MADRAS DIABETES RESEARCH FOUNDATION
ICMR CENTRE FOR ADVANCED RESEARCH ON DIABETES
Recognized as a Scientific and Industrial Research Organization (SIRO)
by the Department of Scientific and Industrial Research, Ministry of Science & Technology, Govt. of India.
Affiliated to the University of Madras & Deakin University, Melborne, Australia & University of Warwick, UK for Ph.D. Programs

Signed Justification for sponsoring the Nomination

It's my intense pleasure and enthusiasm to justify and nominate the candidature of Dr.M.Balasubramanyam for the Sun Pharma Science Foundation Research Award 2024 in the Medical Sciences -Clinical Research stream. One of the important contributions of Balasubramanyam is that he has meticulously utilized and transformed the Diabetes-based epidemiological studies into proactive molecular medicine investigations and successfully demonstrated **'the clinical significance and subclinical relevance of cellular stress signals (oxidative stress, inflammation, glycation, ER stress, mitochondrial dysfunction), miRNA dysregulation, accelerated senescence / telomere shortening and several omics alterations in patients with Type 2 diabetes and its vascular complications.** I must endorse and justify that his research work for more than 2 decades is directly linked to the hallmark findings of medical science research – as it meticulously addressed a) the unmet clinical needs, b) expanded the existing understanding on the etiology of diabetes and its complications, c) identified certain novel drug targets with a futuristic scope to develop newer therapeutic measures, d) expanded the scope of using biomarkers in point-of-care (POC) medical diagnostics, e) demonstrated the role of biomarkers in lifestyle modification interventions and f) positioned the clinical utility of 'bench to bedside' applications.

Dr.Balasubramanyam conceived and followed the concept of 'accelerated aging' in diabetes and his team have demonstrated the association of telomere shortening in patients with type 2 diabetes (in the year 2005), for the first-time in the world literature and, several of his subsequent studies positioned telomere length as a robust biomarker assessment. As such his current and future work are dwelling around dissecting out the role of accelerated biological aging in subtypes of type 2 diabetes and 'targeting aging' so as to facilitate the development of novel therapeutic regimen of anti-ageing and senolytic agents. His major clinical research contributions include: Clinical utility demonstration of microRNAs from urinary exosomes as potential 'liquid-biopsy' biomarkers for risk prediction of diabetic nephropathy, association of increased levels of bisphenol-A (BPA) in type 2 diabetes patients, identification of druggable targets of epigenetic signature (HDACs as well as LnCRNAs) in patients with type 2 diabetes, and identification of circulatory miRNAs of Asian Indian phenotype. His clinically relevant studies on mitochondrial dysfunction and ER stress in diabetes and its complications are the forerunner for the futuristic development of mitochondrially targeted antioxidants and ER stress inhibitors/Chemical Chaperones. **In nutshell, I strongly justify the nomination of Balasubramanyam's candidature for the Sun Pharma Science Foundation Research Award 2024.**

With Regards & Sincerely

21/8/2024

Dr. V. MOHAN, M.D., Ph.D., D.Sc.,
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