/IN2023/050784
  4. Ghosh, S.; Mukherjee, R.; Haldar, J.\*. "Antimicrobial compounds and uses thereof". PCT/IN2021/050329.
  5. Dhanda, G.; **Haldar, J.\***. "Small-molecular adjuvants to repurpose existing antibiotics against multidrug-resistant bacterial infections". PCT/IN2020/050358, WO202013008A1, US 2022-0323383 A1, Indian Patent No: 408041., European Patent No. 3955903.
  6. Hoque, J, Manjunath, G. B.; Akkapeddi, P.; **Haldar, J.\***. Chitin Derivatives, Method for Production and Uses Thereof, - US20180201694A1, IN2013CH05893A.
  7. Yarlagadda, V.; Akkapeddi, P.; **Haldar, J.\***. Cationic Antibacterial Composition. WO2013072838 A1, US10081655 B2, KR101816228 B1, CA2855753 C, EP2780359 B1, US20140308347 A1, AU2012338461 C1.
  8. Ghosh, C.; Manjunath, G. B.; Akkapeddi, P.; **Haldar, J.\***. Antimicrobial Compounds, Their Synthesis and Applications Thereof. WO2014097178 A1, US9783490 B2, CA2894202 A1, JP6533466 B2, CN104981249 B, AU2013365769 B2, BR112015014391 A2, HK1210437 A1.
  9. Yarlagadda, V.; **Haldar, J.\***. Glycopeptide and Uses Thereof. WO2016103284A1 CA2972276 A1, EP3240574 A1, US20170342110 A1.
  10. Konai, M. M.; Carroll, M.; **Haldar, J.\***. Antimicrobial Conjugates, Method for Production and Uses Thereof. JP2017514887 A, WO2015136311 A1 EP3116597 A1, CA2941933 A1, US20170144969 A1
  11. Hoque, J.; **Haldar, J.\***. A Polymer Network Method for Production, and Uses Thereof. US20200030368 A1, WO2018020516 A2, CA3032292A1.
  12. Uppu, D. S. S. M.; Akkapeddi, P.; Manjunath, G. B.; **Haldar, J.\***. Nanoparticle Compositions of Antimicrobial Polymers and Their Uses Thereof. WO2014006601A2, US9636356 B2, EP2870186 A2, (KR20150038026A).
  13. Yarlagadda, V.; Konai, M. M.; Manjunath, G. B.; **Haldar, J.\***. Vancomycin- Sugar Conjugates and Uses Thereof. IN2013CH04314A, CA2925005 A1, WO2015040467A1, US20160303184A1, AU2014322817A1, EP3049115A1.
  14. Yarlagadda, V.; **Haldar, J.\***. Glycopeptide Antibiotic Derivatives. Indian Patent 605/CHE/2015, Indian Patent 6565/CHE/2014.
  15. **Haldar, J.**; De Cienfuegos, L. A.; Chen, J.\*; Klivanov, A. M.\*. Bi-functional Polymer-attached Inhibitors of Influenza Virus. WO2009032605A2, US20090081249A1, EP2192923A2, CA2698108A1, JP2010537997A.

16. **Haldar, J.**; An, D.; De Cienfuegos, L. A.; Chen, J.\*; Klibanov, A. M.\*.Polymeric Coatings that Inactivate Viruses and Bacteria. WO2008127416A2, MX2009004918A, JP2010509467A, MA30971B1, ZA200903951B, EP2084234A2, US20100136072A1, CN101627092A, BRPI0718860A2.

## SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2009-present 10 Postdocs/12 PhD/10 Project Assistant/13 Masters/1 PG-DMS/26 SRFP/8 POCE

### *PhD Theses:*

Student	Year	Title of thesis
Yarlagadda Venkateswaralu	2015	Semi-synthetic Glycopeptide Antibiotics: Strategies to Combat Acquired and Intrinsic Bacterial Resistance
Divakara SS Murthy Uppu	2016	Bacterial Membrane-targeting Cationic-amphiphilic Polymers that Combat Antibiotic Resistance and Neutralize Endotoxins
Chandradhish Ghosh	2017	Development of L-Lysine-based Small Molecules as Broad-spectrum Antimicrobial Agents
Jiaul Hoque	2017	Charged Polymers and Hydrogels as Antimicrobial Materials for Prevention of Infections
Mohini Mohan Konai	2019	Amino Acid-Based Molecules to Combat Bacterial Infections and Resistance
Swagatam Barman	2021	Amino Acid Conjugated Small Molecular and Polymeric Antimicrobial Agents to Combat Infection and Inflammation
Paramita Sarkar	2021	Next-generation Glycopeptide Antibiotics: Designs to Overcome Inherited and Non-inherited Resistance and Insights into their Mechanisms of Action
Brinta Bhattacharjee	2022	Engineering Polymeric Biomaterials to Combat Microbial Infections
Sreyan Ghosh	2023	Development of Antimicrobial Biomaterials to Tackle Healthcare-Associated Infections
Rajib Dey	2023	Engineering Small Molecular Therapeutics and Multifunctional Biomaterials to Mitigate Topical Infections

