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Aug 25th 2024, Hyderabad.

Nomination for Sun Pharma Research Fellowship 2024 (Dr. Aravind Kumar Rengan, IITH)

It is with great pleasure that I am writing to nominate Dr. Aravind Kumar Rengan for **Sun Pharma Research Fellowship 2024**. Dr. Aravind kumar is currently working as an associate professor in the Dept. Of Biomedical Engineering at IIT Hyderabad. Dr. Aravind had a successful start in academics obtaining merit seat for his M.B.B.S at Thanjavur Govt. medical college (Tamil Nadu Dr.M.G.R medical university). His keen interest in Biomedical Engineering and Nano research made him to take up M.Tech at (Amrita Centre for Nanosciences and Molecular medicine ACNSMM) Amrita University – Kochi medical campus after completing his M.B.B.S degree. He secured university rank and was the only medical candidate in his interdisciplinary batch to do so. Owing to his competitive academic performance he was able to secure the Department of Science and Technology (DST) fellowship for the entire two years of his master degree (2008-2010). Immediately after his M.Tech he was selected for his **PhD in Biomedical Engineering** at IIT Bombay under my guidance (co-guided by Prof. Rinti Banerjee) at the Dept. of Bioscience and Bioengineering.

He started his PhD work with synthesis of various gold nanostructures including gold nanoshells, gold nanocages and gold nanorods. **He was able to synthesize a biodegradable nanosystem for photothermal therapy and proved its in-vivo biodegradability. This work has got immense potential to get translated to clinics in the near future. His research work was published in the journal of NANOSCALE and ACS NANO LETTERS, both being prestigious journals in nanotechnology**. **Dr. Aravind's entire bio-engineering research work was carried out in India, bringing credits to our country in the International arena.**

Dr. Aravind was instrumental in securing the "**The Bill and Melinda Gates**" project on "Transdermal TB drug delivery". He was able to propose a platform technology using thermosensitive liposome and microneedles, to delivery "Streptomycin" (that is currently given as intramuscular injections). His research work was selected under "Top 15 Nanomedical Technology" work by ICONSAT -International Conference on Nanoscience and Technology committee. He has won many awards like the INDO-US (IUSSTF) Best Poster award at AIIMS , New Delhi (2014), The Bajpai Saha Best Paper Award at Anna University , Chennai (2015), the "**Gandhian Young Technological Innovator 2017 and 2015 (twice)", "DST Inspire Faculty -2015", "DBT Innovative Young Biotechnologist Award IYBA-2015"** ,"**IIT Bombay Institute Excellence Award in PhD Thesis (2014-16)**".

Dr. Aravind's project on "**Affordable kit for detection of Cervical Cancer**" has gained significant momentum and his student team was selected for **President of India "in-House Residence Program 2018"**. In one of the recent work, Dr.Aravind's group were able to develop a " **nano-transformable hydrogel capable of treating advanced stage cancer**" . They have obtained a **US patent** for this technology (March 2024). The work was published in a prestigious journal**, ACS Applied Materials and Interfaces**. In another work, they were able to combine **the bio-active extracts of A.cadamba (medicinal plant) with modern medicine which led to the development of a novel nanoformulation for NIR sensitization and Photothermal Therapy (PTT) of cancer**. The findings of the study were published in the prestigious journal **NANOSCALE, Jan 2020**. Recently, they had developed a lipopolymeric nanosystem for the treatment of Breast cancer and the work was published in Nanoscale, 2023. His research work has been appreciated by all the major scientific academies of India and he has been the recipient of the Prestigious Indian National Science Academy (**INSA) Young Scientist Medal,** Indian National Academy of Engineering **(INAE) Young Engineer Award** and National Academy of Sciences, India (**NASI) Young Scientist Medal**. Within a short period of joining IIT Hyderabad, Dr. Aravind has been successful in securing several projects including one in MHRD - IMPRINT with himself as principal investigator. His MHRD-IMPRINT project involving development of affordable cancer theranostics was considered among **TOP 10 IMPRINT I projects** with potential for translation in the near future. He has also been instrumental in getting the SUPRA grant from SERB & STARS grant from MoE. His lab has filed 30+ patents and many more in pipeline (5 Indian patents and 1 US patent are granted). Some of his recent achievements include Institute Faculty Research Excellence Award 2021, IITH Teaching Excellence Award 2024, MERCK Young Scientist Award 2023 (Biological Sciences) and GD Naidu Young Scientist Award 2023.

Dr. Aravind is among the few Indian Bio- Engineers with inter-disciplinary background (MBBS with M.Tech & PhD in Nanomedicine), who stand proof for performing excellent bioengineering/nanomedicine research by working in India itself. I believe that he has all the credibility to be considered for this prestigious Research Fellowship from Sun Pharma Foundation. I extend my complete support and wish him all the very best for his future career.

Sincerely,

प्रा. रोहित श्रीवास्तव
Prof. Rohit Srivastava

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