Novel and Emerging Approach in the Diagnosis and Prognosis of Tuberculosis by Using Biomarkers

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Received Date: July 03, 2018; **Accepted Date:** July 19, 2018; **Published Date:** July 26, 2018

Abstract

Tuberculosis (TB) is the 9th global health hazard therefore new optimal approaches towards its rapid, accurate diagnosis and treatments are required to address the goal of global tuberculosis elimination. Biomarkers are the indicators of any infection and helps in the early diagnosis. A Biomarker can show functional, physiological and biochemical response due to the interaction of antigen with the host cell. There are some pathogen-specific biomarkers such as lipoarabinomannan (LAM), antigen 85 (Ag85), secretory antigenic target 6 (ESAT6), culture filtrate protein (CFP-10) and mycobacterial adhesins and some host-specific markers which up-regulates and down-regulates during infection and can be detected easily in blood and urine samples of patient. Consideration of the

efects (for instance, treatment, declining hazard or elimination of *M. tuberculosis* H_{37}Rv infection) in varied patient populations; and are able to forecast efectiveness of vaccines. Tere were various exercises have been propelled to target biomarkers in case of tuberculosis. Trough increasing dose of drugs, for instance, biomarkers might support for intentional assortment, direct recognition, optimization, representing evidence of perception and selecting drug amalgamation for stabilizing synergistic communication between drugs and immune cells. Even though several immunological biomarkers might be a further proper précising phase of improvement, the sustained use for a solitary marker from preclinical studies during dose selection stage examinations would be an imperative improvement.

Various pathogen-specifc biomarkers were identifed for TB but only the antigen 85 complex (Ag85), secretory antigenic target 6 (ESAT6) and the lipoglycan lipoarabinomannan (LAM) are useful [23]. In the pathology of tuberculosis infection, one key virulence factor is LAM present in the cell wall of *M. tuberculosis* H_{37}Rv is amphiphilic in nature and associated with host lipid carrier molecules such as high-density lipid (HDL) and is detected in low concentrations in serum and in higher concentration in urine of TB infected person [24,25]. Presence of LAM in urine sample confrmed the infection of

might be useful and require further studies. Treatment and diagnosis

41. KY Loh (2011) Role of