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Extraction and Serological Properties of Mycobacterium Cell Surface and Excreted Proteins

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Abstract

Modern medicine still faces the task of distinguishing active and latent tuberculosis cases at the early stage of the disease. Serological approaches have their advantages for their use in diagnostics. However, the progress of these approaches is ongoing but further progress is needed to meet the needs for this disease. Here, we extracted *Mycobacterium tuberculosis* H37Rv proteins from culture medium or from the cell surface and studied their reactivity with anti-*M. tuberculosis* serum in both ELISA and immunoblots. We found that *M. tuberculosis* surface proteins, extracted using dimethyl sulfoxide, with molecular weights in the range of 6.5–200 kDa, showed strong specific reactivity with anti-*M. tuberculosis* positive serum. While excreted proteins in the molecular weight range of 32–45 kDa had the highest reactivity. The latter was confirmed serologically when very weak signal was detected from the filtrate fractions compared to stronger activity from the Vivaspin 50 kDa MWCO retentates. Moreover, *Mycobacterium bovis* and *tuberculosis* proteins from the filter retentates had clear specific serum reactivity, which suggests that this approach can be used for differential diagnosis of two infections.

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