Jawaharlal Nehru Centre for Advanced Scientific Research
Bioorganic Chemistry Laboratory, New Chemistry Unit
Jakkur P.O., Bengaluru 560 064, India

T. Govindaraju, Ph.D., FASc, FRSC

August 19, 2024

Chair
Selection Committee
Sun Pharma Science Scholars Fellowships 2024
Sun Pharma Science Foundation

Dear Sir/Madam,

I am writing to nominate **Mr. Hariharan M** for the **Sun Pharma Science Scholars Fellowship-2024**. Hariharan has been a Ph.D. student under my supervision in the Bioorganic Chemistry Laboratory at JNCASR since August 2019. He has recently submitted his Ph.D. thesis entitled "*Multipronged Strategies to Mitigate Amyloid-Associated Toxicities and Ferroptosis in Alzheimer's Disease*".

Hariharan's Ph.D. research has made significant contributions to the chemical biology of Alzheimer's disease. His thesis work has ***established a pathological nexus between ferroptosis and Alzheimer's disease (GPX4-Ferroptosis-AD-axis***), leading to the development of multifunctional therapeutic molecules that can tackle both synergistically. Specifically, his research has led to discovery of a naturally occurring polyphenols that significantly enhance endogenous antioxidant systems, such as GPX4, to combat Alzheimer's disease pathophysiology, an approach previously unexplored. Furthermore, his research delves into the understanding of tau ***protein phase separation*** and the identification of molecules capable of effectively modulating this process to address tauopathies implicated in neurodegenerative diseases. Notably, he has

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developed polymer drug conjugates and identified polyphenols that modulate tau *liquid-liquid phase separation*, inhibiting protein aggregation into toxic species. This innovative strategy has opened new avenues for addressing tauopathies implicated in neurodegenerative disorders. In addition, his work on cyclic dipeptide-based copolymers has demonstrated the ability to inhibit amyloid aggregation and reduce neuroinflammation. He has also designed and synthesized dendrimers for RNAi therapeutics with potential implications for treating AD. Hariharan's research has opened up new and underexplored avenues in the AD therapeutic pipeline. This work holds significant societal relevance, as AD poses a substantial burden on patients, families, and healthcare systems worldwide. By addressing the multifaceted nature of this disease, Hariharan's research has the potential to contribute to more effective therapeutic strategies, ultimately improving the quality of life for those affected.

I am highly impressed with Hariharan's research work, which is both unique and of practical relevance to addressing the global burden of AD. Hariharan is an exceptionally hardworking, self-driven, and dedicated researcher, placing him among the top 1% of researchers at our institution. He consistently demonstrates an optimistic and self-motivated attitude, striving for perfection in all his endeavors. His adherence to high ethical standards in research is commendable, and his strong communication skills make him an effective and integral part of any collaborative team. His ability to lead and inspire a group of researchers, combined with his pleasant and lively personality, makes him an excellent team player. He has a natural talent for fostering a collaborative and productive research environment, which is essential for the successful advancement of scientific projects. His passion for research and his innovative approach to problem-solving highlight his potential to make substantial contributions to the scientific community. He has a executional and unique talent and knack for understanding the chemistry and biology and employing this knowledge for

solving challenging problems in health such as AD. He has published several research papers of high quality with notable contributions in the area, and several are in pipeline.

Given his remarkable achievements, unwavering dedication, and exemplary personal attributes, I strongly endorse **Mr. Hariharan M** for the **Sun Pharma Science Scholars Fellowship 2024**. I am confident that he will continue to excel and become a valuable asset to the scientific community, contributing significantly to the field of Alzheimer's disease research and beyond.

Receiving the prestigious Sun Pharma Science Scholar Fellowship will significantly aid in shaping and advancing his exceptional research career.

Please do not hesitate to contact me if you require any further information.

Sincerely yours,

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