

4<sup>th</sup> August, 2021

To:

The Selection Committee,

2021 Sun Pharma Science Scholars Award.

It is my great pleasure to write this letter in the strongest possible support of Dr. Shubham Singh's application for the prestigious Sun Pharma Science Scholars Award for the year 2021. Shubham completed his Bachelor's degree from the Osmania University, Hyderabad in 2015, majoring in Biotechnology, and joined the Integrated Ph.D. program at IISER Pune that same year to pursue graduate studies in Biological Sciences. Shubham graduated the Master's component of this program with distinction, and his academic transcripts are testament to his scholastic ability. Given his interests in using innovative chemical biological approaches towards studying mammalian (patho)physiology (particularly neurodegenerative diseases), he decided to join my research group to pursue a Ph.D. in August 2016.

In my lab, Shubham has been studying the metabolism and mapping biological pathways influenced by the bioactive lysophosphatidylserine (lyso-PS) and pro-apoptotic oxidized phosphatidylserine (ox-PS) class of signaling lipids in the context of the human neurological disorder PHARC. In particular, Shubham has biochemically characterized the integral membrane enzymes ABHD16A (major lyso-PS biosynthetic enzyme) and ABHD12 (major lyso-PS degradative enzyme) from the serine hydrolase family, and his research has provided new insights into the role that these lipases play in the development of the PHARC pathology. During the course of his study, he has developed several biochemical and cellular assays to study the activity of these enzymes *in vivo* and understand their substrate preferences. To complement all these biochemical and cell biological studies, he has also mastered cutting edge mass spectrometry based lipidomics, chemical proteomics and immunohistochemical analysis, and has been able to apply them in conjunction to knockout mice models to study both these enzymes.

Shubham has recently successfully completed his Ph.D. viva, and the aforementioned studies are part of this Ph.D. thesis. These studies have led him to be an author of **6 impressive research papers and 1 book chapter from my lab**, of which, he is the first (or co-first) author on 4 of them. These have now published in ***Nature Chemical Biology, Cell Chemical Biology, Journal of Biological Chemistry and Biochemistry***. Since Shubham has developed the studies reported in his recent *Biochemistry* paper independently, he is also a **co-corresponding author** of this paper, a rare feat for a graduate student from India. Shubham will be soon joining the lab of Drs. Robert Farese and Tobias Walther at the Harvard Medical School for his postdocotoral studies. Here, he plans to continue working on neurological disorders, and the involvement of lipid metabolism to these pathology.

Shubham's research success so far is the result of an impressive combination of outstanding leadership, creativity, diligence and a lot of hard work. Given his academic credentials and the eligibility criteria for this prestigious award, I feel that Shubham will be an ideal candidate and I strongly recommend his application for the Sun Pharma Science Scholars Award for the year 2021.

I am happy to provide any additional inputs if required.

A handwritten signature in black ink, reading "Siddhesh Kamat" with a stylized flourish underneath.

Siddhesh Kamat, Ph.D.

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