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Sub: Justification of Nomination of Dr. Jayanta Haldar for the Sun Pharma Research Award 2021.

I am happy to nominate of Dr. Jayanta Haldar [Associate 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 2021 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 twelve 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 semi-synthetic antibiotics and new synthetic drug candidates with novel mechanisms of action. He has adopted innovative approaches to target drug-resistant bacteria through the development of new classes of glycopeptide-antibiotics and metallo-β-lactamase inhibitors. His group has recently developed small molecular antimicrobial peptide (AMP) mimics that are highly effective against multidrug-resistant superbugs without triggering any resistance development against them. 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 a part of the preventive strategy, Dr. Haldar's group have engineered antimicrobial paints that prevent catheters/implant-associated infection and surgical-sealants that prevent eye infections and promote wound-healing. Very recently, he has developed antimicrobial coatings which can be coated very easily on various surfaces, such as Personal Protective Equipment (PPE), and can prevent the spread of respiratory bacterial and viral infections like Influenza and SARS-CoV-2. Prof. Haldar 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 to his credit. 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. 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.

(Dr. Asit K. Chakraborti, FRSC, FASc, FNA)
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