

Date: 5th August 2023

To
The Chairperson,
Selection Committee,
Sun Pharma Research Foundation Research Awards 2023
Pharmaceutical Sciences Category

Letter of Nomination for Dr. Siddhesh S. Kamat of IISER Pune, India

I am writing this nomination letter in strongest possible support of Dr. Siddhesh S. Kamat from IISER Pune, who is applying to the Sun Pharma Science Foundation Research Awards 2023 in the Pharmaceutical Sciences Category.

Siddhesh is currently an Associate Professor, a SwarnaJayanti Fellow and an EMBO Young Investigator in the Department of Biology at IISER Pune. Siddhesh, capitalizing on his strong biochemistry background acquired during his undergraduate education, is one of the finest chemical biologists in India at par with highest global standards. He joined the Department of Biology at IISER Pune in August 2016 as an Assistant Professor, after his Ph.D. at Texas A&M University (2007-12) and post-doctoral work at Scripps, USA (2013-2016). He had a very productive Ph.D. working with Frank M. Raushel, on annotating function to unknown biological pathways. During this time, he discovered the enzymatic pathways and machinery that convert phosphonates to phosphate, and the production of methane by aerobic bacteria as well as the purine salvage pathway in bacteria leading in several high-quality publications in journals such as *Nature*, *JACS* and *Biochemistry*. Later, during his postdoc, he shifted fields to studying lipid signalling and metabolic pathways in the mammalian immune and central nervous system with Benjamin Cravatt. Using chemical biology approaches like lipidomics, and chemical proteomics, he identified and functionally characterized several enzymes, mutations of which cause neurological disorders in humans. These too have resulted in three high-quality publications in *Nature Chemical Biology*.

In 2016, Siddhesh was awarded the prestigious and highly competitive Intermediate Fellowship of the DBT/Wellcome Trust India Alliance, which has provided him the necessary flexible funding to establish a productive career. His research group at IISER Pune uses innovative chemical biology approaches in identifying hitherto unknown biological pathways that regulate lipid metabolism and signalling, and how these pathways are dysregulated in diverse human diseases (e.g. neurodegenerative diseases, autoimmune diseases, metabolic syndrome etc.). Specifically, his lab has made seminal contributions in understanding of the molecular basis of the neurodegenerative disorder PHARC, besides mapping the deregulated lysophospholipid metabolism associated with this disease. Additionally, his lab has deciphered unannotated lipid pathways during several immunological processes like phagocytosis, ferroptosis. Lastly, his lab recently discovered ABHD14B as a novel lysine deacetylase, and has shown its function in systemic glucose metabolism. Uniquely and very importantly, from a technological standpoint, Siddhesh has established/developed state-of-the-art facilities such as lipidomics and chemoproteomics LC-MS platforms to facilitate and unravel novel mechanisms associated with onset/progression of diseases caused by perturbed lipid homeostasis. His lipidomics and chemoproteomics LCMS platforms are unique to perhaps any research group within India, and he is the only researcher within the country capable of doing the aforementioned studies at the highest global standard.

Siddhesh has established a globally competitive chemical biology lab and published numerous high-quality publications in reputed journals (e.g. *Nature Chemical Biology*, *Cell Chemical Biology*, *PNAS*, *ACS Chemical Biology*, *J. Biological Chemistry*, *J. Medicinal Chemistry*, *Biochemistry*). In addition, he has extensively collaborated with several researchers within the country, and often enabled them to reveal underlying metabolome-dependent phenotypes across scales and model systems. These collaborations have yielded high quality papers in reputed journals (e.g. *PNAS*, *Elife*, *J. Cell Biology*, *mBio*, *Chemical Science*, *Disease Models and Mechanisms*, *J. Exp. Biology*). Considering his unique expertise, he is highly sought after by many good scientists in India and from overseas for help in the area of lipidomics and chemical proteomics. While providing such help selflessly, he has not lost his focus on his research, as evident from his publication record. Given his academic track record, in 2019, Siddhesh was promoted to an Associate Professor within 3 years of joining IISER Pune, something that is rare in Indian academia.

Additionally, given his track record, Siddhesh is a recipient of numerous reputed awards, like the SwarnaJayanti Fellowship (2021), CDRI Award for Excellence in Drug Research (2021), EMBO Young Investigator Award (2020), Merck Young Scientist Award (2019), INSA Young Scientist Medal (2019) to list a few. Of note, over the years, Siddhesh is one amongst 4 Indians to receive the prestigious and highly coveted EMBO Young Investigator Award, and the only Indian to do so in 2020. Finally, given his expertise in the fields of lipidomics/metabolomics, chemoproteomics, and lipid metabolism, he was invited to join Editorial Board of the British Journal of Pharmacology and JBC, in addition to being elected as a Member of the Royal Society of Chemistry, all of which are testament of recognition of his lab's research by the global community at very high standards.

In addition to Siddhesh himself, his students have also attained considerable recognitions. His first Ph.D. student Shubham Singh was awarded the prestigious HFSP Postdoctoral Fellowship (for 2021), the highly competitive Sun Pharma Science Scholars Award in Biomedical Sciences (for 2021), and the AWSAR award by DST (for 2020). Of note, Shubham Singh was the first student from any IISER to receive the Sun Pharma Science Scholars Award. His second Ph.D. student, Neelay Mehendale, was interviewed twice by ACS Chemical Biology in the "Introduction to Authors" section, as two papers from his Ph.D. research made it to the front cover of this journal. Furthermore, three of his current Ph.D. students, Karthik Shanbhag, Sonali Gupta and Ojal Saharan are recipients of the very competitive Prime Minister's Research Fellows (PMRF) scheme in support of their Ph.D. research. Together, these reflect very positively on the training, mentorship and the research program offered by Siddhesh.

Given his academic credentials, area of research and eligibility criteria for this award, I feel that Siddhesh would be an ideal candidate and strongly recommend his application for the Sun Pharma Science Foundation Research Awards 2023 in the Pharmaceutical Sciences Category. I am happy to provide any additional inputs if required.



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