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Geetika Dhanda	2024	Multifaceted Antibiotic Adjuvants: Overcoming Bacterial Resistance and Investigation of Host-modulating Properties
Sudip Mukherjee	2024	Polymeric Biomaterials Alleviate Complicated Infections and associated hyper-inflammation

#### *Master Theses:*

<b>Student</b>	<b>Year</b>	<b>Title of thesis</b>
Mohini Mohan Konai	2014	Development of Nonspermidine-based Lipopeptide Mimics to Tackle Bacterial Infection
Paramita Sarkar	2016	Development of Cationic Lipophilic Vancomycin Analogues against Bacterial Biofilms and Intracellular Pathogens
Sreyan Ghosh	2018	Development of Antibacterial Biomaterials to Tackle Surface-Associated Infections
Geetika Dhanda	2019	Small Molecular Adjuvants to Repurpose and Rehabilitate Obsolete Antibiotics against Multidrug-Resistant Bacteria
Sudip Mukherjee	2020	Development of Cationic Macromolecules to tackle Drug-resistant Bacteria and Fungi
Dipanjana Patra	2022	Antimicrobial Polymer Nano-composite Coating to Combat Catheter-Associated Urinary Tract Infections (CAUTIs)
Sayan Chakravarty	2023	Development of Synthetic Small Molecules and Polymeric Delivery Platforms to Tackle Drug Resistant Infections

## **INVITED TALKS, LECTURES AT CONFERENCES AND ELSEWHERE**

I have delivered the following lectures at various venues:

#### *National Conferences:*

1. Invited talk: “Application of Polymeric Materials in Infectious Diseases” at departmental symposium at Department of Materials Engineering, IISc, Bangalore on 21<sup>st</sup> January 2010.
2. Invited talk: “The Weapons of Chemistry to Battle Infectious Diseases” At a symposium on Recent Trends in Chemistry, at The American College, Madurai, Tamil Nadu on 16<sup>th</sup> February 2010.

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3. Invited talk: at One day National workshop on “Advances in Chemical and Biochemical Sciences” at Sheshadripuram College, Yelahanka New town, Bangalore, 13<sup>th</sup> March 2010.
  4. Invited talk: “Engineering Novel Polymeric Biomaterials to Tackle Infectious Diseases” at Department of Mechanical Engineering, M S Ramaiah Institute of Technology, 18<sup>th</sup> March 2010.
  5. Invited talk: “Nano-engineering of Polymeric Biomaterials to Tackle Infectious Diseases” in a symposium at Raja Lakhamagouda Science Institute, Belgaum, 26-27<sup>th</sup> November 2010.
  6. Invited talk: “Engineering Novel Polymeric Biomaterials to Tackle Infections” in a symposium for celebrating the International Year of Chemistry-2011, at JNCASR on 10<sup>th</sup> January 2011.
  7. Invited talk: “Nano-engineering of Polymeric Biomaterials to Tackle Infectious Diseases” at a symposium on “Nanotechnology for Enhancing Food Security”, Tamil Nadu Agricultural University (TNAU), on 7-8<sup>th</sup> April 2011.
  8. Invited Talk: “Engineering Novel Polymeric Biomaterials to Tackle Infectious Diseases” at IIT Madras, 7<sup>th</sup> October 2011.
  9. Invited talk: “Infectious Diseases: the ways to tackle” at In-house symposium, at JNCASR on 14-15<sup>th</sup> November 2011.
  10. Invited talk: “Engineering Novel Polymeric Biomaterials to Tackle Infectious Diseases” at the International Conference on “Water” at IIT Madras, on 14-16<sup>th</sup> September 2012.
  11. Invited talk: “War against Microbes”: Are Antibiotics the only Weapons?” at Eighth JNC Research Conference on “Chemistry of Materials”, Kerala on 30<sup>th</sup> September- 2<sup>nd</sup> October 2012.
  12. Invited talk: “War against Microbes”: Are Antibiotics the only Weapons?” at Research Conference in Christ University, Bangalore, on 13<sup>th</sup> February 2013.
  13. Project Talk: “Development of Novel Biodegradable Antimicrobial Surface Coatings for Biomedical Application” at DST-Fast Track project review meeting, at Delhi University, on 29<sup>th</sup> June 2013.
  14. Invited talk: “Bacterial Infection: the ways to tackle” at In-house symposium, at JNCASR on 18-20<sup>th</sup> November 2013.
  15. Invited lecture: in Indo-UK Conference, at The Institute of Mathematical Sciences, Chennai, on 24<sup>th</sup>-26<sup>th</sup> February 2014.
  16. Invited talk: “Prevention is better than Cure: Strategies for Preventing Infections” at NCU Day Celebration, March 6<sup>th</sup>, 2015
  17. Invited Talk: “The Future Antibiotics: From the ‘Magic Bullet’ to the ‘Smart Bullet’” at Annual Faculty meeting, JNCASR, November 13, 2015
  18. Invited talk: “Strategies to Combat Antimicrobial Resistance (AMR) and Infections” at FAO-ICAR/NIVEDI meeting on Laboratory based surveillance of AMR in health and veterinary sectors, 18-19<sup>th</sup> January, 2017.
  19. Invited talk: “Combating Infections on Abiotic and Biotic Surfaces” at JNCASR-Amrita Institute Meeting, JNCASR 25<sup>th</sup> March, 2017.

