CELL WALL MYCOLIC ACIDS AND CHOLESTEROL IN THE DIAGNOSIS AND PATHOGENESIS OF TUBERCULOSIS

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Tuberculosis has re-emerged as a global health problem due to co-infection with HIV and the emergence of drug resistant strains of Mycobacterium tuberculosis. We investigated the evanescent field biosensor to detect anti-mycolic acid antibodies as surrogate markers of active TB in order to find fast serodiagnostic solutions to overcome poor sensitivity in HIV burdened populations, pediatric and non-pulmonary TB. HIV co-infection appeared not to affect this test negatively, probably due to the CD1-restricted immunity elicited by mycolic acids. We noted that antibodies to mycolic acids cross-reacted with cholesterol. This could potentially affect the specificity of the test, but also suggests a role for cholesterol-mycolic acid interaction during infection. We demonstrate that the cross-reactivity of cholesterol and mycolic acid antigens actually originates from a structural similarity between the two molecular entities that may impact on the mechanism of entry and survival of the mycobacterium into the host macrophage.