Ph.D pre-synopsis presentation

PhD Student- Ms. Shilpa Bhowmick
Time- 11:30 am
Venue- Dr. Shanta Rao auditorium
Date: 16th January 2026
Guide: Dr. Vainav Patel, Viral Immunopathogenesis Lab
Online link: https://echo.zoom.us/j/86864975523
Meeting ID: 868 6497 5523

Immune and viral signatures associated with TB reactivation in PLHIV

Abstract

Co-morbidities represent a significant hurdle towards effective clinical management of HIV infected individuals. Active TB infection is a leading cause of morbidity and mortality in people living with HIV (PLHIV) with a worldwide burden of 26% of HIV-TB co-infection. This is an alarming issue for PLHIV in India where latent TB infection (LTBI) is endemic with an estimated adult prevalence of 20-60%. Coupled with a relatively inefficient and resource limited public health sector in India, delivery system for IPT (INH prophylaxis therapy) becomes crucial to maximize coverage of IPT, especially in the 25% of HIV infected individuals that may succumb due to reactivation of their LTBI. Along with efforts to develop an HIV vaccine, targeting the HIV latent reservoir and evaluating viral diversity is a major priority for AIDS research in terms of resistance to ART and evolution.

Understanding how HIV-1 mediated CD4+ T cell depletion and ensuing immune dysfunction leading in turn to MTB reactivation in these individuals occurs would address a critical public health challenge in LMIC in which the vast majority of both HIV and TB infections occur. HIV sero-negative and HIV-1 infected ART naïve participants were recruited from tertiary care hospitals in Mumbai and were further stratified as LTBI+ and Active TB+. Flow-cytometry was employed for systemic immune monitoring of various CD4+ T cell subsets together with multi-analyte plasma analysis. We associated disease progression markers with the immune signatures in both CD4 and CD8 compartments in-order to understand if any of the HIV+ groups show unique signature. We also carried out drug resistance mutations analysis within the HIV sequences amplified from DNA of the recruited participants to evaluate presence of resistance to ART. Our results revealed unique signature highlighting a possible regulatory mechanism conferred by latent MTB which may provide strategies to mitigate HIV disease progression. Work done post initial recruitment and results obtained will be presented during the seminar.