



Dr. Sudeshna Kar

Chief Scientist

BRIEF PROFILE

Dr. Sudeshna Kar, after receiving her Ph.D from Indian Institute of Chemical Biology, Kolkata, went to received Fogarty International Fellowship for her post-doctoral training at the National Cancer Institute, National Institutes of Health, USA in the Laboratory of Molecular Biology under Dr. Sankar Adhya. Her research focus was mainly on host-gut microbe interaction dynamics using genetically engineered E.coli which led to the discovery of a major paradigm shift in commensal behavior through nucleoid remodeling. Upon return to India as Principal Scientific Investigator at the Institute of Molecular Meccicine (Delhi) and as Assistant Professor at Jamia Hamdard University (Delhi) she continued to further her research on chromatin re-modeling, transcription reprogramming and cell fate transitions involving differentiation and malignant transformation, in both bacteria and mammalian cells. She is the recipient of many prestigious honors and awards including Howard Hughes Hughes Institute Award of Excellence for NIH Internship program (twice), Technology Transfer Award (NCI), SERB-POWER research grant (awarded to emerging and eminent women researchers in frontier areas of science and engineering) etc. She has widely-cited publications in major international publications

RESEARCH PROJECTS

1. Colorectal tumorigenesis driven by dysregulation of normal host-gut microbe equilibrium
2. Neuronal regeneration in dopaminergic neurons by histone-mimic bacterial peptides as therapeutic magents in Parkinson's Disease
3. Neuroendocrine regulation in gender-specific differences in inflammation driven pathologies like liver fibrosis and myocardial infarction

Her studies use molecular, biochemical and cellular analyses to study defined physiological phenomena related to cellular plasticity in conditional, reversible, genetically-malleable and/or biochemically-controllable model systems. Her work has revealed critical signalling hubs between gonadal organs, liver and Hypothalamus-Pituitary axes in determining critical gender-divergent responses to chronic systemic inflammation. Her future focus is to further study and identify how sex and gender factors impact diseases, diagnostics, drug and novel technologies development, especially in gastrointestinal and central nervous system disorders.

EXTRAMURAL FUNDED GRANTS:

1. Molecular mechanisms underlying gender dimorphism in the pathophysiology of Anemia of Inflammation in a rodent model. Sanctioned amount (30 lakhs). SERB POWER, Department of Science and Technology (2022-2025)

2. Investigating the therapeutic efficacy of a hyperthermophilic bacteria-derived protein against neuropathological manifestations in mice demyelinating models of Multiple Sclerosis (50.34 lakhs). Indian Council of Medical Research (ICMR) (2022 – 2025)
3. Neuroprotective and Neuritogenic effects of a cell-permeable bacterial histone-mimic protein: Therapeutic Implications for Neurodegenerative Pathologies. (67.16 lakhs). Department of Science and Technology (2018 –2021)
4. Etiological linkage and transcription signature in commensal bacteria-mediated colorectal cancer, using a genetically engineered commensal E.coli as a tool(48.758 lakhs). Department of Biotechnology (2014 –2017)
5. A pilot in vitro study to evaluate the oncolytic ability of an engineered E.coli for treating malignant glioblastoma (41.87 lakhs). Department of Biotechnology (2009 –2012)

PROFESSIONAL ENGAGEMENTS:

- Review Board Member, MEDANTA Institutional Committee on Stem Cell Research and Therapy, MEDANTA Hospital, Gurugram
- Review Board Member, Institutional Committee on Stem Cell Research, Sir Ganga Ram Hospital, New Delhi
- Editorial Board: Scientific Reports, Indian Journal of Pharmaceutical Research
- Reviewer Grant Application proposals: Department of Biotechnology (Cancer Biology Group)

Contact Information

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