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**Sub: Justification of Nomination of Dr. Jayanta Haldar for the Sun Pharma Research Award 2024.**

I am happy to nominate of Dr. Jayanta Haldar [Professor, New Chemistry Unit and School of Advanced Materials, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India] for the Sun Pharma Research Award 2024 in Pharmaceutical Sciences.

Prof. Haldar has been working in the field of antimicrobial research towards tackling antimicrobial resistance and complex infections through developing preventive and therapeutic strategies for the past fourteen years as an independent researcher. I have been following his research for many years and have been appreciative of the same. Over the past decade, his lab has persistently undertaken a diverse set of projects towards this goal. He has established various chemical strategies and invented several antimicrobial solutions through rationally designed synthetic drug candidates with novel mechanisms of action. His team has designed a vast library of small molecular antimicrobial peptide (AMP) mimics, demonstrating remarkable efficacy against multidrug-resistant superbugs. Notably, these mimics prevent the development of resistance, ensuring sustained effectiveness. Additionally, he has pioneered a promising research path through the development of semi-synthetic antibiotics, opening new frontiers in the fight against resistant infections. His innovative approaches adopt targeting of drug-resistant bacteria through the development of new classes of glycopeptide-antibiotics and metallo- $\beta$ -lactamase inhibitors. These synthetic drug candidates can cure complex biofilm-related infections in animal models.

Prof. Haldar has also developed small-molecular membrane perturbing adjuvants which can, in combination, resensitize multiple classes of obsolete antibiotics ubiquitously for tackling the most critical drug-resistant Gram-negative pathogens. As part of a preventive strategy, Dr. Haldar's team has engineered innovative antimicrobial paints to prevent catheter and implant-associated infections and developed surgical sealants that both prevent eye infections and promote wound healing. Recently, they have introduced ground-breaking antimicrobial coatings, which can be easily applied to various surfaces, including Personal Protective Equipment (PPE), effectively preventing the spread of respiratory bacterial and viral infections like Influenza and SARS-CoV-2. Another arena of his interest in biomaterials research has led to the innovative anti-infective, haemostatic materials that can find applications in surgery and trauma care. I believe that Prof. Haldar has struck the right balance between basic and applied research, with significant contributions of both kinds emerging from his lab.



**भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान तिरुपति**  
**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH TIRUPATI**  
(An Institution of National Importance under the Ministry of Education, Govt. of India)

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Prof. Halдар has the unique ability to analyze a research problem from all angles and emerge with multifaceted solutions. The breadth of his research work, spanning from medicinal chemistry, chemical biology, infection mitigation, antimicrobial resistance, biomaterials, biophysics, etc., is unparalleled. The scale of national and international collaborations engaged by him demonstrates his standing in the research community and his approach towards science. He has successfully executed and completed many nationally and internationally funded research projects. The interdisciplinary nature of his research projects highlights his profound expertise in medicinal chemistry and biomaterials. He also has a solid publication record, with many research articles, reviews and book chapters on a vast range of topics in renowned peer-reviewed journals to his credit. As a result of his contribution to the field of antimicrobial resistance, he has been conferred the role of editor-in-chief of *ACS Infectious Diseases*, a highly reputed journal in the field of infectious disease research. I believe that the consistent and multifaceted contributions from the Halдар laboratory, to the antimicrobial therapeutic and preventive space, have made a strong impact on the field. As a researcher working in the translational field, Prof. Halдар has been very effective in taking his contributions forward. A large number of his inventions have been patented, and a couple of them have been out licenced to the healthcare industry. His work has ushered in a new era in the field of antimicrobial research and stands to alleviate the existing clinical concerns in infection spread and treatment.

Sincerely,

Santanu Bhattacharya

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