Identification of a Six-Cytokine Biosignature Discriminating Active Tuberculosis from Latent Infection

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CONCLUSIONS

We derived a blood based, six-cytokine biomarker that demonstrates robust performance (100% sensitivity and 92.68% specificity) in distinguishing TB from LTBI in a blinded dataset, meeting the WHO criteria for a non-sputum based triage test.

INTRODUCTION

The high cost and logistical difficulty of current sputum-based diagnostic tests impedes Tuberculosis (TB) diagnosis in high-burden, resource-poor settings. To improve the efficiency of TB detection and treatment, our goal was to develop a blood-based biomarker that segregates TB from latent infection (LTBI) to be subsequently deployed as a community-based triage test.

STUDY DESIGN

Heatmap of cytokine expression

PCA plot depicting discrete clusters

RESULTS

A. Derivation of cytokine biomarker ‘CYTO6’ to distinguish TB from LTBI:

B. Performance of CYTO6 in the blinded validation set:

Heatmap of cytokine expression

PCA plot depicting discrete clusters

AUC:

- Sensitivity: 100%
- Specificity: 92.68%
- PPV: 60.29%
- NPV: 100%

REFERENCES

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