Thermostability of IFN-γ and IP-10 release assays for latent infection with Mycobacterium tuberculosis: A TBnet study

Thomas Blauenfeldt, Dirk Wagner, Martine Aabye, Jan Heyckendorf, Berit Lange, Christoph Lange, Martin Ernst, Pernille Ravn, Raquel Duarte, Clara Morais, Matthias Hoffmann, Otto Schoch, Jose Dominguez, Irene Latorre & Morten Ruhwald

INTRODUCTION
Interferon-γ (IFN-γ) inducible protein 10kD (IP-10) and IFN-γ release assays (IGRAs) are immunodiagnostic tests aiming to identify the presence of specific cellular immune responses, interpreted as markers for latent infection with Mycobacterium tuberculosis. Incubation at higher temperatures could affect IFN-γ and IP-10 responsiveness in order to improve the performance of IP-10 release assays and IGRAs.

AIM
The aim of this study was to assess the robustness of whole blood based IP-10 release assay and IGRAs and the effect of hyper-thermic incubation (39 °C) on the diagnostic accuracy of IP-10 release assay and IGRAs.

RESULTS
We included 65 patients with confirmed pulmonary tuberculosis and 160 healthy controls from 6 European centres collaborating in the TBnet. In patients, IP-10 responses increased 1.07 (IQR 0.90-1.36) fold and IFN-γ responses decreased 0.88 (IQR 0.57-1.02) fold, with 39 °C compared to 37 °C incubation temperature. At 37 °C IGRA sensitivity was 85% and IP-10 sensitivity was 82%, whereas specificity was 97% for both tests (p > 0.8). These minor changes observed as a result of hyper-thermic incubation were not sufficient to impact IGRA and IP-10 release assay test performance.

CONCLUSION
The performance of IGRA and IP-10 release assays is robust despite variations in the incubation temperature between 37 °C and 39 °C.

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