राष्ट्रीय प्रतिरक्षाविज्ञान संस्थान
जैव प्रौद्योगिकी विभाग, विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार का स्वायत्त अनुसंधान संस्थान
NATIONAL INSTITUTE OF IMMUNOLOGY
An Autonomous Research Institute of the Department of Biotechnology, Ministry of Science and Technology, Government of India

Dr. Apurba Kumar Sau, Ph. D., FNASc
Staff Scientist-VII
E-mail: apurba@nii.ac.in

Tel. +91-11-26703768
Fax. +91-11-26742125
-26742626

Sept 23, 2021

The Sun Pharma Science Foundation Committee
8C, 8th Floor, Hansalaya Building
15-Barakhamba Road, Connaught Place
New Delhi- 110001
India

Sub: Sun Pharma Science Foundation Science Scholar Award Nomination

TO WHOM IT MAY CONCERN

Ms. Ditsa Sarkar has been working as a Ph. D. student in my research group since 2016. She is an active member of my group and has great enthusiasm to work on the thesis proposal entitled, "Biochemical and biophysical investigation of *Helicobacter pylori* N-carbamoylputrescine amidase, an enzyme involved in polyamine biosynthesis." This enzyme has been found to be critical for the growth and proliferation of the bacteria. Additionally, its absence in the host has made this enzyme in the *Helicobacter pylori* an important target for the development of therapeutics. In this research project, she discovered a novel aromatic cluster containing four tryptophan residues located near the catalytic site, and unravelled its critical role in catalytic function through oligomer formation. She has also unearthed that this cluster is not only conserved in plants, but also present in other bacteria. Thus, targeting the site containing the cluster and its vicinity provides a tremendous scope to design specific inhibitor(s) of *H. pylori* and other bacteria. Using this strategy, she has identified new inhibitors against the bacterial enzyme that could have a great potential in therapeutics. During her stay in my group, she has developed excellent analytical skill and gathered strong scientific knowledge, which will surely help her to become an independent investigator. This part of the research work is under revision in one of the leading journals.

Besides this, she has substantially contributed to another research project entitled "An evolutionary non-conserved motif in *Helicobacter pylori* arginase mediates positioning of the loop containing the catalytic residue for catalysis", which is recently published in a very well reputed journal (Dutta, A., Sarkar, D.,…, and Sau, A. K, *Biochem. J.,* (2021), 478: 871-894). Her logical approach and excellent collaborative skills have been one of the vital factors for the success of this project.

अरूणा आसफ अली मार्ग, नई दिल्ली - 110067; दूरभाष (ईपीएबीएक्स) 011-26162121-45 और 26717010-19
फैक्स : 91-011-26742125, 26742626; तार : IMMUNOLOGY; वेबसाइट: www.nii.res.in
Aruna Asaf Ali Marg, New Delhi - 110067; Telephones (EPABX) : 011-26717121-45 & 26717010-19
Fax : 91-011-26742125, 26742626; Grams : IMMUNOLOGY; Website : www.nii.res.in

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In addition to strong experimental expertise, Ditsa has outstanding presentation skill, which is evident from a recent international conference (*35th Symposium Meeting conducted by the esteemed Protein Society, USA held in July 2021*), where she presented her research findings, and became the recipient of two prestigious awards; **Graduate Poster Presentation Award and Anniversary Award.**

Ditsa's strong research interest deserves her to be a perfect candidate for the Scholar Award. This will greatly encourage a young talented individual to pursue research career. In view of these, with great pleasure I nominate Ms. Ditsa Sarkar for the Sun Pharma Science Foundation Science Scholar Award and very strongly recommend her case.

Please don't hesitate to contact me in case you require additional information.

Sincerely,

(Apurba Kumar Sau)

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