

DEPARTMENT OF BIOCHEMISTRY
All India Institute of Medical Sciences
New Delhi- 110029

To,
The Sun Pharma
Science Foundation
India

30th August 2023

Through proper channel

Subject: Application for sponsoring the nomination for Sun Pharma Science Scholars Awards-2023

Respected Members,

This is to inform you that I Ashu, PhD student under the supervision of Prof. Alpana Sharma in the Department of Biochemistry, AIIMS, New Delhi. My research focuses on the functionality of pre-existing immune system, notably memory T cells in Renal cell carcinoma patients. Ion channels and autophagy are two main mechanisms involved in immune system's determination and control of memory T cell cellular destiny within tumor. During my PhD, I am attempting to understand the control of these variables via a newly discovered ubiquitin ligase in order to identify the physiology of memory T cells in tumour microenvironment. Recently we published study entitled **"Disruption in networking of KCMF1 linked ubiquitin ligase impairs autophagy in CD8⁺ memory T cells of patients with renal cell carcinoma"** in the *Cancer Letters* (2023) and second study entitled **"KCMF1 regulates autophagy and ion channels' function in renal cell carcinoma: a future therapeutic target"** in the *Journal of Cancer research and Clinical Oncology* (2022). During evaluation of memory T cells in tissue, we observed a new population termed as "Lymphoid Tissue Inducer cells", which play a key role in foundation of payer patches, lymph node like secondary structure during childhood to adult. During cancer, it formed tertiary lymphoid structure along with secondary within tumor that further help in dissemination of tumor cells from immune system and metastasized to the other body parts. That observation was published as mini-review article entitle **"Lymphoid tissue inducer cells in cancer: a potential therapeutic target"** in the *Molecular Cellular Biochemistry* (2022).

Along with this, we evaluate the fate of tumor resident memory T cells and their modulation of functionality via ionic reverberation in patients with renal cell carcinoma. This work's manuscript is in the process of being communicated. For the time, we are unrevealing the mechanism of resident memory T cells exhaustion and survivality in patients with RCC through regulation of ubiquitin ligase mediated autophagy, ion channel reverberation. Lastly, we expanded the patient derived memory T cells using target based drug to generate a novel therapeutics to increase the survival of memory T cells for better management of RCC patients.

Kindly consider my justification letter for nomination of the Sun-Pharma Science Scholar awards.

Thanks and Regards,



Ashu

PhD scholar

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Nominated for consideration
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20.08.22

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