Department of Microbiology & Cell Biology

Indian Institute of Science, Bangalore-560 012, India

Dr. V. Nagaraja
Professor

RE: Sun Pharma Science Foundation Award Nomination OCT 31, 2021

I am writing this letter enthusiastically recommending Dr. Amit Singh for the Sun Pharma Research Awards-2020. I am a senior professor at IISc (previously President, JNCASR) and Ranbaxy Science Foundation award recipient. I recruited Amit to MCB department when I was the chair, recognizing his potential to contribute to science in a transformative fashion. My decision is vindicated as I find him now to be one of the most talented and incredibly gifted scientists of India addressing challenging questions to understand *Mycobacterium tuberculosis (Mtb)* survival in host and TB drug discovery. Investigating how redox metabolism of intracellular *Mtb* controls susceptibility to antibiotics required him to take on the demanding role of developing innovative technologies to image dynamic changes in the redox physiology of *Mtb* inside immune-cells. After constructing this non-invasive genetic biosensor (Mrx1-roGFP2), he used it successfully to dissect the bacterial and host immune mechanisms controlling redox metabolism and response to antibiotics. This technological innovation led to several high impact publications including ***PLoS Pathogens***, ***eLIFE***, and ***Chemical Science***. These important studies laid foundation for his discovery of an immune pathway that could be targeted by antimalarial drug chloroquine to potentiate the efficacy of anti-tuberculosis drugs during infection. This study published in ***Science Translational Medicine*** recently is indeed a tour de force combining extensive biochemistry, cell biology, animal experiments, and microscopy/FACS, appreciated by international scientific community for its basic research on *Mtb* biology and translational potential for urgently needed new combination therapy in TB treatment.

It is also noteworthy that Dr. Singh has successfully spearheaded other projects related to the basic biology of tuberculosis and HIV-TB co-infection. He discovered complex interactions between HIV, *Mtb*, and immune cells that deregulate immuno-metabolism essential for controlling the disease severity (***J BiolChem***, ***mBio, and EMBO MOL MED)***. Amit is also highly successful in acquiring research funds from national and international grant agencies such as Wellcome trust-DBT India Alliance fellowships, NIH, USA and BBSRC, UK. Additionally, he directed setting up and managing national-level biosafety level 3 facilities and COVID testing laboratory at IISc.

As I have witnessed Dr. Singh's continued upward trajectory from his Ph.D/post-doctoral period to his successful journey into IISc and the quantum jump he made here, I am delighted to nominate him for this coveted award. Dr. Singh's track record of "making science happen" is sure to continue and this award will go a long way for fulfilling his research aspirations. My strongest recommendations.

Sincerely

Nagaraja

email: vraj@mcbl.iisc.ernet.in **Phone:** 91-80-23600668/91-80-22932598 **Fax:** 91-80-23602697/991-80 -23600683