

Summary

Objective: We investigated the accuracy of host markers detected in *Mtb* antigen-stimulated whole blood culture supernatant in the diagnosis of TB.

Methods: Prospectively, blood from 322 individuals with presumed TB disease from six African sites was stimulated with four different *Mtb* antigens (Rv0081, Rv1284, ESAT-6/CFP-10, and Rv2034) in a 24 hour whole blood stimulation assay (WBA). The concentrations of 42 host markers in the supernatants were measured using the Luminex multiplex platform. Diagnostic biosignatures were investigated through the use of multivariate analysis techniques.

Results: 17% of the participants were HIV infected, 106 had active TB disease and in 216 TB was excluded. Unstimulated concentrations of CRP, SAA, ferritin and IP-10 had better discriminating ability than markers from stimulated samples. Accuracy of marker combinations by general discriminant analysis (GDA) identified a six analyte model with 77% accuracy for TB cases and 84% for non TB cases, with a better performance in HIV uninfected patients.

Conclusions: A biosignature of 6 cytokines obtained after stimulation with four *Mtb* antigens has moderate potential as a diagnostic tool for pulmonary TB disease individuals and stimulated marker expression had no added value to unstimulated marker performance.