डी एन ए फ़िंगरप्रिंटिंग एवं निदान केन्द्र
(जैव प्रौद्योगिकी विभाग, विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार का स्वायत्त संस्थान)
Centre for DNA Fingerprinting and Diagnostics
(An autonomous institute of the Dept. of Biotechnology, Ministry of Science & Technology, Govt. of India)

डॉ. के. थंगराज / *Dr. K. Thangaraj*
निदेशक / Director

सी डी एफ डी CDFD

Letter of Justification

It gives me immense pleasure for nominating my colleague **Dr. Sangita Mukhopadhyay** for the **Sun Pharma Science Foundation Research Awards, 2021 under Medical Sciences (Basic Research)**. She has made significant original scientific contributions towards host's defense mechanisms against Tuberculosis and Inflammation which laid solid platforms for Translational Research Opportunities in these fields. Her work will make a long term contribution in preventing infection and disease in countries with high burdens of TB. She has published more than 60 research papers in high impact International Journals. Her laboratory at CDFD is well funded by Grants from various agencies like TWAS, Italy, DBT, Govt of India, DST-SERB, Govt of India, CSIR, Govt of India and ICMR, Govt of India. She has guided several PDF and PhD students. She has received several National Awards and the prestigious TATA Innovation Fellowship, 2017-2018 of DBT.

She is working to understand regulation of cardinal signaling pathways in macrophages and how some of these are hijacked during tuberculosis (TB). *Mycobacterium tuberculosis*, the causative agent of tuberculosis employs multiple strategies to suppress various host defense responses. Dr. Mukhopadhyay has identified for the first time crucial role of four proteins (PPE2, PPE18, ESAT-6 and PknG) of *M. tuberculosis* in virulence process of the bacilli using *in vitro* and *in vivo* infection model ***(Journal of Biological Chemistry, 2012, 2013; Journal of Immunology, 2009, 2011, 2016, 2018, 2019, 2020; PLoS Pathogens 2014; European Journal of Immunology, 2021)***. An USA patent has been granted focusing PPE2 as new drug target. Also recently she has identified two drugs (Mirabegron and Olsalazine) which can be repurposed for the treatment of TB. Her research idea of improvement of anti-TB Th1 immune response of host received Tata Innovation Fellowship Award from DBT, Govt of India. Again, her studies for the first time provide information about how excess production of free radicals during tuberculosis causes immunosuppression in our body and use of anti-oxidants to boost the immune system (***Blood, 2006; Journal of Immunology, 2010***). Her research thus usher promising anti-virulence strategies for improving host's protective response and better management of TB. Her discovery of management of anti-inflammatory signaling of TB was further translated into development of novel therapeutic to treat tissue injury caused due to inflammation (***Filed Indian and International patent; Manuscript under revision in EMBO Molecular Medicine; Journal of Immunology, 2018***). Her contribution has been well recognized by the prestigious ASH, USA and AAI, USA by electing her as a member and by 'The National Academy of Sciences, India; Indian Academy of Sciences, Bangalore; Indian National Science Academy, New Delhi and Telangana Academy of Sciences, Telangana by electing her as a 'Fellow'. She is also a member of various Task force committees of India. Based on her potential contribution to control Tuberculosis, I am delighted to endorse her nomination for the prestigious '**Sun Pharma Science Foundation Research Awards, 2021 under Medical Sciences – Basic Research.**

Date : 24th September, 2021

[K. THANGARAJ]
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