Statement of research achievements if any, on which any award has already been received

JEV infection generates a rapid inflammatory response including peripheral neutrophil leucocytosis and infiltration of neutrophils into CNS. The level of inflammation correlates well with the clinical outcome in Japanese encephalitis patients. Unavailability of suitable vaccine (efficient and cost effective) in JE virus infection dictates Dr Basu and his group to explore the potential of known and/or newly synthesized neuro-protective and/or anti-inflammatory and/or anti viral agent as a therapeutic potential in this disease

Dr Basu's laboratory has identified Rosemarinic acid and Arctegenin, two small molecules (originally derived from plant product) which have potential to be developed as an anti viral compound for JE. Absence of safe, efficient as well as cost effective vaccine and anti viral drug promts Dr Basu and his group to explore the potential of known neuroprotective and/or anti – inflammatory/and or anti viral compounds as a therapeutic strategy for JE. So far findings from our lab clearly identified several compounds which have potential to be considered as a future drug of choice for JE. Dr Basu and his group had shown that administration of Vivo-Morpholino effectively resulted in increased survival of animals and neuroprotection in a murine model of JE. Hence, these oligomers represent a potential antiviral agent that merits further evaluation.

Dr Basu's laboratory also showed that JEV, which infects and kills neurons, also depletes the neuronal progenitor pool with progressive infection. This is the first report which indicates in the family of *Flaviviridae* that Neural Progenitor Cells (NPCs) are permissive to JEV infection both *in vivo* and *in vitro*, which leads to their growth retardation. The pathophysiological relevance of these observations was supported by profound decrement in actively proliferating NPCs in the SVZ of JEV infected animals. These findings suggest that infection of the NPCs and suppression of their proliferation might be primarily responsible for dysregulated neurogenesis in survivors of JE and development of cognitive deficits in them.

1. Award: National Bioscience Award for Career Development- (Department of Biotechnology, Ministry of Science and technology, Government of India), 2010.