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20. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at the conference on Chemical Frontiers, Goa, 17-20th August 2017.
  21. Project talk: “Injectable Sealant: New Technology to Prevent Surgical Site Infection” at TRC-JNC meeting on 22 August, 2017.
  22. Award lecture: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at CSIR 75th Foundation Day Celebrations & CDRI Award Orations, 22nd September 2017.
  23. Invited lecture: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Biotech Innovation Ignition School (BIIS), BIRAC-SRISTI, Ahmedabad, 28<sup>th</sup> December 2017.
  24. Award Lecture: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” An CRSI Bronze Award talk at 23rd CRSI National Symposium in Chemistry, IISER Bhopal, 13-15th July 2018.
  25. Invited talk: “New Generation of Antibiotics to Combat Antimicrobial Resistance” at the Bangalore Healthcare Summit, 25-26th September 2018.
  26. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at the conference on Frontiers in Chemical Sciences, Department of Chemistry, Indian Institute of Technology Guwahati, 6-8th December, 2018.
  27. Invited talk: “Cationic Antimicrobial Polymers for the Prevention and Treatment of Bacterial Infections” at the conference, 15<sup>th</sup> International Conference on Polymer Science and Technology, SPSI-MACRO, IISER Pune, 19-22<sup>nd</sup> December 2018.
  28. Invited talk: “Engineering Biomaterials and Antibacterials in the era of Drug Resistance” at the 22nd ADNAT Convention: International Symposium on Antibiotic Resistance–One Health Perspective March 5–8, 2019, IIT Roorkee.
  29. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at PESCP 6th International Conference on “Strategies to Tackle Antimicrobial Resistance” PES University, Bangalore, 18th-19<sup>th</sup> October-2019.
  30. Invited talk: “Engineering Biomaterials in the Era of Antimicrobial Resistance” at INYAS-2nd National Frontiers of Science Meeting, Jaipur, 6-8 November, 2019.
  31. Talk: “Engineering Biomaterials in the Era of Antimicrobial Resistance” at JNCASR-Shiv Nadar University Symposium, JNCASR, Bangalore, India, 8-9th November 2019.
  32. Invited talk: “Escape the clutches of Eskape!” at Annual Faculty Meeting & Inhouse Symposium, JNCASR, 13-14th November 2019.
  33. Invited talk: “Biomaterials for tackling infection– Objectives, obstacles and opportunities!” at Second SAMat Annual Retreat- 17th to 19th November, 2019.
  34. Invited talk: “The battle with Hospital Acquired Infections–bypassing the highway to hell!” at International Winter School on Frontiers in Materials Science –JNCASR, 2nd-6th December, 2019.
  35. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Winter School on Advanced Techniques in Nano Science and Technology, INST, Mohali, 2nd-7th December, 2019.

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36. Invited talk: at a conference on Water Challenges during and post Covid-19, International Centre for Clean Water (ICCW) webinar series, IIT-Madras, 7<sup>th</sup> May, 2020.
  37. Invited talk: at World Antimicrobial Awareness Week, NSS, IIT Roorkee, 21st November 2020.
  38. Invited talk: at SERB Webinar Series on COVID-19 Emerging Research (SERB-COVER), 17th December 2020.
  39. Invited talk: at BIRAC SITARE BIIS Webinar, 8th February 2021.
  40. Invited talk: at AMRITA BIOCREST 2021-Indian Innovation Pavilion, International Symposium on “Man vs Microbe: AMR—The Race of the Century” 25th February 2021.
  41. Invited talk: “Polymeric biomaterials for tackling bacterial, fungal and viral infections—Objectives, obstacles and opportunities!”; at The Society of Polymer Science India-Mumbai Chapter, April 10, 2021.
  42. Invited Talk: “Outwitting antibiotic resistance: A perpetual battle”; at MedChem-2021 on Emerging Infectious Diseases & therapeutic Strategies, Department of Chemistry, IIT Madras 1-3 December 2021.
  43. Invited talk: “Outwitting antibiotic resistance: A perpetual battle”; at 58<sup>th</sup> Annual Convention of Chemists and International Conference on Recent Trends in Chemical Sciences, Indian Chemical Society (Physical Chemistry Section, University of Calcutta) 22 December 2021.
  44. Invited Lecture: “Functional Biomaterials for Tackling Antimicrobial Resistance and Infection” at Biomaterial Conclave, University of Madras, 7-14<sup>th</sup> March 2022.
  45. Invited talk: “Pursuit of next-generation glycopeptides – Our journey with vancomycin” at National Organic Symposium Trust (NOST), XXII Organic Chemistry Conference, Aurangabad, 17-20<sup>th</sup> February 2023.
  46. Invited talk: “Outwitting antibiotic resistance: A perpetual battle”; at Chemistry Meet: Kindling in Kaziranga, India, 16-18<sup>th</sup> March 2023.
  47. Invited talk: “Outwitting antibiotic resistance: A perpetual battle”; at Kaleidoscope: A Discussion Meeting in Chemistry, Udaipur, India, 6-9<sup>th</sup> July 2023.
  48. Award Lecture: “Functional Biomaterials for Tackling Antimicrobial Resistance and Infection” at 34<sup>th</sup> Annual General Meeting of MRSI and 5<sup>th</sup> Indian Materials Conclave at IIT BHU, Varanasi, India, 12-15<sup>th</sup> December 2023.
  49. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at 4<sup>th</sup> Frontiers Symposium in Chemistry, School of Chemistry, IISER Thiruvananthapuram, Kerala, 19-21<sup>st</sup> January 2024.
  50. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at 90th Anniversary General Meeting INSA, at SRM Institute of Science and Technology, Kattankulathur, Chennai, December 9-10, 2024

