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Presentation Abstract

Abstract Title: **Novel Antigens of *Mycobacterium immunogenum* for Serodiagnosis of Hypersensitivity Pneumonitis**

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Abstract: *Mycobacterium immunogenum* of the *M. abscessus* [[unable to display character: –]] *M. chelonae* complex of non-tuberculous mycobacteria is the newly-recognized etiological agent of occupational hypersensitivity pneumonitis (HP) in machinists. Diagnosis and pathogenesis mechanisms of this immune-mediated disease are poorly understood. The aim of this study was to identify critical antigens of *M. immunogenum* for serological diagnosis of HP patients. Our initial immunoproteomic study had identified 33 immuno-reactive proteins from different fractions of the cell. In this study, recombinant forms of three cell wall-associated antigens (arbitrarily designated as antigen A through C) and two secretory antigens (D & E) expressed and purified as His tagged proteins were evaluated using blood sera from HP patients and healthy subjects (n=11). The antigens tested showed high sensitivity (87.5%) and specificity (100%) with 95% confidence interval (0.505-0.995) for optimal threshold, except antigen D which showed 50% (0.217-0.783) sensitivity (95% CI) and 100% (0.380-1.000) specificity (95% CI). Comparison in terms of the receiver operating characteristics (ROC) curve showed highly significant AUC values (p value < 0.0001 for AgA through AgC and <0.05 for Ag D) considering the 0.5 cut off value; the AUC values followed the order Ag A (0.958) ≥ Ag C (0.958) > Ag E

(0.917) > Ag B (0.875) > Ag D (0.750). Taken together, this study provides a panel of critical antigens with high sensitivity and specificity for the needed discrimination between HP patients and healthy subjects and paves the way for developing future immunodiagnostic tools for occupational HP.

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