आण्विक जैवभौतिकी ऐकक **Molecular Biophysics Unit**
उन्नत अधययन यूजिसी केन्द्र UGC Centre for Advanced Study

भारतीय विज्ञान संस्थान / **Indian Institute of Science**
बेंगलूर / BANGALORE - 560 012. (भारत / India)

Dear Committee Members,

I am pleased to nominate Ms. Nayanika Sengupta, 4rd Year Ph.D. student in my laboratory (Somnath Dutta Lab) at MBU for SUN PHARMA SCIENCE FOUNDATION SCIENCE SCHOLAR AWARDS 2021. Nayanika is a dedicated, passionate, and hardworking research student. She uses various biochemical, biophysical, and cryo-EM-based structural studies to characterize the biological macromolecules associated with pathogen biology. One of her important projects is the structural and functional characterization of different variants of spike protein from SARS CoV2, which has a significant impact in this current pandemic situation.

Basically, last year country-wide lockdown severely affected many academic research institute and researchers. Most of the students/researchers went home. Only few students were able to continue their COVID-related research. However, two of my Ph.D. students, one of them is Ms. Nayanika Sengupta worked extremely hard during that time to characterize the spike protein in the presence and the absence of various drugs molecules. In this challenging situation, within three months (July-Sep 2020), we have resolved the 3D cryo-EM structures of spike protein, and at least this is the first atomic-resolution cryo-EM structures of S protein determined from India.

Furthermore, these spike-protein-related studies open excellent opportunities for our laboratory to collaborate with different pharmaceutical industries who are involved in vaccine design. She regularly works and assists different research groups in my laboratory and other labs at MBU, who are working on structural studies of spike protein in the presence of inhibitors, which will help us to design novel drugs against SARS-CoV2. Definitely, her research activities have a high impact globally.

She published one paper in Structure-Cell Press (Joint 1st author), and one manuscript is under revision (Journal Of Virology, 1st author), which is related to SARS-CoV2. Another two manuscripts related to SARS-CoV2 are under preparation. Additionally, she is working on various other infectious diseases, like TB and cholera. Recently she has published a cryo-EM structure of pore-forming toxin from V. cholera (J Cell Bio, accepted on September 19, 2021). One manuscript of the bacterial secretion system (Type VII) is under revision.

She is a very dedicated researcher, and when most of the students are requesting extra time to finish their research work on time, she has three publications at high impact journals, two manuscripts under review and two are under preparation. Additionally, some of her research works helps to design novel therapeutics. Therefore, I strongly believe she is a suitable candidate for this award.

I strongly recommend her for this prestigious award.

Somnath Dutta

Assistant Professor
Molecular Biophysics Unit
Indian Institute of Science
Bangalore - 560 012.

दूरभाष / Telephone : (80) 22932459
ग्रम्स / Grams : Biophysics Science
फैक्स / FAX : (80) 23600535 / 23600683
ई–मेल / E-mail : office@mbu.iisc.ernet.in