भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान पुणे
INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH PUNE
डॉ. होमी भाभा मार्ग, पुणे 411008, महाराष्ट्र, भारत | Dr. Homi Bhabha Road, Pune 411008, Maharashtra, India
T +91 20 2590 8001 W www.iiserpune.ac.in
IISER PUNE

28th August 2023.

To: Selection Committee, Sun Pharma Scholars Award 2023.

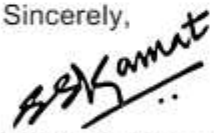
It is my great pleasure to write this Nomination Letter in strongest possible support of Mr. Karthik Shanbhag's application for the Sun Pharma Science Scholars Award 2023. Karthik joined IISER Pune as an Integrated Ph.D. student in August 2018, completed the MS coursework component of his program with distinction, and his academic transcripts are testament to his scholastic ability. Given his interests in using innovative chemical biological approaches especially mass spectrometry towards studying mammalian (patho)physiology (particularly lipid metabolism), he decided to join my research group to pursue a Ph.D. in August 2020.

In my lab, Karthik has been mapping protein ligands and/or receptors for the immunomodulatory signaling lipids using chemical proteomics approaches in diverse mammalian cells and tissues. Specifically, using diverse bio-orthogonal photoreactive probes synthesized in our lab, and advanced mass spectrometry based chemical proteomics technologies developed by himself in our lab, Karthik has successfully mapped several protein ligands for the monoacylglycerol (MAG) lipids in the central nervous system. Amongst these targets, is the poorly characterized protein Hippocalcin, which he has now shown to be an interactor of MAGs, and is involved in signaling pathways in the brain. His findings, in my opinion will have tremendous biomedical translational potential, and it brings to light hitherto unknown lipid interactors in the central nervous system, that may now be pharmacologically modulated for effective activities. Additionally, he is also developing numerous biochemical and cellular assays to study the biological activities of these protein interactors, and further map the biological pathways that they regulate *in vivo*. This research project has been completed, and this story is currently being communicated for publication. I anticipate that we will be able to publish this by the end of this year or early next year. Given his strong interest in this topic, he has already written two exhaustive reviews, one on lysophosphatidylserine lipids, that was published in the year 2020 in the *Journal of Membrane Biology*, and other published on photoreactive bioorthogonal lipid probes, that was published earlier this year in *RSC Chemical Biology*. And given his research credentials and academic track record, he was awarded the prestigious "*Prime Minister's Research Fellowship*" in 2020, a graduate student fellowship given only to a few students each year in India.

Karthik's research success so far is the result of an impressive combination of outstanding leadership, creativity, diligence and a lot of hard work, and I expect him to complete his Ph.D. within the next year. Further, an alumnus from the lab, Dr. Shubham Singh, was a previous recipient for this prestigious award in 2021, and I put Karthik's work and CV on par with Shubham's work and CV at the same career stage for direct comparison. Given his background, research credentials, and his ardent desire to keep improving himself professionally, he would make an ideal selection for this Sun Pharma Science Scholars Award for the year 2023.

Please do not hesitate to contact me if I may be of any further assistance to you in evaluating his application for this award. I am happy to provide any additional inputs if required.

Sincerely,



Siddhesh Kamat, Ph.D.
Associate Professor,
EMBO Young Investigator
Department of Biology, IISER Pune,
Ph: +91-20-25908433
Email: siddhesh@iiserpune.ac.in