#### *International Conferences:*

1. Invited participant: at Gordon Research Conference on “New Antibacterial Discovery and Development” in Ventura, California, on 16<sup>th</sup> -21<sup>st</sup> March 2014.
2. Invited talk: “War against Microbes: Are Antibiotics the only Weapons?” at City College of New York, Department of Chemistry, 24<sup>th</sup> March 2014.
3. Invited talk: "War against Microbes: Are Antibiotics the only Weapons?" at Medical School at

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University of Rutgers, New Jersey, 27<sup>th</sup> March 2014.

4. Invited Talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at the conference on Chemical Frontiers, Goa, 16<sup>th</sup>-19<sup>th</sup> August 2014.
5. Invited talk: “Bacterial Cell Membrane- Targeting the Achilles' heel to Combat Drug-resistance and Infections” at International Symposium on Recent Advances in Medicinal Chemistry (ISRAM-2014), NIPER, Chandigarh, on 8-10<sup>th</sup> September, 2014.
6. Invited talk: “Strategies to tackle Drug Resistance and Infection” at the meeting on UK-India Partnerships in mitigating antimicrobial resistance and controlling Infectious Diseases, Bangalore, on 11-12<sup>th</sup> September, 2014.
7. Project Proposal Talk: “Development of Cleavable Gemini Surfactants and Study Their Micellar Aggregation Properties in Aqueous Solution” at UGC-DAE, BARC, Mumbai on 14<sup>th</sup> October 2014.
8. Invited participant: at “Review on Antimicrobial Resistance: India's Role in tackling the global Crisis” by Public Health Foundation of India (PHFI), New Delhi, 5<sup>th</sup> March 2015.
9. Invited talk: “Strategies to Tackle Drug Resistance and Infections” at Ramanujan Fellowship Meeting, IIT-Bombay, 16<sup>th</sup> March 2015.
10. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at University of Granada-Spain on 20<sup>th</sup> April 2015.
11. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at University of Porto, Portugal on 23<sup>rd</sup> April 2015.
12. Talk: “Development of New Class of Glycopeptide Antibiotics for Tackling Drug Resistant Bacterial Infections” at Project meeting at BIRAC on 22<sup>nd</sup> June 2015.
13. Invited talk: “Strategies to Combat Bacterial Resistance: Towards Development of Future Antibacterial Drugs” at CRSI Meeting- NIT Trichy, 23-25<sup>th</sup> July 2015.
14. Invited talk: “Strategies to Combat Bacterial Resistance: Towards Development of Future Antibacterial Drugs” at the conference of ‘World Congress and Exhibition on Antibiotics’, Las Vegas, USA during 14<sup>th</sup>-16<sup>th</sup> September 2015
15. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at Department of Chemistry & Chemical Biology, Rutgers University, September 18, 2015.
16. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at New York Medical College, Valhalla, USA on 21<sup>st</sup> September 2015.
17. Invited lecture: “Strategies to Combat Antimicrobial Resistance (AMR)” at AMR & Longitude Prize Meeting, Bangalore, October 14, 2015
18. Invited lecture: “The Future Antibiotics: From the ‘Magic Bullet’ to the ‘Smart Bullet’” at Annual Faculty Meeting-JNCASR, November 13, 2015.
19. Invited talk: “Strategies to Combat Bacterial Resistance: Towards Development of Future

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Antibacterial Drug” at the conference MICROCON-JIPMER, November 27-29, 2015.

