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IMMUNOPROFILING OF NON-TUBERCULOUS MYCOBACTERIAL INFECTION PATIENTS REVEAL GLOBAL T CELL DYSFUNCTION AND INDIVIDUALS AT RISK

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The increasing global incidence of non-tuberculous mycobacterial (NTM) infection is of growing concern. New evidence of person-to-person transmission of multidrug-resistant NTM adds to the global alarm. The reasons why certain individuals are at risk of these infections is unknown. Using high definition flow cytometry author studied the immune profiles of two groups of at risk NTM patients and matched controls. The first group was cystic fibrosis (CF) patients and the second group was elderly individuals. CF patients with active NTM infection or a history of NTM infection exhibited a unique surface T cell phenotype with a marked global deficiency in TNFα production. Immune-based biomarkers were determined that could identify CF individuals at risk of NTM infection with a regression model of AUC=1. In contrast, elderly individuals with NTM infection exhibited a separate T cell phenotype underlined by the high prevalence of exhaustion markers and dysregulation in type I cytokine release. Collectively, these data will be of significant diagnostic and prognostic value for NTM patient management and could be used to identify new therapeutic pathways and new targets to correct T cell dysfunction.