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To
The Committee,
Sun Pharma Science Foundation Science Scholar Awards-2024

It is my pleasure to write this justification letter on behalf of my PhD student, **Mr Abhilash Vijay Nair**, whom I would be glad to nominate for your prestigious award.

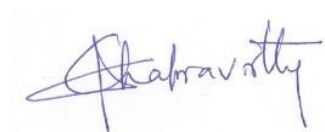
Abhilash joined my lab in August 2018 after securing a Master's degree in Biochemistry as a gold medallist from the University of Calcutta. He was also ranked first in his Undergraduate studies in his College (Bachelors, Department of Biochemistry, Asutosh College, University of Calcutta) and secured a Second position in the University (under Bachelors in Biochemistry). He even secured a second position in the Ph.D. coursework with a CGPA of 9.0. From the time he joined my laboratory, he has contributed in many different ways to the advancement of scientific research in my lab; his expertise in Biochemistry has been instrumental for us in foraying into some critical uncharted frontiers of *Salmonella* host interaction. During the course of time Abhilash has spent in my lab, he has gained extensive knowledge and has been working on understanding of host-pathogen communication pathways of various pathogens, particularly *Salmonella* and ESKAPE pathogens. He possesses a vast skill set and knowledge of diverse techniques and has played a pivotal role in many national and international collaborations in our lab. Abhilash is extremely passionate about science and research and is keen to contribute his bit to the advancement of scientific research. He is exceptional in handling and driving intensive research ideas with his brilliant reasoning and thinking capabilities. He has greatly led his Ph.D. work with his independent and innovative critical thinking.

During his PhD he has worked primarily on the role of polyamine spermidine in *Salmonella* pathogenesis, a rather untouched domain of *Salmonella* host interplay. His study deciphers the mechanism by which *Salmonella* rewires the host polyamine metabolism to exploit it for its own survival and proliferation inside the host macrophages. Not only has he explained the mechanism of the metabolic revamping by the pathogen, but he also suggested a potential drug, DFMO (DL-alpha-difluoromethylornithine), currently in use for treating parasitic infections and cancer, as an alternative treatment strategy for *Salmonella* infection, however at a much lower dose, as tested in murine model. His novel work was published in a very high-impact and prestigious Redox Biology journal, in April 2024. This work stands out in today's time of rising antimicrobial resistance, which is a serious threat

to mankind in the medicine and health sectors. His work brings out an alternative therapeutic strategy to curb the infection by the WHO listed high priority pathogen, *Salmonella*. His strategy shows much potential as it does not act on the pathogen but rather blocks the host metabolic pathway upon which this pathogen relies. Along with his amazing work, he has also had several articles in the public domains such as the Times of India, Eurekaalert(AAAS), The Indian Express and Hindustan Times, to name a few. He has already authored several research articles and review articles in prestigious peer-reviewed journals.

In harmony with the motto of your organization, Abhilash has tried to study a novel phenomenon and has also come up with a practical solution to the problem that he identified for the benefit of society.

Therefore, I would like to strongly recommend Mr Abhilash Vijay Nair for this esteemed award, not because he is my student but as a matter of fact, he is a very sound, exceptionally talented and industrious researcher with a vision to serve society and has indeed accomplished something novel during his PhD journey.



Dipshikha Chakravorty, PhD

Professor

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TATA Innovation Fellowship

ASTRA Chair Professorship, DAE SRC Fellow, Humboldt Fellow

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Dated: 01.08.2024



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Mr. Abhilash Vijay Nair joined my lab in August 2018 after securing a Master's degree in Biochemistry as a gold medallist from the University of Calcutta. He has extensively worked on unravelling the unknown facets of *Salmonella* pathogenesis during his Ph.D in my lab.

The work that has been submitted for Sun Pharma Science Foundation Science Scholar Award-2024 has been conceptualised, executed, analysed and written by him to the best of my knowledge.

Dipshikha Chakravortty, PhD

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