20. Invited talk: “Prevention Is Better Than Cure: Strategies for Combating Antimicrobial Resistance and Preventing Infections” at International Conference on Biomolecular Engineering, Singapore during 5-7<sup>th</sup> January 2016.
21. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at Singapore-MIT Alliance for Research and Technology (SMART), Singapore 6<sup>th</sup> January 2016.
22. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at School of Chemical & Biomedical Engineering, NTU, Singapore, on 8<sup>th</sup> January 2016.
23. Invited talk: “Strategies for Combating Antimicrobial Resistance and Preventing Infections” at JNCASR and Mechanobiology Institute-NUS Joint Discussion Meeting, February 5, 2016.
24. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at University of Padova, Italy on 21<sup>st</sup> March 2016.
25. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at University of Parma, Italy on 23<sup>rd</sup> March 2016.
26. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at University of Rome, Tor Vergata, Italy 25<sup>th</sup> March 2016.
27. Invited talk: “Tackling Antimicrobial Resistance” at XI Joint Annual Conference of Indian Society of Malaria and Other Communicable Diseases and Indian Association of Epidemiologists’, Bangalore, June 10-12, 2016.
28. Invited talk: “Antimicrobial Polymers for the Prevention and Treatment of Bacterial Infections” at Institute for Drug Delivery and Biomedical Research (IDBR), Bangalore, July 16, 2016.
29. Invited talk: “New Class of Glycopeptide Antibiotics: Strategies to Combat Acquired and Intrinsic Bacterial Resistance” at the conference on Drug Discovery India (DDI), Bangalore, 29-30<sup>th</sup> September, 2016.
30. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at the Indo-German Meeting on Supramolecular & Bioactive Compounds: Theory, Design and Regulation, Khajuraho, November 10-13, 2016.
31. Invited talk: at the International Conference on Polymer Science and Technology, Macro-2017, 8-11<sup>th</sup> January, Thiruvananthapuram, Kerala.
32. Invited talk: “New Chemical Approaches for the Development of Novel Antibiotics” at The UK-India Newton-Bhabha Fund Researcher Links Workshop (RGICD) on Antimicrobial Resistance, Bangalore, 14-18<sup>th</sup> December 2017.
33. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at an invited meeting on AMR at University of Sheffield, UK during 19-20 March 2018.
34. Invited talk: “Synthetic Mimics of Antimicrobial Peptides to Tackle Antimicrobial Resistance” at 16<sup>th</sup> Naples Workshop on Bioactive Peptides, Naples, Italy during 7-9<sup>th</sup> June 2018.

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35. Invited talk: “Engineering polymeric biomaterials in the era of antimicrobial resistance” at ACS Spring National Meeting in Orlando, FL, March 31-April 4, 2019.
  36. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at UK-India Meet on Emerging Innovations in AMR, 7th June 2019.
  37. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at L V Prasad Eye Institute-Hyderabad & University of Sheffield-UK, 18<sup>th</sup> January, 2020.
  38. Invited lecture: “Engineering Antimicrobial Biomaterials—The Fight against Bacteria, Fungi and Viruses”; at the Virtual MRS Spring Meeting of the Materials Research Society, USA, 19<sup>th</sup> April, 2021.
  39. Invited talk: “Polymeric Biomaterials for Tackling Antimicrobial Resistance and Infection”; at the International e-Conference on Biopolymers, APA Bioforum, 14<sup>th</sup> -16<sup>th</sup> July, 2022.
  40. Virtual talk on “Innovative Chemical Strategies for Tackling Antimicrobial Resistance and Infection” at the Indo-Belgian Networking Meeting, 9<sup>th</sup> November 2022.
  41. Invited talk: “Functional Biomaterials for Tackling Antimicrobial Resistance and Infection”; International Conference on Biomaterials, Regenerative Medicine and Devices, Bio-Remedi-2022, IIT Guwahati, India. 15<sup>th</sup>–18<sup>th</sup> December, 2022.
  42. Invited talk: “Outwitting antibiotic resistance: A perpetual battle”; at Amrita Pharmacon-2023, International Conference on Innovation in Antimicrobial Therapeutics, India, 23<sup>rd</sup> March 2023.
  43. Invited Talk: “Development of new approaches to overcome MBL-related resistance in bacteria” at BRICS STI-FP Conference on Biomedical Sciences and Technologies, 25<sup>th</sup>-26<sup>th</sup> May 2023.
  44. Invited Talk: “Chemical Strategies to Tackle Antimicrobial Resistance and Infection” at The 5<sup>th</sup> Antimicrobial Science and Technology Forum (ASTF 2023), Shenyang, China, 11<sup>th</sup> August 2023.
  45. Invited Talk: “Chitin and Chitosan: Unleashing the Potential of Glucosamines against Drug-Resistant Microbes” at EUCHIS 2023 Conference in Siglufjörður, Iceland, September 11-14<sup>th</sup> 2023.
  46. Invited Talk: “Outwitting antibiotic resistance: A perpetual battle”; at An Interactive International Conference on Convergence of Scientific Disciplines to Advance Biotechnology, IISER Berhampur, India, 23-24<sup>th</sup> November 2023.
  47. Invited Talk: “Outwitting antibiotic resistance: A perpetual battle”; at Asia Pacific Conclave on Engineering, Healthcare-Bridging Innovation and Wellness, ACS International Student Chapter-IISc Bangalore, Mysuru, India, 29-31<sup>st</sup> January 2024.
  48. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual” at International Symposium on Nature Inspired Initiatives in Chemical Trends, CSIR-IICT, Hyderabad, March 7-9, 2024
  49. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual” at International Symposium on Understanding the Breathing of Biomolecules: Recent Advances in Cryo-EM and Chemical Biology, IIT Bombay, March 7-9, 2024.
  50. Attending Gordon Research Conference on Microbial Toxins and Pathogenicity, in, New Hampshire, USA on July 14<sup>th</sup> -19<sup>th</sup>, 2024
  51. Invited Talk: “Targeting the cell envelope: A versatile antibacterial strategy” Celebrating 10

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Years of ACS Infectious Diseases & the Young Investigator Award Winners, ACS Fall Meeting, Denver. August 18, 2024.

52. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” Gordon Hammes Award Symposium, ACS Fall Meeting, Denver. August 21, 2024
53. Invited talk: ”Vancomycin analogues in the pipeline of antimicrobial drug development” at the Conference on Antimycobacterial drug development, Indo-Belgian collaboration, Université libre de Bruxelles (ULB), Brussels, Belgium, 16th September 2024
54. Invited talk: “Smart Biomaterials for Tackling Antimicrobial Resistance and Infection”, at International Conference on Smart Materials for Sustainable Technology (SMST-2024), INST, Mohali October 24-27,2024.
55. Invited Talk: “Chitin and Chitosan: Unleashing the Potential of Glucosamines against Drug-Resistant Microbes” at International Conference on “Advances in Chitin and Chitosan Research (ICACCR 2025)” and 11th Indian Chitin and Chitosan Society Symposium 2025 (11th ICCS-2025), University of Hyderabad, Jan 31-Feb 2, 2025.
56. Invited Talk: “Small Molecular Therapeutics to Target the Bacterial Cell Envelope” at 9th International Symposium on “CURRENT TRENDS IN DRUG DISCOVERY RESEARCH”-(CTDDR-2025), CSIR-Central Drug Research Institute, Lucknow, February 19-22, 2025.
57. Invited Talk: “Outwitting antimicrobial resistance : A perpetual battle” International Conference on "Innovations in Sustainable Drug Discovery & Development to Combat the crisis of Antimicrobial Resistance", Eminent College of Pharmaceutical Technology, Barasat, Kolkata, February 27-28, 2025
58. Attending Gordon Research Conference on Multi-drug efflux systems, in Lucca, Italy on April 27 - May 2, 2025

#### *National Institutes/Universities:*

1. Invited talk: “Engineering Novel Polymeric Biomaterials to Tackle Infectious Diseases”at Department of Mechanical Engineering, M S Ramaiah Institute of Technology, Bangalore, on 18th March 2010.
2. Invited talk: “Engineering Novel Polymeric Biomaterials to Tackle Infectious Diseases” at the Department of Chemistry, IIT Madras, on 7th October 2011.
3. Invited talk: “Bacterial Cell Membrane- Targeting the Achilles’ heel to Combat Drug-resistance and Infections” at IIT Ropar on 9th September, 2014.
4. Invited talk: “Development of New Generation of Glycopeptide Antibiotics to Overcome Acquired and Inherent Drug Resistance” at Bugworks Research Inc, Centre for Cellular and Molecular Platforms, NCBS, Bangalore, on 17th September 2014.
5. Invited talk: “Bacterial Cell Membrane- Targeting the Achilles’ heel to Combat Drug-resistance and Infections” at Jawaharlal Institute of Postgraduate and Medical Education and Research (JIPMER), Pondicherry, on 28th November 2014.
6. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at CDRI, Lucknow, 8th November, 2016.

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7. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at IICT-Hyderabad, 26th May, 2017.
  8. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Department of Chemistry, IIT-Bombay, 27th July, 2017.
  9. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at TIFR Bombay 28th July, 2017.
  10. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at CSIR-CSMCRI, Bhavnagar, 26th December 2017.
  11. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at IACS, Kolkata, 18th April 2018.
  12. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at IISER Kolkata, 19th April 2018.
  13. Invited talk: “New Generation of Antibiotics to Combat Antimicrobial Resistance” at IIT (ISM) Dhanbad, 6th Feb 2019.
  14. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Garden City University, Bangalore 26th March 2019.
  15. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at NCL, Pune, 16th July 2019.
  16. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at IISER, Pune, 17th July 2019.
  17. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at IIT-Madras, Chennai, 4th September 2019.
  18. Invited talk: “Outwitting antibiotic resistance: A perpetual battle”; at 1st Annual Meeting of Chemical Biology, Institute of Nano Science and Technology, 24-25th September 2021.
  19. Invited talk: “Polymeric biomaterials for tackling bacterial, fungal and viral infections– Objectives, obstacles and opportunities!”; Department of Chemistry, BITS Pilani, Hyderabad, November 27, 2021.
  20. Invited talk: “Functional Biomaterials for Tackling Antimicrobial Resistance and Infection” at DBEB Departmental Seminar Series at IIT Delhi, 29th September 2022.
  21. Invited talk: “Pursuit of next-generation glycopeptides – Our journey with vancomycin” on New Chemistry Day at New Chemistry Unit, JNCASR on 18th October 2022.
  22. Invited talk: “Biomaterial interventions to tackle bleeding and infection” at in-house SAMAT Meet, 1st February 2023.
  23. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at NCBS, Bangalore, 1st March 2023.
  24. Invited Talk: “Smart biomaterials for tackling antimicrobial resistance and infection” at Collins Aerospace-JNCASR meet, 28th April 2023.
  25. Invited Talk: “Conquering Antibiotic Resistance: An Endless Struggle”, at Frontiers in Chemical Biology and Organic Materials and Felicitation of Professors Santanu Bhattacharya

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and Uday Maitra, Organic Chemistry, IISc, 21st July 2023.

26. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” Department of Biochemistry, School of Life Sciences, University of Hyderabad, March 6, 2024
27. Invited Talk: “Small Molecular Therapeutics to Target the Bacterial Cell Envelope” Chemical Biology Workshop 2024, Explore the forefront of host pathogen biology, IIT Bombay, 25th-26th June, 2024.
28. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” at 2nd RGCB Research Conference -2024, Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram, Kerala, India, September 25-28, 2024.
29. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” at CSIR-Institute of Microbial Technology (IMTECH) Chandigarh, October 24, 2024.
30. Invited Talk: “Innovative Biomaterials and Therapeutic Interventions for Tackling Antimicrobial Resistance and Infection” JNCASR-MAHE Discussion Meeting on “Advanced Materials for Healthcare and Diagnosis”, Fortune Inn Valley View, January 3, 2025.
31. Invited Talk: “Targeting the cell envelope: A versatile antibacterial strategy” at CSIR-Centre for Cellular & Molecular Biology, Hyderabad, January 30, 2025

#### *International Institutes/Universities:*

32. Talk: “Development of New Generation of Glycopeptide Antibiotics to Overcome Acquired and Inherent Drug Resistance” at NIH, 8<sup>th</sup> August 2014.
33. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles’ heel to Combat Drug-Resistance and Infections” at University of Granada, Spain 20<sup>th</sup> April 2015.
34. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles’ heel to Combat Drug-Resistance and Infections” at University of Porto, Portugal, 23<sup>rd</sup> April 2015.
35. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at East China University of Science and Technology (ECUST), Shanghai, China on 3<sup>rd</sup> July 2017.
36. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Donghua University, Shanghai, China 4<sup>th</sup> July 2017.
37. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Tongji University, Shanghai, China 5<sup>th</sup> July 2017.
38. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Public Health of England, Porton Down, UK on 26<sup>th</sup> March 2018.
39. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at King’s College London, UK on 22<sup>nd</sup> March 2018.
40. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at University of Granada, Spain 13<sup>th</sup> June 2018.
41. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at University of South Florida, 3rd April 2019.
42. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at

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The City College of New York, 9th April 2019.

43. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Rutgers University, New Jersey, 10th April 2019.
44. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Ruhr University, Bochum, 18th June 2019.
45. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Technische Universität, Dortmund, 19th June 2019.
46. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Max Planck Institute of Colloids and Interfaces, Potsdam, 20th June 2019.
47. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Université de Strasbourg, France, 25th June 2019.
48. RSC Medicinal Chemistry lecture: “Tackling emergent (bacterial) infections: A chemical perspective to drug design and development”; November 2, 2020.
49. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at University of Strasbourg, France, 18<sup>th</sup> September 2023.
50. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at Chemical Biology/Chemistry Seminar at Stanford University, USA, 5<sup>th</sup> January 2024.
51. Invited talk: “Outwitting antibiotic resistance: A perpetual battle” at Seminar Series, Skaggs School of Pharmacy and Pharmaceutical Science, University of California, San Diego, USA, 8<sup>th</sup> January 2024.
52. Invited Talk: “Outwitting antibiotic resistance: A perpetual battle” International Lecture Series, Pharmazeutisches Institut, UNIVERSITÄT BONN, Germany, May 27, 2024.
53. Invited Talk: “Outwitting antibiotic resistance: A perpetual battle” Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, Hamburg, Germany, May 30, 2024.
54. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” Department of Chemistry, MIT, Cambridge, USA, July 23, 2024
55. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” at Levy CIMAR, Tufts University, July 24, 2024
56. Invited Talk: “Outwitting Antibiotic Resistance : A perpetual battle” Brigham and Women’s Hospital, July 25, 2024.
57. Invited Talk: “Molecular Therapeutics to Target the Bacterial Cell Envelope” at Koch Institute for Integrative Cancer Research, MIT, USA July 26, 2024.
58. Invited talk: “Targeting the cell envelope: A versatile antibacterial strategy” at New Jersey Medical School-Rutgers, USA, January 13, 2025.
59. Talk: “Outwitting antimicrobial resistance : A perpetual battle” Indo-Belgium Networking Meeting on Mycobacterial Research and Advanced Biomaterials, JNCASR, March17, 2025

