Statement of Research Achievements

Fellowship from the Council of Scientific and Industrial Research (CSIR), India (October 2016):

I was awarded with Council of Scientific and Industrial Research (CSIR), India, in October 2016 as CSIR NET scholar to support my PhD for five years. My Research work focused on host-directed therapies aimed at enhancing the immune response to Mycobacterium tuberculosis, the causative agent of TB. Specifically, worked on innovative approaches like dry powder inhalation formulations for the delivery of gamma interferon (IFN-γ) and other anti-TB drugs directly to the lungs. This work laid the foundation for her subsequent research on the transient transfection of the lung epithelium with therapeutic genes, contributing to the broader understanding of host-pathogen interactions and the development of novel TB therapies.

Brief Citations on Research Works

1. **Bharti R, Roy T, Verma S, et al.** Transient transfection of the respiratory epithelium with gamma interferon for host-directed therapy in pulmonary tuberculosis. *Molecular Therapy-Nucleic Acids*. 2020 Dec 4;22:1121-8.
    - This study established a preclinical proof of concept (PoC) for a dry powder inhalation (DPI) containing DNA constructs to transiently transfect the lung and airway epithelium with murine IFN-γ, significantly reducing bacterial load and lung pathology in a mouse model of TB.
2. **Bharti R, Roy T, Verma S, et al.** Transient, inhaled gene therapy with gamma interferon mitigates pathology induced by host response in a mouse model of tuberculosis. *Tuberculosis*. 2022 May 1;134:102198.
    - The research demonstrated that inhaled gene therapy with gamma interferon could effectively mitigate lung pathology in TB without inducing harmful inflammation, offering a potentially affordable alternative to existing therapies.

These research achievements have contributed significantly to the field of tuberculosis treatment .The fellowship provided me with the resources and support necessary to advance my research and make further contributions to the field of pulmonary therapeutics.