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**Dr. Dinakar M. Salunke**
**Director**

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25th August, 2021

To,
Office of Sun Pharma Science Foundation
8C, 8th Floor, Hansalaya Building,
15-Barakhamba Road, Connaught Place,
New Delhi -110001, INDIA

**Subject: Nomination of Dr. Deepak T. Nair for the Sun Pharma Science Foundation Research Awards, 2021**

It is with great pleasure that I nominate Dr. Deepak T. Nair for consideration for the Sun Pharma Science Foundation Research Awards, 2021. In addition to performing his research at an exemplary level, Dr. Nair demonstrates an extraordinary commitment to science as well as to the general public. I've known Dr. Nair for twenty-five years, and have always found him to be a consummate professional, an excellent mentor and deeply committed to the promotion of science.

Dr. Nair's laboratory uses a combination of structural tools, biochemical methods, biophysical assays and in vivo growth assays to shed light on the structural mechanism utilized by proteins involved in replicative and post-replicative processes that serve to maintain genomic integrity. Dr. Nair has done pioneering studies investigating the activities of specialized DNA polymerases and accurate initiation of genome replication by viral RNA polymerases. His most stunning research achievements was the discovery that pyrophosphate hydrolysis is an intrinsic and critical step in the DNA synthesis reaction catalysed by DNA polymerases. The discovery answers a long-standing question regarding the energetics of DNA synthesis by DNA polymerases. The corresponding manuscript was accorded breakthrough status by the journal Nucleic Acids Research. His laboratory has also shed new light on the strategy utilized by DNA polymerases to prevent ribonucleotide incorporation and thus prevent genomic instability. Both these discoveries provide new fundamental insight regarding the DNA replication process and will lead to rewriting of molecular biology textbooks in the near future. These discoveries also have implications regarding oncogenesis and the rise of drug resistance in viruses.

Dr. Nair has shed light on the mechanism utilized by the primary mismatch sensor to achieve function for successful DNA mismatch repair in a collaborative project. In addition, using DNA polymerases from *Plasmodium falciparum* and *Staphylococcus aureus*, he has shown that the proofreading exonuclease activity in DNA polymerases excises out mis-incorporated oxidized nucleotides and ribonucleotides. The proofreading activity is responsible for removal of mismatches during replication but Dr. Nair has shown that they are capable of dynamic in-line repair of the primer strand during replication. These discoveries provide a platform for the development of novel therapeutic agents against the aforementioned pathogens.

Beyond his exceptional academic and research excellence, Dr. Nair is a person of great character polite, yet confident in facing challenges. I support Dr. Nair's nomination with great enthusiasm and with no reservations.

Yours Sincerely,

(Dinakar M. Salunke)

Director