*Industry/Company:*

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1. Invited talk: “Engineering Biomaterials to Tackle Infectious Diseases” at Unilever, Bangalore on 19<sup>th</sup> June 2013.
  2. Invited talk: ““War against Microbes”: Are Antibiotics the only Weapons?” at MitraBiotech, Bangalore on 22<sup>nd</sup> October 2013.
  3. Invited talk: “Strategies to tackle Infectious Diseases” at Scyton Diagnostic Pvt. Ltd., Bangalore, on 27<sup>th</sup> June 2014.
  4. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at Anthem Biosciences, Bangalore, on 17<sup>th</sup> November 2014.
  5. Invited talk: “Towards a Healthy World: Innovative Strategies for Combating Antimicrobial Resistance and Preventing Infections” at JNCASR-Industry Meet, JNCASR, March 8, 2016.
  6. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at the conference on Application of Supramolecular Chemistry in Water Treatment, Tata Steel Limited, Dimna, Jamshedpur, Feb 4-5, 2019.
  7. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Colgate New Jersey, 10<sup>th</sup> April 2019.
  8. Invited talk: “Innovative biomaterials and therapeutic interventions for tackling antimicrobial resistance and infection” at TATA Steel-JNCASR meet, 15<sup>th</sup> February 2023.
  9. Invited Talk: “Innovative functional biomaterials for tackling antimicrobial resistance and infection” at Becton-Dickinson Biosciences, Bengaluru, 19<sup>th</sup> April 2023.
  10. Invited Talk: “Discovery of Semi-synthetic Antibiotics and Adjuvants”; at GARD-P and BSAC Antimicrobial Chemotherapy Conference (ACC) 2024, 6-7<sup>th</sup> February 2024.
  11. Invited Talk: “Innovative Biomaterials and Therapeutic Interventions for Tackling Antimicrobial Resistance and Infection” RAKNOR, at JNCASR, 2<sup>nd</sup> April, 2024

#### *Science Promotion:*

1. Invited talk: “The Weapons of Chemistry to Battle Infectious Diseases” on the occasion of National Science Day, at JNCASR, 25<sup>th</sup> February 2010.
2. Invited talk: “The Weapons of Chemistry to Battle Infectious Diseases” at Sheshadripuram College, 13<sup>th</sup> March 2010.
3. Invited talk: “Prevention of Infectious Diseases” at Science Voyage, at JNCASR, on 25<sup>th</sup> May 2010.
4. Invited talk: “The Weapons of Chemistry to Battle Infectious Diseases” at POCE, JNCASR, 25<sup>th</sup> February 2010.
5. Invited talk: “Glycopeptide antibiotic- Drug of last resort” at JNCASR-Foundation for Capacity Building in Science (FCBS) Workshop for College Chemistry Students and Teachers 15-17<sup>th</sup> November 2013.
6. Invited talk: “Antimicrobial Peptides: Evolution into Future Antibiotics” at JNCASR-Foundation for Capacity Building in science (FCBS) workshop for College Chemistry students and Teachers, Trivandrum, Kerala on 31<sup>st</sup> Oct-2<sup>nd</sup> Nov, 2014.
7. Invited talk: “The Folklore of Infection- Origin to History to Decline and Advent” for School

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Children at Prof. CNR Rao Hall of Science, JNCASR, Bangalore on 12<sup>th</sup> November 2014.

8. Invited talk: “Bacterial Cell Membrane: Targeting the Achilles' heel to Combat Drug-Resistance and Infections” at CMR College, Bangalore, March 5, 2016.
9. Popular lecture: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at INSPIRE Science Camp, Indian Academy Degree College, Bangalore, 10th January 2019.
10. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Ramaiah College of Arts, Science & Commerce, 19th September 2019.
11. Invited talk: “Engineering Biomaterials and Antibacterials in the Era of Drug Resistance” at Adamas University, Kolkata, 14th January, 2020.
12. Invited talk: “The battle with Hospital Acquired Infections-bypassing the highway to hell” at Indian Academy Degree College, Bangalore, 10th February 2020.
13. Invited talk: “Mitigating surface-assisted spread of infections in the times of a pandemic” at JNCASR-FCBS workshop for college chemistry students and teachers, IISER & CSIR-NIIST, Thiruvananthapuram, 15th December 2020.
14. Invited talk: “Mitigating surface-assisted spread of infections in the times of a pandemic” at BIRAC SITARE BIIS Webinar, 8<sup>th</sup> February 2021.
15. Guest Lecture on “Innovative Functional Biomaterials for Tackling Antimicrobial Resistance and Infection” at the R. N. Tagore University, Bhopal 23<sup>rd</sup> July 2022.
16. Invited talk: “Smart biomaterials for tackling infection” at M V J College of Engineering, Bangalore, 3<sup>rd</sup> March 2023.
17. Invited talk: “Pursuit of next-generation glycopeptides- A journey with vancomycin” at the celebration of National Chemistry Week, ACS Webinar, American Chemical Society, 18<sup>th</sup> October 2023.
18. Invited talk: “Pursuit of Next-Generation of Glycopeptides: A Journey with Vancomycin” XXXVII Winter Youth Scientific School on “Current trends in Physicochemical Biology and Biotechnology” at the M.M. Shemyakin & Yu.A. Ovchinnikov Institute of Bioorganic Chemistry, Russia, Feb 10-13, 2025

## OUTLICENCED INVENTIONS

Our inventions on glycopeptide derivatives and antimicrobial coatings have been outlicensed to Vipragen Biosciences, India. Two of our small molecular inventions were outlicensed to Public Health of England (PHE), UK.

## MEDIA COVERAGE OF RESESRCH WORK

### *A. Antimicrobial Research*

The contribution of Dr. Halder Lab on antimicrobial research been recognized and displayed at the National Science Museums, touring in various cities in India as part of an exhibition "Superbugs – The end of Antibiotics?" The exhibition was organised in collaboration with National Council of Science Museums-NCSM & Science Museum London (<https://www.superbugs.in/index.php>).

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### *B. Small molecular antimicrobial peptide mimicking drug-candidates*

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