ARUN K. SHUKLA, PHD, FNA, FASC, FNASC
PROFESSOR AND SONU AGRAWAL MEMORIAL CHAIR
SENIOR FELLOW, DBT WELLCOME TRUST INDIA ALLIANCE
DEPARTMENT OF BIOLOGICAL SCIENCES AND BIOENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY, KANPUR 208016, INDIA
EMAIL: ARSHUKLA@IITK.AC.IN

To,

August 22nd 2023

Prof. Virander S. Chauhan
Chairman, Sun Pharma Science Foundation

Subject: Nominating Parishmita Sarma for the Sun Pharma Research Scholar Award, 2023

Dear Prof. Chauhan,

It is my distinct pleasure to nominate Miss Parishmita Sarma, a 5th year Ph.D. student in my laboratory at the Department of Biological Sciences and Bioengineering at the Indian Institute of Technology Kanpur, for the Sun Pharma Research Scholar Award, 2023 in Pharmaceutical Sciences.

Parishmita's research work is focused primarily on understanding the molecular mechanism of signaling bias at G protein-coupled receptors (GPCRs), the largest family of cell surface proteins and one of the most prominent drug targets. While most GPCRs couple to, and signal through, two distinct signal-transducers namely the heterotrimeric G-proteins and β-arrestins, Parishmita has discovered that a chemokine receptor namely, the CXCR7, couples exclusively to, and signals through, β-arrestins. She has comprehensively characterized pharmacology and signaling of CXCR7, vis-à-vis CXCR4, which is a prototypical GPCR, and they are both activated by a shared endogenous agonist, CXCL12. In addition, Parishmita has also characterized a small molecule agonist of CXCR7 in terms of its exclusive ability to activate CXCR7 without any measurable cross-reactivity to other chemokine receptors. This paradigm-changing findings establish CXCR7 as an example of naturally biased seven transmembrane receptors, and open the door for previously unanticipated therapeutic design and applications. This study has been published recently in Nature Communications with Parishmita as the lead author.

In addition, Parishmita has also spearheaded another project with a graduate student in our laboratory, related to the identification of a broadly conserved phosphorylation motif in GPCRs that direct the recruitment and activation of β-arrestins. This study has been published in Molecular Cell with Parishmita as a joint 1st author, and it was also featured on the cover page of the journal. Moreover, Parishmita has also contributed as one of the key players in a project in our laboratory where determine multiple structures of the human complement receptors, and discover the molecular basis of complement recognition, receptor activation and biased signaling. This comprehensive study has been accepted for publication in Cell, and Parishimita is one of the joint 1st authors on this manuscript. Parishmita's accomplishments are very special considering that she came from plant science background, but her motivation and dedication have proven that a determined student can achieve anything shattering any limitations and boundaries in science. She has emerged as a poster child of our graduate program, and it has been a tremendous pleasure to host her in our laboratory with her phenomenal attitude, not only for the projects that she has been leading but also her ever-ready nature to help others around her making them better.

Parishmita is the most deserving candidate for the Sun Pharma Research Scholar Award, 2023 in Pharmaceutical Sciences, and I nominate her with my highest possible recommendation. I sincerely hope that the committee decides favorably on her candidature. Please feel free to contact me for any additional information.

Sincerely,
Arun Kumar Shukla
Arun K. Shukla, Ph.D.

Dr. Arun K. Shukla
Professor
Department of Biological
Sciences & Bioengineering
I.I.T., Kanpur-208016 (India)