

**Statement of research achievements on which Shanti Swarup Bhatnagar Prize in Biological Sciences has given to the Nominee in 2016**

Dr. Bhattacharyya is a leading microRNA (miRNA) biologist of this country. miRNAs are gene regulatory small RNAs expressed in metazoan cells that regulate majority of biological processes in our body. Therefore regulation of their activity and abundance is of pivotal importance in gene regulatory processes and misexpression of miRNAs are associated with diseases. Dr Bhattacharyya's research is concentrated on understanding the mechanism of miRNA activity and turnover in different types of human cells and to study the pathophysiological consequences of miRNA deregulation. A major part of his research has been focused on pathogen mediated changes in miRNA activity in host cells.

Intercellular transfer of miRNAs is one of the major mechanisms of exchanging these regulatory small RNAs between mammalian cells and to regulate their activity and stability both in donor and recipient cells. Dr. Bhattacharyya has contributed significantly in understanding the regulation of exosome- mediated intercellular miRNA transfer and his work was instrumental in elucidating the interplay between the growth factors and exosomal export (Basu and Bhattacharyya, 2014, *Nucleic Acids Res*). In this work, he has described how the extracellular miRNAs and growth factors reciprocally control the growth of human hepatic cancer cells. In this paper, he also reported a new approach to curtail growth of cancer cells by exosomal delivery of anti-proliferative miRNAs. His recent work has revealed how human cells sense their environment and control cellular miRNA level and activity by exporting excess miRNAs out of the cells to ensure either senescence or proliferation of mammalian cells (Ghosh et al. 2015, *Mol. Biol. Cell*). Working on similar line, exploring the subcellular structures where miRNA-mediated repression and its packaging to exosomes occurs, Dr. Bhattacharyya has discovered compartmentalization of target mRNAs to Endoplasmic Reticulum as prerequisite for miRNA mediated repression in mammalian cells (Barman and Bhattacharyya 2015, *J. Biol. Chem.*).

The field of research of Dr. Suvendra Nath Bhattacharyya is very competitive and extremely interesting. Considering all these aspects, his research achievement so far has been exceptional and he has contributed immensely to understand the importance and mechanism of miRNA activity modulation in mammalian cancer, neuronal and immune cells.

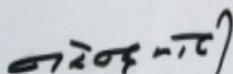
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद, भारत  
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH, INDIA  
शांति स्वरूप भटनागर विज्ञान और प्रौद्योगिकी पुरस्कार  
SHANTI SWARUP BHATNAGAR PRIZE FOR SCIENCE AND TECHNOLOGY  
2016

प्रशस्ति/CITATION

डॉ. शुभेन्द्र नाथ भट्टाचार्य / Dr Suvendra Nath Bhattacharyya

जैव विज्ञान में वर्ष 2016 का शांति स्वरूप भटनागर पुरस्कार, सीएसआईआर भारतीय रासायनिक जीव विज्ञान संस्थान, कोलकत्ता के डॉ. शुभेन्द्र नाथ भट्टाचार्य को स्तनी प्रतिरक्षित तथा कैंसर कोशिकाओं में miRNA गतिविधियों के विनियमन में उनके उत्कृष्ट योगदान के लिए प्रदान किया गया है। उनके इस कार्य में चिकित्सीय अनुप्रयोगों की संभावना है।

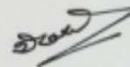
The Shanti Swarup Bhatnagar Prize for the year 2016 in Biological Sciences has been awarded to Dr Suvendra Nath Bhattacharyya of CSIR Indian Institute of Chemical Biology, Kolkata, for his outstanding contributions in the regulation of miRNA activities in mammalian immune and cancer cells, which have potential therapeutic applications.



(नरेंद्र मोदी)  
(Narendra Modi)

अध्यक्ष/ President

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद और  
भारत के प्रधानमंत्री  
Council of Scientific & Industrial Research and  
Prime Minister of India



(शेखर चि मांडे)  
(Shekhar C Mande)

महानिदेशक/ Director General  
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद एवं  
सचिव, वैज्ञानिक और औद्योगिक अनुसंधान विभाग  
Council of Scientific & Industrial Research and  
Secretary, Department of Scientific & Industrial Research

नई दिल्ली, 28 फरवरी 2019 New Delhi, 28 February 2019

# INDIAN INSTITUTE OF TECHNOLOGY ROORKEE



**Khosla National Award  
(Sciences/Humanities/Management) - 2018**

**awarded to**

**Professor Suvendra Nath Bhattacharyya  
CSIR-Indian Institute of Chemical Biology, Kolkata**

## **CITATION**

Prof. Suvendra Nath Bhattacharyya was born in 1975. He got his graduation in Chemistry from Presidency College, University of Calcutta in 1996 and masters in Biochemistry from University of Calcutta in 1998. He did his doctoral work at Indian Institute of Chemical Biology, Kolkata and received his PhD degree from Jadavpur University in 2003. Prof. Bhattacharyya is at present the Principal Scientist & Head of Molecular Genetics in CSIR-Indian Institute of Chemical Biology, Kolkata.

Prof. Bhattacharyya has made exceptional advances in understanding the mechanism of microRNA (miRNA) activity modulation in mammalian cancer and immune cells. A major part of his research is focused on pathogen mediated changes in miRNA activity in host cells. His contribution has enhanced our understanding of pathogenesis of visceral leishmaniasis and beyond. Importantly, Prof. Bhattacharyya's work on exosomal miRNAs from human hepatic cancer cell has a translatable aspect also. He has described how *Leishmania donovani*, a pathogenic parasite, modulates miRNA-122 in the host tissue during infection, leading to the identification of miRNA-122 as a unique therapeutic molecule against visceral leishmaniasis.

Prof. Bhattacharyya has received several national and international recognitions including the highly competitive AAAS/Science-GE healthcare Young Scientist Award, USA. He is also a recipient of INSA Young Scientist award, HFSP and EMBO long-term Fellowship. During his tenure at IICB, he has earned Career Development Award of HFSP, Young Researcher Award of Lady Tata Memorial Trust and the prestigious International Senior Research Fellowship of the Wellcome Trust, London. He received the Scopus Award and Swarnajayanti Fellowship in 2015. Prof. Bhattacharyya received the National Bioscience Award and the coveted Shanti Swarup Bhatnagar Prize in 2016. He is also an elected Fellow of the Indian Academy of Sciences and The National Academy of Sciences, India.

It is a pleasure and privilege for the Indian Institute of Technology Roorkee to honor Prof. Suvendra Nath Bhattacharyya with the Khosla National Award (Sciences/HSS/Management) for the year 2018.

**19th February, 2020**

**Ajit Kumar Chaturvedi  
Director**