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Dean Biosciences & Health Research

Trivedi School of Biosciences

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The Award Committee, Sun Pharma Science Foundation Research Award

I am delighted to nominate Dr. Debarka Sengupta for the Sun Pharma Science Foundation Research Award in the Medical Sciences Basic Research category. Below I highlight his noteworthy contributions.

Dr. Sengupta led the country's first research program in single cell genomics. Algorithms developed by his group for cell subtype detection (dropClust suite) (Nucleic Acids Research 2018a; Bioinformatics 2020), transcriptome search (Nucleic Acids Research 2018b) and rare-cell discovery (FiRE) (Nat. Comm., 2018) are global trendsetters in reduced algorithmic time-complexity and accuracy. On the translational side, Dr. Sengupta's group has developed numerous approaches for blood based detection and AI based precision treatment of cancers and has taken a step forward to commercialisation. His interdisciplinary work fusing single cell transcriptomics, microfluidics, and AI, demonstrated a promising approach to detect circulating tumour cells of diverse phenotypes from patient blood (Journal of Clinical Medicine, 2020; Genome Research, 2022). This helped detecting circulating Triple Negative Breast Cancer cells from patient blood with high accuracy. Dr. Sengupta's group also developed a platelet gene panel for affordable, blood based early cancer detection, leading to a successful technology transfer (BMC Genomics, 2020). This work earned him the 2022 INAE Young Innovator & Entrepreneur Award. Recently, his lab established a new benchmark in personalized drug response predictability based on tumour RNA-seq profiles (Nat. Comm., 2022). His group worked closely with Department of Medical Oncology at AIIMS Delhi to develop a Staging System to Predict the Risk of Relapse in Multiple Myeloma Patients undergoing autologous stem cell transplantation (Frontiers in Onco., 2019). These achievements not only reflect their contributions and future promise, but also elevate India's position in contemporary cancer research.

Beyond his research achievements, Dr. Sengupta has mentored nine Ph.D. students, all of whom have secured positions in leading research laboratories worldwide. Many of his innovations have led to bench-side applications. He has been bestowed with Adjunct Associate Professorship at Queensland University of Technology and has received national honours including the INSPIRE Faculty Award and the INAE Young Innovator and Entrepreneur Award. Dr. Sengupta serves on the editorial boards of multiple international journals. His noteworthy contribution in cancer liquid biopsy, precision oncology, and single-cell genomics make him eminently suitable for this prestigious honor.

Please do not hesitate to contact me if you require any further information or have any questions.

Sincerely

Anurag Agrawal