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निदेशक

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To whom it may concern

Dr. Suvendra Nath Bhattacharyya has made several exceptional contributions in mechanistic understanding of the modulation of the miRNA-mediated gene regulatory network of the host during the pathogenic infection process. The parasite *Leishmania donovani (Ld)* infects the liver and spleen macrophages, reside and replicate there and causes visceral leishmaniasis- a deadly pathogenic condition. Dr Bhattacharyya has discovered how the *Ld* targets Dicer1 protein of the hepatic cells to restrict the production of miR-122, a liver specific miRNA(1). Downregulation of miR-122 prevents cholesterol production in infected animal liver and thus reduces serum cholesterol level –an event essential for infection establishment. He has also discovered the mechanism of this down regulation process and has identified Leishmanial metaloprotease GP63 responsible for Dicer1 degradation (1). Following this pioneering work of identification of miRNAs role in infection process, he went on to discover how the miRNA export function of a host miRNA derepressor protein HuR being targeted by the pathogen to ensure expression anti-inflammatory cytokine milieu to sustain infection. Bhattacharyya's group has discovered the RNA binding protein HuR as the factor that can facilitate extracellular vesicles (EV)-mediated selective export of miR-122 from liver cells under cellular stress(2). In the infection context, he has discovered how the extracellular export of miRNA by HuR can boost the inflammatory reaction and how the pathogen, by downregulating HuR and upregulating protein phospahatse 2A (PP2A), ensure robust repressive function of miRNP that otherwise get reversibly impaired during activation phase of a macrophage by external stimuli-a step towards pro-inflammatory responses (3). Drug sensitive and resistance parasites upregulate PP2A and downregulate HuR at different magnitude and ensures various levels of anti-inflammatory to proinflammatory cytokine production hence pathology in the host. While ectopic HuR expression alone is sufficient to clear sensitive *Ld* infection, simultaneous upregulation of HuR and inhibition of PP2A is required to inhibit drug resistant Ld infection.***Therefore, tampering with miRNA pathway emerged as a new strategy to control infection caused by the parasite and has been one of the most important outcome of Nominee's work*** (3).

Contd..p/2

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Sincerely, In summary, Dr. Bhattacharyya has substantial accomplishments and stands with other leaders in the field. He has aggressively pursued his interests and findings, including unique findings that have stood the test of time and repeated investigations. He is a good scientific citizen, offering opinions, participating in reviews, and training future scientists. Based on the success in developing his own funded line of work, receiving invitations to present his work at both national and international meetings, running and administering an active research program, I strongly believe that Dr. Bhattacharyya is undoubtedly an asset to the Indian science scene. I therefore strongly and enthusiastically recommend him for the Sun Pharma Award in Basic Biomedical Science.

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