

सीसीएमबी CSIR CCMB

कोशिकीय एवं आणविक जीवविज्ञान केन्द्र
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
उप्पल रोड, हैदराबाद - 500007, भारत.

डॉ. विनय कुमार नंदिकूरी
निदेशक



CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY
(Council of Scientific & Industrial Research)
Uppal Road, Hyderabad - 500007, India

Dr. Vinay Kumar Nandicoori
Director

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Citation on the outstanding research work done by Dr. Sangita Mukhopadhyay

Dr. Sangita Mukhopadhyay has made outstanding scientific contributions in understanding host-pathogen interactions with respect to tuberculosis especially in understanding the mechanisms by which *Mycobacterium tuberculosis* hijacks protective host immune responses, designing of therapeutic immunomodulators and its implication in human health.

Dr. Mukhopadhyay's work contributed to the knowledge on how the innate and adaptive immune response of host are hijacked by some *Mycobacterium tuberculosis* virulent proteins which are now considered as potential drug targets. While *M. tuberculosis* uses some of these proteins to suppress host inflammatory immune responses to favor its survival, Dr. Mukhopadhyay demonstrated that the same properties exploited by the pathogen to establish infection, could be exploited to dampen the effects of extreme inflammation observed in situations such as tissue injury and acute and chronic inflammation. Dr. Mukhopadhyay identified for the first time a novel biologic PPE2 protein from *M. tuberculosis* and a PPE2-derived synthetic peptide that can reduce mast cell population at the site of tissue injury by targeting *scf*-transcription in fibroblasts. Efficacy of commercial drugs available for neutralization of one or a few mast cell mediators are often limited due to lack of their cell specificity. Therefore, selective suppression of mast cells with use of PPE2 protein/peptide provide better and broad-spectrum relief of excessive inflammation. She reported about a broad-spectrum non-steroidal anti-inflammatory biologic (PPE2 protein/peptide) that can suppress the mast cell population at the site of injury. which will help in the development of drugs to treat mast cell-centric inflammatory diseases. This invention provides an attractive therapeutic alternative to steroid-based anti-inflammatory drugs for the treatment of Inflammation/Tissue injury and associated disorders like wound healing inflammatory Bowel Disease (IBD) and melanoma cancer.

Dr. Mukhopadhyay's work makes a significant contribution in preventing TB infection and disease associated with inflammation.

[Vinay Nandicoori]

Dr. Vinay Kumar Nandicoori डॉ. विनय कुमार नंदिकूरी
Director निदेशक

CSIR - Centre for Cellular and Molecular Biology
सीएसआईआर - कोशिकीय एवं आणविक जीवविज्ञान केन्द्र
Uppal Road, Habsiguda, Hyderabad-500007
उप्पल रोड, हब्सीगुडा, हैदराबाद-500007